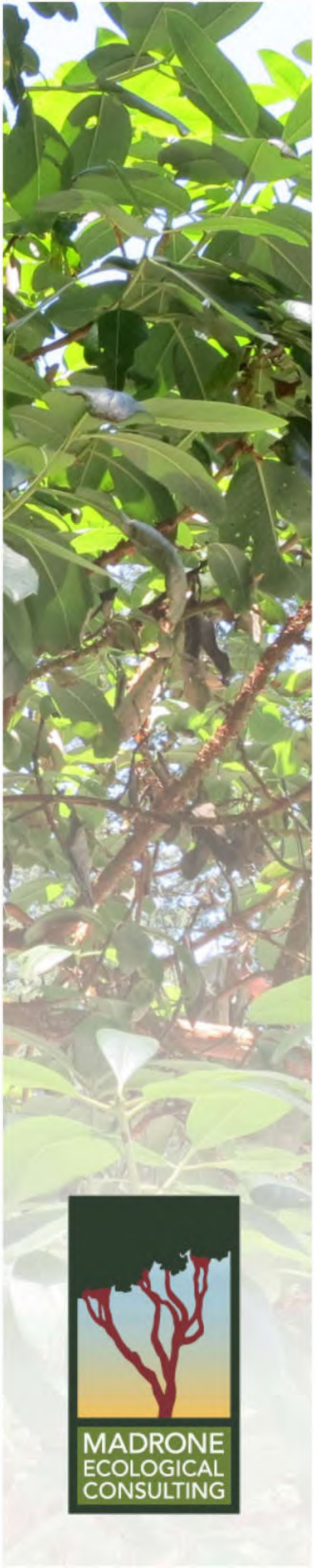

Biological Resources Assessment

Town & Country Village El Dorado

El Dorado County, California

July 2024

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1.0 INTRODUCTION

This report presents the results of a Biological Resources Assessment (BRA) conducted for the Town & Country Village El Dorado Project (Project). The Project Area is comprised of the area currently proposed for development (the Project Development Area), two off-site sewer alternatives (Alternative 1 and Alternative 2), and two off-site waterline alternatives (Alternative 1 and Alternative 2) (**Figures 1 and 2**). The Study Area for this document is the Project Area plus the Program Study Area (PSA), as shown on **Figure 2**[1]. The PSA is an area adjacent to (and partially enclosed by) the Project Development Area that may be developed at some point in the future. Within this document, impacts within the Project Area are analyzed in detail at the "project level", while potential impacts that may occur within the PSA are analyzed more broadly at the "program level".

The Study Area is located north of Interstate Highway 50, largely south of Stone Hill Road, east of Silva Valley Parkway, and largely west of Morrison Road in western El Dorado County, California (**Figure 1**). The Development Area is located generally north of Country Club Drive and east of Bass Lake Road. The approximately 81.8-acre Study Area is located in portions of Section 1, Township 9 North, Range 8 East and Sections 5-7, Township 9 North, Range 9 East (MDBM) of the "Clarksville, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

1.1 Project Description

The Project includes development of two 150-room hotels, retail services, two restaurants, a museum, an event center, recreational amenities, associated parking, 56 residential cottages for employee housing, and an additional 56 residential cottages that may be rented on a daily or extended stay basis. Additionally, the Project would involve construction of internal roadways and a new Class I bicycle path within the Project Development Area, and off-site sewer and water connections, as detailed below in **Sections 1.2 and 1.3**. A preliminary site plan for the Project as analyzed in this document is included as **Attachment A.**

1.2 Off-Site Sewer Alternatives

Both public and private sewer systems are being considered for providing wastewater service to the Project. The public system would require the construction of an approximately 10,510-foot gravity trunk sewer main connecting the development to the existing 18-inch South Uplands Trunk Sewer-Gravity Main located in Russi Ranch Drive, approximately 1.6 miles to the west. Two alignment alternatives for this public sewer connection will be evaluated in this document, as shown in **Figure 2**. The two alternatives share the same alignment from the Russi Ranch Road on the west end, east across Carson Creek and up onto Old Bass Lake Road, where they split, with Alternative 1 continuing along Old Bass Lake Road, and Alternative 2 heading north to the intersection of Bass Lake Road and Country Club Drive. Both alternatives involve a crossing of

[1] A portion of Waterline Alternative 2 has been analyzed under a separate CEQA document, and as a result, that portion of Waterline Alternative 2 is not included in the Study Area for this document. This is shown graphically on **Figure 2**.

Carson Creek, which would be accomplished with a pipe suspended over the creek. No direct impacts to Carson Creek are anticipated, but there will be construction impacts adjacent to the channel.

1.3 Off-Site Waterline Alignment Alternatives

Two waterline alternatives have been proposed, as shown in **Figure 2**. The two alternatives share the same alignment from the intersection of Bass Lake Road and Country Club Drive and east. Where they differ, Waterline Alternative 1 would be within the paved roadbed of the existing Bass Lake Road, and Waterline Alternative 2 would be within a future proposed bike trail just east of Bass Lake Road. Waterline Alternative 2 has been previously analyzed under a different CEQA document, and therefore, Waterline Alternative 2, while shown for clarity on **Figure 2**, is not included in our Study Area and will not be analyzed or mentioned further in this document.

1.4 Program Study Area

Potential future development within the PSA could include additional hotels, medical facilities, senior housing, townhomes and cottages, and/or other uses allowed by the proposed zoning districts. Temporary impacts within the Project Development Area may ultimately be permanently impacted during future development within the PSA, but are included in the Project Development Area for purposes of impact analysis in this document.

2.0 REGULATORY SETTING

This section describes federal, state and local laws and policies that are relevant to this assessment of biological resources.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 protects species that are federally listed as endangered or threatened with extinction. FESA prohibits the unauthorized "take" of listed wildlife species. Take includes harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such activities. Harm includes significant modifications or degradations of habitats that may cause death or injury to protected species by impairing their behavioral patterns. Harassment includes disruption of normal behavior patterns that may result in injury to or mortality of protected species. Civil or criminal penalties can be levied against persons convicted of unauthorized "take." In addition, FESA prohibits malicious damage or destruction of listed plant species on federal lands or in association with federal actions, and the removal, cutting, digging up, damage, or destruction of listed plant species in violation of state law. FESA does not afford any protections to federally listed plant species that are not also included on a state endangered species list on private lands with no associated federal action.

2.1.2 Clean Water Act, Section 404

Section 404 of the Federal Clean Water Act requires that a Department of the Army permit be issued prior to the discharge of dredged or fill material into waters of the United States, including some wetlands. The U.S. Army Corps of Engineers (USACE) administers this program, with oversight from the U. S. Environmental Protection Agency. As of the date of this document, waters of the United States (waters of the U.S.) are defined as follows (40 CFR 120.2):

1. Waters which are:
   i. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
   ii. The territorial seas; or
   iii. Interstate waters;
2. Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under item (5) below;
3. Tributaries of waters identified in items (1) or (2) above that are relatively permanent, standing or continuously flowing bodies of water;
4. Wetlands adjacent to the following waters:
   i. Waters identified in item (1) of this section; or
   ii. Relatively permanent, standing or continuously flowing bodies of water identified in items (2) or (3) above and with a continuous surface connection to those waters;
5. Intrastate lakes and ponds not identified in paragraphs (1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items (1) or (3) above.

Under the current definition of waters of the U.S., "adjacent" means *having a continuous surface connection*.

Waters subject to regulation under Section 404 are referred to as "jurisdictional waters".

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any native migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11.). Likewise, Section 3513 of the California Fish & Game Code prohibits the "take or possession" of any migratory non-game bird identified under the MBTA. Therefore, activities that may result in the injury or mortality of native migratory birds, including eggs and nestlings, would be prohibited under the MBTA.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. The USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

2.2 State Regulations

2.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires evaluations of project effects on biological resources. Determining the significance of those effects is guided by Appendix G of the CEQA guidelines. These evaluations must consider direct effects on a biological resource within the project site itself, indirect effects on adjacent resources, and cumulative effects within a larger area or region. Effects can be locally important but not significant according to CEQA if they would not substantially affect the regional population of the biological resource. Significant adverse impacts on biological resources would include the following:

- Substantial adverse effects on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) (these effects could be either direct or via habitat modification);
- Substantial adverse impacts to species designated by the California Department of Fish and Game (2009) as Species of Special Concern;
- Substantial adverse effects on riparian habitat or other sensitive habitat identified in local or regional plans, policies, or regulations or by CDFW and USFWS;
- Substantial adverse effects on federally protected wetlands defined under Section 404 of the Clean Water Act (these effects include direct removal, filling, or hydrologic interruption of marshes, vernal pools, coastal wetlands, or other wetland types);
- Substantial interference with movements of native resident or migratory fish or wildlife species population, or with use of native wildlife nursery sites;
- Conflicts with local policies or ordinances protecting biological resources (e.g. tree preservation policies); and
- Conflict with provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

2.2.2 State Endangered Species Act

With limited exceptions, the California Endangered Species Act (CESA) of 1984 protects state-designated endangered and threatened species in a way similar to FESA. For projects on private property (i.e. that for which a state agency is not a lead agency), CESA enables CDFW to authorize take of a listed species that is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code Section 2081).

2.2.3 California Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code, § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.4 California Species of Special Concern

The Species of Special Concern (SSC) are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal or California ESAs or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened or endangered species are considered "significant" under CEQA.

2.2.5 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

2.2.6 Clean Water Act, Section 401

Section 401 of the Clean Water Act requires any applicant for a 404 permit in support of activities that may result in any discharge into waters of the United States to obtain a water quality certification with the Regional Water Quality Control Board (RWQCB). This program is meant to protect these waters and wetlands by ensuring that waste discharged into them meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit (and both programs are a part of the Clean Water Act), the definition of waters of the United States under Section 401 is the same as that used by the USACE under Section 404.

2.2.7 California Water Code, Porter-Cologne Act

Waters that are not considered waters of the U.S. may be considered waters of the State of California (waters of the State) under the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne, from Division 7 of the California Water Code, requires any person discharging waste or proposing to discharge waste that could affect the quality of waters of the state to file a report of waste discharge (RWD) with the RWQCB. The RWQCB can waive the filing of a report, but once a report is filed, the RWQCB must either waive or adopt water discharge requirements (WDRs). Waters of the State are defined as any surface water or groundwater, including saline waters, within the boundaries of the state of California.

2.2.8 California Fish and Game Code, Section 1600 – Streambed and Lake Alteration

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code, Section 1602, requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- 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.

For the purposes of Section 1602, rivers, streams and lakes includes those that are dry for periods of time as well as those that flow year round. If notification is required and CDFW believes the proposed activity is likely to substantially adversely affect fish and wildlife resources, it will require that the parties enter into a Lake or Streambed Alteration Agreement (LSAA).

2.2.9 California Fish and Game Code, Section 3503.5 - Raptor Nests

Section 3503.5 of the Fish and Game Code makes it unlawful to take, possess, or destroy hawks or owls, unless permitted to do so, or to destroy the nest or eggs of any hawk or owl.

2.2.10 California Fish and Game Code, Section 3511, 4700, 5050, and 5515 – Fully Protected Species

California Fish and Game Code identifies "fully protected species" in sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). The state initially identified fully protected species in the 1960s to identify and provide additional protection to animals that were rare or faced possible extinction. Subsequent passage of the California Endangered Species Act has offered additional protection to some fully protected species.

Fully protected 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, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (NCCP).

2.3 Local Regulations

2.3.1 El Dorado County Zoning Ordinance, Protection of Wetlands and Sensitive Riparian Habitat

The El Dorado County Zoning Ordinance Site Planning and Project Design Standards for setback requirements (Section 130.30.050) establishes standards for avoidance and minimization of impacts to wetlands and sensitive riparian habitat. This section of the Ordinance applies to discretionary projects adjacent to perennial streams, intermittent streams, wetlands, or any sensitive riparian habitat within El Dorado County (County). The Ordinance requires new development to avoid or minimize impacts to these habitat types. If the habitats cannot be avoided, the County requires an assessment that establishes appropriate buffers to reduce impacts to a less than significant level and mitigation consistent with state or federal permit requirements. The County has established standardized setbacks of 25 feet from any intermittent stream, wetland or sensitive riparian habitat, or a distance of 50 feet from any perennial lake, river or stream. Storm drain, irrigation outflow structures, and bridges are permitted as long as they are approved by the County as part of the development process.

2.3.2 El Dorado County Zoning Ordinance, Oak Resources Conservation

Chapter 130.39 of the El Dorado County Zoning Ordinance requires mitigation for impacts to native oak trees in all portions of unincorporated El Dorado County below 4,000 feet in elevation. This Chapter requires documentation of all oak woodlands, individual native oak trees, and heritage native oak trees (collectively, Oak Resources) on a site if any oak impacts are proposed on that site. Furthermore, an *Oak Resources Technical Report* must be prepared as stipulated in the Chapter. Mitigation for impacts to Oak Resources may be accomplished through payment of an in-lieu fee to the Oak Woodland Conservation Fund, conservation using a deed restriction or conservation easement, and/or replacement planting.

2.3.3 El Dorado County Ecological Preserve Fee Ordinance

Chapter 130.71 of the El Dorado County Code requires mitigation or payment of a fee in-lieu of mitigation for development of any property within Mitigation Areas 0, 1, or 2. This fee is commonly referred to as the Rare Plant Mitigation fee, and is to be paid in full upon issuance of a building permit for all new developments within the County. "Mitigation Area 0" means lands within the Gabbro Soils Rare Plant Ecological Preserve, as shown on maps on file in the Department, adopted by Ordinance 4500. "Mitigation Area 1" means lands outside of Mitigation Area 0 but within the area described as the "rare soils study area" on the same map, and "Mitigation Area 2" means lands outside of Mitigation Areas 0 and 1 but within the El Dorado Irrigation District service area, excluding those lots served by wells. The Study Area is not located within any of the mitigation areas, and as such, this ordinance does not apply to this Project.

3.0 METHODOLOGY

3.1 Literature Review

A list of special-status species with potential to occur within the Study Area was developed by conducting a query of the following databases:

- California Natural Diversity Database (CNDDB) (CNDDB 2024) query of the Study Area and all areas within 5 miles of the Study Area (**Figures 3 and 4**);
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2024) query for the Study Area (**Attachment B**);
- California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2024) query of the "Clarksville, California" USGS topo quadrangle, and the eight surrounding quadrangles (**Attachment C**); and
- Western Bat Working Group (WBWG) Species Matrix (WBWG 2024).

In addition, any special-status species that are known to occur in the region, but that were not identified in any of the above database searches were also analyzed for their potential to occur within the Study Area.

For the purposes of this Biological Resources Assessment, special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the USFWS or National Marine Fisheries Service;
- listed as threatened or endangered and candidates for listing by CDFW;
- identified as Fully Protected species or species of special concern by CDFW;
- identified as Medium or High priority species by the WBWG (WBWG 2024); and
- plant species considered to be rare, threatened, or endangered in California by the CNPS and CDFW [California Rare Plant Rank (CRPR) 1, 2, and 3]:
  - CRPR 1A: Plants presumed extinct.
  - CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
  - CRPR 2A: Plants extirpated in California, but common elsewhere.

- CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
- CRPR 3: Plants about which the CNPS needs more information – a review list.

3.2 Field Surveys

Madrone senior biologists Daria Snider and Bonnie Peterson conducted field surveys of various portions of the Study Area on 13 April 2022, 27 September 2023, and 6 October 2023 to assess the suitability of habitats within the Study Area to support special-status species and to conduct the protocol-level surveys listed below. Meandering pedestrian surveys were performed on foot throughout the Study Area. Vegetation communities were classified in accordance with *The Manual of California Vegetation, Second Edition* (Sawyer, Keeler-Wolf and Evens 2009), and plant taxonomy was based on the nomenclature in the Jepson eFlora (Jepson Flora Project 2024). A list of all wildlife species observed during field surveys is included as **Attachment D**.

The following surveys have been or are in the process of being performed within the Study Area:

- Special-status plant surveys of the entire Study Area were completed on several dates in 2022, 2023, and 2024 in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 2000), California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018a), and the CNPS *Botanical Survey Guidelines* (CNPS 2001). The report for this survey is included as **Attachment E**.
- An aquatic resources delineation of the entire Study Area was conducted on 27 September and 6 October 2023 in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), and the Sacramento District's *Minimum Standards for Acceptance of Preliminary Wetlands Delineations* (USACE 2016). The report for this survey is included as **Attachment F**. This report was submitted to the USACE for verification, and during the verification process, USACE staff requested that some additional acreage be added to the map. We have incorporated those changes into this report, and as a result, the acreage discussed in **Section 4.2** and shown on the maps throughout this document is somewhat greater than that summarized in the report in **Attachment F**.
- An oak resources inventory was conducted throughout the Study Area on 27 September and 6 October 2023 as required by El Dorado County's *Oak Resources Management Plan* (ORMP) (EDC 2017). The Oak Resources Technical Report is included as **Attachment G**.

4.0 EXISTING CONDITIONS

The Study Area is largely comprised of ungrazed Annual Brome Grasslands with widely scattered oak trees (**Figure 5**). Oak Woodlands occur in the vicinity of the intermittent drainage and perennial Carson Creek. The intermittent drainage is located in the northern portion of the Study Area, and Carson Creek is in the western portion. Carson Creek runs over bedrock, and the adjacent slopes are quite steep, restricting the extent of riparian vegetation, which consists of a narrow band of Arroyo Willow Riparian Scrub. The Oak Woodland south of the creek has a dense, closed canopy, as is typical for north-facing slopes in the region. Bass Lake Road cuts from north to south through the Study Area, and Country Club Drive runs from west to east. Portions of Old Bass Lake Road and Old Country Club Drive also occur within portions of the Study Area. Several seasonal wetlands and two seasonal wetland swales occur just north of Old Country Club Drive, and one seasonal wetland occurs near an ephemeral drainage in the western portion of the Study Area. A few seeps occur on slopes in the Annual Brome Grasslands. Roadside ditches run along the edges of a number of roadways within the Study Area, and three portions of ephemeral drainages occur within infrastructure-related portions of the Study Area. Inclusions of unvegetated areas are scattered throughout the Study Area along farm roads. The terrain within the Study Area is gently rolling, and generally slopes from the east down towards the west.

Elevations range from approximately 1,320 feet above mean sea level (MSL) at the eastern edge of the Study Area to approximately 800 feet at the western extent along Carson Creek and Russi Ranch Drive (**Figure 1**).

Surrounding properties are similar to those within the Study Area. They are largely comprised of ungrazed Annual Brome Grasslands, scattered Oak Woodlands, and rural residences. The western and eastern ends of the Study Area abut urban residential areas, and the Study Area is bordered by Interstate Highway 50 to the south.

4.1 Terrestrial Vegetation Communities

Table 1 summarizes the terrestrial vegetation communities mapped within the Study Area, their extents are shown on **Figure 5**, and the following sections provide narrative descriptions of each of them.

Table 1. Terrestrial Vegetation Communities Within the Study Area

Vegetation Communities	Project Area (Acres)	Program Study Area (Acres)	Total (Acres)
Annual Brome Grassland	37.0	27.9	64.9
Arroyo Willow Riparian Woodland	0.1		0.1
Oak Woodland	6.2		6.2
Dirt Road	1.5		1.5
Paved Road	8.9	0.2	9.1
Total	**53.7**	**28.1**	**81.8**

4.1.1 Annual Brome Grassland

The Annual Brome Grassland within the Study Area is dominated by ripgut brome (*Bromus diandrus*), soft brome (*B. hordeaceus*), wild oat (*Avena fatua*), Italian ryegrass (*Festuca perennis*), purple false brome (*Brachypodium distachyon),* and winter vetch *(Vicia villosa* subsp. *varia)*. Other species occurring frequently in this vegetation community within the Study Area include wild radish (*Raphanus sativus*), Ithuriel's spear

(*Triteleia laxa*), rose clover (*Trifolium hirtum*), and purple clarkia (*Clarkia purpurea* subsp. *quadrivulnera*). Seasonal wetlands, seasonal wetland swales, and seeps occur occasionally throughout this community.

4.1.2 Arroyo Willow Riparian Scrub

A narrow band of Arroyo Willow Riparian Scrub occurs along Carson Creek within the sewer alternative overlap portion of the Study Area. This canopy of this community is dominated by arroyo willow (*Salix lasiolepis*) and buttonwillow (*Cephalanthus occidentalis*). The understory is comprised primarily of bedrock, but a few herbaceous species have established in cracks in the bedrock, and in sediment along the creek's edge. These include Indian hemp (*Apocynum cannabinum*), Torrey's willowherb (*Epilobium torreyi),* sticktight (*Bidens frondosa)*, Lady's thumb (*Persicaria maculosa),* False waterpepper (*Persicaria hydropiperoides),* western goldenrod (*Euthamia occidentalis),* mugwort (*Artemisia douglasiana),* tall nutsedge (*Cyperus eragrostis),* rice cutgrass (*Leersia oryzoides),* and seep monkeyflower (*Erythranthe guttata).*

4.1.3 Oak Woodland

Oak woodland occurs in the northern portion of the Study Area, in association with the intermittent creek, and in the portions of the sewer alternatives. The Oak Woodland has a primarily closed canopy that is dominated by interior live oak (*Quercus wislizeni*) and blue oak (*Quercus douglasii*). Other commonly occurring species include Valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*) and foothill pine (*Pinus sabiniana)*. Western poison oak (*Toxicodendron diversilobum*) and chaparral honeysuckle (*Lonicera interrupta*) are dominants in the shrub layer. The herbaceous understory is dominated by ripgut brome, slender wild oat (*Avena barbata*), and tall sock-destroyer (*Torilis arvensis*), as well as occasional Italian thistle (*Carduus pycnocephalus* subsp. *pycnocephalus*), bristly dogtail grass (*Cynosurus echinatus),* goldback fern (*Pentagramma triangularis),* twining brodiaea (*Dichelostemma volubile),* soft brome, and common soap plant (*Chlorogalum pomeridianum var. pomeridianum).* Several rock outcrops are interspersed within the Oak Woodland area.

4.1.4 Roads

Bass Lake Road, Country Club Drive, and Old Country Club Drive are paved roadways within the Study Area. Just west of the Bass Lake Road and Country Club Drive intersection is an area that was under active construction at the time of our survey – this is presumed to be developed now and was also mapped as paved road. Old Bass Lake Road and regularly used driveways within the Sewer Alternatives have been mapped as dirt road – these are well maintained, regularly used dirt roads. We did not map the portion of the dirt road that runs through the Oak Woodlands, as the tree canopies overhang almost the entire roadway, and as such, we anticipate that impacts within the roadway could impact the adjacent oak trees.

4.2 Aquatic Resources

Madrone conducted a protocol-level aquatic resources delineation throughout the Study Area, as detailed in **Section 3.2** (**Attachment F**). Aquatic resources mapped within the Study Area are depicted in **Figure 5** and summarized in **Table 2** below. A total of 1.059 acres of aquatic resources were mapped within the Study Area (**Table 2**). A description of each of the aquatic resources types is included below.

Table 2. Aquatic Resources Mapped within the Study Area

Waters Type	Project Area (Acres[1])	Program Study Area (Acres[1])	Total (Acres[1])
Wetlands			
Seasonal Wetland	0.031	--	0.031
Seasonal Wetland Swale	0.017	--	0.017
Seep	0.360	0.015	0.375
Other Waters			
Drainage Ditch	0.005	--	0.005
Ephemeral Drainage	0.038	--	0.038
Intermittent Drainage	0.311	--	0.311
Perennial Creek (Carson Creek)	0.033	--	0.033
Roadside Ditch	0.150	0.100	0.250
Total	**0.945**	**0.115**	**1.059**

[1] Summation errors may occur due to rounding.

4.2.1 Seasonal Wetland

Four seasonal wetlands occur within the southern portion of the Study Area. Seasonal wetlands are depressional wetlands that pond water seasonally. Two of the seasonal wetlands are depressional and are dominated by needle-leaf navarretia (*Navarretia intertexta*), Mediterranean beard grass (*Polypogon maritimus*) and Mediterranean barley (*Hordeum marinum*). Other species in these features include bractless hedge-hyssop (*Gratiola ebracteata*), slender popcorn flower (*Plagiobothrys stipitatus var. micranthus*), annual hairgrass (*Deschampsia danthonioides*), hyssop loosestrife (*Lythrum hyssopifolium*), slender tarweed (*Holocarpha virgata*), turkey mullein (*Croton setiger*), creeping spikerush (*Eleocharis macrostachya*), stinkwort (*Dittrichia graveolens*), and hairy cat's ear (*Leontodon saxatilis*). The remaining seasonal wetlands are slope wetlands, and are dominated by iris-leaved rush (*Juncus xiphioides*) and annual rabbitsfoot grass (*Polypogon monspeliensis*). Other species commonly occurring in these features include Baltic rush (*Juncus balticus*) and Spanish lotus (*Acmispon americanus*).

4.2.2 Seasonal Wetland Swale

Two seasonal wetland swales are present within the Study Area. Seasonal wetland swales are linear seasonal wetlands that convey surface runoff and may detain it for short periods of time. The vegetation in the seasonal wetland swales is similar to that found in the sloping seasonal wetlands. They are dominated by iris-leaved rush. Other species commonly found in these features include Spanish lotus, curly dock (*Rumex crispus*), and Mediterranean beard grass.

4.2.3 Seep

Seeps are areas where groundwater reaches the surface through porous soil or cracks in rock. Seeps result in seasonal or perennial soil saturation with minimal standing water and gentle flows. Five seeps were mapped within the Study Area. Dominant plant species identified within the seeps include iris-leaved rush, Baltic rush, and Sonoma hedge nettle (*Stachys stricta*). Other common plants include hyssop loosestrife, annual quaking grass (*Briza minor),* cut-leaf geranium (*Geranium dissectum*), common sow thistle (*Sonchus oleraceus),* and Italian thistle (*Carduus pycnocephalus*).

4.2.4 Drainage Ditch

A constructed drainage ditch conveys flows collected in roadside ditches along Country Club Drive into the intermittent drainage to the north. This drainage ditch is lined with rocks and is entirely unvegetated.

4.2.5 Ephemeral Drainage

Five ephemeral drainages occur within the Study Area. Ephemeral drainages are linear features that convey runoff for short periods of time, during and immediately following rain events, and do not convey any groundwater flows. Several ephemeral drainages occur within the sewer alternatives. These features are almost entirely unvegetated, and any sparse vegetation that does occur is typical of the surrounding terrestrial vegetation community.

4.2.6 Intermittent Drainage

One intermittent drainage runs through the northern portion of the Study Area. This feature has a variable substrate, ranging from sand and mud in some areas to bedrock in others. It is entirely unvegetated within the channel due to the depth and scouring effects of water. This feature runs through Oak Woodlands for much of its length, and as a result of the closed canopy, very little herbaceous vegetation occurs along the banks in those areas. Portions of the drainage that run through Annual Brome Grasslands are primarily bordered by grasses and forbs typical of that community, but also support scattered seep monkeyflower (*Erythranthe guttata*) and other herbaceous hydrophytes.

4.2.7 Perennial Creek (Carson Creek)

Carson Creek, which is perennial with a bedrock substrate, runs through the western portion of the Study Area. It is almost entirely unvegetated within the channel, but there are a few plants occurring on the banks and in areas where sediment has accumulated within the channel. These plants are described above in the description of Arroyo Willow Scrub, which borders the creek. To reiterate, plants observed within and adjacent to Carson Creek include narrow-leaved cattail (*Typha angustifolia),* Torrey's willowherb, sticktight, Lady's thumb, False waterpepper, western goldenrod, mugwort, tall nutsedge, rice cutgrass, and seep monkeyflower.

4.2.8 Roadside Ditch

Several roadside ditches were mapped within the Study Area along Bass Lake Road, Country Club Drive, and Old Country Club Drive. The roadside ditches were constructed adjacent to the roadways, and serve to convey stormwater runoff away from the road. These features are entirely unvegetated due to ditch maintenance and due to the fact that many of these features are lined with rock, presumably for flow attenuation.

4.3 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2024), four soil mapping units occur within the Study Area (**Figure 6**): (AkC) Argonaut gravelly loam, 2 to 15 percent slopes; (AwD) Auburn silt loam, 2 to 30 percent slopes; (AxD) Auburn very rocky silt loam, 2 to 30 percent slopes; and (AyF) Auburn extremely rocky silt loam, 3 to 70 percent slopes. These soils are all somewhat acidic. The Auburn soils are formed in amphibolite schist (metamorphic rock) while the Argonaut soils are formed in weathered meta-andesite (weathered volcanic rock) (NRCS 2024).

5.0 RESULTS

Table 3 provides a list of special-status species that were evaluated, including their listing status, habitat associations, and their potential to occur in the Study Area. The following set of criteria was used to determine each species' potential for occurrence within the Study Area:

- Present: Species occurs within the Study Area based on CNDDB records, and/or was observed within the Study Area during field surveys.
- High: The Study Area is within the known range of the species and suitable habitat exists.
- Moderate: The Study Area is within the known range of the species and very limited suitable habitat exists.
- Low: The Study Area is within the known range of the species and there is marginally suitable habitat or the Study Area is on the very edge of the known range of the species.
- Absent/No Habitat Present: The Study Area does not contain suitable habitat for the species, the species was not observed during protocol-level floristic surveys conducted within the Study Area, or the Study Area is outside of the known range of the species.

Figures 3 and 4 are exhibits displaying CNDDB occurrences within five miles of the Study Area. Below is a discussion of all special-status plant and animal species with potential to occur within the Study Area.

Table 3. Special-Status Species Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Plants				
Allium jepsonii Jepson's onion	--	CRPR 1B.2	Prefers cismontane woodland or lower montane coniferous forests associated with serpentine soils or volcanic slopes (elevation 985'-4,300')	**No Habitat Present.** No serpentine or basalt are located within the Study Area.
Balsamorhiza macrolepis Big-scale balsamroot	--	CRPR 1B.2	Prefers chaparral, cismontane woodland, and valley and foothill grasslands. Often associated with serpentine soils (elevation 150'-5,100').	**Absent.** Marginally suitable habitat is present (due to the lack of serpentine soils). This plant was not found during protocol surveys of the Study Area.
Calycadenia spicata Spicate rosinweed	--	CRPR 1B.3	Occurs in disturbed areas and openings in cismontane woodland and annual grassland between 130 and 4,600 ft. Often associated with adobe clay, gravelly areas, rock outcrops and mine tailings.	**Absent.** Suitable habitat for this species occurs in the vicinity of rock outcrops and gravelly areas in Annual Brome Grasslands throughout the Study Area. This plant was not found during protocol surveys of the Study Area.
Calystegia stebbinsii Stebbins' morning glory	FE	CE, CRPR 1B.1	Foothill chaparral and cismontane woodland associated with gabbro soils (elevation 605'-3,575').	**No Habitat Present.** Gabbro soils do not occur within the Study Area.
Carex xerophila Chaparral sedge	--	CRPR 1B.2	Prefers chaparral, cismontane woodland, lower montane coniferous forest with serpentine or gabbro soils (elevation 1,445'-2,525').	**No Habitat Present.** Serpentine and gabbro soils do not occur within the Study Area.
Ceanothus roderickii Pine Hill ceanothus	FE	CR, CRPR 1B.1	Foothill chaparral and cismontane woodland associated with gabbro and serpentine soils (elevation 805'-3,575').	**No Habitat Present.** Serpentine and gabbro soils do not occur within the Study Area.

Table 3. Special-Status Species Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Chlorogalum grandiflorum Red Hills soaproot	--	CRPR 1B.2	Prefers cismontane woodland, chaparral, and lower montane coniferous forest. Occurs frequently on serpentine or gabbro, but also on non-ultramafic substrates; often on "historically disturbed" sites (elevation 805'-5,545').	**Absent.** Marginally suitable habitat is present within the oak woodlands throughout the Study Area. Habitat is only marginally suitable due to the lack of gabbro or serpentine soils. This plant was not found during protocol surveys of the Study Area.
Crocanthemum suffrutescens Bisbee Peak rush rose	--	CRPR 3.2	Occurs in open areas within chaparral. Sometimes found in Gabbro soils (elevation 245'-2,200').	**No Habitat Present.** Chaparral does not occur within the Study Area.
Downingia pusilla Dwarf downingia	--	CRPR 2B.2	Mesic areas in valley and foothill grassland, and vernal pools (elevation 3' – 1,460').	**Absent.** The Study Area is at the edge of the elevational range for the species, but limited suitable habitat occurs within the seasonal wetlands within the Study Area. This plant was not found during protocol surveys of the Study Area.
Eryngium pinnatisectum Tuolumne button-celery	--	CRPR 1B.2	Found in vernal pools and other mesic areas in cismontane woodland and lower montane coniferous forests (elevation 230'-3,000').	**Absent.** Suitable habitat for this species occurs within and on the edges of aquatic resources throughout the Study Area. This plant was not found during protocol surveys of the Study Area.
Fremontodendron decumbens Pine Hill flannelbush	FE	CR, CRPR 1B.2	Foothill chaparral and cismontane woodland. Rocky ridges; gabbro or serpentine; often among rocks and boulders (elevation 1,395'-2,495').	**No Habitat Present.** Serpentine and gabbro soils do not occur within the Study Area.
Galium californicum ssp. *sierrae* El Dorado bedstraw	FE	CR, CRPR 1B.2	Foothill chaparral and cismontane woodland. Restricted to gabbroic or serpentine soils (elevation 330'-1,920').	**No Habitat Present.** Serpentine and gabbro soils do not occur within the Study Area.

Table 3. Special-Status Species Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Gratiola heterosepala Boggs Lake hedge-hyssop	--	CE, CRPR 1B.2	Vernal pools and margins of lakes/ponds on clay soils (elevation 35' - 7,790').	**No Habitat Present.** Vernal pools, lakes, and clay soils do not occur within the Study Area.
Juncus leiospermus var. ahartii Ahart's dwarf rush	--	CRPR 1B.2	Occurs along edges of vernal pool and other seasonally ponded features (elevation 100'-750').	**No Habitat Present.** Outside of the elevational range for the species.
Legenere limosa Legenere	--	CRPR 1B.1	Occurs in vernal pools (elevation 5'-2,885').	**No Habitat Present.** Vernal pools or other suitable features do not occur within the Study Area.
Navarretia myersii ssp. myersii Pincushion navarretia	--	CRPR 1B.1	Found in vernal pools (often acidic) (elevation 65' - 1,085').	**No Habitat Present.** Vernal pools do not occur within the Study Area.
Orcuttia tenuis Slender Orcutt grass	FT	CE, CRPR 1B.1	Occurs in vernal pools and other seasonally ponded features (elevation 115'-5,775').	**No Habitat Present.** Vernal pools or other suitable features do not occur within the Study Area.
Orcuttia viscida Sacramento Orcutt grass	FE	CE, CRPR 1B.1	Occurs in vernal pools (elevation 100'-330').	**No Habitat Present.** Vernal pools do not occur within the Study Area.
Packera layneae Layne's ragwort	FT	CR, CRPR 1B.2	Foothill chaparral and cismontane woodland with rocky, gabbroic, or serpentine soils (elevation 655'-3,560').	**No Habitat Present.** Serpentine and gabbro soils do not occur within the Study Area.
Sagittaria sanfordii Sanford's arrowhead	--	CRPR 1B.2	Occurs in emergent marsh habitat, typically associated with drainages, canals, or irrigation ditches (elevation 0' - 2,135').	**Absent.** Suitable habitat for this species occurs within Carson Creek and the intermittent drainage within the Study Area. This plant was not found during protocol surveys of the Study Area.
Wyethia reticulata El Dorado County mule ears	--	CRPR 1B.2	Foothill chaparral and cismontane woodland associated with clay or gabbro soils (elevation 605'-2065').	**No Habitat Present.** Serpentine and gabbro soils do not occur within the Study Area.

Table 3. Special-Status Species with Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Invertebrates				
Bombus crotchii Crotch bumble bee	--	CC	Occurs in open grasslands and scrub habitats. This species occurs primarily in California including the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills through most of southwestern California.	**High**. The Annual Brome Grasslands throughout the Study Area provide suitable habitat for this species.
Branchinecta lynchi Vernal pool fairy shrimp	FT	--	Occurs in vernal pools.	**Low.** Two depressional seasonal wetlands in Sewer Alternative 2 and the Project Development Area represent marginally suitable habitat for this species.
Danaus plexippus Monarch butterfly	FC	--	Migratory species; most prevalent in the Central Valley in summer and early fall. Dependent upon milkweed (*Asclepias* species) plants as their exclusive larval host.	**Present.** Some small patches of milkweed plants are present within the Study Area, but at least one butterfly has been observed within the Study Area.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT	--	Dependent upon elderberry (*Sambucus* species) plant as primary host species. Occurs in the Sacramento and northern San Joaquin Valleys up to 500 feet in elevation (USFWS 2023).	**No Habitat Present.** The Study Area is outside of the elevational range of the species.
Lepidurus packardi Vernal pool tadpole shrimp	FE	--	Occurs in vernal pools.	**No Habitat Present.** None of the seasonal wetlands within the Study Area have a sufficiently long period of inundation to support this species.

Table 3. Special-Status Species with Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Amphibians				
Ambystoma californiense California tiger salamander	FT	CT, CSC	Breeds in ponds or other deeply ponded wetlands and uses gopher holes and ground squirrel burrows in adjacent grasslands for upland refugia/foraging.	**No Habitat Present.** The Study Area is outside of the known range of the species.
Rana boylii Foothill yellow-legged frog – South Sierra DPS	FE	CE	Prefers gravelly or sandy streams with open banks near woodlands.	**Low.** Carson Creek provides suitable habitat for this species, but is on the very edge of its distributional range.
Rana draytonii California red-legged frog	FT	CSC	Breeds in permanent to semi-permanent aquatic habitats including lakes, ponds, marshes, creeks, and other drainages.	**No Habitat Present.** Carson Creek within the Study Area does not provide the slow-moving water this species prefers.
Spea hammondii Western spadefoot	FPT	CSC	Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	**No Habitat Present.** None of the seasonal wetlands within the Study Area have a sufficiently long period of inundation to support this species.
Reptiles				
Actinemys marmorata Northwestern pond turtle	FPT	CSC	Occurs in ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	**High.** Suitable habitat for this species is present in Carson Creek in the western portion of the Study Area.

Table 3. Special-Status Species with Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Phrynosoma blainvillii Coast (Blainville's) Horned Lizard	--	CSC	Open areas of sandy soil and low vegetation in grasslands, coniferous forests, woodlands, and chaparral. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads, and frequently found near ant hills. Typically found below 3,000 ft in elevation.	**No Habitat Present.** Sandy soils are not present within the Study Area.
Birds				
Agelaius tricolor Tricolored blackbird	--	CE, CSC	Colonial nester in cattails (*Typha* species), bulrush (*Schoenoplectus* species), or blackberry (*Rubus* species) associated with marsh habitats.	**Low.** Dense vegetation that would provide nesting habitat does not occur within the Study Area, but the Annual Brome Grasslands could provide marginally suitable foraging habitat.
Aquila chrysaetos Golden eagle	--	CFP	Forages in open areas including grasslands, savannahs, deserts, and early successional stages of shrub and forest communities. Nests in large trees and cliffs.	**High.** Large, isolated trees within the Study Area could be used for nesting, and the Annual Brome Grassland is suitable foraging habitat.
Athene cunicularia Burrowing owl	--	CSC	Nests in abandoned ground squirrel (*Otospermophilus beecheyi*) burrows associated with open grassland habitats.	**Low.** The Study Area is on the very edge of the species elevational range, and no ground squirrel burrows were observed within the Study Area. The Annual Brome Grassland could provide marginally suitable wintering habitat.

Table 3. Special-Status Species with Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Buteo swainsoni Swainson's hawk	--	CT	Nests in large trees, preferably in riparian areas. Forages in fields, cropland, irrigated pasture, and grassland below approximately 600 ft near large riparian corridors.	**No Habitat Present.** The Study Area is outside of the elevational range of the species.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FT	CE	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, adjacent to slow-moving waterways, backwaters, or seeps.	**No Habitat Present.** The Study Area does not support the extensive riparian woodlands this species requires.
Elanus leucurus White-tailed kite	--	CFP	Open grasslands, fields, and meadows are used for foraging. Isolated trees in close proximity to foraging habitat are used for perching and nesting.	**High.** The Study Area is outside of the nesting range of the species, but it could occur as a winter migrant or occasional summer forager within the Annual Brome Grasslands.
Haliaeetus leucocephalus Bald eagle	--	CE	Nest in large trees within 1 mile of lakes, rivers, or larger streams.	**Low.** Suitable foraging habitat does not occur within the Study Area, but the species could nest in large trees within the Study Area, and the Project Development Area is within approximately one mile of three lakes/large ponds.
Icteria virens Yellow-breasted chat	--	CSC	This species occupies early-successional riparian habitats with well-developed shrub layer and open canopy along streams, creeks, sloughs, and rivers.	**Moderate.** The Arroyo Willow Riparian Scrub along Carson Creek within the Sewer Alternatives represents suitable habitat for this species, but only 0.1 acre of this habitat occurs within the Study Area. As a result, the species is

Table 3. Special-Status Species with Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
				unlikely to nest within the Study Area.
Lanius ludovicianus Loggerhead shrike	--	CSC	Occurs in open areas with sparse trees, shrubs, and other perches.	**High.** The Annual Brome Grasslands within the Study Area represent suitable habitat for the species.
Laterallus jamaicensis coturniculus California black rail	--	CT	Nests and forages in salt, brackish, and fresh marshes with abundant vegetative cover.	**No Habitat Present.** Densely vegetated marshes are not present within the Study Area.
Strix occidentalis occidentalis California spotted owl	--	CSC	Breeds and roosts in forests and woodlands with large old trees and snags, high basal areas of trees and snags, dense canopies, multiple canopy layers, and downed woody debris.	**No Habitat Present.** The Study Area is outside of the range of the species.
Mammals				
Antrozous pallidus Pallid bat	--	CSC, WBWG H	Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows and bole cavities of very large trees, exfoliating Ponderosa pine and Valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings.	**High.** Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees scattered throughout the Study Area.
Corynorhinus townsendii townsendii Townsend's big-eared bat	--	CSC, WBWG H	Roosts in caves and cave analogues, such as abandoned mines, buildings, bridges, rock crevices and large basal hollows of trees. Extremely sensitive to human disturbance.	**High.** Suitable roosting habitat could be present in very large tree cavities within large, decadent trees within the Study Area.

Table 3. Special-Status Species with Potential to Occur within the Town & Country Village El Dorado Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Bassariscus astutus raptor Northern California ringtail	--	FP	Occurs in riparian habitats, forest brush, and shrublands in association with rocky areas. Ringtail is known to nest in rock recesses, hollow trees, logs, snags, and abandoned burrows.	**High.** The Arroyo Willow Riparian Scrub and dense Oak Woodlands along Carson Creek within the Sewer Alternatives portion of the Study Area provide suitable habitat for this species.
Lasionycteris noctivagans Silver-haired bat	--	WBWG M	Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	**High.** Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees in the vicinity of Carson Creek and the intermittent drainage within the Sewer Alternatives and Project Development portions of the Study Area.
Lasiurus blossevillii Western red bat	--	CSC, WBWG H	Requires large leaf trees such as cottonwoods (*Populus* species), willows (*Salix* species), and fruit/nut trees for daytime roosts. Often associated with wooded habitats that are protected from above and open below. Often found in association with riparian corridors. Requires open space for foraging.	**Moderate.** The Arroyo Willow Riparian Scrub along Carson Creek within the Sewer Alternatives represents suitable habitat for this species, but only 0.1 acre of this habitat occurs within the Study Area. As a result, the species is unlikely to roost within the Study Area.
Lasiurus cinereus Hoary bat	--	WBWG M	Roosts primarily in foliage of both coniferous and deciduous trees at the edges of clearings.	**High.** Trees scattered throughout the Study Area are suitable roosting habitat for this species.

[1] Status Codes:

CC - CDFW Candidate for Listing; CE - CDFW Endangered; CFP - CDFW Fully Protected; CRPR - California Rare Plant Rank; CR - California Rare
CSC - CDFW Species of Concern; CT - CDFW Threatened; FE - Federally Endangered; FT - Federally Threatened; FC - Federal Candidate for Listing
FPT – Federally Proposed Threatened; WBWG H - Western Bat Working Group High Threat Rank; WBWG M - Western Bat Working Group Medium Threat Rank

5.1 Plants

Special-status plant surveys of the entire Study Area were completed on several dates in 2022, 2023, and 2024 in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 2000), California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018a), and the CNPS *Botanical Survey Guidelines* (CNPS 2001). No special-status plants were found during this survey. The report for this survey is included as **Attachment E**.

5.1.1 Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a perennial herbaceous species that occurs in chaparral, cismontane woodland and valley and foothill grasslands between 150 and 5100 feet (CNPS 2024). Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well (CNPS 2024).

The Annual Brome Grassland and Oak Woodlands throughout the Study Area provide marginally suitable habitat for big-scale balsamroot. However, this species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area. There are no records of this species within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.1.2 Spicate Rosinweed

Spicate rosinweed (*Calycadenia spicata*) is not federally or state listed, but it is classified as a CRPR List 1B.3 plant. It is a perennial herbaceous species that occurs in disturbed areas and openings in annual grasslands and cismontane woodland between 130 and 4,600 feet (CNPS 2024). Spicate rosinweed blooms from May through September and has been found on a variety of open habitats including adobe clay, rock outcrops, gravelly areas, and mine tailings (CNPS 2024).

The Annual Brome Grassland and Oak Woodlands throughout the Study Area provide suitable habitat for spicate rosinweed. However, this species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area. There are no records of this species within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.1.3 Red Hills Soaproot

Red Hills soaproot (*Chlorogalum grandiflorum*) is not a state or federally listed species but is classified as a CRPR List 1B.2 plant. Red Hill soaproot is a bulbiferous perennial that is commonly found in chaparral, cismontane woodland, and lower montane coniferous forests. Occurs frequently on serpentine or gabbro soils, but can also occur on non-ultramafic substrates; often on "historically disturbed" sites. This species blooms from as early as April, but typically from May through June at elevations from 805 to 5545 feet (CNPS 2024).

The Oak Woodlands throughout the Study Area provide marginally suitable habitat for Red Hills soaproot. However, this species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area. There are seven records of this species within five miles of the Study Area in the CNDDB (CNDDB 2024). The nearest of these is Occurrence #33, which is located approximately 2.5 miles to the east, northeast of the intersection of Meder Road and Cameron Park Drive in Cameron Park (CNDDB 2024).

5.1.4 Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not federally or state listed, but it is classified as a CRPR List 2B.2 plant. It is a diminutive annual herb that is strongly associated with vernal pools and mesic valley and foothill grassland, and is found in elevations ranging from five to 1460 feet (CNPS 2024). Dwarf downingia is typically associated with areas that experience a moderate degree of disturbance, and it blooms from March to May (CNPS 2024).

The seasonal wetlands and seasonal wetland swales within the Study Area represent marginally suitable habitat for dwarf downingia. However, this species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area. There are no records of this species within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.1.5 Tuolumne Button-Celery

Tuolumne button-celery (*Eryngium pinnatisectum*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. This species occurs in mesic areas in cismontane woodlands and coniferous forests, as well as vernal pools. Tuolumne button-celery blooms from May through August and is found from approximately 230 feet to 3,000 feet (CNPS 2024).

Aquatic resources throughout the Study Area provide suitable habitat for this species. However, this species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area. There are no records of this species within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.1.6 Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater habitats associated with drainages, canals, and larger ditches that sustain inundation and/or slow moving water into early summer. This perennial rhizomatous species blooms from May to October, and occurs from sea level to approximately 2,000 feet (CNPS 2024).

Suitable habitat is present for this species in Carson Creek and the intermittent drainage within the Study Area. However, this species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area. There is one record of this species within five miles of the Study Area in the CNDDB (CNDDB 2024). This record is Occurrence #64, which is located approximately 2.8 miles to the southwest, within various tributaries of Carson Creek, south of White Rock Road (CNDDB 2024).

5.2 Invertebrates

5.2.1 Crotch Bumble Bee

Crotch bumble bee (*Bombus crotchii*) is not federally listed but is a candidate for listing under CESA. Crotch bumble bee has a limited distribution in southwestern North America. This species occurs primarily in California, including the Mediterranean region, Pacific Coast, West Desert, Great Valley, and adjacent foothills through most of southwestern California. It also occurs in Mexico (Baja California and Baja California Sur) (Williams et al. 2014) and has been documented in southwest Nevada, near the California border. This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range (Williams et al. 2014). In California, *B. crotchii* inhabits open grasslands and scrub habitats.

All bumble bees have three basic requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the entirety of the colony period (spring, summer, and fall), and suitable overwintering sites for the queens. Nests are often located underground in abandoned holes made by ground squirrels, mice, and rats or occasionally abandoned bird nests (Osborne et al 2008). Some species nest on the surface of the ground (in tufts of grass) or in empty cavities. Bumble bees that nest aboveground may require undisturbed areas with nesting resources such as grass and hay to protect nests. Furthermore, areas with woody cover, or other sheltered areas provide bumble bees sites to build their nests (e.g., downed wood, rock walls, brush piles, etc.).

Bumble bees depend on the availability habitats with a rich supply of floral resources that bloom continuously during the entirety of the colony's life. The queen collects nectar and pollen from flowers to support the production of her eggs, which are fertilized by sperm she has stored from mating the previous fall. As generalist foragers, bumble bees do not depend on any one flower type. They generally prefer flowers that are purple, blue or yellow; they are essentially blind to the color red. The plant families most commonly associated with Crotch bumblebee observations in California include Apocynaceae, Asteraceae, Boraginaceae, Fabaceae, and Lamiaceae (Xerces Society 2018). Very little is known about hibernacula, or overwintering sites utilized by most bumble bees. Generally, bumble bees overwinter in soft, disturbed soil (Goulson 2010), under leaf litter or other debris (Williams et al. 2014), in abandoned holes made by fossorial mammals or occasionally in abandoned bird nests (Osborne at all 2008). Some species nest on the surface of the ground (in grassy tussocks) or in empty cavities (hollow logs, dead trees, under rocks, etc.). Queens most likely overwinter in small cavities just below or on the ground surface.

The Annual Brome Grassland throughout the Study Area represents suitable habitat for Crotch's bumble bee. There are no documented occurrences of this species in the CNDDB within 5 miles of the Study Area (CNDDB 2024).

5.2.2 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the federal Endangered Species Act. Historically, the range of vernal pool fairy shrimp extended throughout the Central Valley of California. Vernal pool fairy shrimp populations have been found in several locations throughout California, with habitat extending from Stillwater Plain in Shasta County through the Central Valley to Pixley in Tulare County, and along the Central Coast range from northern Solano County to Pinnacles National Monument in San Benito County (Eng et al. 1990, Fugate 1992). Additional populations occur in San Luis Obispo, Santa Barbara, and Riverside counties. The historic and current ranges of vernal pool fairy shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005). The life cycle of vernal pool fairy shrimp is adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales. Fairy shrimp embryos survive the dry season in cyst form. Cysts "hatch" soon after pools become inundated during the wet season. Fairy shrimp complete their life cycle quickly and feed on small particles of detritus, algae, and bacteria (Eriksen and Belk 1999).

The depressional seasonal wetlands within the Sewer Alternative 2 and within the southern portion of the Project Development Area represent marginally suitable habitat for this species. There is one documented CNDDB occurrence of vernal pool fairy shrimp within five miles of the Study Area (CNDDB 2024). This occurrence (#168) is roughly 3 miles to the west near Mormon Island Dam (CNDDB 2024).

5.2.3 Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is a candidate for listing pursuant to the federal Endangered Species Act. It is a large conspicuous species that occurs in North, Central, and South America; Australia; New Zealand; islands of the Pacific and Caribbean, and elsewhere (Malcolm and Zalucki 1993 in USFWS 2020). During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (*Asclepias* spp.), and larvae emerge after two to five days (Zalucki 1982 in USFWS 2020). Larvae develop over a period of eight to 18 days, feeding on the milkweed and then pupate into chrysalis before eclosing six to 14 days later as an adult butterfly (USFWS 2020). Multiple generations of monarchs are produced during the breeding season, with most adult butterflies living approximately two to five weeks (USFWS 2020).

In California, monarchs continue to occupy and breed in areas near their overwintering groves along the California coast into northern Baja California throughout the year, and also disperse over multiple generations to occupy and breed throughout the state in the spring through fall (USFWS 2020). Migrating monarchs in western North America tend to occur more frequently near water sources such as rivers, creeks, roadside ditches, and irrigated gardens (Morris et al. 2015 in USFWS 2020). Adult monarch butterflies require a diversity of blooming nectar resources during breeding and migration (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within this diverse nectaring habitat.

Milkweed plants throughout the Study Area represent suitable habitat for Monarch butterfly, and at least one Monarch butterfly has been observed within the Study Area. There are no documented occurrences of this species in the CNDDB within 5 miles of the Study Area (CNDDB 2024).

5.3 Amphibians

5.3.1 Foothill Yellow-Legged Frog – South Sierra DPS

Foothill yellow-legged frog (*Rana boylii*) (FYLF) South Sierra Distinct Population Segment (DPS) is listed as endangered under both the federal Endangered Species Act and the California Endangered Species Act. FYLF is a small to medium sized frog with unusual rough and granular skin with many tiny tubercules (Stebbins 2003). Their historic range extends through foothill and mountain streams from the San Gabriel River in Los Angeles County to southern Oregon west of the Sierra-Cascade crest at elevations below 5,000 feet (Nussbaum 1983, Stebbins 2003).

This species occurs in different habitats depending on life stage, season, and weather conditions. Breeding habitat includes margins of relatively wide and shallow channel sections, habitats that experience reduced flow variation (Kupferberg 1996). Foothill yellow-legged frog tadpoles also breed in water temperatures above 13 degrees Celsius in slower-moving pool habitats. The foothill yellow-legged frog occurs in a wide variety of vegetation types including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, mixed chaparral and wet meadows. The frog is closely associated with streams and is rarely observed far from the water's edge. Breeding stream habitat is typically shallow, rocky and at least partially exposed to direct sunlight.

Carson Creek within the Study Area provides suitable habitat for this species, but the Study Area is located at the very edge of the specie's range, and as such, the likelihood of foothill yellow-legged frog occurring within the Study Area is low. There are two CNDDB occurrences of this species within 5 miles of the Study Area. The nearest of these (Occurrence #2) is located approximately 3.4 miles northwest of the Study Area near the intersection of Salmon Falls Road and Green Valley Road, and is considered extirpated. The nearest extant occurrence (#276) is located 4.2 miles to the north along Sweetwater Creek at about 700 feet in elevation, and was most recently documented at this location in October 2023 (CNDDB 2024).

5.4 Reptiles

5.4.1 Northwestern Pond Turtle

The northwestern pond turtle (*Actinemys marmorata*) is proposed for federal listing as threatened and is a CDFW species of special concern. Its favored habitats include streams, large rivers and canals with slow-moving water, aquatic vegetation, and open basking sites (Jennings and Hayes 1994). Although the turtles must live near water, they can tolerate drought by burrowing into the muddy beds of dried drainages. This species feeds mainly on invertebrates such as insects and worms, but will also consume small fish, frogs, mammals and some plants. Northwestern pond turtle predators include raccoons, coyotes, raptors, weasels, large fish, and bullfrogs. This species breeds from mid to late spring in adjacent open grasslands or sandy banks (Jennings and Hayes 1994).

Carson Creek within the Study Area provides suitable habitat for northwestern pond turtle. There are seven documented CNDDB occurrences of northwestern pond turtle within 5 miles of the Study Area, the nearest of which (Occurrence #1646) is located 0.6 miles west of the Study Area in a drainage between ponds west of Silva Valley Parkway (CNDDB 2024).

5.5 Birds

5.5.1 Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) populations, which are currently in decline throughout the state, were listed as threatened under the CESA by the California Fish and Game Commission on 19 April 2018. Historically, colonies were established in freshwater marshes dominated by cattails (*Typha* spp.) and bulrushes (*Scirpus* or *Schoenoplectus* spp.). More recently, they have utilized non-native mustards (*Brassica* spp.), blackberries (*Rubus* spp.), thistles (*Circium* spp.), and mallows (*Malva* spp.) as nesting substrate (Airola et al. 2016). Since the 1980s, the largest colonies have been observed in the San Joaquin Valley in cultivated fields of triticale, which is a hybrid of wheat and rye often grown as livestock fodder (Meese 2014 in CDFW 2018b). This current trend of nesting in active agricultural fields has further imperiled the species as nestlings typically are not fledged by the time the triticale is harvested.

Annual Brome Grassland within the Study Area provides marginally suitable foraging habitat. There are 10 documented CNDDB occurrences of tricolored blackbird within five miles of the Study Area, the nearest of which (CNDDB Occurrence #93) is located approximately 0.6 miles east of the Study Area at Crazy Horse Campground (CNDDB 2024). This site is considered extirpated, but the nearest apparently extant record is #452, approximately three miles to the west, just south of Iron Point Road (CNDDB 2024).

5.5.2 Golden Eagle

Golden eagle (*Aquila chrysaetos*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is categorized as a species of special concern and a fully protected species by the CDFW, and is protected under the federal Bald and Golden Eagle Protection Act. This species is a very large solitary raptor that feeds on mammals, carrion, and reptiles. It typically nests in large trees or cliffsides in rolling to mountainous terrain, and forages in large, expansive open grasslands and savannas (Shuford and Gardali 2008). Although its natural densities are generally believed to be low, it was once relatively common to the open areas of California. Today, golden eagles are rarely observed in the Central Valley. This species typically nests between February and August.

Large, isolated trees within the Study Area provide potential nesting habitat and the Annual Brome Grassland provides suitable foraging habitat. There are two CNDDB occurrences of golden eagle nests within 5 miles of the Study Area, the nearest of which (CNDDB Occurrence #321) is located approximately 2.1 miles west of the Study Area along Via Fiori Road in El Dorado Hills (CNDDB 2024).

5.5.3 Burrowing Owl

Burrowing owl (*Athene cunicularia*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is designated as a species of special concern by the CDFW. They typically inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 1995). The breeding season extends from February 1 through August 31 (CBOC 1993, CDFG 1995).

Although no ground squirrel burrows were observed, the Annual Brome Grassland could provide marginally suitable wintering habitat under scattered debris, or in culverts. There are three CNDDB records of burrowing owls within five miles of the Study Area, the nearest of which (Occurrence #1166) is located approximately 2.3 miles southwest of the Study Area just west of the Sacramento/El Dorado County line (CNDDB 2024).

5.5.4 White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is not federally or state listed, but is a CDFW fully protected species. This species is a yearlong resident in the Central Valley and is primarily found in or near foraging areas such as open grasslands, meadows, farmlands, savannahs, and emergent wetlands (Shuford and Gardali 2008). White-tailed kites typically nest from March through June in trees within riparian, oak woodland, and savannah habitats of the Central Valley and Coast Range (Shuford and Gardali 2008).

The Study Area is outside of the nesting range of the species, but the Annual Brome Grassland throughout the Study Area represents suitable foraging habitat for white-tailed kite, and this species could occur as a winter migrant or occasional summer forager. There are two records of white-tailed kite in the CNDDB, the nearest of which is Occurrence #149, which is located approximately 2.9 miles west of the Study Area just west of Sophia Parkway in El Dorado Hills (CNDDB 2024).

5.5.5 Bald Eagle

Bald eagle (*Haliaeetus leucocephalus*) is no longer federally listed, but it is listed as endangered by CDFW, and is fully protected under state law and the federal Bald and Golden Eagle Protection Act. This species requires large bodies of water or free-flowing rivers with abundant fish and adjacent snags or other perches. It nests in large, live trees with open branchwork, most frequently in stands with less than 40% canopy and near a permanent water source (Zeiner et al. 1998 as updated).

Large, scattered trees throughout the Study Area provide marginally suitable nesting habitat for bald eagle. There are records of bald eagles in the CNDDB within five miles of the Study Area, and this species is regularly documented foraging at Bass Lake and Cameron Park Lake (eBird 2024), both of which are within one mile of the Study Area. The nearest nesting record (CNDDB Occurrence #358) is located approximately 4.2 miles northwest of the Study Area along the edge of Folsom Lake (CNDDB 2024).

5.5.6 Yellow-Breasted Chat

The yellow-breasted chat (*Icteria virens*) is not federally or state listed but is designated as a Species of Special Concern by the CDFW. This species is an uncommon summer (breeding) resident in coastal California and in foothills of the Sierra Nevada. Yellow-breasted chats spend the breeding season in dense scrubs along a stream or river and frequent dense, brushy thickets and tangles near water, and thick understory in riparian woodland. In the valley foothill riparian, this species may occur up to about 4,800 feet elevation and up to 6,500 feet east of the Sierra Nevada (Garrett and Dunn 1981). Loss and degradation of riparian habitat have caused a marked decline in the breeding population in recent decades in California (Remsen 1978).

The arroyo willow riparian scrub along Carson Creek within the Study Area provides suitable habitat for this species, although the likelihood of the species occurring is low due to the small acreage of habitat within the Study Area. Yellow-breasted chat has not been documented within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.5.7 Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is not listed and protected pursuant to either the California or federal Endangered Species Acts; but is a CDFW species of special concern. Loggerhead shrikes nest in small trees and shrubs in woodland and savannah vegetation communities, and forage in open habitats throughout California (Shuford and Gardali 2008). The nesting season ranges from March through June.

The Annual Brome Grassland within the Study Area provides suitable habitat for loggerhead shrike. Loggerhead shrike has not been documented within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.6 Mammals

5.6.1 Pallid Bat

The Pallid bat (*Antrozous pallidus*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a high-priority species along the western coast in California. It favors roosting sites in crevices in rock outcrops and cliffs, caves, abandoned mines, hollows of trees, and human-made structures such as barns, attics, and sheds (WBWG 2024). Though pallid bats are gregarious, they tend to group in smaller colonies of 2 to 20 individuals and are known to roost alone as well. This species is a nocturnal hunter and captures prey in flight, but unlike most American bats, the species has been observed foraging for flightless insects, which it seizes after landing. They forage over open shrub-steppe grasslands, oak savannah grasslands, open Ponderosa pine forests, talus slopes, gravel roads, fruit orchards, and vineyards. (WBWG 2024).

Tree hollows and exfoliating bark on the trees within the Study Area represent suitable roosting habitat for pallid bat. This species has not been documented in the CNDDB within five miles of the Study Area (CNDDB 2024).

5.6.2 Townsend's Big-Eared Bat

The Townsend's big-eared bat (*Corynorhinus townsendii*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a high-priority species along the western coast in California. Townsend's big-eared bat is a fairly large bat with prominent bilateral nose lumps and large rabbit-like ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet (WBWG 2024). Habitats used include coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. This species is readily detectable when roosting due to their habit of roosting pendant-like on open surfaces. Townsend's big-eared bat is a moth specialist with over 90 percent of its diet composed of Lepidopterans. Foraging habitat includes edge habitats along streams as well as adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2024).

Large tree cavities in large decadent trees within the Study Area provide suitable roosting habitat for the Townsend's big-eared bat. The open areas within the Study Area provide suitable foraging habitat for this species. This species has not been documented in the CNDDB within five miles of the Study Area (CNDDB 2024).

5.6.3 Northern California Ringtail

The ringtail (*Bassariscus astutus)* is not federally or state listed but is considered a CDFW fully protected species. This nocturnal species occurs in various riparian habitats, forest brush, and shrublands in association with rocky areas. Ringtail is known to is known to nest in rock recesses, hollow trees, logs, snags, and abandoned burrows, and is usually within approximately 0.6 miles from permanent water (Zeiner et al 1988).

The arroyo willow riparian scrub and the relatively dense oak woodland south of Carson Creek within the Study Area provides suitable habitat for ringtail. This species has not been documented in the CNDDB within five miles of the Study Area (CNDDB 2024).

5.6.4 Silver-Haired Bat

Silver-haired bat (*Lasionycteris noctivagans*) is not federally or state listed but is classified by the WBWG as a Medium priority species. The silver-haired bat occurs in more xeric environments during winter and seasonal migrations (WBWG 2024). This species changes roosts frequently, and use multiple roosts within a limited area, indicating that clusters of large trees are necessary (WBWG 2024). Silver-haired bat roosts in hollow trees, abandoned woodpecker holes, under sloughing bark, in rock crevices, and occasionally under wood piles. They tend to forage above the canopy, over open meadows, and in the riparian zone along water courses. This species is known to eat a wide variety of species; however, moths appear to be a major portion of dietary prey (WBWG 2024).

Tree hollows and exfoliating bark on the trees within the Study Area represent suitable roosting habitat for this species. This species has not been documented in the CNDDB within five miles of the Study Area (CNDDB 2024).

5.6.5 Western Red Bat

The Western red bat (*Lasiurus blossevillii*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a high-priority species. This species is typically solitary, roosting primarily in the foliage of trees or shrubs (WBWG 2024). Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores). Roost sites are generally hidden from all directions except below; allowing the bat to drop downward for flight (WBWG 2024).

The arroyo willow riparian scrub along Carson Creek within the Study Area provides suitable roosting habitat for this species, although the likelihood of the species occurring is low due to the small acreage of habitat within the Study Area. This species has not been documented in the CNDDB within five miles of the Study Area (CNDDB 2024).

5.6.6 Hoary Bat

The hoary bat (*Lasiurus cinereus*) is not federally or state listed but is classified by the WBWG as a medium priority species. It is also considered to be one of the most widespread of all American bats with a range extending from Canada to central Chile and Argentina as well as Hawaii. Hoary bats are solitary and roost primarily in foliage of both coniferous and deciduous trees, and usually at the edge of a clearing (WBWG 2024). This species is primarily crepuscular or nocturnal and requires open areas to hunt its preferred prey item, moths. The hoary bat is considered a forest/woodland species, and in California they are often associated with undisturbed riparian or stream corridors (WBWG 2024).

Trees scattered throughout the Study Area represent suitable roosting habitat for hoary bat. This species has not been documented in the CNDDB within five miles of the Study Area (CNDDB 2024).

5.7 Oak Resources

The tree inventory within the Study Area was conducted in accordance with the ORMP, which requires an inventory of all native oak trees greater than 24" DBH within Oak Woodlands, and all native oak trees greater than 6" DBH outside of the Oak Woodlands. Additionally, the ORMP specifies different mitigation requirements for trees greater than 36" DBH (Heritage Trees), so those are broken out in this section as well.

Oak resources inventoried within the Study Area include 6.2 acres of Oak Woodlands, a total of 17 individual native oak trees greater than 6" DBH outside of the Oak Woodlands (of which 5 are greater than 36" DBH, and 55 native oaks greater than 24" DBH within the Oak Woodlands (of which 28 are greater than 36" DBH) (**Attachment G** and **Table 4**).

Table 4. Oak Trees Inventoried within the Study Area

			Number of Trees (DBH)			
			Blue Oak	**Interior Live Oak**	**Valley Oak**	**Total**
Within Oak Woodlands	**Fair to Good**	24-35" DBH	4 (114.6)	16 (468.1)	1 (24.8)	21 (607.5)
		≥36" DBH	0	24 (1,148.9)	2 (78.3)	26 (1,227.2)
	Poor Condition	24-35" DBH	0	6 (170.7)	0	6 (170.7)
		≥36" DBH	0	2 (81.7)	0	2 (81.7)
Subtotal						55 (2,079.1)
Outside of Oak Woodlands	**Fair to Good**	6-35" DBH	3 (71.0)	0	6 (165.6)	9 (236.6)
		≥36" DBH	2 (83.8)	0	2 (79.7)	4 (163.5)
	Poor Condition	6-35" DBH	0	2 (50.0)	1 (15.7)	3 (65.7)
		≥36" DBH	0	0	1 (37.1)	1 (37.1)
Subtotal						17 (502.9)
Total			9 (269.4)	50 (1,911.4)	13 (401.2)	72 (2,582.0)

6.0 IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

This section details potential impacts to the biological resources discussed above within the Project Area associated with construction of the Project, as discussed in **Section 1.1** and shown on **Figure 2** and in **Attachment A**, including those associated with each of the two sewer alternatives (outlined in **Section 1.2** and shown on **Figure 2**). Waterline Alternative 1 is entirely contained within existing paved areas, would not result in impacts to sensitive biological resources and therefore is not discussed in this section. As noted in **Section 1.3**, Waterline Alternative 2 is not being evaluated in this document. Impacts within the Program Study Area are not known as this area is being evaluated at a programmatic level; therefore, this area is not discussed in this section. However, the vegetation communities and aquatic resources within the Program Study Area are summarized in **Table 1** and **Table 2**, sensitive species with potential to occur within these communities are detailed in **Section 5.0**, and mitigation measures for these resources are provided in **Section 7.0**, below.

Impacts analyzed within this section include both permanent and temporary impacts. Permanent impacts range from mass grading and lot construction to permanent shading of stream areas under bridges. Adjacent to drainages, where bridges are proposed, permanent impacts may include bridge footings and abutments, pan deck, and approach grading. Temporary impacts are impacts that will occur for less than one year's time before the area is restored, and will involve activities including but not limited to: slope grading, utility trenching, environmentally sensitive area fencing, and heavy equipment access into an area for infrastructure installation. Note that where temporary impacts overlap oak resources, those impacts are considered permanent to the oak resources, as the resource cannot be replaced within one year. Some four foot wide dirt pedestrian trails are proposed in the northern portion of the Project Development Area that are not shown on our impact maps; these trails will be designed in-situ to avoid individual oak trees, and given that no concrete will be used, they are expected to cause little to no impact and are not addressed further in this section.

6.1 Aquatic Resources

6.1.1 Project Development Impacts

Within the Project Development Area and Program Study Area, of the 0.977 acre of mapped aquatic resources, 0.560 acre will be permanently impacted by the Project, 0.038 acre will be temporarily impacted by the Project, and 0.380 acre will be avoided (**Table 5** and **Attachment F**).

6.1.2 Sewer Alternative Impacts

6.1.2.1 Sewer Alternative 1

If Sewer Alternative 1 were selected, 0.027 acre of aquatic resources would be permanently impacted, and 0.036 acre would be temporarily impacted.

6.1.2.2 Sewer Alternative 2

If Sewer Alternative 2 were selected, 0.027 acre of aquatic resources would be permanently impacted, and 0.035 acre would be temporarily impacted.

6.1.3 Overall Project Impacts

The Project combined with the sewer line would result in a total of 0.585-0.589 acre of permanent impacts and 0.072-0.073 acre of temporary impacts (**Table 5** and **Attachment F**). The range above represents the full range of cumulative aquatic resources impacts, with the lower end assuming the least impactful sewer alternative, and the upper end assuming the most impactful sewer alternative.

Table 5. Impacts to Aquatic Resources Associated with the Project

Aquatic Resources	Permanent Impacts								Temporary Impacts								Total Impacts							
	PDA[1]		Sewer Alt 1		Sewer Alt 2		Total		PDA[1]		Sewer Alt 1		Sewer Alt 2		Total		PDA[1]		Sewer Alt 1		Sewer Alt 2		Total	
	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)	(acres)	(linear feet)
Seasonal Wetland	0.025		--		0.007		0.025-0.031		--		--		--		--		0.025		--		0.007		0.025-0.031	
Seasonal Wetland Swale	0.017[2]		--		--		0.017		--		--		--		--		0.017		--		--		0.017	
Seep	0.370		--		--		0.370		--		0.005		0.005		0.005		0.370		0.005		0.005		0.375	
Drainage Ditch	0.001	21	--	--	--	--	0.001	21	0.002	35	--	--	--	--	0.002	35	0.003	56	--	--	--	--	0.003	56
Ephemeral Drainage	0.003	159	0.012	176	0.007	108	0.010-0.015	267-335	--	--	0.010	153	0.010	152	0.010	152-153	0.003	159	0.022	329	0.017	260	0.020 – 0.023	419-488
Intermittent Drainage	0.019	109	--	--	--	--	0.019	109	0.015	81	--	--	--	--	0.015	81	0.034	208	--	--	--	--	0.034	208
Perennial Creek	--	--	0.013	22	0.013	22	0.013	22	--	--	0.020	33	0.020	33	0.020	33	--	--	0.033	55	0.033	55	0.033	55
Roadside Ditch	0.125	1,837	0.002	46	--	--	0.125-0.127	1,837-1,883	0.020	269	0.001	31	<0.001	16	0.020-0.021	285-300	0.145	2,106	0.003	77	<0.001	16	0.145 – 0.0148	2,122-2,199
Total	**0.560**	**2,124**	**0.027**	**244**	**0.027**	**130**	**0.585-0.589**	**2,254-2,368**	**0.038**	**244**	**0.036**	**217**	**0.035**	**201**	**0.072-0.073**	**586-602**	**0.597**	**2,529**	**0.063**	**400**	**0.062**	**331**	**0.652 – 0.664**	**2,840-2,986**

[1] Project Development Area

[2] 0.001 acre of seasonal wetland swale that is in the Program Study Area was considered permanently impacted by the Project.

Note: Small summation errors may occur due to rounding. The lower end of the impact ranges assumes the least impactful sewer alternative the upper end of the impact ranges assumes the most impactful sewer alternative.

6.2 Special-Status Plant Species

The vegetation communities proposed for impact represent suitable habitat for a variety of special-status plant species. Protocol-level special-status plant surveys have been conducted throughout the Study Area with negative results. Given that special-status plants are not present within the Study Area, the Project is not expected to have any impact on special-status plants.

6.3 Crotch Bumble Bee

The Annual Grassland within the Project Area is suitable habitat for Crotch bumble bee. This species could be adversely affected if construction activity results in the removal of nests of the species.

6.4 Vernal Pool Fairy Shrimp

6.4.1 Project Development Area Impacts

One depressional seasonal wetland comprising 0.006 acre is suitable habitat for vernal pool fairy shrimp and will be permanently impacted by within the Project Development Area.

6.4.2 Sewer Alternative Impacts

6.4.2.1 Sewer Alternative 1

No vernal pool fairy shrimp habitat is present within Sewer Alternative 1; therefore, implementation of this alternative would not impact vernal pool fairy shrimp.

6.4.2.2 Sewer Alternative 2

One depressional seasonal wetland comprising 0.007 acre is suitable habitat for vernal pool fairy shrimp within Sewer Alternative 2. Implementation of this alternative would permanently impact this feature.

6.4.3 Overall Project Impacts

The Project, including impacts within the Project Development Area and the sewer line would permanently impact 0.006-0.013 acre vernal pool fairy shrimp habitat. The range above represents the full range of cumulative impacts, with the lower end assuming the least impactful sewer alternative, and the upper end assuming the most impactful sewer alternative.

6.5 Monarch Butterfly

Milkweed plants within the Project Area are suitable habitat for Monarch butterfly. Eggs or caterpillars could be destroyed if construction activity results in the removal of milkweed plants that they are occupying.

6.6 Foothill Yellow-Legged Frog

Suitable habitat for foothill yellow-legged frog occurs in Carson Creek in the western portion of the sewer alternatives, and the immediately adjacent uplands. While no fill is proposed in the creek itself, individual frogs could be killed if they were present in the construction area adjacent to the creek.

6.7 Northwestern Pond Turtle

Suitable aquatic habitat for northwestern pond turtle occurs in Carson Creek in the western portion of the sewer alternatives, and the adjacent Oak Woodlands and Arroyo Willow Riparian Scrub within 150 feet provide potential movement habitat. While no fill is proposed in the creek itself, permanent and temporary impacts are proposed in the Oak Woodlands and Arroyo Willow Riparian Scrub adjacent to the creek. If western pond turtles or their nests were present in those areas during construction, individual turtles could be injured or killed, or nests could be destroyed.

Approximately 0.13 acre of northwestern pond turtle movement habitat within 150 feet of Carson Creek will be permanently impacted by the Project along the sewer alignment, and 0.15 acre will be temporarily impacted (**Attachment I**).

6.8 Nesting Raptors and Songbirds

Golden eagle, bald eagle, yellow-breasted chat, and loggerhead shrike have the potential to nest within the Project Area, as do other more common bird species protected by the MBTA. If they were nesting on-site, removal of the nests could kill individuals of these species. Furthermore, birds nesting in avoided areas adjacent to construction could be disturbed by construction, which could result in nest abandonment.

6.9 Burrowing Owl

The Annual Brome Grassland throughout the Project Area provides suitable wintering habitat for burrowing owl, and occasional ground-squirrel burrows and debris throughout the Project Area provide marginally suitable burrow habitat. If ground disturbance occurred while burrowing owls were in burrows, individuals of this species could be killed.

6.10 Foraging Birds

Tricolored blackbird and white-tailed kite have the potential to utilize the Annual Brome Grasslands within Project Area for winter foraging. As there is a relatively large amount of this vegetation type in the vicinity, these species are not anticipated to be significantly impacted.

6.11 Roosting Bats

Trees throughout the Project Area are habitat for various special-status bat species. If special-status bats were roosting in trees to be removed by Project construction, they could be injured or killed during the removal.

6.12 Northern California Ringtail

Removal of trees, downed logs, or snags within the Arroyo Willow Riparian Scrub or dense Oak Woodland south of Carson Creek along the sewer alignment could destroy northern California ringtail nests, and kill individual ringtails if they were present.

6.13 Oak Resources

In accordance with the El Dorado County Oak Resources Conservation Ordinance, impacts to oak resources are calculated differently for Oak Woodland areas and non-Oak Woodland areas. Within mapped Oak Woodlands, impacts are calculated based on impact to oak canopy, plus impacts to any individual native oak trees within the woodland that are 36” or greater DBH. Outside of mapped Oak Woodlands, impacts are calculated based on impacts to each native oak tree that is 6” or greater DBH. Mitigation is only required for trees that are in Fair or better condition, and as a result, impacts have been broken out below based on condition. Note that trees were considered permanently impacted if the trunk fell within either the permanent or temporary impact boundary, or if greater than approximately 30% of the tree’s dripline area would be permanently impacted. Impacted and avoided Oak Woodlands and oak trees are shown on **Attachment J**.

6.13.1 Project Development Area Impacts

A total of 0.3 acre of Oak Woodland will be permanently impacted within the Project Development Area, and 0.2 acre of Oak Woodland will be temporarily impacted within the Project Development Area. Within this area, a total of seven native oak trees with a DBH of 36” or greater will be impacted (six of which are in fair to good condition) (**Table 6**).

In addition, one individual native oak tree with a DBH of 6” or greater outside of Oak Woodlands will be permanently impacted within the Project Development Area, but this tree is in poor condition (**Table 6**).

In summary, a total of 0.5 acres of Oak Woodland and six individual trees in fair to good condition (with a cumulative DBH of 264.3 inches) would be subject to mitigation as a result of impacts within the Project Development Area (**Table 6**).

Table 6. Oak Tree Impacts within the Project Development Area

			Number of Impacted Trees (DBH)			
			Blue Oak	Interior Live Oak	Valley Oak	Total
Trees ≥36” DBH Within Oak Woodlands	**Fair to Good**		0	6 (264.3)	0	6 (264.3)
	Poor Condition		0	1 (38.4)	0	1 (38.4)
Subtotal						7 (302.7)
Trees Outside of Oak Woodlands	**Fair to Good**	6-35” DBH	0	0	0	0
		≥36” DBH	0	0	0	0
	Poor Condition	6-35” DBH	0	1 (23.4)	0	1 (23.4)
		≥36” DBH	0	0	0	0
Subtotal						1 (23.4)
Total Trees in Fair to Good Condition			0	6 (264.3)	0	6 (264.3)
TOTAL			0	8 (326.1)	0	8 (326.1)

6.13.2 Sewer Alternative Impacts

6.13.2.1 Sewer Alternative 1

A total of 1.2 acres of Oak Woodland would be permanently impacted by Sewer Alternative 1, and 1.0 acre of Oak Woodland would be temporarily impacted by Sewer Alternative 1. Within this area, two native oak trees with a DBH of 36” or greater will be impacted (both of which are in fair to good condition) (**Table 7**).

In addition, a total of four individual native oak trees with a DBH of 6” or greater outside of Oak Woodlands would be permanently impacted by Sewer Alternative 1 (three of which are in fair to good condition) (**Table 7**). Of those three trees in fair to good condition that may be impacted, one has a DBH of 36” or greater. In summary, a total of 2.2 acres of Oak Woodland and five individual trees in fair to good condition (with a cumulative DBH of 200 inches) would be subject to mitigation as a result of impacts within Sewer Alternative 1 (**Table 7**).

Table 7. Oak Tree Impacts within Sewer Alternative 1

			Number of Impacted Trees (DBH)			
			Blue Oak	**Interior Live Oak**	**Valley Oak**	**Total**
Trees ≥36" DBH Within Oak Woodlands	**Fair to Good**		0	2 (115.9)	0	2 (115.9)
	Poor Condition		0	0	0	0
Subtotal						2 (115.9)
Trees Outside of Oak Woodlands	**Fair to Good**	6-35" DBH	2 (41.0)	0	0	2 (41.0)
		≥36" DBH	0	0	1 (43.1)	1 (43.1)
	Poor Condition	6-35" DBH	0	1 (26.6)	0	1 (26.6)
		≥36" DBH	0	0	0	0
Subtotal						4 (110.7)
Total Trees in Fair to Good Condition			2 (41.0)	2 (115.9)	1 (43.1)	5 (200.0)
TOTAL			2 (41.0)	3 (142.5)	1 (43.1)	6 (226.6)

6.13.2.1 Sewer Alternative 2

A total of 1.2 acres of Oak Woodland would be permanently impacted by Sewer Alternative 2, and 1.0 acre of Oak Woodland would be temporarily impacted by Sewer Alternative 2. Within this area, two native oak trees with a DBH of 36" or greater will be impacted (both of which are in fair to good condition) (**Table 8**).

In addition, a total of three individual native oak trees with a DBH of 6" or greater outside of Oak Woodlands would be permanently impacted by Sewer Alternative 2 (two of which are in fair to good condition) (**Table 8**). Of those two trees in fair to good condition that may be impacted, one has a DBH of 36" or greater.

In summary, a total of 2.2 acres of Oak Woodland and four individual trees in fair to good condition (with a cumulative DBH of 189.4 inches) would be subject to mitigation as a result of impacts within Sewer Alternative 2 (**Table 8**).

Table 8. Oak Tree Impacts within Sewer Alternative 2

			Number of Impacted Trees (DBH)			
			Blue Oak	Interior Live Oak	Valley Oak	Total
Trees ≥36″ DBH Within Oak Woodlands	**Fair to Good**		0	2 (115.9)	0	2 (115.9)
	Poor Condition		0	0	0	0
Subtotal						2 (115.9)
Trees Outside of Oak Woodlands	**Fair to Good**	6-35″ DBH	0	0	1 (35.0)	1 (35.0)
		≥36″ DBH	1 (38.5)	0	0	1 (38.5)
	Poor Condition	6-35″ DBH	0	1 (26.6)	0	1 (26.6)
		≥36″ DBH	0	0	0	0
Subtotal						3 (100.1)
Total Trees in Fair to Good Condition			1 (38.5)	2 (115.9)	1 (35.0)	4 (189.4)
TOTAL			1 (38.5)	3 (142.5)	1 (35.0)	5 (216.0)

6.13.3 Overall Project Impacts

The Project combined with the sewer line would permanently impact 1.5 acres of Oak Woodland, and temporarily impact 1.2 acres of Oak Woodland. Within the Oak Woodlands, the Project combined with the sewer line would impact nine native oak trees with a DBH of 36″ or greater (eight of which are in fair to good condition).

In addition, a total of 3 - 4 individual native oak trees with a DBH of 6″ or greater outside of Oak Woodlands would be permanently impacted by the Project combined with the sewer line (2 - 3 of which are in fair to good condition). Of the 2 - 3 trees in fair to good condition that may be impacted, 2 have a DBH of 36″ or greater (one along each sewer alternative).

Of these impacts, a cumulative total of 2.7 acres of Oak Woodland and 11-12 individual trees in fair to good condition (with a cumulative DBH of 453.7 - 464.3) would be subject to mitigation. The ranges above represent the full range of cumulative impacts, with the lower end assuming the least impactful sewer alternative, and the upper end assuming the most impactful sewer alternative. Where impacts are the same for both sewer alternative, no range is presented.

6.14 Sensitive Natural Communities

One vegetation community mapped within the Project Area is considered to be a "Sensitive Natural Community" by CDFW: Arroyo Willow Riparian Scrub. Arroyo Willow Riparian Scrub does not occur within the Project Development Area, but occurs within the portion of the proposed sewer line alignment that is shared by both alternatives. Whichever sewer alternative is selected, approximately 0.03 acre of Arroyo Willow Riparian Scrub will be permanently impacted by the Project, and 0.05 acre will be temporarily impacted (**Attachment I**).

6.15 Wildlife Corridors

The majority of the Project Area is comprised of Annual Brome Grasslands and paved roadways virtually identical to surrounding areas, and largely conducive to wildlife movement, but not necessarily corridors. The Oak Woodlands around the intermittent drainage could serve as a low-quality wildlife corridor, and the Arroyo Willow Riparian Scrub and surrounding Oak Woodland along Carson Creek is also expected to serve as a wildlife corridor. Lastly, deer may utilize the Bass Lake Road undercrossing under Highway 50 to the south of the Project Area as a migration corridor to access open areas south of Highway 50.

The potential wildlife corridor along the intermittent drainage is low-quality due to the fact that the current western terminus of the drainage is a relatively small culvert that carries the flow under Bass Lake Road. This structure does not allow for large wildlife passage, and a tall (20 foot plus) road prism and the very busy Bass Lake Road are the only way for large wildlife to continue west. As a result, wildlife use of this corridor is likely minimal. However, the Project has been designed to preserve this wildlife corridor to the extent possible.

The much higher quality wildlife corridor along Carson Creek would be largely unaffected by the Project. This wildlife corridor is located within the portion of the proposed sewer line alignment that is shared by both alternatives. The Creek itself will be crossed with a bridge, and the only permanent impact in this location apart from the bridge will be a sewer maintenance road that may be used as a recreational trail by area residents. Trails are easily crossed by wildlife and maintenance vehicles will only very occasionally use the access road. As a result, this impact is not expected to significantly impact existing wildlife corridors.

Deer use of the Bass Lake Road undercrossing to access open areas south of Highway 50 could be somewhat impacted by development within the PDA, as the grasslands within the PDA will be removed. However, extensive grasslands will still be available to the west of the PDA, and some grasslands will still be present to the east, and as a result, substantial impacts to deer movement are not anticipated. Furthermore, the Project will not impact the undercrossing itself. Therefore, the Project is not expected to significantly impact deer use of the Bass Lake Road undercrossing.

In summary, no significant impacts to wildlife corridors are expected as a result of Project implementation.

7.0 MITIGATION FOR IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

The following are mitigation measures that are often required by CEQA lead agencies for impacts to sensitive biological resources that may be associated with construction of the Project.

7.1 Aquatic Resources

1. The Project proponent shall apply for a Section 404 permit from the U.S. Army Corps of Engineers for impacts to regulated Waters (Waters) of the U.S. Waters that will be impacted shall be replaced

or rehabilitated on a "no-net-loss" basis. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods acceptable to the USACE.

2. The Project proponent shall apply for WDRs and/or a Water Quality Certification from the RWQCB (depending on the limit of federal jurisdiction to wetlands and waters of the U.S. in place at the time) and adhere to the certification conditions. Waters of the state that will be impacted shall be replaced or rehabilitated on a "no-net-loss" basis. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods acceptable to the RWQCB.
3. The Project proponent shall apply for a Section 1600 Lake or Streambed Alteration Agreement from CDFW. Minimization and avoidance measures will be proposed as appropriate and may include: preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas adjacent to open space areas with native seed, and installation of project-specific storm water BMPs. Mitigation may include restoration or enhancement of resources on- or off-site, purchase habitat credits from an agency-approved mitigation/ conservation bank, off-site, working with a local land trust to preserve land, or any other method acceptable to CDFW.

7.2 Special-Status Plant Species

Special-status plant surveys have been conducted throughout the Study Area with negative results. However, given enough time, plants may become established in areas where suitable habitat exists. If construction does not commence prior to the spring of 2026, another round of special-status plant surveys shall be conducted in areas proposed for impact prior to commencement of construction. Surveys shall be conducted area in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), the *Botanical Survey Guidelines of the California Native Plant Society* (CNPS 2001), and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). This protocol includes conducting surveys at the appropriate time of year, when plants are in bloom.

If no special-status plant species are found, no further mitigation would be required. If special-status plants are found and will be impacted, mitigation for those impacts will be determined by a qualified botanist/biologist. Specific mitigation measures will be determined based on the plant species affected, physical conditions at the impact site, and conditions at a proposed mitigation site (if applicable). Options for mitigating annual plants could include:

- Avoidance
- Seed collection and planting at a mitigation site
- Collection of seed-bearing soil, to be spread at a mitigation site

Options for perennial plants could include:

- Avoidance
- Transplantation of plant to a mitigation site
- Propagation using cuttings, to be planted at a mitigation site
- Seed collection and planting at a mitigation site

If special-status plants will be impacted, a qualified biologist shall prepare an avoidance and mitigation plan detailing protection and avoidance measures, transplantation procedures, success criteria, and long-term monitoring protocols. This plan shall be approved by the County, and shall ensure that mitigation for the impacts to rare plants will result in no net loss of individual plants after a five year monitoring period. In addition, a pre-construction worker awareness training shall be conducted to alert workers to the presence of and protections for special-status plants.

If plants listed under FESA or CESA are located within the Project impact area and those plants cannot be avoided, the Project proponent shall coordinate with USFWS or CDFW (as appropriate) for issuance of an Incidental Take Permit (ITP) and shall implement similar mitigation measures as outlined above and ultimately approved by the appropriate agency.

7.3 Crotch Bumble Bee

Crotch bumble bee was designated as a candidate for listing under the CESA in 2019, but no decision on listing has been published. If, at the time of Project implementation, the species is not a CESA candidate or CESA listed, and it does not fall into any of the other special-status categories defined in **Section 3.0**, then it would not qualify for protections under CEQA and no mitigation is necessary. Furthermore, because Crotch bumble bee is a candidate species, appropriate mitigation measures are still being developed and refined. Madrone has developed the following measure based on current literature and research. If at a later date a different mitigation measure is determined to be more appropriate, that can be submitted to the County at that time for review and approval.

- Initial ground-disturbing work (e.g., grading, vegetation removal, staging) shall take place between 1 September and 31 March (i.e., outside the colony active period), if feasible, to avoid impacts on Crotch bumble bee.
- If completing all initial ground-disturbing work between 1 September and 31 March is not feasible, then a senior biologist with 10 or more years of experience conducting biological resource surveys within California shall conduct a pre-construction survey for Crotch bumble bee in the area proposed for impact no more than 14 days prior to the commencement of construction activities. The survey shall occur during the period from one hour after sunrise to two hours before sunset, with temperatures between 65° F and 90° F, with low wind and no rain. If the timing of the start of construction makes the survey infeasible due to the temperature requirements, the surveying biologist shall select the most appropriate days based on the National Weather Service seven-day forecast and shall survey at a time of day that is closest to the temperature range stated above. The survey duration shall be commensurate with the extent of suitable floral resources (which represent foraging habitat) present within the area proposed for impact and the level of effort shall be based on the metric of a minimum of one person-hour of searching per three acres of suitable floral resources/foraging habitat. A meandering pedestrian survey shall be conducted throughout the area proposed for impact in order to identify patches of suitable floral resources. Suitable floral resources for Crotch bumble bee include species in the following families: Apocynaceae, Asteraceae, Boraginaceae, Fabaceae, and Lamiaceae.
- At a minimum, pre-construction survey methods shall include the following:

- Search areas with floral resources for foraging bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging bumble bees are present.
- If bumble bees are observed, attempt to photograph the individual and identify it to species.
- If Crotch bumble bee is observed, watch any Crotch bumble bees present and observe their flight patterns. Attempt to track their movements between foraging areas and the nest.
- Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat.
- If floral resources or other vegetation preclude observance of the nest, small areas of vegetation may be removed via hand removal, line trimming, or mowing to a height of no less than 4 inches to assist with locating the nest.
- Look for concentrated Crotch bumble bee activity.
- Listen for the humming of a nest colony.

▪ The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed bumble bee activity, a list of bumble bee species observed, a description of any vegetation removed to facilitate the survey, and their determination of if survey observations suggest a Crotch bumble bee nest(s) may be present or if construction activities could result in take of Crotch bumble bees. The report shall be submitted to the County prior to the commencement of construction activities.

▪ If no bumble bees are located during the pre-construction survey or the bumble bees located are definitively identified as common (i.e., not special-status) species, then no further mitigation or coordination with CDFW is required.

▪ If any sign(s) of a bumble bee nest is observed, and if it cannot be established the species present is not a Crotch bumble bee, then construction shall not commence until either 1) the bumble bees present are positively identification as common (i.e., not special status) by an experienced bumble bee taxonomist, or 2) the completion of coordination with CDFW to identify appropriate mitigation measures, which may include but not be limited to: waiting until the colony active season ends, establishment of nest buffers, or obtaining an Incidental Take Permit (ITP) from CDFW.

▪ It is recommended, but not required that the Project Applicant also survey the proposed impact areas the year before construction begins in order to avoid potential last-minute delays associated with identifying Crotch bumble bees on-site immediately prior to construction activities. To be most effective, this optional survey should follow the protocol outlined above.

▪ If Crotch bumble bees are located, and after coordination with CDFW take of Crotch bumble bees cannot be avoided, the Applicant shall obtain an ITP from CDFW prior to County approval of permits authorizing construction, and the Project proponent shall implement all conditions identified in the ITP. Mitigation required by the ITP may include but will not be limited to, the Project Applicant translocating nesting substrate in accordance with the latest scientific research to another suitable location (i.e., a location that supports similar or better floral resources as the impact area), enhancing floral resources in portions of the Project Area that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.

7.4 Vernal Pool Fairy Shrimp

Two depressional seasonal wetlands within the Project Area represent potential habitat for vernal pool fairy shrimp. The applicant may choose to conduct surveys for this species; these surveys shall be conducted in accordance with the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017). If vernal pool fairy shrimp are not found during protocol-level wet and dry season surveys, no further mitigation will be required. If protocol-level surveys of these features are not conducted, or if vernal pool fairy shrimp are found during protocol-level wet- or dry season surveys of the features, then the Project proponent or the USACE (depending on the regulatory mechanism) shall consult with the USFWS regarding impacts to vernal pool fairy shrimp associated with the Project.

The Project proponent shall comply with any conditions of the appropriate take authorization from the USFWS prior to County approval of any permit authorizing construction. The conditions in this take authorization may include but will not be limited to fencing off avoided habitat, worker awareness trainings, preservation, restoration, or enhancement of habitat on- or off-site to compensate for indirect and/or direct effects; purchase of habitat credits from an agency-approved mitigation/conservation bank; working with a local land trust to preserve land; or any other method acceptable to USFWS.

7.5 Monarch Butterfly

Monarch butterfly was designated as a candidate for listing under the ESA in 2020, but no decision on listing has been published. If, at the time of project implementation, it is not a ESA candidate or ESA listed, and it does not fall into any of the other "special-status" categories defined in **Section 3.0**, then it would not qualify for protections under CEQA and no mitigation is necessary. Furthermore, as this is a candidate species, appropriate mitigation measures are still being developed and refined for this species. We have developed the following measure based on current literature and research. If at a later date, a different mitigation measure is determined to be more appropriate, that can be submitted to the County and USFWS at that time for review and approval.

If construction occurs within annual brome grassland during the time when milkweed plants may host monarch eggs or caterpillars (approximately mid-March through late September), a pre-construction survey shall be conducted by a qualified biologist no earlier than 15 days prior to construction within the proposed impact area and a 50-foot buffer in accessible areas. The biologist shall comprehensively search the Survey Area for milkweed plants, and all milkweed plants found shall be surveyed for monarch eggs, larvae (i.e., caterpillars), and chrysalises. Additionally, other plants immediately adjacent to milkweed plants shall also be searched for chrysalises. If no eggs, caterpillars, or chrysalises are detected, no additional mitigation measures are necessary.

If eggs, caterpillars or chrysalises are found, the plants shall be avoided with a 50-foot buffer until metamorphosis is completed and adult butterflies emerge and voluntarily leave the host plant. If the eggs, larvae, or chrysalises cannot be avoided, all eggs, larvae, and chrysalises, including the portion of the plant to which they are attached, will be translocated to an alternative location. That location must be a minimum of 50 feet outside of the impact area and contain a similarly sized or larger population of larval host plants. The portions of the plants supporting eggs or chrysalises shall be tied to the live stem of the avoided larval host plant while caterpillars will be placed directly on a stem or leaf of a larval host plant. Should the species be listed under FESA in the future, coordination with USFWS shall be conducted prior to translocation.

7.6 Foothill Yellow-Legged Frog

Carson Creek represents suitable habitat for foothill yellow-legged frog (FYLF). We recommend the following measures to mitigate potential impacts to this species prior to initiation of ground disturbance activities within 100 feet of Carson Creek, associated with the off-site sewer pipe.

- As part of the CWA Section 404 USACE permitting for the Project, the USACE will conduct formal Endangered Species Act consultation with the USFWS on potential impacts to federally-listed species or species that are proposed for listing; this may include FYLF[2]. If the USACE consults with USFWS on FYLF, the Applicant shall prepare a Biological Assessment, which will include details on potential impacts and mitigation for foothill yellow-legged frog, to be submitted to the USACE and the USFWS.
- If take of FYLF is determined to be likely, the Applicant shall submit an application for an CDFW Code Section 2081 Incidental Take Permit.
- If it is determined that take of FYLF is likely to occur, the Applicant shall abide by mitigation measures developed during the course of the Endangered Species Act consultation with the USFWS and CDFW. These mitigation measures could include, but are not limited to seasonal work restrictions for initial ground disturbance, pre-construction surveys by a qualified biologist, the installation of wildlife exclusion fencing, biological monitoring, and worker environmental awareness training. If it is determined that take of FYLF is likely to occur, additional measures could include preservation, restoration, or enhancement of habitat on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank, working with a local land trust to preserve land, or any other method acceptable to USFWS and CDFW. The mitigation measures listed below may be implemented if take of FYLF is likely to occur. The mitigation measures listed below may differ from mitigation measures included in a USFWS Biological Opinion or a CDFW Incidental Take Permit. If that occurs, the measures in the USFWS Biological Opinion and CDFW Incidental Take Permit take precedence.
  - The Project proponent shall develop a Pre-Construction Survey Plan for FYLF and submit it to the USFWS and CDFW for approval prior to ground-disturbing activities within 100 feet of Carson Creek. The Plan shall include what life-stage(s) shall be surveyed for, survey method(s), and timing of survey(s). The Plan shall provide justification for timing and methodology of survey design (e.g., watershed characteristics, regional snow pack, timing and rate of spring runoff, day length, average ambient air and water temperatures, local and seasonal conditions). For sites with suitable breeding habitat, two consecutive seasons of negative egg mass/larval surveys are recommended to support a negative finding.

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[2] The USACE may choose not to consult with USFWS on FYLF as no direct impacts to USACE jurisdictional FYLF habitat are proposed; impacts would only be indirect.

- Within 3-5 days prior to entering or working within 100 feet of Carson Creek, a USFWS and CDFW-approved biologist shall perform a pre-construction survey, as specified in the Pre-Construction Survey Plan, within a 500-foot buffer zone upstream and downstream of the construction area (if permitted by adjacent land owners). The survey shall include a description of any standing or flowing water. Permittee shall provide Pre-Construction Survey notes and observations to the USFWS and CDFW prior to commencing Covered Activities.
- The Project proponent shall develop a Relocation Plan for FYLF and submit it to the USFWS and CDFW for approval prior to ground-disturbing activities within 100 feet of Carson Creek. The Relocation Plan shall include what life stage(s) will be relocated (e.g., adults or egg masses) and specific protocols for each life stage. The Relocation Plan shall quantify the amount, location, and quality of suitable receiving habitat (e.g., breeding and dispersal habitat). The Relocation Plan shall include capture and handling methods specific to each life stage.
- The Project proponent shall ensure that Covered Activities involving construction and heavy equipment use (such as excavation, grading, and contouring) that are conducted in streams, ponds, and riparian areas are limited to the period from May 1 to October 15 of each year (Dry Season). Any work outside of the Dry Season shall be subject to approval of the USFWS and CDFW.
- Prior to the start of construction within 100 feet of Carson Creek, high visibility orange fencing shall be installed around approved work areas. The fencing shall remain in place while construction activities are ongoing and shall be regularly inspected and fully maintained at all times.
- The Project proponent shall develop a Water Diversion Plan for FYLF and submit it to CDFW for approval prior to any in-stream activities. The Water Diversion Plan shall contain detailed descriptions of the water intake screening (e.g., screen material, size, cleaning method, etc.), the duration of the water diversion, how the Project proponent will ensure that aquatic life will be maintained or relocated from the dewatered area, diversion materials (unacceptable materials that are deleterious to fish and wildlife include particle board, plastic sheeting, bentonite, pressure-treated lumber, creosote, concrete, or asphalt), and monitoring methods for the diversion.

▪ If it is determined that take of FYLF is unlikely to occur, the Applicant shall conduct a pre-construction Visual Encounter Survey (VES) survey for the species within 15 days prior to initiation of ground disturbance within 100 feet of Carson Creek. The survey shall be conducted in accordance with the Peek et al (2017) *Visual encounter survey protocol for Rana boylii in lotic environments*, but only implement the life-stage survey(s) that are appropriate for the time of year of the survey (which will be based on when construction commences). If survey results are negative, then no further mitigation will be required. If FYLF are found during the survey, then take should be considered likely to occur, and consultation with USFWS and CDFW as outlined above shall occur.

7.7 Northwestern Pond Turtle

A northwestern pond turtle survey shall be conducted no more than 48 hours prior to construction where construction activities overlap with suitable aquatic habitat (Carson Creek), and where construction will occur in arroyo willow riparian scrub or oak woodlands within 150 feet of these aquatic resources. If no northwestern pond turtles or nests are found, no further mitigation is necessary. If a northwestern pond turtle is observed within the proposed impact area, a qualified biologist shall relocate the individual to habitat of equivalent or greater value outside of the proposed impact area prior to construction. If a northwestern pond turtle nest is observed within the proposed impact area, the nest shall be fenced off and avoided until the eggs hatch. The exclusion fencing shall be placed no less than 25 feet from the nest. A qualified biologist shall monitor the nest daily during construction to ensure that hatchlings do not disperse into the construction area. Relocation of hatchlings will occur as stipulated above, if necessary.

If as part of the CWA Section 404 USACE permitting for the Project, the USACE determines that formal Endangered Species Act (ESA) consultation with the USFWS is needed, the Project proponent shall abide by the mitigation measures developed during the course of the Endangered Species Act consultation, which shall supersede these measures. These mitigation measures could include but are not limited to, seasonal work restrictions for initial ground disturbance, dewatering protocols, pre-construction surveys by a qualified biologist, the installation of wildlife exclusion fencing, turtle relocation, nest avoidance, biological monitoring, and worker environmental awareness training. Additional measures could include preservation, restoration, or enhancement of habitat on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank, working with a local land trust to preserve land, or any other method acceptable to USFWS.

7.8 Nesting Raptors and Other Birds

Project construction will require the removal of vegetation that provides nesting habitat for migratory bird species, including special-status species such as tricolored blackbird, golden eagle, bald eagle, yellow-breasted chat, and loggerhead shrike,. If birds are nesting in the Project Area at the time of construction, activity could disturb nesting birds, resulting in the loss of eggs or young or nest abandonment. In order to prevent potential disturbance and/or direct effects to active nests, the Project proponent shall implement the following:

- If ground disturbance or other construction activities are proposed during the bird nesting season (February 1 – August 31), a focused survey for nesting raptors and migratory bird nests shall be conducted by a qualified biologist within 14 days prior to the beginning of construction activities in order to identify active nests. This survey shall be conducted within the proposed construction area and all accessible areas within the following buffer areas:
  - 0.5-mile for bald eagle and golden eagle
  - 0.25-mile for tree-nesting raptors
  - 500 feet for all other species

- Burrowing owl pre-construction surveys of suitable habitat will be conducted within 14 days prior to the beginning of construction activities consistent with the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- If active raptor nests are found, no construction activities shall take place within 0.25-mile for golden eagles or within 500 feet of other raptor nest(s) until the young have fledged. If active songbird nests are found, a 100-foot no disturbance buffer will be established. These no-disturbance buffers may be reduced based on consultation and approval by the County.
- The limit of work shall be indicated by bright orange temporary fencing or other similar highly-visible marker. No construction activities or personnel shall cross the fencing, except with approval of a qualified biologist. If trees containing nests or burrows must be removed as a result of Project implementation, removal shall be completed during the nonbreeding season (late September to March) if possible, or after a qualified biologist determines that the young have fledged (during the breeding season).
- If no active nests are found during the required pre-construction surveys, no further mitigation will be required.
- Survey results shall be provided to the County within 15 days of completion of all surveys. Surveys shall be repeated if there is a break of construction of more than 14 days during the nesting season.

7.9 Roosting Bats

A qualified biologist shall conduct a bat habitat assessment of all potential roosting habitat features, including trees and structures within the proposed impact footprint. This habitat assessment shall identify all potentially suitable roosting habitat and may be conducted up to one (1) year prior to the start of construction.

If potential roosting habitat is identified within the areas proposed for impact, the biologist shall survey the potential roosting habitat within 14 days prior to tree removal to determine presence of roosting bats. These surveys are recommended to be conducted utilizing methods that are considered acceptable by CDFW and bat experts. Methods may include evening emergence surveys, acoustic surveys, inspecting potential roosting habitat with fiberoptic cameras or a combination thereof.

If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required. If roosting bats are found, exclusion shall be conducted as recommended by a qualified biologist. Methods may include acoustic monitoring, evening emergence surveys, and the utilization of two-step tree removal supervised by a qualified biologist. Two-step tree removal involves removal of all branches that do not provide roosting habitat on the first day, and the next day cutting down the remaining portion of the tree. Once the bats have been excluded, tree removal may occur.

7.10 Northern California Ringtail

Within 14 days prior to the initiation of any construction activities in suitable habitat (riparian habitats, oak woodlands with shrubby understory, and/or trees five inches DBH or greater in riparian areas, particularly those with cavities), a qualified biologist shall conduct non-invasive preconstruction surveys for Northern California ringtail and ringtail nests in suitable habitat that will be disturbed by construction activity. Non-invasive methods may include camera traps and track plates as well as physical surveys of suitable habitat. If ringtail are found prior to the initiation of, and/or during construction activities, a qualified biologist shall consult with CDFW prior to relocation of any individual ringtail. The camera trap may be removed once construction begins.

If a ringtail nest is observed within the Project Area during the preconstruction survey, a qualified biologist shall establish a 250 foot no-disturbance buffer and the nest shall be fenced off and avoided until the young have left the nest, and the nest is no longer active as determined by the qualified biologist. A qualified biologist shall monitor to ensure that ringtails do not disperse into the construction area.

If any ringtails are observed within the Project Area, work will be suspended in a 100-foot radius of the animal until the animal leaves the Project Area on its own volition. If necessary, the qualified biologist will notify CDFW to determine the appropriate procedures related to relocation. Any worker who inadvertently injures or kills a ringtail or who finds one dead, injured, or entrapped must immediately report the incident to a qualified biologist.

CDFW may require mitigation for potential impacts to ringtail as part of a streambed alteration agreement. If CDFW assigns mitigation that is more stringent than the measure proposed above, the CDFW measure shall take precedence.

7.11 Oak Resources

Project implementation would result in permanent impacts to Oak Woodland, as well as individual oak trees. Note that all areas of temporary impacts to Oak Woodlands have been considered permanent for purposes of this analysis as large trees cannot be removed and immediately replaced. During final review, it may be determined that some of these areas are not permanently impacted as they only fall under canopy and do not result in tree removal. An Oak Resources Technical Report as required by Chapter 130.39 of the El Dorado County Code has been prepared and is included as **Attachment G**. This document shall be updated if the Project design is modified or refined.

Heritage trees are defined as native oak trees with a DBH of 36" or greater. In accordance with the ORMP, mitigation for impacts to these trees must occur at a ratio of 3:1.

Mitigation for Oak Woodlands and Individual Oak Trees shall be accomplished using one or more of the following options:

a. In-lieu fee payment based on the percent of on-site Oak Woodland impacted by the development and the DBH inches of trees impacted (as detailed in **Sections 7.10.1 and 7.10.2** below) to be either used by the County to acquire off-site deed restrictions and/or conservation easements or to be given by the County to a land conservation organization to acquire off-site deed restrictions and/or conservation easements. Note that the current in-lieu fee is $8,285 per acre of Oak Woodland mitigation, and $153 per DBH inch for mitigation of Individual Trees.
b. Off-site deed restriction or conservation easement acquisition for purposes of off-site Oak Woodland conservation consistent with Chapter 4.0 (Priority Conservation Areas) of the ORMP;
c. Replacement planting within an area on-site for up to 50 percent of the total Oak Woodland mitigation requirement consistent with Section 2.4 (Replacement Planting Guidelines) of the ORMP. This area shall be subject to a Deed Restriction or Conservation Easement;
d. Replacement planting within an area off-site for up to 50 percent of the total Oak Woodland mitigation requirement. Off-site replacement planting areas shall be consistent with Section 2.4 (Replacement Planting Guidelines) and Chapter 4.0 (Priority Conservation Areas) of the ORMP. This area shall be subject to a Deed Restriction or Conservation Easement; or
e. A combination of options a through d above.

7.11.1 Oak Woodland

The Project as proposed would impact 0.5 acres of the 4.0 acres of Oak Woodland mapped within the Project Development Area. Implementation of either sewer alternative would result in impacts to 2.2 acres of Oak Woodland. This is a cumulative total of 2.7 acres (44%) of impact of the total 6.2 acres of Oak Woodland mapped within the Project Area. In accordance with the ORMP, the Project proponent would be required to mitigate at a ratio of 1:1 for impacts to 0-50% of the Oak Woodland within the Project Area. Based on this ratio, the Project would require 2.7 acres of Oak Woodland mitigation. Payment of the in-lieu fee for this impact would cost a total of $22,369.50, based on the current in-lieu fee.

7.11.2 Heritage and Individual Tree Mitigation

7.11.2.1 Project Development Area

As detailed in **Section 6.11.1**, six Heritage Trees in fair to good condition occur within the Oak Woodland proposed for impact within the Project Development Area. There are no individual trees outside of mapped Oak Woodland in fair to good condition that are proposed for impact. The six Heritage Trees proposed for impact have a cumulative DBH of 264.3 inches. Based on a mitigation ratio of 3:1 for Heritage Trees, impacts to these trees within the Project Development Area would incur mitigation DBH of 792.9 DBH inches. Payment of the in-lieu fee for impacts to these trees would cost a total of $121,313.70, based on the current in-lieu fee.

7.11.2.2 Sewer Alternative 1

As detailed in **Section 6.11.2.1**, two Heritage Trees in fair to good condition occur within the Oak Woodland proposed for impact within Sewer Alternative 1, and one individual Heritage Tree is also proposed for impact. In addition, two smaller individual trees outside of mapped Oak Woodland are proposed for impact. The three Heritage Trees have a cumulative DBH of 159.0 inches, and the two individual trees have a cumulative DBH of 41.0 inches. Based on a mitigation ratio of 3:1 for Heritage Trees and 1:1 for smaller trees, impacts to these trees associated with Sewer Alternative 1 would incur mitigation DBH of 518.0 DBH inches. Payment of the in-lieu fee for impacts to these trees would cost a total of $79,254.00, based on the current in-lieu fee.

7.11.2.3 Sewer Alternative 2

As detailed in **Section 6.11.2.2**, two Heritage Trees in fair to good condition occur within the Oak Woodland proposed for impact within Sewer Alternative 2, and one individual Heritage Tree is also proposed for impact. In addition, one smaller individual tree outside of mapped Oak Woodland is proposed for impact. The three Heritage Trees have a cumulative DBH of 154.4 inches, and the individual tree has a DBH of 35.0 inches. Based on a mitigation ratio of 3:1 for Heritage Trees and 1:1 for smaller trees, impacts to these trees associated with Sewer Alternative 2 would incur mitigation DBH of 498.2 DBH inches. Payment of the in-lieu fee for impacts to these trees would cost a total of $76,224.60, based on the current in-lieu fee.

7.11.2.4 Overall Project Impacts

The Project combined with the sewer line would impact nine Heritage Trees in fair to good condition within the Oak Woodland proposed for impact, and one individual Heritage Tree. In addition, the Project combined with the sewer line would impact 1 - 2 smaller individual trees outside of mapped Oak Woodland. The ten Heritage Trees have a cumulative DBH of 418.7 – 423.2 inches, and the 1 - 2 individual trees have a cumulative DBH of 35.0 – 41.0 inches. Based on a mitigation ratio of 3:1 for Heritage Trees and 1:1 for smaller trees, impacts to trees for the Project combined with the sewer line would incur mitigation DBH of 1,291.1 – 1,310.6 DBH inches. Payment of the in-lieu fee for impacts to these trees would cost a total of $197,538.3 - $200,521.80, based on the current in-lieu fee.

7.12 Worker Environmental Awareness Training

Prior to any ground-disturbing or vegetation-removal activities, a Worker Environmental Awareness Training (WEAT) shall be prepared and administered to the construction crews. The WEAT will include the following: discussion of the state and federal Endangered Species Act, the Clean Water Act, the Project's permits and CEQA documentation, and associated mitigation measures; consequences and penalties for violation or noncompliance with these laws and regulations; identification of special-status wildlife, location of any avoided Waters of the U.S; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a special-status wildlife species. The WEAT will also discuss the different habitats used by the species' different life stages and the annual timing of these life stages. A handout summarizing the WEAT information shall be provided to workers to keep on-site for future reference. Upon completion of the WEAT training, workers will sign a form stating that they attended the training, understand the information presented and will comply with the regulations discussed. Workers will be shown designated "avoidance areas" during the WEAT training; worker access should be restricted to outside of those areas to minimize the potential for inadvertent environmental impacts.

7.13 Program Study Area

As summarized in Tables 1 and 2 above, the Program Study Area (PSA) is comprised of 27.9 acres of annual brome grassland and 0.2 acre of paved road. No oak or other trees occur within the PSA. Within the annual brome grassland are 0.001 acre of seasonal wetland swale and 0.100 acre of roadside ditch. These terrestrial and aquatic resources represent potential habitat for the following species:

- Big-scale balsamroot (CRPR List 1B.2)
- Spicate rosinweed (CRPR List 1B.3)
- Crotch bumblebee (California candidate for listing)
- Monarch butterfly (Federal candidate for listing)
- Tricolored blackbird foraging (California endangered and California species of special concern)
- Golden eagle foraging (California fully protected species)
- Burrowing owl wintering (California species of special concern)
- White-tailed kite foraging (California fully protected species)
- Loggerhead shrike (California species of special concern)

Depending on the ultimate development proposal, impacts within the PSA could impact up to 27.9 acres of annual brome grassland, 0.2 acre of paved road, 0.001 acre of seasonal wetland swale, and 0.100 acre of roadside ditch. Mitigation measures that may apply to potential future development within the Program Study Area include the following:

- **Section 7.1 – Aquatic Resources,**
- **Section 7.2 – Special-Status Plants,**
- **Section 7.3 – Crotch Bumblebee,**
- **Section 7.5 – Monarch Butterfly,**
- **Section 7.8 – Nesting Raptors and Other Birds, and**
- **Section 7.12 – Worker Environmental Awareness Training**.

8.0 REFERENCES

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Figures

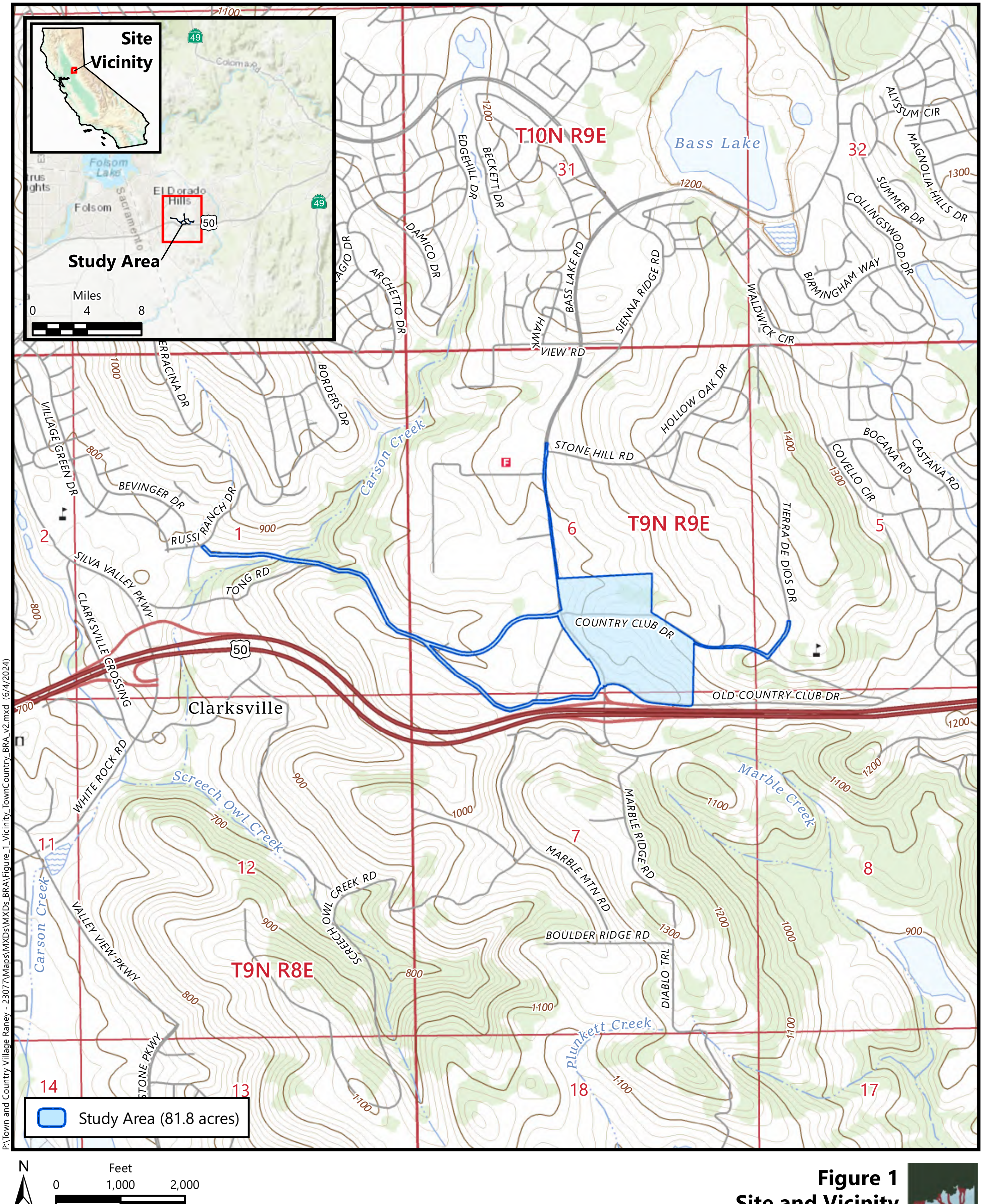

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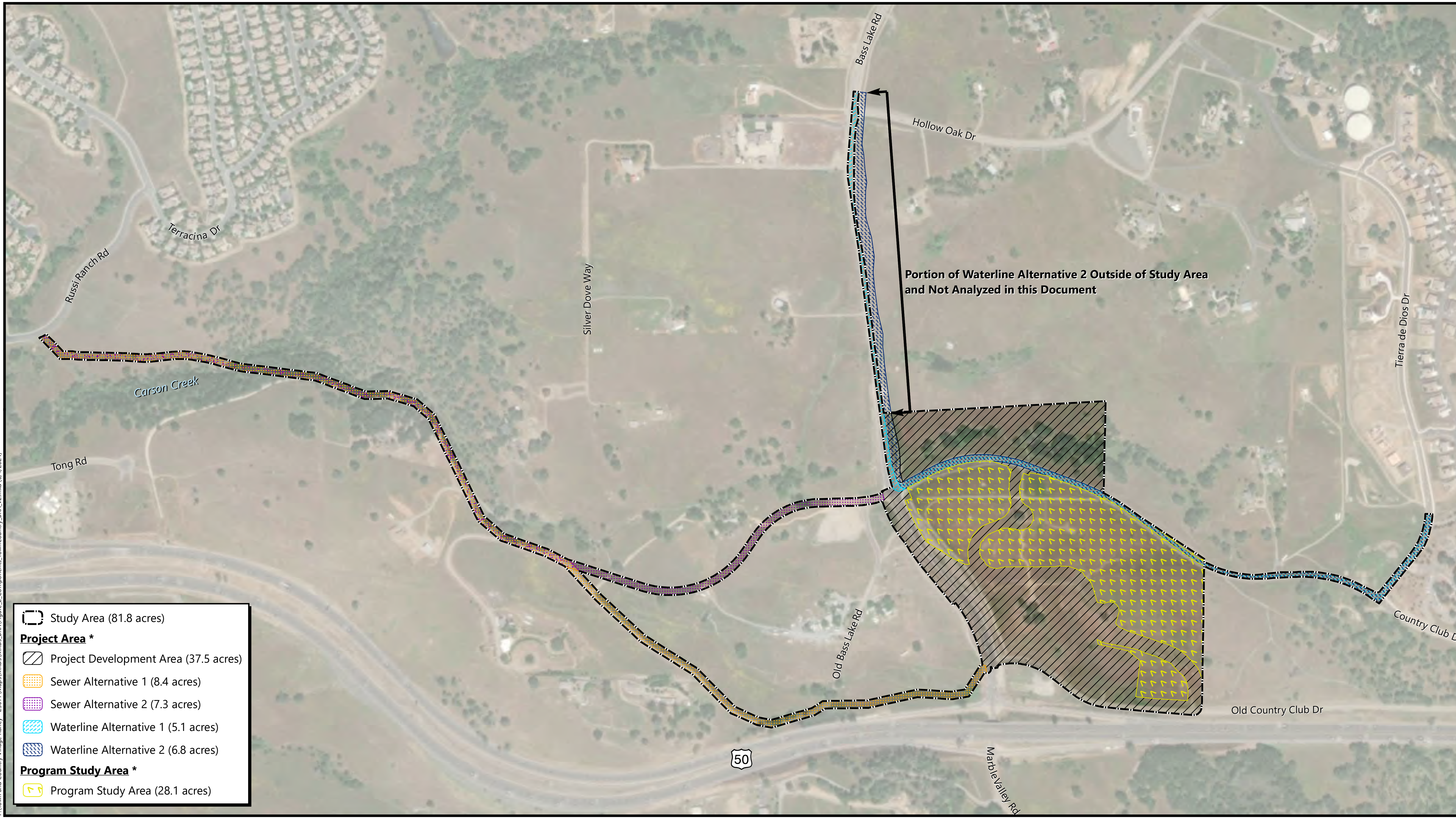
Figure 1
Site and Vicinity

Town and Country Village El Dorado
El Dorado County, California

Source: United States Geologic Survey, 2021
"Clarksville, California" 7.5-Minute Topographic Quadrangle
Section 1, Township 9 North, Range 8 East, MDBM and
Sections 5-7, Township 9 North, Range 9 East, MDBM
Latitude (NAD83): 38.658668°, Longitude (NAD83): -121.029902°

MADRONE ECOLOGICAL CONSULTING



** Component acreages do not sum to the Study Area acreage due to overlapping alternatives*

Boundary Source: CTA Engineering & Surveying
Aerial Source: Maxar, 1 May 2022

Figure 2
Project Components

Town and Country Village El Dorado
El Dorado County, California

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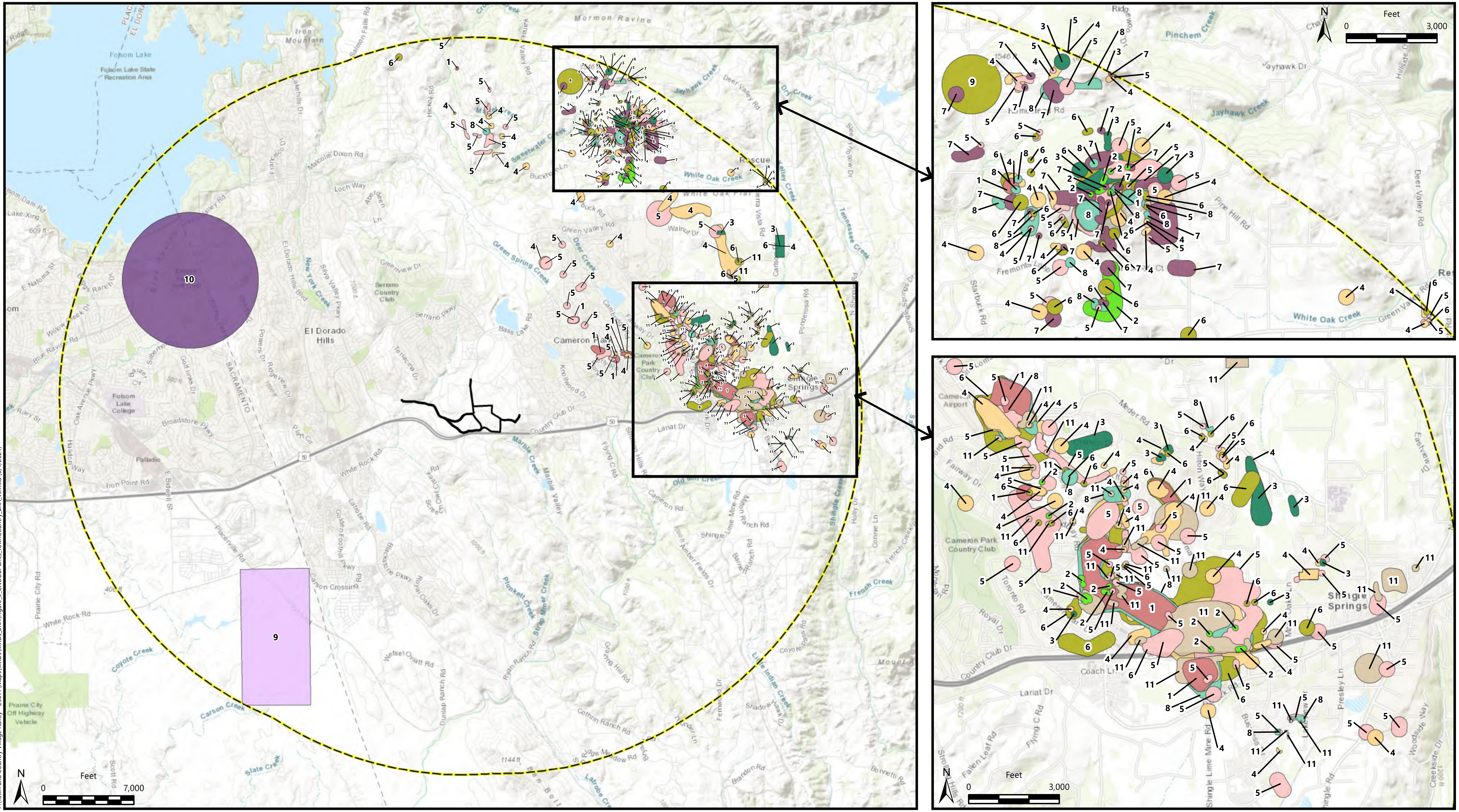


Study Area (81.8 acres)

5-Mile Radius

Special-Status Plant Species

- 1 - Bisbee Peak Rush-Rose
- 2 - Chaparral Sedge
- 3 - El Dorado Bedstraw
- 4 - El Dorado County Mule Ears
- 5 - Layne's Ragwort
- 6 - Pine Hill Ceanothus
- 7 - Pine Hill Flannelbush
- 8 - Red Hills Soaproot
- 9 - Sanford's Arrowhead
- 10 - Spicate Calycadenia
- 11 - Stebbins' Morning-Glory

Source: *California Department of Fish and Wildlife*, December 2023
Basemap Source: *ESRI* World Topography

Figure 3
California Natural Diversity Database Occurrences of Plant Species

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING

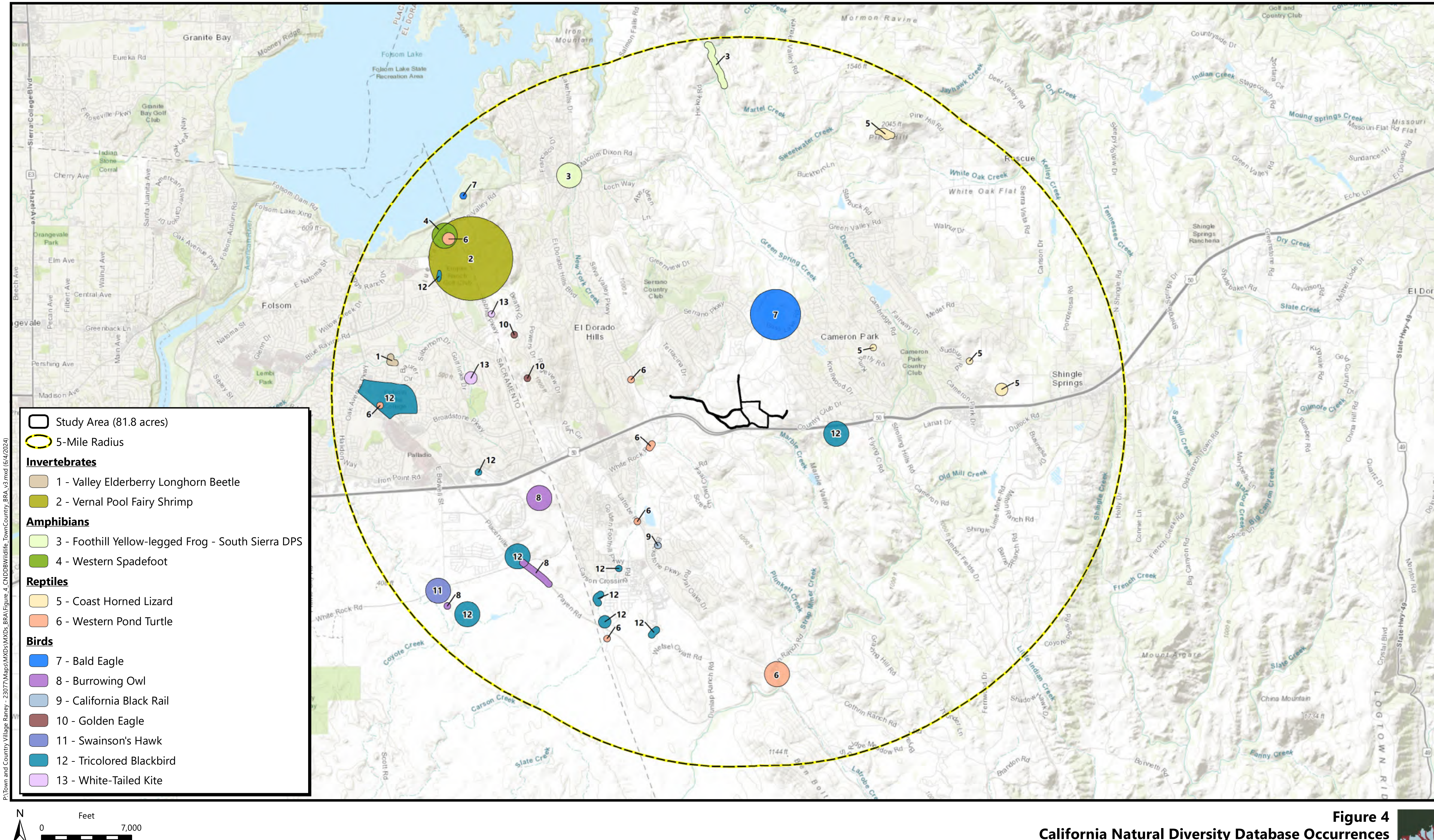
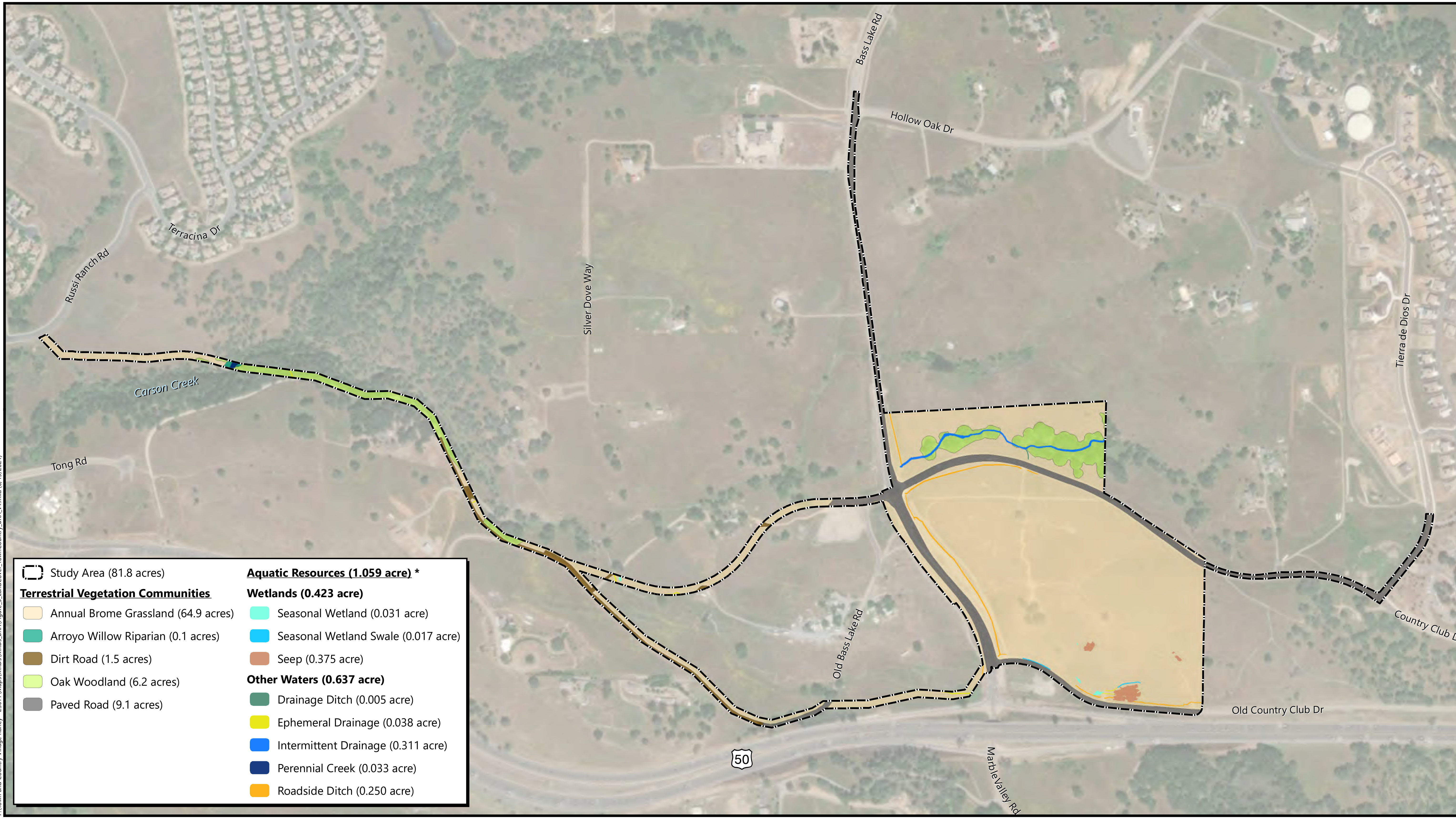


Figure 4
California Natural Diversity Database Occurrences of Wildlife Species

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING

Source: *California Department of Fish and Wildlife*, May 2024
Basemap Source: *ESRI* World Topography



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Feet
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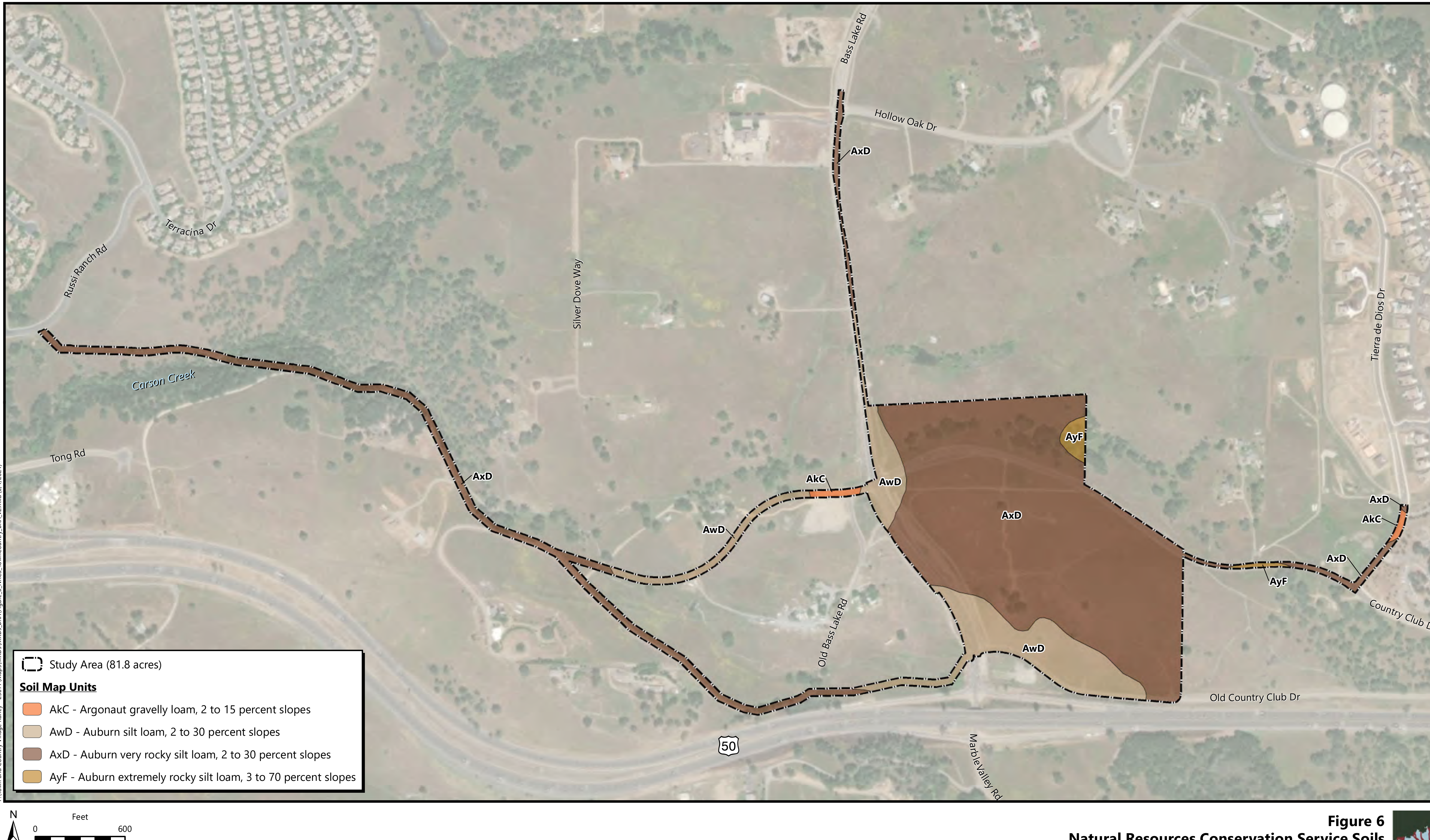
Figure 5
Aquatic Resources and Vegetation Communities

** Small summation errors may occur due to rounding*

Boundary Source: CTA Engineering & Surveying
Aerial Source: Maxar, 1 May 2022

Town and Country Village El Dorado
El Dorado County, California



Soil Survey Source: *USDA, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for El Dorado County, California*
Aerial Source: Maxar, 1 May 2022

Figure 6
Natural Resources Conservation Service Soils

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING

Attachments

Attachment A. Town & Country Village El Dorado Site Plan

Attachment B. IPaC Trust Resource Report for the Study Area

Attachment C. CNPS Inventory of Rare and Endangered Plants Query for the "Clarksville, California" USGS Quadrangle and Eight Surrounding Quadrangles

Attachment D. Wildlife List

Attachment E. Special-Status Plant Survey Report for Town & Country Village El Dorado

Attachment F. Aquatic Resources Delineation Report for Town and Country Village

Attachment G. Oak Resources Technical Report for Town & Country Village El Dorado

Attachment H. Impacts to Aquatic Resources

Attachment I. Impacts to Vegetation Communities

Attachment J. Impacts to Oak Resources

Attachment A

Town & Country Village El Dorado Site Plan

TOWN & COUNTRY VILLAGE EL DORADO

OVERALL SITE PLAN

EL DORADO COUNTY, CALIFORNIA

SCALE: 1"=100' MARCH, 2024

APPLICANT

JOSH PANE
1123 J STREET, 3RD FLOOR
SACRAMENTO, CA 95814

OWNER

MOHAMMAD MOHANNA
CAP FUNDING
1025 9th STREET, SUITE 205
SACRAMENTO, CA 95814

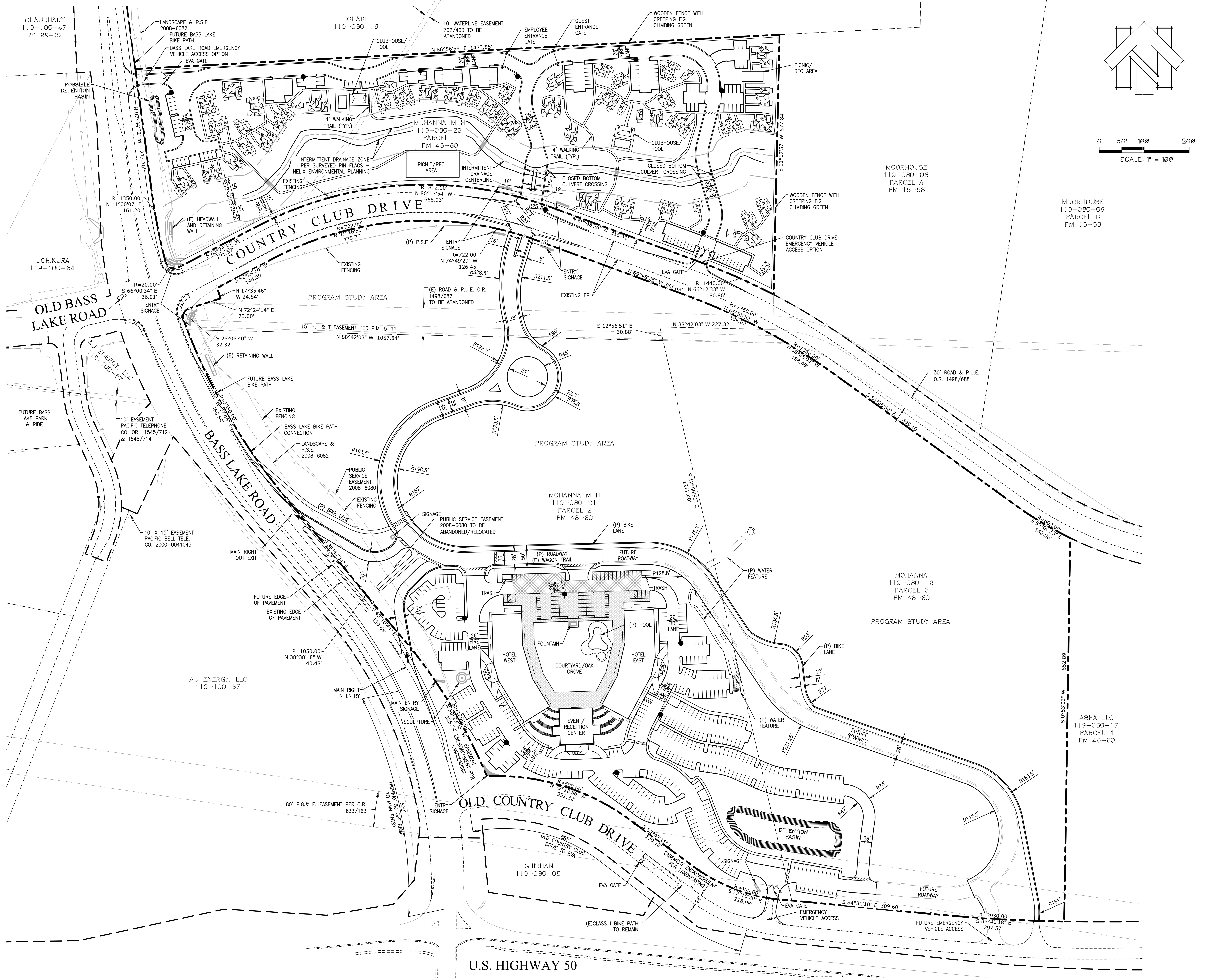
ENGINEER

cta Engineering & Surveying
Civil Engineering ■ Land Surveying ■ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ■ F (916) 638-2479 ■ www.ctaes.net

PROPOSED BUILDINGS	GROSS SQUARE FOOTAGE (FOOTPRINT)
HOTELS	16,000
EVENT CENTER	7,000
COTTAGES	280
CLUBHOUSES	600

LEGEND

- PROJECT BOUNDARY
- (E) LOT BOUNDARY
- (E) RIGHT OF WAY
- (E) EASEMENT
- (E) EDGE OF PAVEMENT
- (E) FENCE
- GRASS PAVERS
- LANDSCAPE PAVERS
- FIRE DEPARTMENT PATH OF TRAVEL TURNING RADII INSIDE RADIUS=35' OUTSIDE RADIUS=55'
- FIRE HYDRANT



Attachment B

IPaC Trust Resource Report
for the Study Area

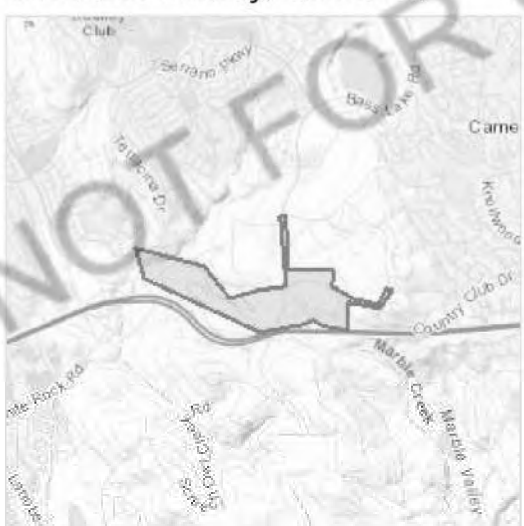
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

El Dorado County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog *Rana boylii* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5133	Endangered
Western Spadefoot *Spea hammondii* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS

Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
El Dorado Bedstraw Galium californicum ssp. sierrae Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5209	Endangered
Layne's Butterweed Senecio layneae Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4062	Threatened

Pine Hill Ceanothus *Ceanothus roderickii* — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3293

Pine Hill Flannelbush *Fremontodendron californicum ssp. decumbens* — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4818

Stebbins' Morning-glory *Calystegia stebbinsii* — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3991

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

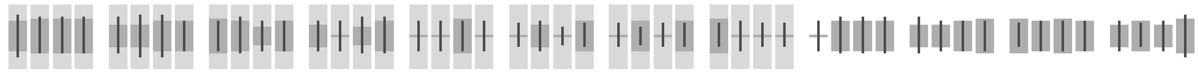
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

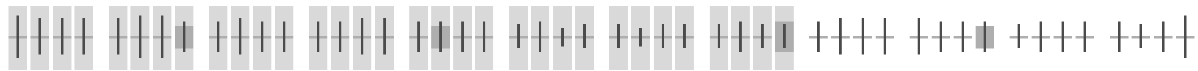
■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Bald Eagle
Non-BCC
Vulnerable



Golden Eagle
Non-BCC
Vulnerable



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Black Tern *Chlidonias niger* — Breeds May 15 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3093

Bullock's Oriole *Icterus bullockii* — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull *Larus californicus* — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher *Toxostoma redivivum* — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cassin's Finch *Carpodacus cassinii* — Breeds May 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9462

Clark's Grebe *Aechmophorus clarkii* — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat *Geothlypis trichas sinuosa* — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Willet *Tringa semipalmata* — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit *Chamaea fasciata* — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie *Pica nuttalli* — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

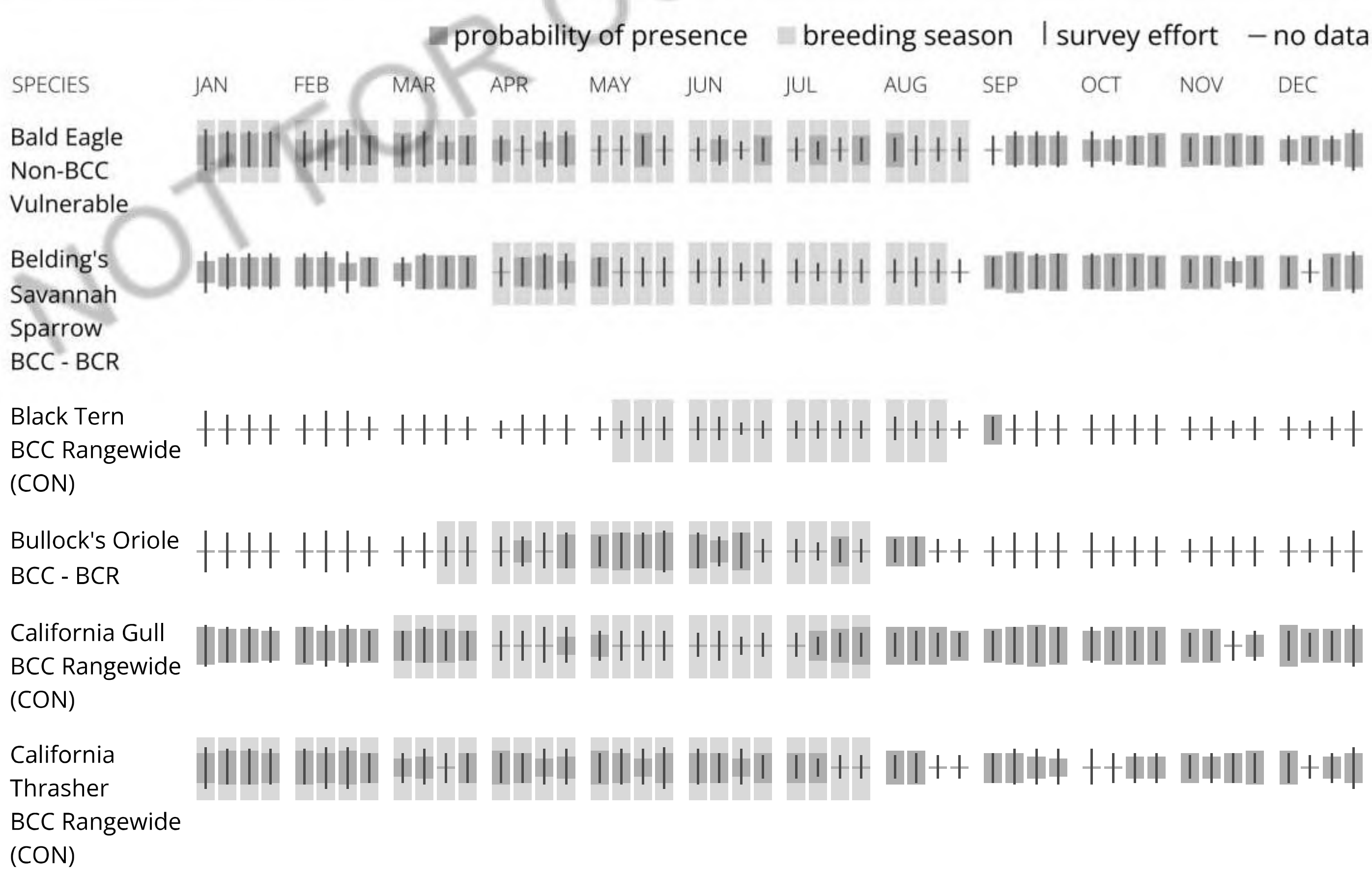
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

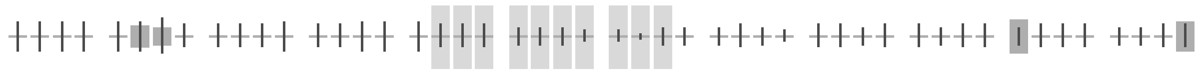
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

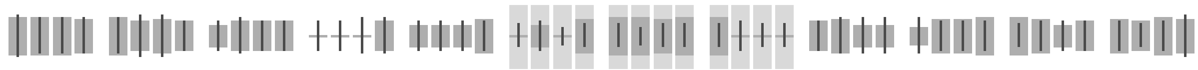
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Cassin's Finch
BCC Rangewide (CON)

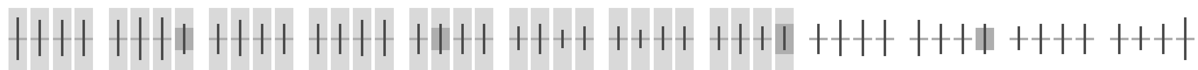


Clark's Grebe
BCC Rangewide (CON)



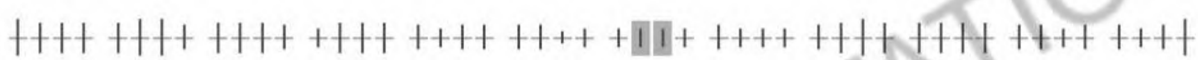
Common Yellowthroat
BCC - BCR

Golden Eagle
Non-BCC Vulnerable



Lawrence's Goldfinch
BCC Rangewide (CON)

Marbled Godwit
BCC Rangewide (CON)

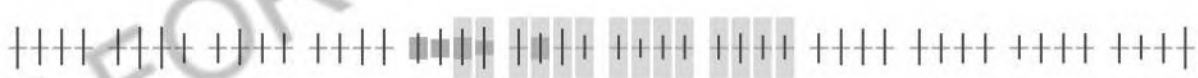


SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Nuttall's Woodpecker
BCC - BCR

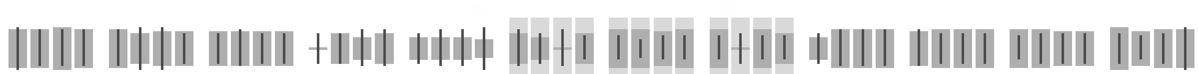
Oak Titmouse
BCC Rangewide (CON)

Olive-sided Flycatcher
BCC Rangewide (CON)



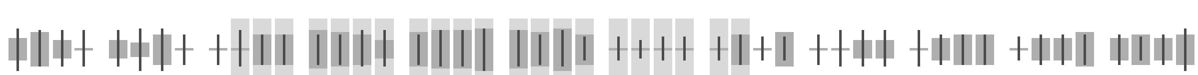
Tricolored Blackbird
BCC Rangewide (CON)

Western Grebe
BCC Rangewide (CON)

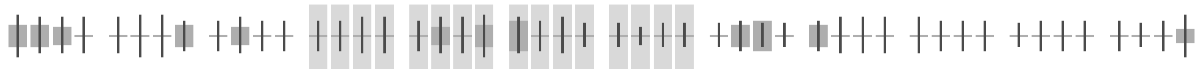


Willet
BCC Rangewide (CON)

Wrentit
BCC Rangewide (CON)



Yellow-billed Magpie
BCC Rangewide (CON)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Attachment C

CNPS Inventory of Rare and Endangered Plants Query for the “Clarksville, California” USGS Quadrangle and Eight Surrounding Quadrangles

CNPS Rare Plant Inventory

Search Results

36 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**3812058:3812068:3812078:3812151:3812162:3812161:3812171:3812172:3812152**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK
Allium jepsonii	Jepson's onion	Alliaceae	Apr-Aug	None	None	1B.2
Allium sanbornii var. *sanbornii*	Sanborn's onion	Alliaceae	May-Sep	None	None	4.2
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	Mar-Jun	None	None	1B.2
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	Apr-May(Jun)	None	None	4.2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	(Jan)Mar-Jun	None	None	4.2
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	Apr-Jul	FE	CE	1B.1
Carex xerophila	chaparral sedge	Cyperaceae	Mar-Jun	None	None	1B.2
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	(Apr)May-Jul	None	None	4.3
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	Apr-Jun	FE	CR	1B.1
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	(Apr)May-Jun	None	None	1B.2
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia	Onagraceae	(Mar)May-Jul	None	None	4.2
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	Feb-May	None	None	4.2
Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	Apr-Aug	None	None	3.2
Downingia pusilla	dwarf downingia	Campanulaceae	Mar-May	None	None	2B.2
Eriogonum tripodum	tripod buckwheat	Polygonaceae	May-Jul	None	None	4.2
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	Apr-Jun	None	None	4.3
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	May-Aug	None	None	1B.2
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	Apr-Jul	FE	CR	1B.2
Fritillaria agrestis	stinkbells	Liliaceae	Mar-Jun	None	None	4.2
Galium californicum ssp. *sierrae*	El Dorado bedstraw	Rubiaceae	May-Jun	FE	CR	1B.2
Githopsis pulchella ssp. *serpentinicola*	serpentine bluecup	Campanulaceae	May-Jun	None	None	4.3
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	Apr-Aug	None	CE	1B.2
Hesperevax caulescens	hogwallow starfish	Asteraceae	Mar-Jun	None	None	4.2
Iris longipetala	coast iris	Iridaceae	Mar-May(Jun)	None	None	4.2
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	Mar-May	None	None	1B.2
Legenere limosa	legenere	Campanulaceae	Apr-Jun	None	None	1B.1
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	Mar-Jun	None	None	4.2
Lilium humboldtii ssp. *humboldtii*	Humboldt lily	Liliaceae	May-Jul(Aug)	None	None	4.2
Navarretia heterandra	Tehama navarretia	Polemoniaceae	Apr-Jun	None	None	4.3

Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	Apr-May	None	None	1B.1
Orcuttia tenuis	slender Orcutt grass	Poaceae	May-Sep(Oct)	FT	CE	1B.1
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	Apr-Jul(Sep)	FE	CE	1B.1
Packera layneae	Layne's ragwort	Asteraceae	Apr-Aug	FT	CR	1B.2
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	May-Oct(Nov)	None	None	1B.2
Trichostema rubisepalum	Hernandez bluecurls	Lamiaceae	Jun-Aug	None	None	4.3
Wyethia reticulata	El Dorado County mule ears	Asteraceae	Apr-Aug	None	None	1B.2

Showing 1 to 36 of 36 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 22 January 2024].

Attachment D

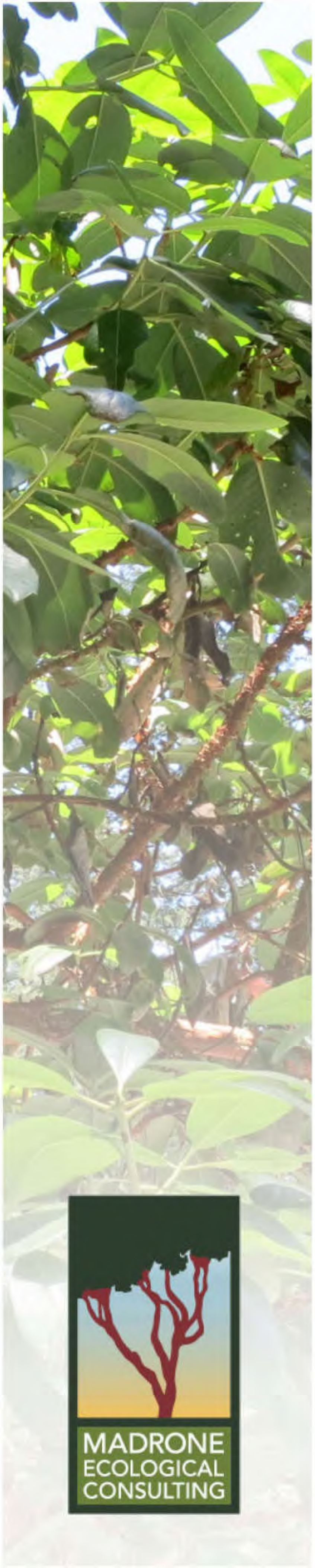
Wildlife List

Wildlife Species Observed within the
Town and Country Village Study Area
13 April 2022, 27 September and 6 October 2023

Species Name	**Common name**
Reptiles	
Crotalus oreganus oreganus	Northern Pacific rattlesnake
Sceloporus occidentalis	Western fence lizard
Birds	
Cathartes aura	Turkey vulture
Accipiter cooperi	Cooper’s hawk
Buteo lineatus	Red-shouldered hawk
Buteo jamaicensis	Red-tailed hawk
Tyto alba	Barn owl
Melanerpes formicivorus	Acorn woodpecker
Falco sparverius	American kestrel
Aphelocoma californica	California scrub jay
Sitta carolinensis	White-breasted nuthatch
Agelaius phoeniceus	Red-wing blackbird
Melozone crissalis	California towhee
Sturnella neglecta	Western meadowlark
Mammals	
Lepus californicus	Black-tailed jackrabbit

Attachment E

Special-Status Plant Survey Report
for Town & Country Village El Dorado



Special-Status Plant Survey Report

Town and Country Village
El Dorado

El Dorado County, California
June 2024

Prepared for:

Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Recommended Citation:

Madrone Ecological Consulting, LLC (Madrone). 2024. *Special-Status Plant Survey Report for Town and Country Village El Dorado*. Prepared for Raney Planning & Management, Inc. Published on 5 June 2024.

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Attachment A: Botanist Qualifications

Attachment B: Target Plant Species Reference Population Information

Attachment C: Plant Species Observed within the Town and Country Village El Dorado Study Area

1.0 INTRODUCTION

This report presents the results of a special-status plant survey conducted for the approximately 81.8-acre Town and Country Village El Dorado Study Area. The Study Area is located north of Interstate Highway 50, largely south of Stone Hill Road, east of Silva Valley Parkway, and largely west of Morrison Road in western El Dorado County, California. The Study Area is located in portions of Section 1, Township 9 North, Range 8 East and Sections 5-7, Township 9 North, Range 9 East (MDBM) of the "Clarksville, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

2.0 METHODOLOGY

Madrone Ecological Consulting, LLC (Madrone) botanists Daria Snider and Bonnie Peterson conducted protocol-level rare plant surveys of the Study Area on 13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024 in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), the *Botanical Survey Guidelines of the California Native Plant Society* (CNPS 2001), and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). The surveys occurred over the course of three years due to changes in the Study Area boundary; however, all areas received both early season (April and May) surveys and late season (September and October) surveys such that surveys were comprehensive for all target plant species.

A list of special-status plant species with potential to occur within the Study Area was developed by reviewing the following:

- the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2024) query of CRPR Lists 1A, 1B, 2A, 2B, and 3 within the "Clarksville, California" USGS topo quadrangle, and the eight surrounding quadrangles; and
- the California Natural Diversity Database occurrences of special-status plant species within 5 miles of the Study Area (CNDDB 2024).

The target species for this survey were:

- Big-scale balsamroot (*Balsamorhiza macrolepis*)
- Spicate rosinweed (*Calycadenia spicata*)
- Red Hills soaproot (*Chlorogalum grandiflorum*)
- Dwarf downingia (*Downingia pusilla*)
- Tuolumne button-celery (*Eryngium pinnatisectum*)
- Sanford's arrowhead (*Sagittaria sanfordii*)

The Study Area was comprehensively surveyed on foot by walking rough transects through the site to ensure full coverage. The surveys were floristic in nature, which means that all plant species observed on-site were identified to the taxonomic level necessary to determine rarity. Thus, if a special-status plant was present but not on the target list, it would have been detected and documented. Plant taxonomy was based on the nomenclature in the *Jepson eFlora* (Jepson Flora Project 2024). Vegetation communities were classified according to the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Qualifications for the botanists that conducted the surveys are included in **Attachment A**, a list of reference populations of target plants visited is included in **Attachment B**, and a comprehensive list of all plant species observed during surveys of the Study Area is included in **Attachment C**.

3.0 EXISTING CONDITIONS

The Study Area is largely comprised of ungrazed Annual Brome Grasslands with widely scattered oak trees (**Figure 2**). Oak Woodlands occur in the vicinity of the intermittent drainage and perennial Carson Creek. The intermittent drainage is located in the northern portion of the Study Area, and Carson Creek is in the western portion. Carson Creek runs over bedrock, and the adjacent slopes are quite steep, restricting the extent of riparian vegetation, which consists of a narrow band of Arroyo Willow Riparian Scrub. The Oak Woodland south of the creek has a dense, closed canopy, as is typical for north-facing slopes in the region. Bass Lake Road cuts from north to south through the Study Area, and Country Club Drive runs from west to east. Portions of Old Bass Lake Road and Old Country Club Drive also occur within portions of the Study Area. Several seasonal wetlands and two seasonal wetland swales occur just north of Old Country Club Drive, and one seasonal wetland occurs near an ephemeral drainage in the western portion of the Study Area. A few seeps occur on slopes in the Annual Brome Grasslands. Roadside ditches run along the edges of a number of roadways within the Study Area, and three portions of ephemeral drainages occur within infrastructure-related portions of the Study Area. Inclusions of unvegetated areas are scattered throughout the Study Area along farm roads. The terrain within the Study Area is gently rolling, and generally slopes from the east down towards the west.

Elevations range from approximately 1,320 feet above mean sea level (MSL) at the eastern edge of the Study Area to approximately 800 feet at the western extent along Carson Creek and Russi Ranch Drive (**Figure 1**).

Surrounding properties are similar to those within the Study Area. They are largely comprised of ungrazed Annual Brome Grasslands, scattered Oak Woodlands, and rural residences. The western and eastern ends of the Study Area abut urban residential areas, and the Study Area is bordered by Interstate Highway 50 to the south.

3.1 Terrestrial Vegetation Communities

3.1.1 Annual Brome Grassland

The Annual Brome Grassland within the Study Area is dominated by ripgut brome (*Bromus diandrus*), soft brome (*B. hordeaceus*), wild oat (*Avena fatua*), Italian ryegrass (*Festuca perennis*), purple false brome (*Brachypodium distachyon),* and winter vetch *(Vicia villosa* subsp. *varia)*. Other species occurring frequently in this vegetation community within the Study Area include wild radish (*Raphanus sativus*), Ithuriel's spear (*Triteleia laxa*), rose clover (*Trifolium hirtum*), and purple clarkia (*Clarkia purpurea* subsp. *quadrivulnera*). Seasonal wetlands, seasonal wetland swales, and seeps occur occasionally throughout this community.

3.1.2 Arroyo Willow Riparian Scrub

A narrow band of Arroyo Willow Riparian Scrub occurs along Carson Creek within the sewer alternative overlap portion of the Study Area. This canopy of this community is dominated by arroyo willow (*Salix lasiolepis*) and buttonwillow (*Cephalanthus occidentalis*). The understory is comprised primarily of bedrock, but a few herbaceous species have established in cracks in the bedrock, and in sediment along the creek's edge. These include Indian hemp (*Apocynum cannabinum*), Torrey's willowherb (*Epilobium torreyi),* sticktight (*Bidens frondosa)*, Lady's thumb (*Persicaria maculosa),* False waterpepper (*Persicaria hydropiperoides),* western goldenrod (*Euthamia occidentalis),* mugwort (*Artemisia douglasiana),* tall nutsedge (*Cyperus eragrostis),* rice cutgrass (*Leersia oryzoides),* and seep monkeyflower (*Erythranthe guttata).*

3.1.3 Oak Woodland

Oak woodland occurs in the northern portion of the Study Area, in association with the intermittent creek, and in the portions of the sewer alternatives. The Oak Woodland has a primarily closed canopy that is dominated by interior live oak (*Quercus wislizeni*) and blue oak (*Quercus douglasii*). Other commonly occurring species include Valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*) and foothill pine (*Pinus sabiniana)*. Western poison oak (*Toxicodendron diversilobum*) and chaparral honeysuckle (*Lonicera interrupta*) are dominants in the shrub layer. The herbaceous understory is dominated by ripgut brome, slender wild oat (*Avena barbata*), and tall sock-destroyer (*Torilis arvensis*), as well as occasional Italian thistle (*Carduus pycnocephalus* subsp. *pycnocephalus*), bristly dogtail grass (*Cynosurus echinatus),* goldback fern (*Pentagramma triangularis),* twining brodiaea (*Dichelostemma volubile)*, soft brome, and common soap plant (*Chlorogalum pomeridianum var. pomeridianum).* Several rock outcrops are interspersed within the Oak Woodland area.

3.1.4 Roads

Bass Lake Road, Country Club Drive, and Old Country Club Drive are paved roadways within the Study Area. Just west of the Bass Lake Road and Country Club Drive intersection is an area that was under active construction at the time of our survey – this is presumed to be developed now and was also mapped as paved road. Old Bass Lake Road and regularly used driveways within the Sewer Alternatives have been mapped as dirt road – these are well maintained, regularly used dirt roads. We did not map the portion of the dirt road that runs through the Oak Woodlands, as the tree canopies overhang almost the entire roadway, and as such, we anticipate that impacts within the roadway could impact the adjacent oak trees.

3.2 Aquatic Resources

3.2.1 Seasonal Wetland

Five seasonal wetlands occur within the southern portion of the Study Area. Seasonal wetlands are depressional wetlands that pond water seasonally. Two of the seasonal wetlands are depressional and are dominated by needle-leaf navarretia (*Navarretia intertexta*), Mediterranean beard grass (*Polypogon maritimus*) and Mediterranean barley (*Hordeum marinum*). Other species in these features include bractless hedge-hyssop (*Gratiola ebracteata*), slender popcorn flower (*Plagiobothrys stipitatus var. micranthus*), annual hairgrass (*Deschampsia danthonioides*), hyssop loosestrife (*Lythrum hyssopifolium*), slender tarweed (*Holocarpha virgata*), turkey mullein (*Croton setiger*), creeping spikerush (*Eleocharis macrostachya*), stinkwort (*Dittrichia graveolens*), and hairy cat's ear (*Leontodon saxatilis*). The remaining seasonal wetlands are slope wetlands, and are dominated by iris-leaved rush (*Juncus xiphioides*) and annual rabbitsfoot grass (*Polypogon monspeliensis*). Other species commonly occurring in these features include Baltic rush (*Juncus balticus*) and Spanish lotus (*Acmispon americanus*).

3.2.2 Seasonal Wetland Swale

Two seasonal wetland swales are present within the Study Area. Seasonal wetland swales are linear seasonal wetlands that convey surface runoff and may detain it for short periods of time. The vegetation in the seasonal wetland swales is similar to that found in the sloping seasonal wetlands. They are dominated by iris-leaved rush. Other species commonly found in these features include Spanish lotus, curly dock (*Rumex crispus*), and Mediterranean beard grass.

3.2.3 Seep

Seeps are areas where groundwater reaches the surface through porous soil or cracks in rock. Seeps result in seasonal or perennial soil saturation with minimal standing water and gentle flows. Three seeps were mapped within the Study Area. Dominant plant species identified within the seeps include iris-leaved rush, Baltic rush, and Sonoma hedge nettle (*Stachys stricta*). Other common plants include hyssop loosestrife, annual quaking grass (*Briza minor),* cut-leaf geranium (*Geranium dissectum*), common sow thistle (*Sonchus oleraceus),* and Italian thistle (*Carduus pycnocephalus*).

3.2.4 Drainage Ditch

A constructed drainage ditch conveys flows collected in roadside ditches along Country Club Drive into the intermittent drainage to the north. This drainage ditch is lined with rocks and is entirely unvegetated.

3.2.5 Ephemeral Drainage

Five ephemeral drainages occur within the Study Area. Ephemeral drainages are linear features that convey runoff for short periods of time, during and immediately following rain events, and do not convey any groundwater flows. Several ephemeral drainages occur within the sewer alternatives. These features are almost entirely unvegetated, and any sparse vegetation that does occur is typical of the surrounding terrestrial vegetation community.

3.2.6 Intermittent Drainage

One intermittent drainage runs through the northern portion of the Study Area. This feature has a variable substrate, ranging from sand and mud in some areas to bedrock in others. It is entirely unvegetated within the channel due to the depth and scouring effects of water. This feature runs through Oak Woodlands for much of its length, and as a result of the closed canopy, very little herbaceous vegetation occurs along the banks in those areas. Portions of the drainage that run through Annual Brome Grasslands are primarily bordered by grasses and forbs typical of that community, but also support scattered seep monkeyflower (*Erythranthe guttata*) and other herbaceous hydrophytes.

3.2.7 Perennial Creek (Carson Creek)

Carson Creek, which is perennial with a bedrock substrate, runs through the western portion of the Study Area. It is almost entirely unvegetated within the channel, but there are a few plants occurring on the banks and in areas where sediment has accumulated within the channel. These plants are described above in the description of Arroyo Willow Scrub, which borders the creek. To reiterate, plants observed within and adjacent to Carson Creek include narrow-leaved cattail (*Typha angustifolia),* Torrey's willowherb, sticktight, Lady's thumb, False waterpepper, western goldenrod, mugwort, tall nutsedge, rice cutgrass, and seep monkeyflower.

3.2.8 Roadside Ditch

Several roadside ditches were mapped within the Study Area along Bass Lake Road, Country Club Drive, and Old Country Club Drive. The roadside ditches were constructed adjacent to the roadways, and serve to convey stormwater runoff away from the road. These features are entirely unvegetated due to ditch maintenance and due to the fact that many of these features are lined with rock, presumably for flow attenuation.

3.3 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2024), four soil mapping units occur within the Study Area (**Figure 3**): (AkC) Argonaut gravelly loam, 2 to 15 percent slopes; (AwD) Auburn silt loam, 2 to 30 percent slopes; (AxD) Auburn very rocky silt loam, 2 to 30 percent slopes; and (AyF) Auburn extremely rocky silt loam, 3 to 70 percent slopes. These soils are all somewhat acidic. The Auburn soils are formed in amphibolite schist (metamorphic rock) while the Argonaut soils are formed in weathered meta-andesite (weathered volcanic rock) (NRCS 2024).

4.0 SURVEY RESULTS

4.1 Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a perennial herbaceous species that occurs in chaparral, cismontane woodland and valley and foothill grasslands between 150 and 5100 feet (CNPS 2024). Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well (CNPS 2024).

The Annual Brome Grassland and Oak Woodlands throughout the Study Area provide marginally suitable habitat for big-scale balsamroot. This species was not observed during the 2022-2024 protocol-level special status plant surveys, which were conducted in April when this species would have been in bloom.

4.2 Spicate Rosinweed

Spicate rosinweed (*Calycadenia spicata*) is not federally or state listed, but it is classified as a CRPR List 1B.3 plant. It is a perennial herbaceous species that occurs in disturbed areas and openings in annual grasslands and cismontane woodland between 130 and 4,600 feet (CNPS 2024). Spicate rosinweed blooms from May through September and has been found on a variety of open habitats including adobe clay, rock outcrops, gravelly areas, and mine tailings (CNPS 2024).

The Annual Brome Grassland and Oak Woodlands throughout the Study Area provide suitable habitat for spicate rosinweed. However, this species was not observed during the 2023 protocol level late-season special-status plant survey of the Study Area, which were conducted when this plant would have been in bloom and identifiable.

4.3 Red Hills Soaproot

Red Hills soaproot (*Chlorogalum grandiflorum*) is not a state or federally listed species but is classified as a CRPR List 1B.2 plant. Red Hill soaproot is a bulbiferous perennial that is commonly found in chaparral, cismontane woodland, and lower montane coniferous forests. Occurs frequently on serpentine or gabbro soils, but can also occur on non-ultramafic substrates; often on "historically disturbed" sites. This species blooms from as early as April, but typically from May through June at elevations from 805 to 5545 feet (CNPS 2024).

The Oak Woodlands throughout the Study Area provide marginally suitable habitat for Red Hills soaproot. This species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area, which was conducted in May, when this species was observed in bloom at other nearby sites.

4.4 Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not federally or state listed, but it is classified as a CRPR List 2B.2 plant. It is a diminutive annual herb that is strongly associated with vernal pools and mesic valley and foothill grassland, and is found in elevations ranging from five to 1460 feet (CNPS 2024). Dwarf downingia is typically associated with areas that experience a moderate degree of disturbance, and it blooms from March to May (CNPS 2024).

The seasonal wetlands and seasonal wetland swales within the Study Area represent marginal habitat for this species. This species was not observed during the 2022-2024 protocol level special-status plant survey of the Study Area, which was conducted in April, when this species was observed in bloom at other nearby sites.

4.5 Tuolumne Button-Celery

Tuolumne button-celery (*Eryngium pinnatisectum*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. This species occurs in mesic areas in cismontane woodlands and coniferous forests, as well as vernal pools. Tuolumne button-celery blooms from May through August and is found from approximately 230 feet to 3,000 feet (CNPS 2024).

Aquatic resources throughout the Study Area provide suitable habitat for this species. However, this species was not observed during the 2023 protocol level late-season special-status plant survey of the Study Area.

4.6 Sanford's Arrowhead

Sanford's arrowhead is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater habitats associated with drainages, canals, and larger ditches that sustain inundation and/or slow-moving water into early summer. It is a perennial rhizomatous emergent species that blooms from May to October at elevations from sea level to 2,130 feet (CNPS 2016).

Suitable habitat is present for this species in Carson Creek and the intermittent drainage within the Study Area. However, this species was not observed during the 2023 late-season special-status plant survey of the Study Area.

5.0 CONCLUSION

No special-status plants were observed during the 2022-2024 special-status plant survey of the Study Area.

6.0 REFERENCES

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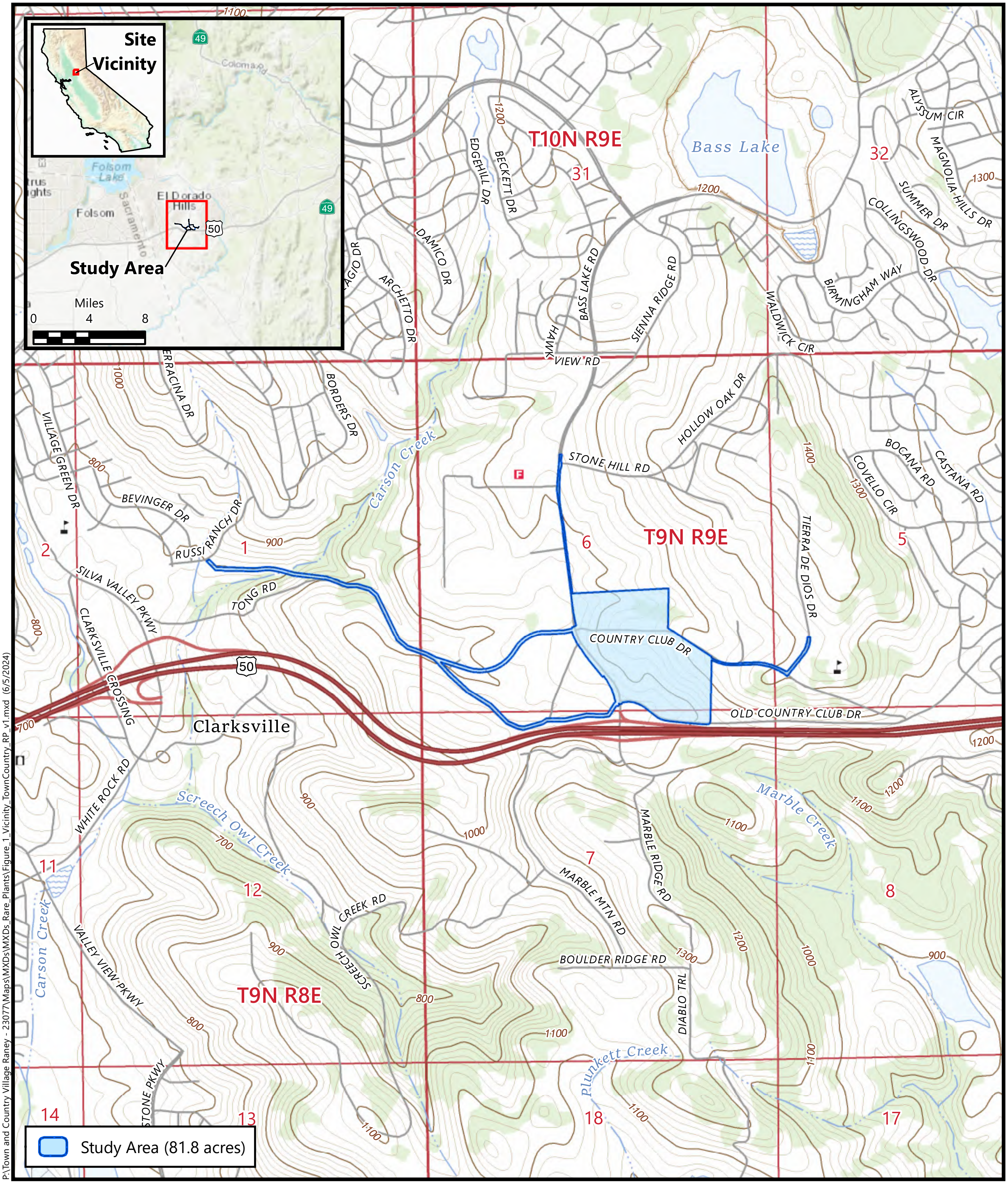
Figures



N

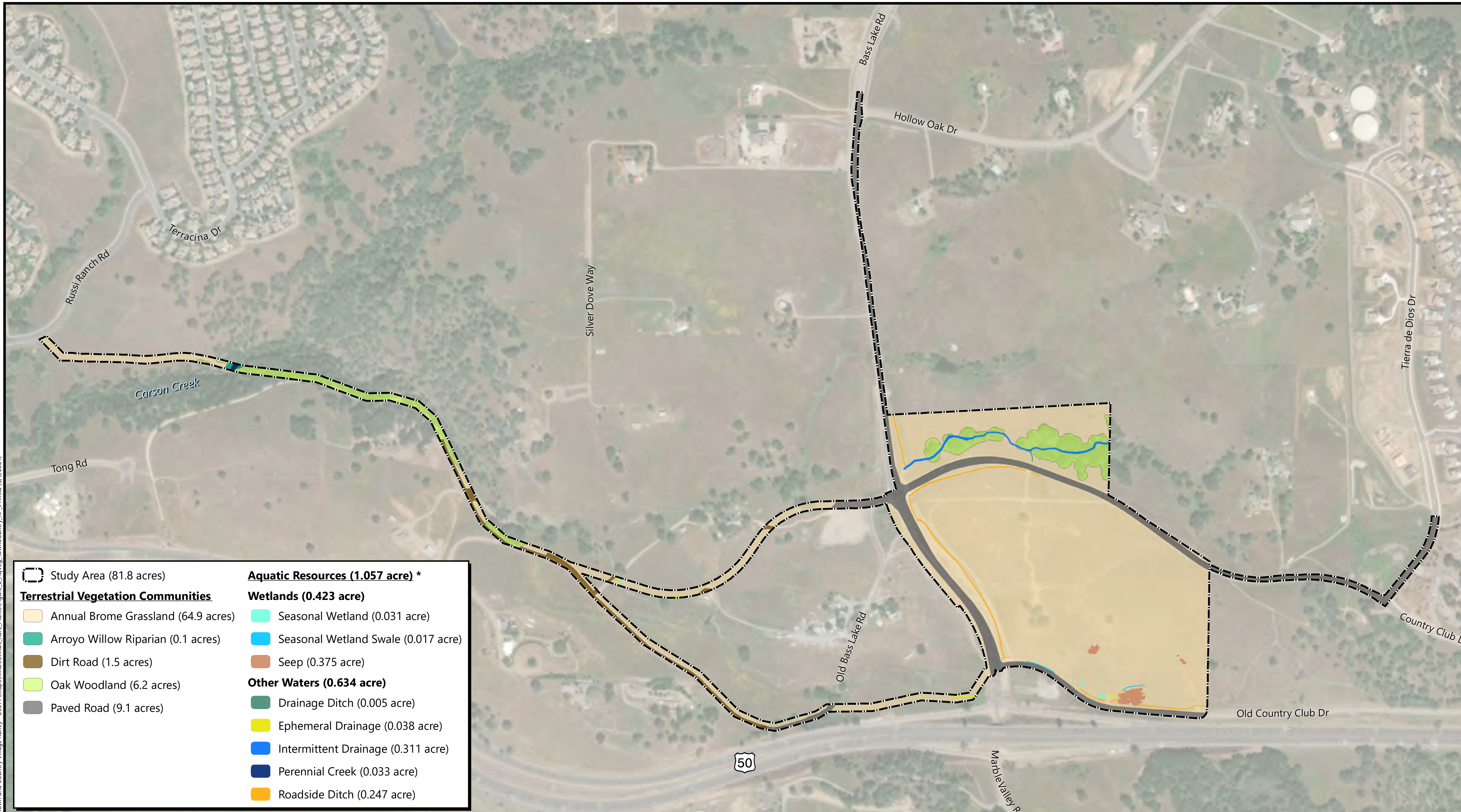
Feet
0 1,000 2,000

Source: United States Geologic Survey, 2021
"Clarksville, California" 7.5-Minute Topographic Quadrangle
Section 1, Township 9 North, Range 8 East, MDBM and
Sections 5-7, Township 9 North, Range 9 East, MDBM
Latitude (NAD83): 38.658668°, Longitude (NAD83): -121.029902°

Figure 1
Site and Vicinity

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING



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N

Feet
0 600

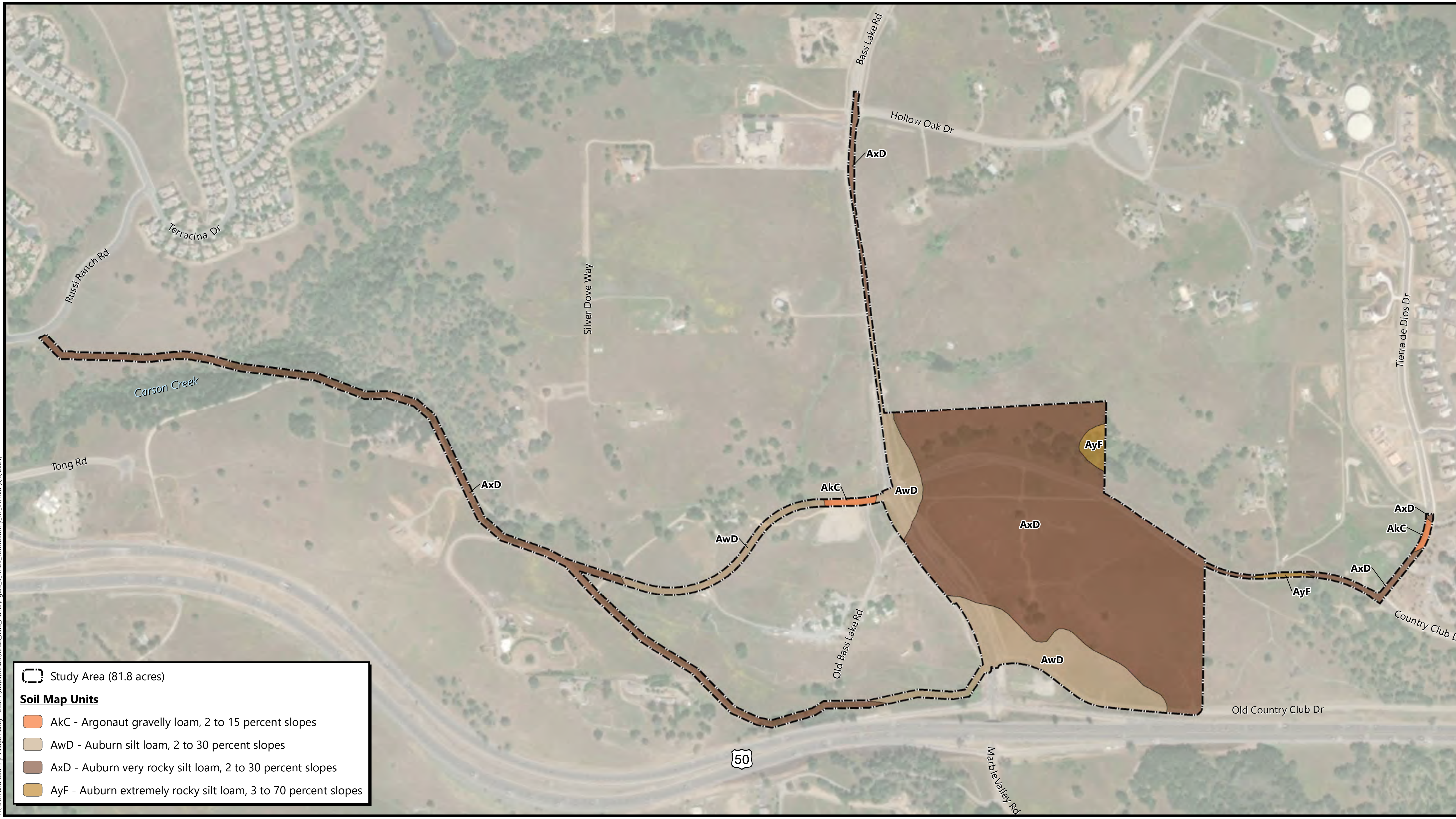
** Small summation errors may occur due to rounding*

Boundary Source: CTA Engineering & Surveying
Aerial Source: Maxar, 1 May 2022

Figure 2
Aquatic Resources and Vegetation Communities

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING



Soil Survey Source: *USDA, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for El Dorado County, California*
Aerial Source: Maxar, 1 May 2022

Figure 3
Natural Resources Conservation Service Soils

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING

Attachments

Attachment A: Botanist Qualifications

Attachment B: Target Plant Species Reference Population Information

Attachment C: Plant Species Observed within the Town and Country Village El Dorado Study Area

Attachment A

Botanist Qualifications

Special-Status Plant Survey Botanist Qualifications

Daria Snider

Ms. Snider has more than 20 years of experience conducting botanical inventories. As a senior biologist, she specializes in rare plant surveys, wetland delineations, and general biological resource inventories. In addition to rare plant surveys, her botanical experience includes general vegetation surveys, aerial and field vegetation mapping, Certified Arborist tree inventories, CRAM Assessments, floristic monitoring, and invasive species identification and mapping. Ms. Snider's experience includes a wide variety of habitat types, including vernal pools, annual grasslands, oak woodland, riparian communities, coastal sage scrub, chaparral, cismontane and montane forests, and desert. Her geographic expertise covers much of California, from Shasta County in the north to the Mojave Desert and San Gabriel Mountains in the south, and from Sonoma County in the west to the Sierra Nevada foothills and mountains in the east. Her primary focus is on the Sacramento Valley and the adjacent Sierra Nevada foothills.

Bonnie Peterson

Ms. Peterson has a B.S. in Conservation Biology from California State University, Sacramento, and more than 20 years of experience in environmental consulting. As a senior biologist she conducts a range of activities to aid in planning and to assure regulatory compliance, including rare plant surveys, wetland delineations, environmental awareness training, and surveys and habitat assessments for valley elderberry longhorn beetle, burrowing owl, Swainson's hawk, giant garter snake, listed vernal pool branchiopods, and other special-status species; riparian and oak tree monitoring; and vernal pool floristic monitoring. She has monitored constructed and reference wetlands, monitored conservation areas and mitigation banks, prepared annual reports; prepared Mitigation Monitoring Plans and Open Space Monitoring Plans; and prepared a variety of other biological resource documentation. She has completed plant taxonomy courses at the University level, as well as continuing education through participation in California Native Plant Society sponsored plant identification workshops. She possesses a plant voucher collecting permit issued by the California Department of Fish and Wildlife.

Attachment B

Target Plant Species

Reference Population Information

Target Plant Species Reference Population Information for the Town and Country Village El Dorado Special-Status Plant Survey

Plant Species	Location of Reference Population	Date of Visit	Phenology of Reference Population/ Distinctive Characteristics
Balsamorhiza macrolepis Big-scale balsamroot	Herbarium specimen at UC Davis Center for Plant Diversity Online Jepson Manual and Calflora	23 April 2019 March through May 2024	Pressed specimen. Similar to *Wyethia*, but with grey, dissected leaves. Leaves are mostly basal (as opposed to *Wyethia*, which has basal and cauline leaves).
Calycadenia spicata Spicate rosinweed	Online Jepson Manual and Calflora	May through August 2024	Identified from other *Calycadenia* species by a central ray lobe much smaller than the lateral ray lobes and 4-15 disk flowers with white corollas 7-10 mm in size.
Chlorogalum grandiflorum Red Hills soaproot	Hillside just north of Meder Road in Cameron Park (CNDDB Occurrence #33)	29 May 2024	Abundant. Plants were just coming into bloom, and the characteristic short pedicel that is indicative of this species was readily identifiable. Plants are relatively small rosettes with wavy leaf margins.
Downingia pusilla Dwarf downingia	Woodcreek Oaks Open Space Preserve (CNDDB #142)	10 April 2024	Plants are just coming into bloom below *Plagiobothrys stipitatus* and *Ranunculus bonariensis*. Should be in full bloom in about a week.
Eryngium pinnatisectum Tuolumne button-celery	Herbarium specimen at UC Davis Center for Plant Diversity Online Jepson Manual and Calflora	31 March 2016 2022-2024	Pressed specimen. Flowers have very distinctive inflorescence bracts with thickened margins and no marginal spines.
Sagittaria sanfordii Sanford's arrowhead	Population in Laguna Creek north of Elk Grove Blvd in Elk Grove (CNDDB Occurrence #43)	20 May 2024	Plants were in early bloom, with some plants still entirely aquatic. Those that had terrestrial leaves exhibited the typical triangular cross-section, and the blooms and fruit made blooming plants readily identifiable to species.

Attachment C

Plant Species Observed within the
Town and Country Village El Dorado Study Area

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
AGAVACEAE		
Chlorogalum angustifolium	Narrow-leaved soap plant	Native
Chlorogalum pomeridianum var. pomeridianum	Common soap plant	Native
ALLIACEAE		
Allium hyalinum	Glassy onion	Native
ANACARDIACEAE		
Pistacia altantica	Atlas pistachio	Non-Native
Schinus molle	Pepper tree	Non-Native
Toxicodendron diversilobum	Western poison oak	Native
APIACEAE		
Anthriscus caucalis	Bur-chervil	Non-Native
Daucus pusillus	Wild carrot	Native
Eryngium castrense	Great valley coyote-thistle	Native
Lomatium marginatum var. marginatum	Hartweg's lomatium	Native
Perideridia kelloggii	Yampah	Native
Sanicula bipinnatifida	Purple sanicle	Native
Sanicula crassicaulis	Pacific sanicle	Native
Scandix pecten-veneris	Venus' needle	Non-Native
Torilis arvensis	Tall sock-destroyer	Non-Native
APOCYNACEAE		
Apocynum cannabinum	Hemp dogbane	Native
Asclepias fascicularis	Narrow-leaf milkweed	Native
Vinca major	Greater periwinkle	Non-Native
ASTERACEAE		
Achillea millefolium	Yarrow	Native
Artemisia douglasiana	Mugwort	Native
Baccharis pilularis subsp. pilularis	Coyote brush	Native
Bidens frondosa	Sticktight	Native

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
ASTERACEAE (continued)		
Carduus pycnocephalus subsp. pycnocephalus	Italian thistle	Non-Native
Dittrichia graveolens	Stinkwort	Non-Native
Erigeron canadensis	Horseweed	Native
Euthamia occidentalis	Western goldenrod	Native
Helminthotheca echioides	Bristly ox-tongue	Non-Native
Holocarpha virgata	Narrow tarplant	Native
Hypochaeris glabra	Smooth cat's-ear	Non-Native
Lactuca serriola	Prickly lettuce	Non-Native
Leontodon saxatilis	Hairy hawkbit	Non-Native
Logfia gallica	Daggerleaf cottonrose	Non-Native
Madia gracilis	Gumweed	Native
Matricaria discoidea	Pineapple weed	Native
Micropus californicus	Q-tips	Native
Psilocarphus oregonus	Oregon woollyheads	Native
Senecio vulgaris	Common groundsel	Non-Native
Silybum marianum	Milk thistle	Non-Native
Soliva sessilis	South American soliva	Non-Native
Sonchus asper subsp. asper	Prickly sow thistle	Non-Native
Sonchus oleraceus	Common sow thistle	Non-Native
Wyethia angustifolia	Narrow leaved mule ears	Native
BORAGINACEAE		
Amsinckia eastwoodiae	Eastwood's fiddleneck	Native
Amsinckia intermedia	Common fiddleneck	Native
Amsinckia menziesii	Common fiddleneck	Native
Amsinckia retrorsa	Rigid fiddleneck	Native
Cryptantha muricata	Prickly-nut cryptantha	Native
Phacelia cicutaria var. cicutaria	Caterpillar phacelia	Native
Plagiobothrys fulvus var. campestris	Field popcornflower	Native
Plagiobothrys infectivus	Dye popcornflower	Native
Plagiobothrys nothofulvus	Rusty popcornflower	Native
Plagiobothrys stipitatus var. micranthus	Slender popcornflower	Native

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
BRASSICACEAE		
Brassica nigra	Black mustard	Non-Native
Cardamine oligosperma	Little western bittercress	Native
Lepidium didymum	Lesser swine cress	Non-Native
Lepidium nitidum	Shining peppergrass	Native
Raphanus sativus	Radish	Non-Native
Thysanocarpus curvipes	Common fringe pod	Native
CAPRIFOLIACEAE		
Lonicera interrupta	Chaparral honeysuckle	Native
CARYOPHYLLACEAE		
Cerastium fontanum subsp. vulgare	Common mouse-ear chickweed	Non-Native
Cerastium glomeratum	Sticky mouse-ear chickweed	Non-Native
Petrorhagia dubia	Grass pink	Non-Native
Silene gallica	Small-flower catchfly	Non-Native
Spergularia rubra	Red sand-spurrey	Non-Native
Stellaria media	Common chickweed	Non-Native
CONVOLVULACEAE		
Convolvulus arvensis	Bindweed	Non-Native
CRASSULACEAE		
Crassula tillaea	Moss pygmyweed	Non-Native
CUCURBITACEAE		
Marah fabacea	California man-root	Native
CYPERACEAE		
Carex praegracilis	Black creeper or freeway sedge	Native
Cyperus eragrostis	Tall nutsedge	Native
Eleocharis macrostachya	Creeping spikerush	Native

Plant Species Observed within the Town and Country Village El Dorado Study Area

13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
EUPHORBIACEAE		
Croton setiger	Turkey-mullein	Native
FABACEAE		
Acmispon americanus	Spanish lotus	Native
Acmispon micranthus	Small flowered lotus	Native
Lupinus bicolor	Miniature lupine	Native
Lupinus nanus	Valley sky lupine	Native
Melilotus indicus	Sourclover	Non-Native
Trifolium bifidum var. bifidum	Pinole clover	Native
Trifolium ciliolatum	Foothill clover	Native
Trifolium depauperatum	Dwarf sack clover	Native
Trifolium dubium	Little hop clover	Non-Native
Trifolium glomeratum	Clustered clover	Non-Native
Trifolium hirtum	Rose clover	Non-Native
Trifolium incarnatum	Crimson clover	Non-Native
Trifolium microcephalum	Small-head clover	Native
Trifolium microdon	Thimble clover	Native
Trifolium subterraneum	Subterranean clover	Non-Native
Trifolium variegatum var. variegatum	Variegated clover	Native
Vicia hirsuta	Hairy vetch	Non-Native
Vicia sativa	Spring vetch	Non-Native
Vicia villosa subsp. varia	Winter vetch	Non-Native
Vicia villosa subsp. villosa	Hairy vetch	Non-Native
FAGACEAE		
Quercus douglasii	Blue oak	Native
Quercus lobata	Valley oak	Native
Quercus wislizeni	Interior live oak	Native
GERANIACEAE		
Erodium botrys	Filaree	Non-Native
Erodium cicutarium	Redstem filaree	Non-Native
Geranium dissectum	Cut-leaf geranium	Non-Native

Plant Species Observed within the Town and Country Village El Dorado Study Area

13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
GERANIACEAE (continued)		
Geranium molle	Soft geranium	Non-Native
HYPERICACEAE		
Hypericum perforatum subsp. perforatum	Klamathweed	Non-Native
JUNCACEAE		
Juncus acuminatus	Tapered rush	Native
Juncus balticus subsp. ater	Baltic rush	Native
Juncus bufonius	Toad rush	Native
Juncus oxymeris	Pointed rush	Native
Juncus tenuis	Poverty or slender rush	Native
Juncus xiphioides	Iris-leaved rush	Native
LAMIACEAE		
Mentha pulegium	Pennyroyal	Non-Native
Stachys stricta	Sonoma hedge nettle	Native
Trichostema lanceolatum	Vinegar weed	Native
LIMNANTHACEAE		
Limnanthes alba subsp. versicolor	White meadowfoam	Native
Limnanthes douglasii subsp. striata	Foothill meadowfoam	Native
LINACEAE		
Linum bienne	Flax	Non-Native
LYTHRACEAE		
Lythrum hyssopifolia	Hyssop loosestrife	Non-Native
MONTIACEAE		
Calandrinia menziesii	Red maids	Native
Claytonia parviflora subsp. parviflora	Miner's lettuce	Native

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
MORACEAE		
Ficus carica	Edible fig	Non-Native
MYRSINACEAE		
Lysimachia arvensis	Scarlet pimpernel	Non-Native
ONAGRACEAE		
Clarkia gracilis subsp. gracilis	Graceful clarkia	Native
Clarkia purpurea subsp. quadrivulnera	Four-spot	Native
Epilobium brachycarpum	Willowherb	Native
Epilobium ciliatum	Slender willow herb	Native
Epilobium torreyi	Torrey's willowherb	Native
OROBANCHACEAE		
Bellardia viscosa	Yellow parentucellia	Non-Native
Castilleja attenuata	Valley tassels	Native
OXALIDACEAE		
Oxalis micrantha	Dwarf wood-sorrel	Non-Native
PAPAVERACEAE		
Eschscholzia californica	California poppy	Native
Eschscholzia lobbii	Frying pans	Native
PHRYMACEAE		
Erythranthe guttata	seep monkeyflower	Native
Erythranthe microphylla	Small leaved monkeyflower	Native
PINACEAE		
Pinus sabiniana	Gray pine	Native
PLANTAGINACEAE		
Collinsia heterophylla var. heterophylla	Chinese-houses	Native
Collinsia sparsiflora var. collina	Hillside collinsia	Native

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
PLANTAGINACEAE (continued)		
Gratiola ebracteata	Bractless hedge-hyssop	Native
Plantago erecta	California plantain	Native
Plantago lanceolata	English plantain	Non-Native
POACEAE		
Aegilops triuncialis	Barbed goat grass	Non-Native
Aira caryophyllea	Silver hair grass	Non-Native
Avena barbata	Slender wild oat	Non-Native
Brachypodium distachyon	Purple false brome	Non-Native
Briza minor	Annual quaking grass	Non-Native
Bromus diandrus	Ripgut grass	Non-Native
Bromus hordeaceus	Soft chess	Non-Native
Bromus madritensis spp. *rubens*	Red brome	Non-Native
Bromus rubens	Red brome	Non-Native
Bromus sitchensis var. carinatus	California brome	Native
Bromus sterilis	Sterile brome	Non-Native
Cynosurus echinatus	Bristly dogtail grass	Non-Native
Deschampsia danthonioides	Annual hair grass	Native
Elymus caput-medusae	Medusa head	Non-Native
Elymus ponticus	Tall wheat grass	Non-Native
Festuca bromoides	Brome fescue	Non-Native
Festuca microstachys	Small fescue	Native
Festuca myuros	Rattail sixweeks grass	Non-Native
Festuca perennis	Rye grass	Non-Native
Hordeum marinum subsp. gussoneanum	Mediterranean barley	Non-Native
Hordeum murinum	Wall barley	Non-Native
Leersia oryzoides	Rice cutgrass	Native
Melica torreyana	Torrey's melic	Native
Muhlenbergia rigens	Deer grass	Native
Poa annua	Annual blue grass	Non-Native
Poa bulbosa	Bulbous blue grass	Non-Native
Polypogon maritimus	Mediterranean beard grass	Non-Native
Polypogon monspeliensis	Annual rabbitfoot grass	Non-Native

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
POACEAE (continued)		
Stipa pulchra	Purple needle grass	Native
POLEMONIACEAE		
Leptosiphon ciliatus	Whisker brush	Native
Navarretia intertexta	Needle-leaf navarretia	Native
POLYGONACEAE		
Persicaria hydropiperoides	False waterpepper	Native
Persicaria maculosa	Lady's thumb	Non-Native
Pterostegia drymarioides	Fairy mist	Native
Rumex crispus	Curly dock	Non-Native
Rumex pulcher	Fiddle dock	Non-Native
Rumex salicifolius	Willow dock	Native
POLYPODIACEAE		
Polypodium calirhiza	Licorice fern	Native
PTERIDACEAE		
Adiantum jordanii	California maidenhair	Native
Pentagramma triangularis	Goldback fern	Native
RANUNCULACEAE		
Delphinium variegatum subsp. variegatum	Royal larkspur	Native
Ranunculus bonariensis var. trisepalus	Vernal pool buttercup	Native
RHAMNACEAE		
Frangula californica subsp. tomentella	Hoary coffeeberry	Native
ROSACEAE		
Aphanes occidentalis	Ladie's mantle	Native
Heteromeles arbutifolia	Toyon	Native
Horkelia californica var. elata	California horkelia	Native

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

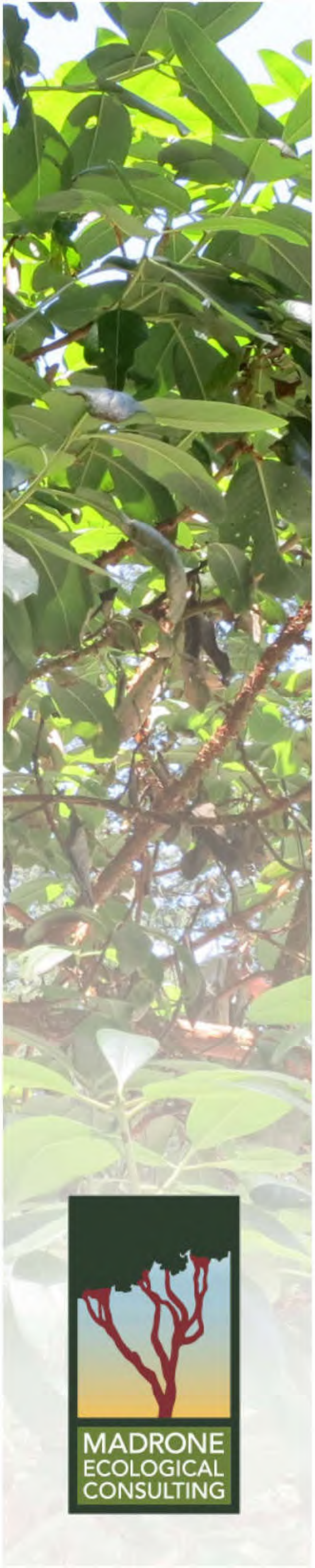
Family / Species Name	Common Name	Native / Non-Native
ROSACEAE (continued)		
Rubus armeniacus	Armenian blackberry	Non-Native
RUBIACEAE		
Cephalanthus occidentalis	California button willow	Native
Galium aparine	Goose grass	Native
Galium parisiense	Wall bedstraw	Non-Native
Galium porrigens var. tenue	Climbing bedstraw	Native
Sherardia arvensis	Field madder	Non-Native
SALICACEAE		
Salix gooddingii	Goodding's black willow	Native
Salix laevigata	Red willow	Native
Salix lasiandra	Pacific willow	Native
Salix lasiolepis	Arroyo willow	Native
SAPINDACEAE		
Aesculus californica	California buckeye	Native
SAXIFRAGACEAE		
Lithophragma heterophyllum	Woodland star	Native
SCROPHULARIACEAE		
Verbascum blattaria	Moth mullein	Non-Native
SELAGINELLACEAE		
Selaginella hansenii	Hansen's spike-moss	Native
SOLANACEAE		
Datura wrightii	Jimsonweed	Native
THEMIDACEAE		
Brodiaea elegans	Harvest brodiaea	Native
Dichelostemma volubile	Twining brodiaea	Native

Plant Species Observed within the
Town and Country Village El Dorado Study Area
13 April 2022, 27 September 2023, 6 October 2023, 26 April 2024 and 29 May 2024

Family / Species Name	Common Name	Native / Non-Native
THEMIDACEAE (continued)		
Dipterostemon capitatus	Blue dicks	Native
Triteleia hyacinthina	White brodiaea	Native
Triteleia laxa	Ithuriel's spear	Native
TYPHACEAE		
Typha angustifolia	Narrow-leaved cattail	Native or Non-Native
Typha domingensis	Southern cattail	Native
Typha latifolia	Broad-leaved cattail	Native
VISCACEAE		
Phoradendron leucarpum subsp. tomentosum	Oak mistletoe	Native

Attachment F

Aquatic Resources Delineation Report
for Town and Country Village



Aquatic Resources Delineation Report

Town and Country Village

El Dorado County, California

February 2024

Prepared for:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone). 2024. *Aquatic Resources Delineation Report for Town and Country Village*. Prepared for Raney Planning & Management, Inc. Published on 12 February 2024.

CONTENTS

Aquatic Resources Delineation Report
Town and Country Village

1.0 INTRODUCTION

This report presents the results of a delineation of aquatic resources within Town and Country Village (Study Area) conducted by Madrone Ecological Consulting, LLC (Madrone). The approximately 81.8-acre Study Area is generally located north of Interstate Highway 50, largely south of Stone Hill Road, east of Silva Valley Parkway, and largely west of Morrison Road in western El Dorado County, California. The Study Area is within portions of Section 1, Township 9 North, Range 8 East and Sections 5-7, Township 9 North, Range 9 East (MDBM) of the "Clarksville, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

1.1 Contact Information

Property Owner	***Agent***
Moe Mohanna	Sarah VonderOhe
M.H, Mohanna & Co.	Madrone Ecological Consulting
1025 9th Street, 2nd Floor	8421 Auburn Blvd., Suite #248
Sacramento, CA 95814	Citrus Heights, CA 95610
Telephone: 916-870-7236	Telephone: (916) 822-3230
Email: moe@mohannadevelopment.com	Email: svonderohe@madroneeco.com

2.0 METHODOLOGY

Madrone biologists Daria Snider and Bonnie Peterson conducted a delineation of aquatic resources within the Study Area on 27 September and 6 October 2023. Water features and data points were mapped in the field with a GPS unit capable of sub-meter accuracy (Arrow 100). Three-parameter data (vegetation, soils, and hydrology) were collected at each data point, documenting wetland/waters or upland status, as appropriate. The delineation map was prepared in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a). The GPS data was overlaid on aerial photographs (Maxar 2022).

The delineation was performed in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), and the Sacramento District's *Minimum Standards for Acceptance of Preliminary Wetlands Delineations* (USACE 2016b). U.S. Army Corps of Engineers (USACE) regulations (33 CFR 328) were used to determine the presence of Waters of the United States other than wetlands. The most recent *National Wetland Plant List* (USACE 2020) was used to determine the wetland indicator status of plants observed in the Study Area. The *Jepson eFlora* (Jepson Flora Project 2024) was used for plant nomenclature.

3.0 EXISTING CONDITIONS

The Study Area is largely comprised of ungrazed annual brome grasslands with widely scattered oak trees. Oak woodlands occur in the vicinity of the intermittent drainage and perennial Carson Creek. The intermittent drainage is located in the northern portion of the Study Area, and Carson Creek is in the western portion. Carson Creek runs over bedrock, and the adjacent slopes are quite steep, restricting the extent of riparian vegetation, which consists of a narrow band of arroyo willow riparian scrub. The oak woodland south of the creek has a dense, closed canopy, as is typical for north-facing slopes in the region. Bass Lake Road cuts from north to south through the Study Area, and Country Club Drive runs from west to east. Portions of Old Bass Lake Road and Old Country Club Drive also occur within portions of the Study Area. Several seasonal wetlands and two seasonal wetland swales occur just north of Old Country Club Drive, and one seasonal wetland occurs near an ephemeral drainage in the western portion of the Study Area. A few seeps occur on slopes in the annual brome grasslands. Roadside ditches run along the edges of a number of roadways within the Study Area, and three portions of ephemeral drainages occur within infrastructure-related portions of the Study Area. Inclusions of unvegetated areas are scattered throughout the Study Area along farm roads. The terrain within the Study Area is gently rolling, and generally slopes from the east down towards the west. Elevations range from approximately 1,320 feet above mean sea level (MSL) at the eastern edge of the Study Area to approximately 800 feet at the western extent along Russi Ranch Drive (**Figure 1**).

Surrounding properties are similar to those within the Study Area. They are largely comprised of ungrazed annual grasslands, scattered oak woodlands, and rural residences. The western and eastern ends of the Study Area abut urban residential areas, and the Study Area is bordered by Interstate Highway 50 to the south.

3.1 Hydrology

Surface water within the Study Area is primarily driven by rainfall, but there are also some groundwater inputs. Water across the site generally drains from east to west. The wetlands generally drain into the roadside ditches and ephemeral drainages, which are tributary to the intermittent drainage and Carson Creek. The seeps and some of the seasonal wetlands are supported by varying amounts of groundwater inputs. Carson Creek is a tributary to Deer Creek, which empties into the Cosumnes River. The Study Area is located in the *Carson Creek Watershed*, which is part of the larger *Upper Cosumnes River Watershed* (HUC 18040013) (USGS 1984).

3.2 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2024), four soil mapping units occur within the Study Area (Figure 6) (**Table 1**). These soils are all somewhat acidic. The Auburn soils are formed in amphibolite schist (metamorphic rock) while the Argonaut soils are formed in weathered meta-andesite (weathered volcanic rock) (NRCS 2024). None of the soil units have hydric components, but the Argonaut soils has 1% hydric inclusions on fan remnants (NRCS 2024).

Table 1. Hydric Rating of Soils within the Study Area

Soil Unit Name	Map Unit Symbol	Hydric Rating
Argonaut gravelly loam, 2 to 15% slopes	AkC	No
Auburn silt loam, 2 to 30% slopes	AwD	No
Auburn very rocky silt loam, 2 to 30% slopes	AxD	No
Auburn extremely rocky silt loam, 3 to 70% slopes	AyF	No

3.3 Driving Directions

The Study Area is located off of Old Country Club Drive in El Dorado County, California. To access the Study Area from Sacramento, drive east on Highway 50 towards Clarksville. Take exit 32 towards Bass Lake Road. Head north on Bass Lake Road. The Study Area is on either side of Bass Lake Road just north of the Highway.

4.0 RESULTS

A total of approximately 0.909 acre of aquatic resources were delineated within the Study Area, including approximately 0.278 acre of wetlands and 0.631 acre of other waters. Seasonal wetlands, seasonal wetland swales, seeps, a drainage ditch, ephemeral drainages, intermittent drainages, Carson Creek, and roadside ditches were delineated within the Study Area. A summary of the aquatic resources found on-site and their acreages is shown in **Table 2** below.

Table 2. Aquatic Resources Delineated within the Study Area

Resource Type	Acreage[1]
Wetlands	
Seasonal Wetland	0.211
Seasonal Wetland Swale	0.017
Seep	0.051
Other Waters	
Drainage Ditch	0.005
Ephemeral Drainage	0.035
Intermittent Drainage	0.311
Perennial Creek (Carson Creek)	0.033
Roadside Ditch	0.247
Total	**0.909**

[1] *Small summation errors may occur due to rounding.*

Data sheets are included in **Attachment A**. Maps of the aquatic resources within the Study Area are included as **Figure 3** and **Attachment B**, and a list of the plant species observed in the Study Area with their wetland indicator status is included in **Attachment C**. GIS Shapefiles and the *Aquatic Resources Excel Spreadsheet* for the aquatic resources shown on **Figure 3** and **Attachment B** will be digitally transmitted with this document when it is submitted**.** Each of the feature types are described below.

4.1 Seasonal Wetland

Five seasonal wetlands occur within the southern portion of the Study Area. Seasonal wetlands are depressional wetlands that pond water seasonally. Two of the seasonal wetlands are depressional and are dominated by needle-leaf navarretia (*Navarretia intertexta*), Mediterranean beard grass (*Polypogon maritimus*) and Mediterranean barley (*Hordeum marinum*). Other species in these features include bractless hedge-hyssop (*Gratiola ebracteata*), slender popcorn flower (*Plagiobothrys stipitatus var. micranthus*), annual hairgrass (*Deschampsia danthonioides*), hyssop loosestrife (*Lythrum hyssopifolium*), slender tarweed (*Holocarpha virgata*), turkey mullein (*Croton setiger*), creeping spikerush (*Eleocharis macrostachya*), stinkwort (*Dittrichia graveolens*), and hairy cat's ear (*Leontodon saxatilis*). The remaining seasonal wetlands are slope wetlands, and are dominated by iris-leaved rush (*Juncus xiphioides*) and annual rabbitsfoot grass (*Polypogon monspeliensis*). Other species commonly occurring in these features include Baltic rush (*Juncus balticus*) and Spanish lotus (*Acmispon americanus*).

Three data points were collected within seasonal wetlands (DP 3, DP 5, and DP 7). Wetland hydrology indicators at these points included oxidized rhizospheres along living roots, presence of biotic crust, and the Fac-neutral test. Soils at points were considered hydric based on the presence of Field Indicators F3 (Depleted Matrix), F8 (Redox Depressions) or TF2 (Red Parent Material).

4.2 Seasonal Wetland Swale

Two seasonal wetland swales are present within the Study Area. Seasonal wetland swales are linear seasonal wetlands that convey surface runoff and may detain it for short periods of time. The vegetation in the seasonal wetland swales is similar to that found in the sloping seasonal wetlands. They are dominated by iris-leaved rush. Other species commonly found in these features include Spanish lotus, curly dock (*Rumex crispus*), and Mediterranean beard grass.

One data point was collected within a seasonal wetland swale (DP 9). Wetland hydrology indicators at these points included oxidized rhizospheres along living roots, and the Fac-neutral test. Soils at this point were considered hydric based on the presence of Field Indicators F3 (Depleted Matrix).

4.3 Seep

Seeps are areas where groundwater reaches the surface through porous soil or cracks in rock. Seeps result in seasonal or perennial soil saturation with minimal standing water and gentle flows. Three seeps were mapped within the Study Area. Dominant plant species identified within the seeps include iris-leaved rush, Baltic rush, and Sonoma hedge nettle (*Stachys stricta*). Other common plants include hyssop loosestrife, annual quaking grass (*Briza minor),* cut-leaf geranium (*Geranium dissectum*), common sow thistle (*Sonchus oleraceus),* and Italian thistle (*Carduus pycnocephalus*).

One data point was collected within a seep (DP 1). Wetland hydrology indicators at these points included saturation, and the Fac-neutral test. Soils at this point were considered hydric based on the presence of TF2 (Red Parent Material).

4.4 Drainage Ditch

A constructed drainage ditch conveys flows collected in roadside ditches along Country Club Drive into the intermittent drainage to the north. This drainage ditch is lined with rocks and is entirely unvegetated.

The drainage ditch was mapped at the OHWM, which was determined based on drift deposits and water marks.

4.5 Ephemeral Drainage

Five ephemeral drainages occur within the Study Area. Ephemeral drainages are linear features that convey runoff for short periods of time, during and immediately following rain events, and do not convey any groundwater flows. Several ephemeral drainages occur within the sewer alternatives. These features are almost entirely unvegetated, and any sparse vegetation that does occur is typical of the surrounding terrestrial vegetation community.

The ephemeral drainages were mapped at the OHWM, which was identified based on the extent of scour and extent of adjacent vegetation.

4.6 Intermittent Drainage

One intermittent drainage runs through the northern portion of the Study Area. This feature has a variable substrate, ranging from sand and mud in some areas to bedrock in others. It is entirely unvegetated within the channel due to the depth and scouring effects of water. This feature runs through oak woodlands for much of its length, and as a result of the closed canopy, very little herbaceous vegetation occurs along the banks in those areas. Portions of the drainage that run through annual brome grasslands are primarily bordered by grasses and forbs typical of that community, but also support scattered seep monkeyflower (*Erythranthe guttata*) and other herbaceous hydrophytes.

The intermittent drainage was mapped at the OHWM, which was identified based on the extent of scour, topographic breaks, and changes in vegetation.

4.7 Perennial Creek (Carson Creek)

Carson Creek, which is perennial with a primarily bedrock substrate, runs through the western portion of the Study Area. . It is almost entirely unvegetated within the channel, but there are a few plants occurring on the banks and in areas where sediment has accumulated within the channel. These plants include narrow-leaved cattail (*Typha angustifolia*), Torrey's willowherb (*Epilobium torreyi*), sticktight (*Bidens frondosa*), Lady's thumb (*Persicaria maculosa*), False waterpepper (*Persicaria hydropiperoides*), western goldenrod (*Euthamia occidentalis*), mugwort (*Artemesia douglasiana*), tall nutsedge (*Cyperus eragrostis*), rice cutgrass (*Leersia oryzoides*), and seep monkeyflower.

The perennial creek was mapped at the OHWM, which was identified based on water marks, sediment sorting, topographic breaks, and changes in vegetation.

4.8 Roadside Ditch

Several roadside ditches were mapped within the Study Area along Bass Lake Road, Country Club Drive, and Old Country Club Drive. The roadside ditches were constructed adjacent to the roadways, and serve to convey stormwater runoff away from the road. These features are entirely unvegetated due to ditch maintenance and due to the fact that many of these features are lined with rock, presumably for flow attenuation.

The ephemeral drainages were mapped at the OHWM, which was identified based on the extent of scour, water marks, and extent of adjacent vegetation.

5.0 CONCLUSION

We believe that of the 0.909 acre of aquatic resources mapped within the Study Area, 0.622 acre may be subject to USACE jurisdiction, and the remaining 0.287 acre may be exempt from USACE jurisdiction, or otherwise non-jurisdictional.

The drainage ditch (0.005 acre) and roadside ditches (0.247 acre) were all constructed in uplands to convey stormwater runoff from the associated constructed roadways, and have ephemeral flow. We feel that these features would be categorically exempt from USACE jurisdiction under paragraph (b)(3) of the Confirming Clean Water Rule.

The ephemeral drainages (0.035 acre) are tributary to Carson Creek, but do not meet the relatively permanent standard, and do not fit any other jurisdictional category, and therefore would not be considered subject to USACE jurisdiction.

The remaining features may be subject to USACE jurisdiction. We are requesting an Approved Jurisdictional Determination for the Aquatic Resources Delineation Map of the Study Area (**Attachment B**) at this time to document the extent of aquatic resources and USACE jurisdiction. A JD request form is attached in **Attachment D**.

6.0 REFERENCES

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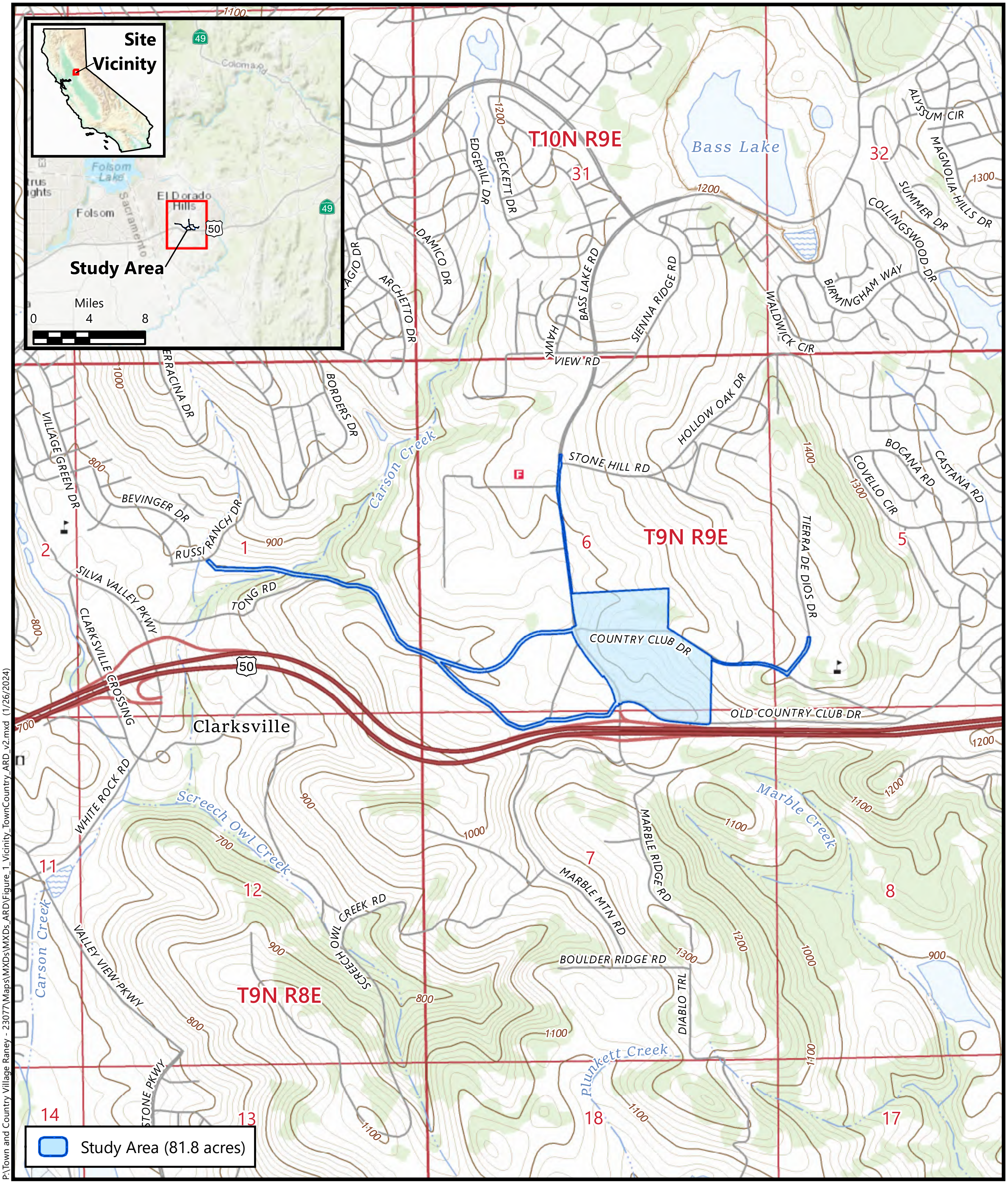
U.S. Department of the Interior, Geological Survey (USGS). 2021. *Clarksville, California* 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.

Figures



N

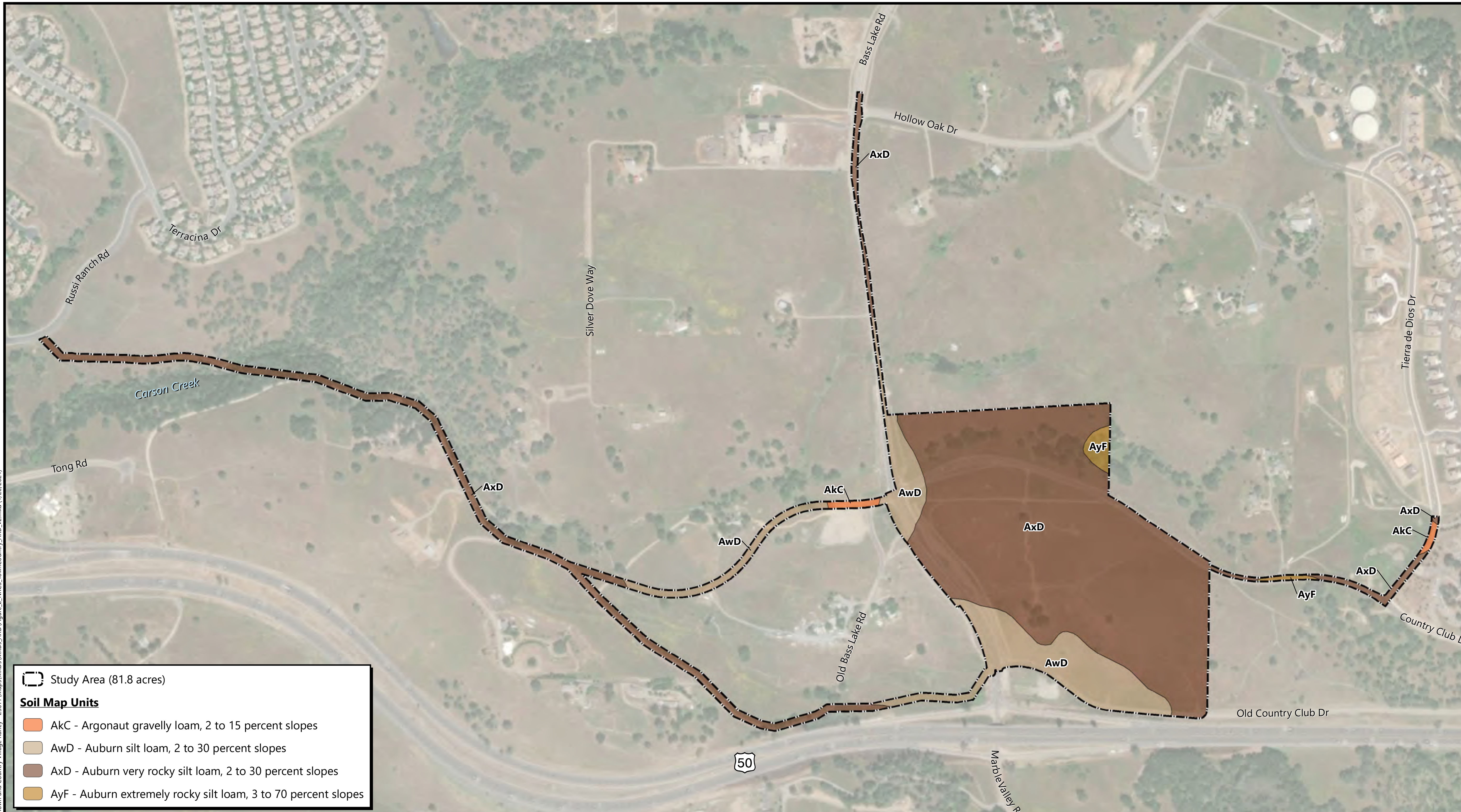
Feet
0 1,000 2,000

Source: United States Geologic Survey, 2021
"Clarksville, California" 7.5-Minute Topographic Quadrangle
Section 1, Township 9 North, Range 8 East, MDBM and
Sections 5-7, Township 9 North, Range 9 East, MDBM
Latitude (NAD83): 38.658668°, Longitude (NAD83): -121.029902°

Figure 1
Site and Vicinity

Town and Country Village
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING



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N

Feet

0 600

Soil Survey Source: *USDA, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for El Dorado County, California*

Aerial Source: Maxar, 1 May 2022

Figure 2
Natural Resources Conservation Service Soils

Town and Country Village
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING

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** Small summation errors may occur due to rounding*

Boundary Source: CTA Engineering & Surveying
Aerial Source: Maxar, 1 May 2022

Figure 3
Aquatic Resources

Town and Country Village
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING

Attachments

Attachment A. Arid West Wetland Determination Data Forms

Attachment B. Aquatic Resources Delination Map

Attachment C. Plant Species Observed within the Study Area

Attachment D. JD Request Form

Attachment A

Arid West

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 09/27/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP1
Investigator(s): Daria Snider Section, Township, Range: Section 1, Township 9 North, Range 8 East
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0505833 Long: 38.66218167 Datum: NAD83
Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Representative seep.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Typha latifolia*	30	X	OBL
2. *Epilobium ciliatum*	10	X	FACW
3. *Carduus pycnocephalus*	10	X	UPL
4. *Helminthotheca echioides*	T		FAC
5. *Asclepias fascicularis*	T		FAC
6.			
7.			
8.			
	50	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	
% Bare Ground in Herb Stratum 50*	% Cover of Biotic Crust 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**2**	(A)
Total Number of Dominant Species Across All Strata:	**3**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**67%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:	
OBL species	**30**	x1 =	**30**	
FACW species	**10**	x2 =	**20**	
FAC species	**0**	x3 =	**0**	
FACU species	**0**	x4 =	**0**	
UPL species	**10**	x5 =	**50**	
Column Totals:	**50**	(A)	**100**	(B)
Prevalence Index = B/A =	**2.0**			

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is >50%
- **X** Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

*Thatch present.

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/4	50	7.5YR 4/3	50	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
X Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Shovel refusal at 6 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 09/27/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP2
Investigator(s): Daria Snider Section, Township, Range: Section 1, Township 9 North, Range 8 East
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0505149 Long: 38.66219586 Datum: NAD83
Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

Upland comparison to DP 1

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Elymus caput-medusae*	50	X	UPL
2. *Carduus pycnocephalus*	20	X	UPL
3. *Avena barbata*	20	X	UPL
4. *Festuca perennis*	10		FAC
5. *Dittrichia graveolens*	T		UPL
6.			
7.			
8.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	0	x4 =	0
UPL species	90	x5 =	450
Column Totals:	100 (A)		480 (B)

Prevalence Index = B/A = **4.8**

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/4	100					clay loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators detected.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 10/06/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP3
Investigator(s): Daria Snider Section, Township, Range: Section 6, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1-3
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0383376 Long: 38.65812073 Datum: NAD83
Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present? Yes X No ____		
Wetland Hydrology Present? Yes X No ____		

Remarks:

Representative depressional seasonal wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Navarretia intertexta*	20	X	FACW
2. *Plagiobothrys stipitatus*	15	X	FACW
3. *Polypogon maritimus*	10	X	OBL
4. *Eryngium castrense*	5		OBL
5. *Gratiola ebracteata*	T		OBL
6. *Deschampsia danthanioides*	T		FACW
7. *Hordeum marinum*	T		FAC
8. *Lythrum hyssopilolium*	T		OBL
9. *Croton setiger*	T		UPL
10. *Eleocharis macrostachya*	T		OBL
	50	=Total Cover	
		=Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust 20		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**3**	(A)
Total Number of Dominant Species Across All Strata:	**3**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	**15**	x1 = **15**
FACW species	**35**	x2 = **70**
FAC species	**0**	x3 = **0**
FACU species	**0**	x4 = **0**
UPL species	**0**	x5 = **0**
Column Totals:	**50** (A)	**85** (B)

Prevalence Index = B/A = **1.7**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is >50%
- **X** Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:

SOIL

Sampling Point: DP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5YR 5/2	95	7.5YR 4/4	5	C	M	gravelly silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		X	
Water Table Present?		X	
Saturation Present? (includes capillary fringe)		X	

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 10/06/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP4
Investigator(s): Daria Snider Section, Township, Range: Section 6, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1-3
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0382912 Long: 38.65809882 Datum: NAD83
Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No	
Hydrophytic Vegetation Present?		X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?		X	
Wetland Hydrology Present?		X	

Remarks:

Upland comparison to DP 3

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
=Total Cover	0		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
=Total Cover	0		
Herb Stratum (Plot size: 1 meter^2)			
1. *Elymus caput-medusae*	40	X	UPL
2. *Bromus hordeaceus*	30	X	FACU
3. *Holocarpha virgata*	10		UPL
4. *Bromus diandrus*	10		UPL
5. *Silene gallica*	T		UPL
6.			
7.			
8.			
=Total Cover	90		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
=Total Cover			
% Bare Ground in Herb Stratum: 10	% Cover of Biotic Crust: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x1 = 0
FACW species	0	x2 = 0
FAC species	0	x3 = 0
FACU species	30	x4 = 120
UPL species	60	x5 = 300
Column Totals:	90 (A)	420 (B)

Prevalence Index = B/A = 4.7

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-6	2.5YR 4/3	100					sandy silt loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

Refusal at 6". No hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	____	No	X	Depth (inches):	____
Water Table Present?	Yes	____	No	X	Depth (inches):	____
Saturation Present? (includes capillary fringe)	Yes	____	No	X	Depth (inches):	____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 09/27/23

Applicant/Owner: Raney Planning & Management, Inc CA Sampling Point: DP5

Investigator(s): Bonnie Peterson Section, Township, Range: Section 6, Township 9 North, Range 9 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0278307 Long: 38.6562025 Datum: NAD83

Soil Map Unit Name: AwD - Auburn silt loam, 2 to 30 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes X No ____**
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Seasonal wetland located in tire ruts at the base of hill that slopes to a roadside drainage.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5. *Navarettia intertexta*			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Hordeum marinum*	20	X	FAC
2. *Croton setiger*	15	X	UPL
3. *Navarettia intertexta*	15	X	FACW
4. *Leontodon saxatilis*	5		FACU
5. *Lythrum hyssopifolium*	4		OBL
6. *Dittrichia graveolens*	3		UPL
7. *Polypogon monspeliensis*	2		FACW
8. *Holocarpha virgata*	1		UPL
9. *Galium parisiense*	1		UPL
Woody Vine Stratum (Plot size: ____)	66	=Total Cover	
1.			
2.			
		=Total Cover	
% Bare Ground in Herb Stratum 39	% Cover of Biotic Crust 20		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:	
OBL species	**4**	x1 =	**4**	
FACW species	**17**	x2 =	**34**	
FAC species	**20**	x3 =	**60**	
FACU species	**5**	x4 =	**20**	
UPL species	**18**	x5 =	**90**	
Column Totals:	**64**	(A)	**208**	(B)

Prevalence Index = B/A = **3.3**

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:

Marginal hydrophytic vegetation.

SOIL

Sampling Point: DP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	5YR 4/4	68	5YR 4/2	30	RM	M	clay loam	
			5YR 2.5/1	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- X Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___	
Water Table Present?	Yes ___	No X	Depth (inches): ___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 09/27/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP6
Investigator(s): Bonnie Peterson Section, Township, Range: Section 6, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0278377 Long: 38.65618779 Datum: NAD83
Soil Map Unit Name: AwD - Auburn silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** X
Hydric Soil Present? Yes ____ No X		
Wetland Hydrology Present? Yes ____ No X		

Remarks:

Paired upland point on small berm downslope of DP5.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Carduus pycnocephalus*	40	X	UPL
2. *Elymus caput-medusae*	20	X	UPL
3. *Leontodon saxatilis*	10		FACU
4. *Amsinckia intermedia*	5		UPL
5. *Galium sp.*	5		UPL
6.			
7.			
8.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	
% Bare Ground in Herb Stratum 20	% Cover of Biotic Crust 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**0**	x3 =	**0**
FACU species	**10**	x4 =	**40**
UPL species	**65**	x5 =	**325**
Column Totals:	**75** (A)		**365** (B)

Prevalence Index = B/A = **4.9**

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: DP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	5YR 4/4	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____	
Water Table Present?	Yes ____	No X	Depth (inches): ____	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators detected.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village   City/County: El Dorado   Sampling Date: 09/27/23
Applicant/Owner: Raney Planning & Management, Inc   State: CA   Sampling Point: DP7
Investigator(s): Bonnie Peterson   Section, Township, Range: Section 7, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): hillslope   Local relief (concave, convex, none): flat   Slope (%): 3
Subregion (LRR): Mediterranean California (LRR C)   Lat: -121.0266484   Long: 38.65605898   Datum: NAD83
Soil Map Unit Name: AwD - Auburn silt loam, 2 to 30 percent slopes   NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** X
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

Representative sloped seasonal wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Juncus xiphioides*	40	X	OBL
2. *Polypogon monspeliensis*	40	X	FACW
3. *Acmispon americanus*	15		UPL
4. *Juncus balticus*	5		OBL
5.			
6.			
7.			
8.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**2**	(A)
Total Number of Dominant Species Across All Strata:	**2**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:	
OBL species	**45**	x1 =	**45**	
FACW species	**40**	x2 =	**80**	
FAC species	**0**	x3 =	**0**	
FACU species	**0**	x4 =	**0**	
UPL species	**15**	x5 =	**75**	
Column Totals:	**100**	(A)	**200**	(B)
Prevalence Index = B/A =			**2.0**	

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
X Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: DP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 4/2	90	5YR 4/4	5	C	PL	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
X Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 09/27/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP8
Investigator(s): Bonnie Peterson Section, Township, Range: Section 7, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0266268 Long: 38.65607059 Datum: NAD83
Soil Map Unit Name: AwD - Auburn silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

Upland comparison to DP 7.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 =Total Cover		
Herb Stratum (Plot size: 1 meter^2)			
1. *Acmispon americanus*	80	X	UPL
2. *Carduus pycnocephalus*	10		UPL
3. *Juncus xiphioides*	10		OBL
4.			
5.			
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:
OBL species	10	x1 =	10
FACW species	0	x2 =	0
FAC species	0	x3 =	0
FACU species	0	x4 =	0
UPL species	90	x5 =	450
Column Totals:	100	(A)	460 (B)

Prevalence Index = B/A = **4.6**

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5 YR 4/3	100					clay loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators detected.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 09/27/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP9
Investigator(s): Bonnie Peterson Section, Township, Range: Section 7, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): <2
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0264348 Long: 38.65615871 Datum: NAD83
Soil Map Unit Name: AwD - Auburn silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes X No ____**
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Seasonal wetland swale - DP located in upper portion.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Juncus xiphioides*	40	X	OBL
2. *Acmispon americanus*	10		UPL
3. *Rumex crispus*	5		FAC
4. *Polypogon monspeliensis*	5		FACW
5.			
6.			
7.			
8.			
	60	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	40	x1 = 40
FACW species	5	x2 = 10
FAC species	5	x3 = 15
FACU species	10	x4 = 40
UPL species		x5 = 0
Column Totals:	60 (A)	105 (B)

Prevalence Index = B/A = **1.8**

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:

SOIL

Sampling Point: DP9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	5YR 4/2	95	2.5YR 4/8	5	C	M/PL	clay loam	rock at 8 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
X Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 09/27/23

Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP10

Investigator(s): Bonnie Peterson Section, Township, Range: Section 7, Township 9 North, Range 9 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0263914 Long: 38.65616465 Datum: NAD83

Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X
Is the Sampled Area within a Wetland?		X

Remarks:

Upland comparison to DP 9.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Acmispon americanus*	40	X	UPL
2. *Carduus pycnocephalus*	30	X	UPL
3. *Festuca perennis*	20	X	FAC
4.			
5.			
6.			
7.			
8.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	20	x3 =	60
FACU species	0	x4 =	0
UPL species	70	x5 =	350
Column Totals:	90 (A)		410 (B)

Prevalence Index = B/A = **4.6**

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	5YR 4/4	100					clay loam	rock at 8 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___	
Water Table Present?	Yes ___	No X	Depth (inches): ___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Erosion has occurred in this location, but no hydrology indicators are present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 10/06/23

Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP11

Investigator(s): Bonnie Peterson Section, Township, Range: Section 6, Township 9 North, Range 9 East

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): <2

Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0299037 Long: 38.65775732 Datum: NAD83

Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X
Is the Sampled Area within a Wetland?		X

Remarks:

Located in slight depression downslope from a mowed fire break. Suspect due to topography and green color on aerials. None of the wetland criteria are satisfied in this location.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Bromus hordeaceus*	80	X	FACU
2. *Festuca perennis*	15		FAC
3. *Holocarpha virgata*	5		UPL
4.			
5.			
6.			
7.			
8.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:	
OBL species	0	x1 =	0	
FACW species	0	x2 =	0	
FAC species	15	x3 =	45	
FACU species	80	x4 =	320	
UPL species	5	x5 =	25	
Column Totals:	100	(A)	390	(B)

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 3/3	100					clay loam	rock at 8 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water Table Present?	Yes ___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were detected.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village | City/County: El Dorado | Sampling Date: 10/06/23

Applicant/Owner: Raney Planning & Management, Inc | State: CA | Sampling Point: DP12

Investigator(s): Bonnie Peterson | Section, Township, Range: Section 6, Township 9 North, Range 9 East

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) | Lat: -121.0277883 | Long: 38.65793268 | Datum: NAD83

Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	X	
Hydric Soil Present?		X
Wetland Hydrology Present?		X
Is the Sampled Area within a Wetland?		X

Remarks:

Located in an erosional feature upslope of a mowed fire break. This is an erosional feature, and no OHWM is present, and it does not meet all 3 wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Festuca perennis*	30	X	FAC
2. *Holocarpha virgata*	10		UPL
3. *Bromus hordeaceus*	5		FACU
4. *Avena barbata*	5		UPL
5. *Briza minor*	5		FAC
6.			
7.			
8.			
	55	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	
% Bare Ground in Herb Stratum: 45	% Cover of Biotic Crust: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**35**	x3 =	**105**
FACU species	**5**	x4 =	**20**
UPL species	**15**	x5 =	**75**
Column Totals:	**55** (A)		**200** (B)

Prevalence Index = B/A = **3.6**

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: DP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 3/3	100					clay loam	rock at 8 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):	
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **Yes** ______ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Although erosion is evident in this location, and OHWM is not present. No wetland hydrology indicators detected.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 10/06/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP13
Investigator(s): Bonnie Peterson Section, Township, Range: Section 6, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): <2
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0272672 Long: 38.65831687 Datum: NAD83
Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

Located upslope of a berm. Location sampled due to dominance of hydrophytic vegetation; however the other two wetland criteria are not met in this location, and it is therefore not a wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ________)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ________)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Festuca perennis*	50	X	FAC
2. *Elymus-caput medusae*	10		UPL
3. *Bromus hordeaceus*	5		FACU
4. *Avena barbata*	5		UPL
5. *Briza minor*	5		FAC
6. *Holocarpha virgata*	1		UPL
7.			
8.			
	76	=Total Cover	
Woody Vine Stratum (Plot size: ________)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 76 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**1**	(A)
Total Number of Dominant Species Across All Strata:	**1**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:	
OBL species	**0**	x1 =	**0**	
FACW species	**0**	x2 =	**0**	
FAC species	**55**	x3 =	**165**	
FACU species	**5**	x4 =	**20**	
UPL species	**16**	x5 =	**80**	
Column Totals:	**76**	(A)	**265**	(B)

Prevalence Index = B/A = **3.5**

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: DP13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 3/3	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		X	
Water Table Present?		X	
Saturation Present? (includes capillary fringe)		X	

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were detected.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Town and Country Village City/County: El Dorado Sampling Date: 10/06/23
Applicant/Owner: Raney Planning & Management, Inc State: CA Sampling Point: DP14
Investigator(s): Bonnie Peterson Section, Township, Range: Section 6, Township 9 North, Range 9 East
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): flat Slope (%): <2
Subregion (LRR): Mediterranean California (LRR C) Lat: -121.0267312 Long: 38.65913396 Datum: NAD83
Soil Map Unit Name: AxD - Auburn very rocky silt loam, 2 to 30 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X
Is the Sampled Area within a Wetland?		**X**

Remarks:

Suspect location due to presence of a fair amount of *Navarretia intertexta*. None of the wetland criteria are satisfied in this location.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 1 meter^2)			
1. *Bromus diandrus*	50	X	UPL
2. *Erodium botrys*	20	X	FACU
3. *Navarretia intertexta*	15		FACW
4. *Elymus caput-medusae*	10		UPL
5. *Avena barbata*	10		UPL
6. *Bromus hordeaceus*	5		FACU
7.			
8.			
	110	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 78 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**0**	(A)
Total Number of Dominant Species Across All Strata:	**2**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**0%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**15**	x2 =	**30**
FAC species	**0**	x3 =	**0**
FACU species	**25**	x4 =	**100**
UPL species	**70**	x5 =	**350**
Column Totals:	**110** (A)		**480** (B)

Prevalence Index = B/A = **4.4**

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks:

SOIL

Sampling Point: DP14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 3/8	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

No hydric soil indicators detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		X	
Water Table Present?		X	
Saturation Present? (includes capillary fringe)		X	

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology. Slightly damp soil but no saturation.

Attachment B

Aquatic Resources Delineation Map

AQUATIC RESOURCE FEATURES *

Wetlands

Seasonal Wetland

Feature ID	Acreage
SW-1	0.007
SW-2	0.001
SW-3	0.006
SW-4	0.019
SW-5	0.179
	0.211

Seasonal Wetland Swale

Feature ID	Acreage
SWS-1	0.009
SWS-2	0.008
	0.017

Seep

Feature ID	Acreage
SEEP-1	0.005
SEEP-2	0.044
SEEP-3	0.002
	0.051

	Acreage
Total Wetlands:	**0.278**

Other Waters

Drainage Ditch

Feature ID	Acreage	Linear Feet
DD-1	0.005	68
	0.005	**68**

Ephemeral Drainage

Feature ID	Acreage	Linear Feet
ED-1	0.003	65
ED-2	0.001	29
ED-3	0.006	58
ED-4	0.007	106
ED-5	0.018	234
	0.035	**492**

Intermittent Drainage

Feature ID	Acreage	Linear Feet
ID-1	0.311	1,543
	0.311	**1,543**

Perennial Creek

Feature ID	Acreage	Linear Feet
PC-1	0.033	54
	0.033	**54**

Roadside Ditch

Feature ID	Acreage	Linear Feet
RD-1	0.0004	16
RD-2	0.024	352
RD-3	0.074	810
RD-4	0.004	78
RD-5	0.111	1,332
RD-6	0.009	192
RD-7	0.003	64
RD-8	0.022	472
	0.247	**3,316**

	Acreage	Linear Feet
Total Other Waters:	**0.631**	**5,473**

	Acreage	Linear Feet
Aquatic Resources Total:	***0.909***	***5,473***

Prepared For:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Sources
Aerial: Maxar, 1 May 2022
Boundary : CTA Engineering & Surveying
Topographic Contours: USGS 1/3 ArcSecond

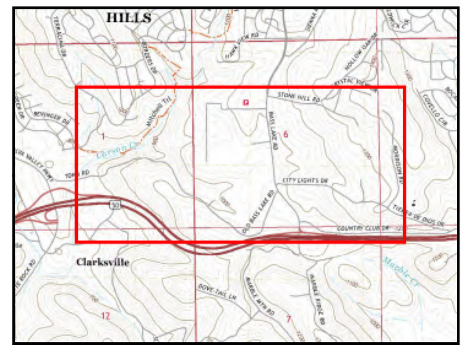
Delineation Performed by: D.Snider
Map Prepared by: J.Swager
Date Map Prepared: 26 January 2024

Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,* as amended on February 10, 2016

** Small summation errors may occur due to rounding*

N
Feet
0 100 200 300 600

Main Map Scale:
1 inch = 300 feet (at 18"x33")
Coordinate System
NAD 1983 State Plane California II (U.S. Feet)



Study Area (81.8 acres)
Culvert
Data Point
Reference Coordinate (NAD83)
20' Contour (NAVD88 U.S. Feet)

Aquatic Resources (0.909 acre) *

Wetlands (0.278 acre)
Seasonal Wetland (0.211 acre)
Seasonal Wetland Swale (0.017 acre)
Seep (0.051 acre)

Other Waters (0.631 acre)
Drainage Ditch (0.005 acre)
Ephemeral Drainage (0.035 acre)
Intermittent Drainage (0.311 acre)
Perennial Creek (0.033 acre)
Roadside Ditch (0.247 acre)

Aquatic Resources Delineation
Town and Country Village
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

Attachment C

Plant Species Observed within the Study Area

Plant Species Observed within the Town and Country Village Study Area 13 April 2022, and 27 September and 6 October 2023

Species Name	Common Name	Wetland Indicator Status
Achillea millefolium	Yarrow	FACU
Acmispon americanus	Spanish lotus	UPL
Acmispon micranthus	Small flowered lotus	UPL
Adiantum jordanii	California maidenhair	FAC
Aegilops triuncialis	Barbed goat grass	UPL
Aesculus californica	California buckeye	UPL
Aira caryophyllea	Silver hair grass	FACU
Allium hyalinum	Glassy onion	FACU
Amsinckia intermedia	Common fiddleneck	UPL
Amsinckia menziesii	Fiddleneck	UPL
Anthriscus caucalis	Bur-chervil	UPL
Aphanes occidentalis	Ladie's mantle	UPL
Apocynum cannabinum	Hemp dogbane	FAC
Artemisia douglasiana	Mugwort	FAC
Asclepias fascicularis	Narrow-leaf milkweed	FAC
Avena barbata	Slender wild oat	UPL
Baccharis pilularis subsp. pilularis	Coyote brush	UPL
Bidens frondosa	Sticktight	FACW
Brachypodium distachyon	Purple false brome	UPL
Brassica nigra	Black mustard	UPL
Briza minor	Annual quaking grass	FAC
Brodiaea elegans	Harvest brodiaea	UPL
Bromus diandrus	Ripgut grass	UPL
Bromus hordeaceus	Soft chess	FACU
Bromus madritensis spp. *rubens*	Red brome	UPL
Bromus sitchensis var. carinatus	California brome	UPL
Bromus sterilis	Sterile brome	UPL
Calandrinia menziesii	Red maids	FACU
Cardamine oligosperma	Little western bittercress	FAC
Carduus pycnocephalus subsp. pycnocephalus	Italian thistle	UPL
Carex praegracilis	Common sedge	FACW
Castilleja attenuata	Valley tassels	UPL
Cephalanthus occidentalis	California button willow	OBL
Cerastium glomeratum	Sticky mouse-ear chickweed	UPL
Chlorogalum pomeridianum var. pomeridianum	Common soap plant	UPL
Clarkia gracilis subsp. gracilis	Graceful clarkia	UPL

Clarkia purpurea subsp. quadrivulnera	Purple clarkia	UPL
Croton setiger	Turkey-mullein	UPL
Cynosurus echinatus	Bristly dogtail grass	UPL
Cyperus eragrostis	Tall nutsedge	FACW
Datura wrightii	Jimsonweed	UPL
Daucus pusillus	Wild carrot	UPL
Deschampsia danthonioides	Annual hair grass	FACW
Dichelostemma volubile	Twining brodiaea	UPL
Dipterostemon capitatus	Blue dicks	UPL
Dittrichia graveolens	Stinkwort	UPL
Eleocharis macrostachya	Creeping spikerush	OBL
Elymus caput-medusae	Medusa head	UPL
Elymus ponticus	Tall wheat grass	UPL
Epilobium brachycarpum	Willowherb	FAC
Epilobium ciliatum	Slender willow herb	FACW
Epilobium torreyi	Torrey's willowherb	FACW
Erigeron canadensis	Horseweed	FACU
Erodium botrys	Filaree	FACU
Erodium cicutarium	Redstem filaree	UPL
Eryngium castrense	Great Valley coyote-thistle	OBL
Erythranthe guttata	Seep monkeyflower	FAC
Erythranthe microphylla	Small leaved monkeyflower	OBL
Euthamia occidentalis	Western goldenrod	FACW
Festuca bromoides	Brome fescue	FACU
Festuca microstachys	Small fescue	UPL
Festuca myuros	Rattail sixweeks grass	FACU
Festuca perennis	Rye grass	FAC
Ficus carica	Edible fig	FACU
Frangula californica subsp. tomentella	Hoary coffeeberry	UPL
Galium aparine	Goose grass	FACU
Galium parisiense	Wall bedstraw	UPL
Geranium dissectum	Cut-leaf geranium	UPL
Geranium molle	Soft geranium	UPL
Gratiola ebracteata	Bractless hedge-hyssop	OBL
Helminthotheca echioides	Bristly ox-tongue	FAC
Heteromeles arbutifolia	Toyon	UPL
Holocarpha virgata	Narrow tarplant	UPL
Hordeum marinum subsp. gussoneanum	Mediterranean barley	FAC
Hordeum murinum	Wall barley	FACU
Horkelia californica var. elata	California horkelia	UPL
Hypericum perforatum subsp. perforatum	Klamathweed	FACU
Juncus acuminatus	Tapered rush	OBL
Juncus balticus subsp. ater	Baltic rush	FACW

Juncus bufonius	Toad rush	FACW
Juncus xiphioides	Iris-leaved rush	OBL
Lactuca serriola	Prickly lettuce	FACU
Leersia oryzoides	Rice cutgrass	OBL
Leontodon saxatilis	Hairy hawkbit	FACU
Limnanthes alba subsp. versicolor	White meadowfoam	FACU
Linum bienne	Flax	UPL
Lithophragma heterophyllum	Woodland star	UPL
Logfia gallica	Daggerleaf cottonrose	UPL
Lonicera interrupta	Chaparral honeysuckle	UPL
Lupinus bicolor	Miniature lupine	UPL
Lysimachia arvensis	Scarlet pimpernel	FAC
Lythrum hyssopifolia	Hyssop loosestrife	OBL
Madia gracilis	Gumweed	UPL
Marah fabacea	California man-root	UPL
Mentha pulegium	Pennyroyal	OBL
Micropus californicus	Q-tips	FACU
Muhlenbergia rigens	Deer grass	FAC
Navarretia intertexta	Needle-leaf navarretia	FACW
Oxalis micrantha	Dwarf wood-sorrel	UPL
Bellardia viscosa	Yellow parentucellia	FAC
Pentagramma triangularis	Goldback fern	UPL
Perideridia kelloggii	Yampah	UPL
Persicaria hydropiperoides	False waterpepper	OBL
Persicaria maculosa	Lady's thumb	FACW
Phacelia cicutaria var. cicutaria	Caterpillar phacelia	UPL
Phoradendron leucarpum subsp. tomentosum	Oak mistletoe	UPL
Pinus sabiniana	Gray pine	UPL
Plagiobothrys nothofulvus	Rusty popcornflower	FAC
Plagiobothrys stipitatus	Great valley popcornflower	FACW
Plantago erecta	California plantain	UPL
Poa bulbosa	Bulbous blue grass	FACU
Polypodium calirhiza	Licorice fern	UPL
Polypogon maritimus	Mediterranean beard grass	OBL
Polypogon monspeliensis	Annual rabbitfoot grass	FACW
Quercus douglasii	Blue oak	UPL
Quercus lobata	Valley oak	FACU
Quercus wislizeni	Interior live oak	UPL
Raphanus sativus	Wild radish	UPL
Rumex crispus	Curly dock	FAC
Rumex pulcher	Fiddle dock	FAC
Salix gooddingii	Goodding's black willow	FACW
Salix laevigata	Red willow	FACW

Salix lasiandra	Pacific willow	FACW
Sanicula bipinnatifida	Purple sanicle, shoe buttons	UPL
Sanicula crassicaulis	Pacific sanicle	UPL
Schinus molle	Pepper tree	FACU
Senecio vulgaris	Common groundsel	FACU
Sherardia arvensis	Field madder	UPL
Silene gallica	Small-flower catchfly	UPL
Silybum marianum	Milk thistle	UPL
Sonchus oleraceus	Common sow thistle	UPL
Spergularia rubra	Red sand-spurrey	FAC
Stachys stricta	Sonoma hedge nettle	OBL
Stellaria media	Common chickweed	FACU
Thysanocarpus curvipes	Common fringe pod	UPL
Torilis arvensis	Tall sock-destroyer	UPL
Toxicodendron diversilobum	Western poison oak	FACU
Trichostema lanceolatum	Vinegar weed	FACU
Trifolium bifidum var. bifidum	Pinole clover	UPL
Trifolium ciliolatum	Foothill clover	UPL
Trifolium depauperatum	Dwarf sack clover	FAC
Trifolium dubium	Little hop clover	UPL
Trifolium glomeratum	Clustered clover	UPL
Trifolium hirtum	Rose clover	UPL
Trifolium incarnatum	Crimson clover	UPL
Trifolium microcephalum	Small-head clover	FAC
Trifolium subterraneum	Subterranean clover	UPL
Trifolium variegatum	Variegated clover	FAC
Triteleia hyacinthina	White brodiaea	FAC
Triteleia laxa	Ithuriel's spear	UPL
Typha angustifolia	Narrow-leaved cattail	OBL
Typha latifolia	Broad-leaved cattail	OBL
Vicia sativa	Spring vetch	FACU
Vicia villosa subsp. varia	Winter vetch	UPL

Attachment D

JD Request Form

U.S. Army Corps of Engineers (USACE)

REQUEST FOR JURISDICTIONAL DETERMINATION (JD)

For use of this form, see Sec 404 CWA, Sec 10 RHA, Sec 103 MPRSA; the proponent agency is CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires 2024-04-30

DATA REQUIRED BY THE PRIVACY ACT OF 1974

Authority Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332.

Principal Purpose The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the review area that are or that may be subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice or FOIA request as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in any approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure Submission of requested information is voluntary, however, if the information is not provided there may be some delay in processing your request. Failure to provide this information will not result in an adverse action.
System of Record Notice (SORN): The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website:
http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. To (*District Name*): Sacramento District

2. I am requesting a JD on property located at (*Street Address*): 2120 Country Club Drive

City/Township/Parish: El Dorado Hills County: El Dorado State: California

Acreage of Parcel/Review Area for JD: 81.8

Section: Sections 1, 5, 6, and 7 Township: 9 North Range: 8 and 9 East

Latitude (*decimal degrees*): 38.658668 ° Longitude (*decimal degrees*): -121.02990 °

(*For linear projects, please include the center point of the proposed alignment.*)

3. Please attach a survey/plat map and vicinity map identifying location and review area for the JD.

4. ☒ I currently own this property. ☐ I plan to purchase this property.

☐ I am an agent/consultant acting on behalf of the requester.

☐ Other (*please explain*):

5. Reason for request: (*check as many as applicable*)

☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.

☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.

☒ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.

☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.

☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.

☐ A Corps JD is required in order to obtain my local/state authorization.

☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.

☐ I believe that the site may be comprised entirely of dry land.

☐ Other:

6. Type of determination being requested:

☒ I am requesting an approved JD.

☐ I am requesting a preliminary JD.

☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.

☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

7. Typed or Printed Name: Moe Mohanna

Daytime Phone No.: 916-870-7236

Company Name: M.H. Mohanna & Co.

Email Address: moe@mohannadevelopment.com

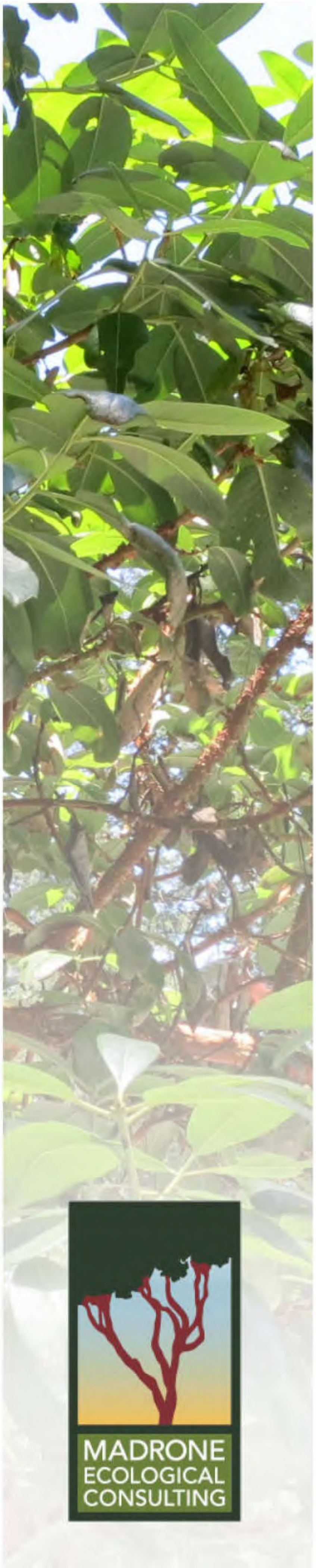
Address: 1025 9th Street, 2nd Floor
Sacramento, CA 95814

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

Signature: Moe Mohanna	Date: Feb 6. 2024

Attachment G

Oak Resources Technical Report for Town & Country Village El Dorado



Oak Resources Technical Report

Town & Country Village El Dorado

El Dorado County, California
June 2024

Prepared for:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

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CONTENTS

Oak Resources Technical Report
Town & Country Village El Dorado

1.0 INTRODUCTION

This report summarizes the Oak Resources present within the Town & Country Village El Dorado Study Area (Study Area). This report has been prepared to comply with El Dorado County's *Oak Resources Management Plan* (ORMP) (EDC 2017) and the associated *Oak Resources Technical Report Checklist* (Checklist).

The Study Area is located north of Interstate Highway 50, largely south of Stone Hill Road, east of Silva Valley Parkway, and largely west of Morrison Road in western El Dorado County, California (**Figure 1**). The Development Area is located generally north of Country Club Drive and east of Bass Lake Road. The approximately 81.8-acre Study Area is located in portions of Section 1, Township 9 North, Range 8 East and Sections 5-7, Township 9 North, Range 9 East (MDBM) of the "Clarksville, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

2.0 METHODOLOGY

Madrone Ecological Consulting, LLC (Madrone) Certified Arborist Daria Snider (#WE 8666A) mapped the oak woodlands within the Project Area and conducted an inventory of the following native oak trees within the Study Area or with driplines overhanging the Study Area on 27 September and 6 October 2023:

- All native oak trees outside of mapped oak woodlands that have a single trunk 6" in Diameter at Breast Height (DBH) or greater or multiple trunks with an aggregate of 10" DBH or greater
- All native oak trees within mapped oak woodlands that were 24" DBH or greater

For each tree inventoried, Ms. Snider nailed aluminum tags with a unique identification number into the trunk (for those that did not already have a tag), recorded the tree identification number, tree species, DBH, approximate dripline radius, and general health and structure. Health and structure rating criteria are listed in **Table 1**, below. The location of each tree was recorded with a GPS unit capable of sub-meter accuracy (Arrow 100).

Table 1. Health and Structure Rating Criteria

Rating	Health Criteria	Structure Criteria
Excellent	Foliage is vigorous with virtually no dead branches	No cavities are present, major branch attachments have no included bark and have ideal attachment angles, and general structure is appropriate for the species.
Good	Foliage is vigorous with few dead branch tips	One or two small cavities may be present, or one or two major branch attachments may not be ideal, but none of these compromise the longevity of the tree. General structure is appropriate for the species.

Table 1. Health and Structure Rating Criteria

Rating	Health Criteria	Structure Criteria
Fair	Foliage is acceptable, but there may be a few dead branches, and some foliage may be discolored.	Several cavities may be present, several branch attachments may have included bark or attachment angles could make them prone to failure, and/or the tree may be inappropriately branched for the species. All of these issues could be rectified with treatment.
Poor	Tree is obviously in decline with extensive dead areas, some conks may be present, and foliage is extremely sparse.	Large, decaying cavities may be present within the main trunk of the tree, large portions of the tree may have fallen off, destabilizing the remainder of the tree, or other structural problem that cannot be treated.
Dead	No live foliage present when foliage is present on other trees.	

Note that the health and structure ratings recorded during the course of this survey may be used for general planning purposes but shall not be considered to be a hazard assessment for public safety purposes.

The Town & Country Village El Dorado Project (Project) includes work proposed onsite within the Project Development Area as well as off-site infrastructure, comprised of water and sewer lines (collectively, the Project Area). At the present time, two alternatives have been identified for both the off-site sewer line and the off-site water line; the impacts analysis presented in **Section 4.0** presents impact estimates for each scenario. The Site Plan is included as **Attachment A**, and a Project Components map that shows the different areas is included as **Figure 2**. Please note that no oak resources occur within the Program Study Area shown on **Figure 2**, and no impacts within that area are currently proposed, so this report only discusses oak resources and impacts within the Project Area, as defined above.

3.0 EXISTING CONDITIONS AND OAK RESOURCES

The Study Area is largely comprised of ungrazed Annual Brome Grasslands with widely scattered oak trees. Oak Woodlands occur in the vicinity of the intermittent drainage and perennial Carson Creek. The intermittent drainage is located in the northern portion of the Study Area, and Carson Creek is in the western portion. Carson Creek runs over bedrock, and the adjacent slopes are quite steep, restricting the extent of riparian vegetation, which consists of a narrow band of Arroyo Willow Riparian Scrub. The Oak Woodland south of the creek has a dense, closed canopy, as is typical for north-facing slopes in the region. Bass Lake Road cuts from north to south through the Study Area, and Country Club Drive runs from west to east. Portions of Old Bass Lake Road and Old Country Club Drive also occur within portions of the Study Area. Several seasonal wetlands and two seasonal wetland swales occur just north of Old Country Club Drive, and one seasonal wetland occurs near an ephemeral drainage in the western portion of the Study Area. A few seeps occur on slopes in the Annual Brome Grasslands. Roadside ditches run along the edges of a number of roadways within the Study Area, and three portions of ephemeral drainages occur within infrastructure-related portions of the Study Area. Inclusions of unvegetated areas are scattered throughout the Study

Area along farm roads. The terrain within the Study Area is gently rolling, and generally slopes from the east down towards the west. Elevations range from approximately 1,320 feet above mean sea level (MSL) at the eastern edge of the Study Area to approximately 800 feet at the western extent along Carson Creek and Russi Ranch Drive (**Figure 1**).

Surrounding properties are similar to those within the Study Area. They are largely comprised of ungrazed Annual Brome Grasslands, scattered Oak Woodlands, and rural residences. The western and eastern ends of the Study Area abut urban residential areas, and the Study Area is bordered by Interstate Highway 50 to the south.

3.1 Oak Resources

A total of 6.2 acres of Oak Woodland is present within the 81.8-acre Project Area. An additional 17 individual native oak trees greater than 6" DBH occur outside of the Oak Woodlands in the Study Area. 72 native oak trees were inventoried, including 17 individual native oaks outside of Oak Woodlands, 27 native oaks between 24" and 25" within Oak Woodlands, and 28 Heritage oaks (equal to or greater than 36" DBH) within Oak Woodlands (**Table 2**) (**Attachment B**).

Table 2. Oak Trees Inventoried within the Study Area

			Number of Trees (DBH)			
			Blue Oak	**Interior Live Oak**	**Valley Oak**	**Total**
Within Oak Woodlands	**Fair to Good**	24-35" DBH	4 (114.6)	16 (468.1)	1 (24.8)	21 (607.5)
		≥36" DBH	0	24 (1,148.9)	2 (78.3)	26 (1,227.2)
	Poor Condition	24-35" DBH	0	6 (170.7)	0	6 (170.7)
		≥36" DBH	0	2 (81.7)	0	2 (81.7)
Subtotal						55 (2,079.1)
Outside of Oak Woodlands	**Fair to Good**	6-35" DBH	3 (71.0)	0	6 (165.6)	9 (236.6)
		≥36" DBH	2 (83.8)	0	2 (79.7)	4 (163.5)
	Poor Condition	6-35" DBH	0	2 (50.0)	1 (15.7)	3 (65.7)
		≥36" DBH	0	0	1 (37.1)	1 (37.1)
Subtotal						17 (502.9)
Total			9 (269.4)	50 (1,911.4)	13 (401.2)	72 (2,582.0)

4.0 IMPACTS TO OAK RESOURCES

In accordance with the El Dorado County Oak Resources Conservation Ordinance, impacts to oak resources are calculated differently for Oak Woodland areas and non-Oak Woodland areas. Within mapped Oak Woodlands, impacts are calculated based on impact to oak canopy, plus impacts to any individual native oak trees within the woodland that are 36" of greater DBH. Outside of mapped Oak Woodlands, impacts are calculated based on impacts to each native oak tree that is 6" or greater DBH. Mitigation is only required for trees that are in Fair or better condition[1], and as a result, impacts have been broken out below based on condition. Note that trees were considered permanently impacted if the trunk fell within either the permanent or temporary impact boundary, or if greater than approximately 30% of the tree's dripline area would be permanently impacted. Impacted and avoided Oak Woodlands and oak trees are shown on **Attachment C**.

4.1 Project Development Area Impacts

A total of 0.3 acres of Oak Woodland will be permanently impacted within the Project Development Area, and 0.2 acre of Oak Woodland will be temporarily impacted within the Project Development Area. Within this area, a total of seven native oak trees with a DBH of 36" or greater will be impacted (six of which are in fair to good condition) (**Table 3**).

In addition, one individual native oak tree with a DBH of 6" or greater outside of Oak Woodlands will be permanently impacted within the Project Development Area, but this tree is in poor condition (**Table 3**).

In summary, a total of 0.5 acres of Oak Woodland and six individual trees in fair to good condition (with a cumulative DBH of 264.3 inches) would be subject to mitigation as a result of impacts within the Project Development Area (**Table 3**).

Table 3. Oak Tree Impacts within the Project Development Area

<table>
<tr><th colspan="3" rowspan="2"></th><th colspan="4">Number of Impacted Trees (DBH)</th></tr>
<tr><th>Blue Oak</th><th>Interior Live Oak</th><th>Valley Oak</th><th>Total</th></tr>
<tr><td rowspan="2">Trees ≥36" DBH Within Oak Woodlands</td><td colspan="2">Fair or Better</td><td>0</td><td>6 (264.3)</td><td>0</td><td>6 (264.3)</td></tr>
<tr><td colspan="2">Poor Condition</td><td>0</td><td>1 (38.4)</td><td>0</td><td>1 (38.4)</td></tr>
<tr><td colspan="6">Subtotal</td><td>7 (302.7)</td></tr>
<tr><td rowspan="4">Trees Outside of Oak Woodlands</td><td rowspan="2">Fair or Better</td><td>6-35" DBH</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>≥36" DBH</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td rowspan="2">Poor Condition</td><td>6-35" DBH</td><td>0</td><td>1 (23.4)</td><td>0</td><td>1 (23.4)</td></tr>
<tr><td>≥36" DBH</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="6">Subtotal</td><td>1 (23.4)</td></tr>
<tr><td colspan="3">Total Trees in Fair to Good Condition</td><td>0</td><td>6 (264.3)</td><td>0</td><td>6 (264.3)</td></tr>
<tr><td colspan="3">TOTAL</td><td>0</td><td>8 (326.1)</td><td>0</td><td>8 (326.1)</td></tr>
</table>

[1] Dead, dying and diseased trees are exempted from mitigation requirements in Section 2.1.9 of the ORMP.

4.2 Sewer Alternative Impacts

4.2.1 Sewer Alternative 1

A total of 1.2 acres of Oak Woodland would be permanently impacted by Sewer Alternative 1, and 1.0 acre of Oak Woodland would be temporarily impacted by Sewer Alternative 1. Within this area, two native oak trees with a DBH of 36” of greater will be impacted (both of which are in fair to good condition) (**Table 4**).

In addition, a total of four individual native oak trees with a DBH of 6” of greater outside of Oak Woodlands would be permanently impacted by Sewer Alternative 1 (three of which are in fair to good condition) (**Table 4**). Of those three trees in fair to good condition that may be impacted, one has a DBH of 36” of greater. In summary, a total of 2.2 acres of Oak Woodland and five individual trees in fair to good condition (with a cumulative DBH of 200 inches) would be subject to mitigation as a result of impacts within Sewer Alternative 1 (**Table 4**).

Table 4. Oak Tree Impacts within Sewer Alternative 1

			Number of Impacted Trees (DBH)			
			Blue Oak	**Interior Live Oak**	**Valley Oak**	**Total**
Trees ≥36” DBH Within Oak Woodlands	**Fair to Good**		0	2 (115.9)	0	2 (115.9)
	Poor Condition		0	0	0	0
Subtotal						2 (115.9)
Trees Outside of Oak Woodlands	**Fair to Good**	6-35” DBH	2 (41.0)	0	0	2 (41.0)
		≥36” DBH	0	0	1 (43.1)	1 (43.1)
	Poor Condition	6-35” DBH	0	1 (26.6)	0	1 (26.6)
		≥36” DBH	0	0	0	0
Subtotal						4 (110.7)
Total Trees in Fair to Good Condition			2 (41.0)	2 (115.9)	1 (43.1)	5 (200.0)
TOTAL			2 (41.0)	3 (142.5)	1 (43.1)	6 (226.6)

4.2.2 Sewer Alternative 2

A total of 1.2 acres of Oak Woodland would be permanently impacted by Sewer Alternative 2, and 1.0 acre of Oak Woodland would be temporarily impacted by Sewer Alternative 2. Within this area, two native oak trees with a DBH of 36” of greater will be impacted (both of which are in fair to good condition) (**Table 5**). In addition, a total of three individual native oak trees with a DBH of 6” of greater outside of Oak Woodlands would be permanently impacted by Sewer Alternative 2 (two of which are in fair to good condition) (**Table 5**). Of those two trees in fair to good condition that may be impacted, one has a DBH of 36” of greater. In summary, a total of 2.2 acres of Oak Woodland and four individual trees in fair to good condition (with a cumulative DBH of 189.4 inches) would be subject to mitigation as a result of impacts within Sewer Alternative 2 (**Table 5**).

Table 5. Oak Tree Impacts within Sewer Alternative 2

			Number of Impacted Trees (DBH)			
			Blue Oak	**Interior Live Oak**	**Valley Oak**	**Total**
Trees ≥36″ DBH Within Oak Woodlands	**Fair to Good**		0	2 (115.9)	0	2 (115.9)
	Poor Condition		0	0	0	0
Subtotal						2 (115.9)
Trees Outside of Oak Woodlands	**Fair to Good**	6-35″ DBH	0	0	1 (35.0)	1 (35.0)
		≥36″ DBH	1 (38.5)	0	0	1 (38.5)
	Poor Condition	6-35″ DBH	0	1 (26.6)	0	1 (26.6)
		≥36″ DBH	0	0	0	0
Subtotal						3 (100.1)
Total Trees in Fair to Good Condition			1 (38.5)	2 (115.9)	1 (35.0)	4 (189.4)
TOTAL			1 (38.5)	3 (142.5)	1 (35.0)	5 (216.0)

4.3 Overall Project Impacts

The Project combined with the sewer line would permanently impact 1.5 acres of Oak Woodland, and temporarily impact 1.2 acres of Oak Woodland. Within the Oak Woodlands, the Project combined with the sewer line would impact nine native oak trees with a DBH of 36″ or greater (eight of which are in fair to good condition).

In addition, a total of 3 - 4 individual native oak trees with a DBH of 6″ or greater outside of Oak Woodlands would be permanently impacted by the Project combined with the sewer line (2 - 3 of which are in fair to good condition). Of the 2 - 3 trees in fair to good condition that may be impacted, 2 have a DBH of 36″ or greater (one along each sewer alternative).

Of these impacts, a cumulative total of 2.7 acres of Oak Woodland and 11-12 individual trees in fair to good condition (with a cumulative DBH of 453.7 - 464.3) would be subject to mitigation. The ranges above represent the full range of cumulative impacts, with the lower end assuming the least impactful sewer alternative, and the upper end assuming the most impactful sewer alternative. Where impacts are the same for both sewer alternative, no range is presented. A summary data sheet of oak resources impacts for the Project plus Sewer Alternative 1 is included as **Attachment D**, and a summary data sheet of oak resources impacts for the Project plus Sewer Alternative 2 is included as **Attachment E**.

The Project will avoid indirect impacts to Oak Resources outside of the impact area by implementing the tree avoidance and minimization measures outlined in **Attachment F**.

5.0 MITIGATION

The total cost to mitigate impacts to oak resources associated with the Project if accomplished via in-lieu fee ranges from $552,102.75 to $555,132.15, depending on which Sewer Alternative is implemented. Mitigation calculations are detailed below. We have attached the completed Checklist in **Attachment G**. As noted above, separate *Planning and Building Department Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits* have completed for the Project including Sewer Alternative 1 and the Project including Sewer Alternative 2. These are included as **Attachments D and E**, respectively.

5.1 Oak Woodland

The Project intends to mitigate for impacts to oak woodlands through payment of in-lieu fees to the County's Oak Woodland Conservation Fund. The Project as proposed would impact 0.5 acres of the 4.0 acres of Oak Woodland mapped within the Project Development Area. Implementation of either sewer alternative would result in impacts to 2.2 acres of Oak Woodland. This is a cumulative total of 2.7 acres (44%) of impact of the total 6.2 acres of Oak Woodland mapped within the Project Area[2]. In accordance with the ORMP, the Project proponent would be required to mitigate at a ratio of 1:1 for impacts to 0-50% of the Oak Woodland within the Project Area. Based on this ratio, the Project would require 2.7 acres of Oak Woodland mitigation. Based on the current fee of $8,285, payment of the in-lieu fee for this impact would cost a total of $22,369.50.

5.2 Individual and Heritage Oak Trees

Mitigation estimates are broken down by sewer alternative below. Per the ORMP, the mitigation may be accomplished via replacement planting on or off-site, via payment of an in-lieu fee, or via a combination of the two. Replacement planting on or off-site would require that the planting area be placed under a conservation easement; tree replacement sizes and inch for inch equivalency are provided in **Table 6**, below. If replacement planting is selected, a replacement planting plan must be prepared as detailed in the ORMP, and the planting density may be no greater than 200 trees per acre. The current in-lieu fee is $153 per DBH inch.

Table 6. Oak Tree Replacement Equivalencies

Replacement Tree Size	Number of Replacement Trees Required per DBH Inch of Mitigation
Acorn	3
1-gallon/TreePot 4	2
5-gallon	1.5
15-gallon	1

[2] The 2.2 acres of oak woodland that will be impacted by the sewer alternatives is a tiny portion of the oak woodland in that area; however, as the Project Proponent does not control that area, they cannot place a conservation easement over it. Therefore, impacts must be analyzed for the Project Area in isolation.

5.2.1 *Project Plus Sewer Alternative 1*

If Sewer Alternative 1 is selected, the cumulative oak tree impacts for the Project plus the sewer alternative would be two individual oak trees (41.0 DBH inches) and nine Heritage oak trees (423.3 DBH inches). The ORMP requires mitigation of individual oak trees at a 1:1 ratio, and mitigation of Heritage oak trees at a 3:1 ratio. Based on these ratios, the Project plus the Sewer Alternative 1 would require 1,310.9 DBH inches of mitigation. If this is accomplished via in-lieu fee, then based on the current in-lieu fee of $153 per DBH inch, this would cost $200,567.70. If this were accomplished entirely via replacement planting, it would require planting 1,311 15-gallon trees on a property no smaller than 6.6 acres.

5.2.2 *Project Plus Sewer Alternative 2*

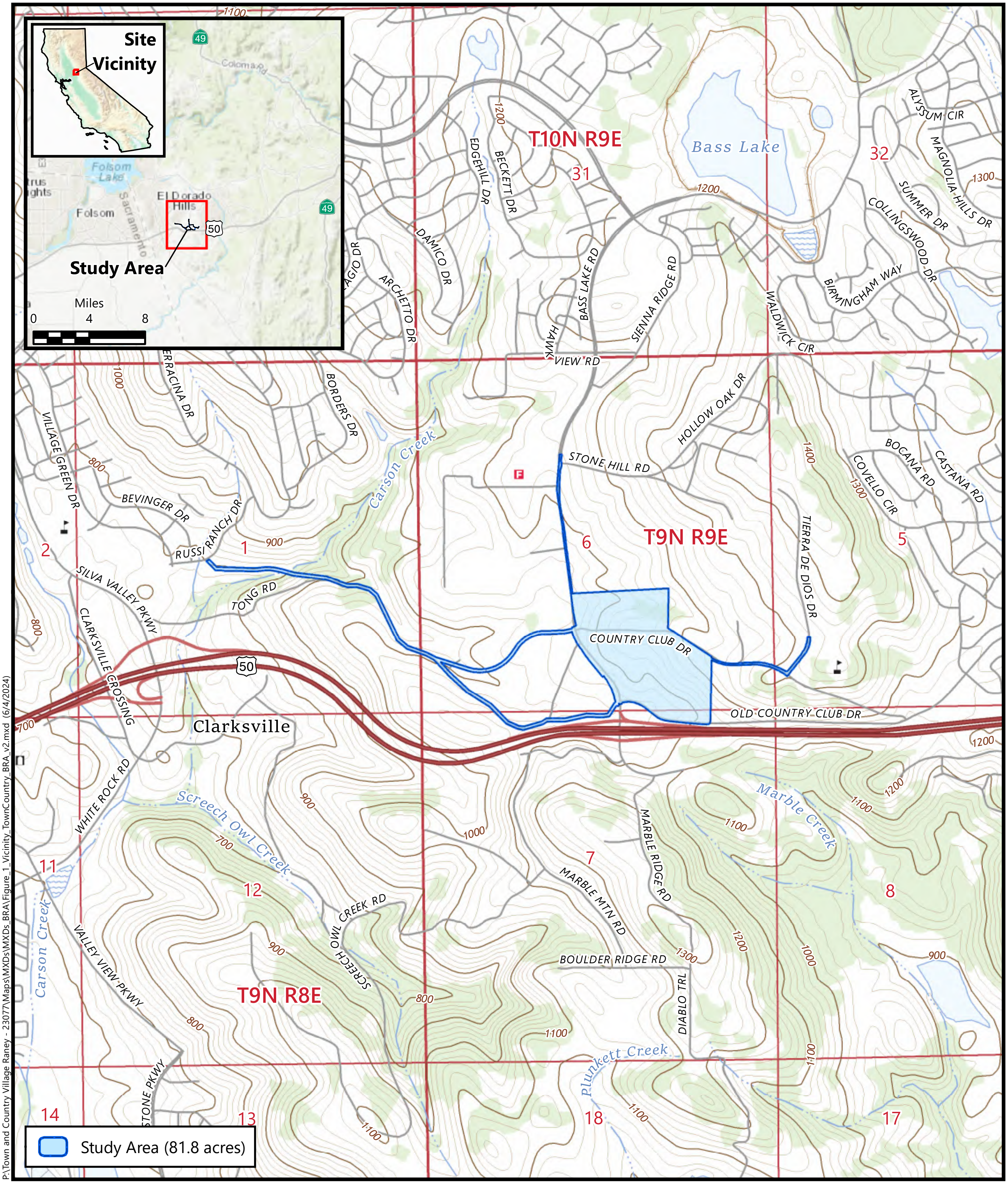
If Sewer Alternative 2 is selected, the cumulative oak tree impacts for the Project plus the sewer alternative would be one individual oak tree (35.0 DBH inches) and nine Heritage oak trees (418.7 DBH inches). The ORMP requires mitigation of individual oak trees at a 1:1 ratio, and mitigation of Heritage oak trees at a 3:1 ratio. Based on these ratios, the Project plus the Sewer Alternative 2 would require 1,291.1 DBH inches of mitigation. If this is accomplished via in-lieu fee, then based on the current in-lieu fee of $153 per DBH inch, this would cost $197,538.30. If this were accomplished entirely via replacement planting, it would require planting 1,292 15-gallon trees on a property no smaller than 6.5 acres.

6.0 REFERENCES

El Dorado County (EDC). 2017. *El Dorado County Oak Resources Management Plan*. Published by El Dorado County Community Development Agency, Long Range Planning Division. Dated September 2017.

U.S. Department of the Interior, Geological Survey (USGS). 2021. *Clarksville, California* 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.

Figures



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N

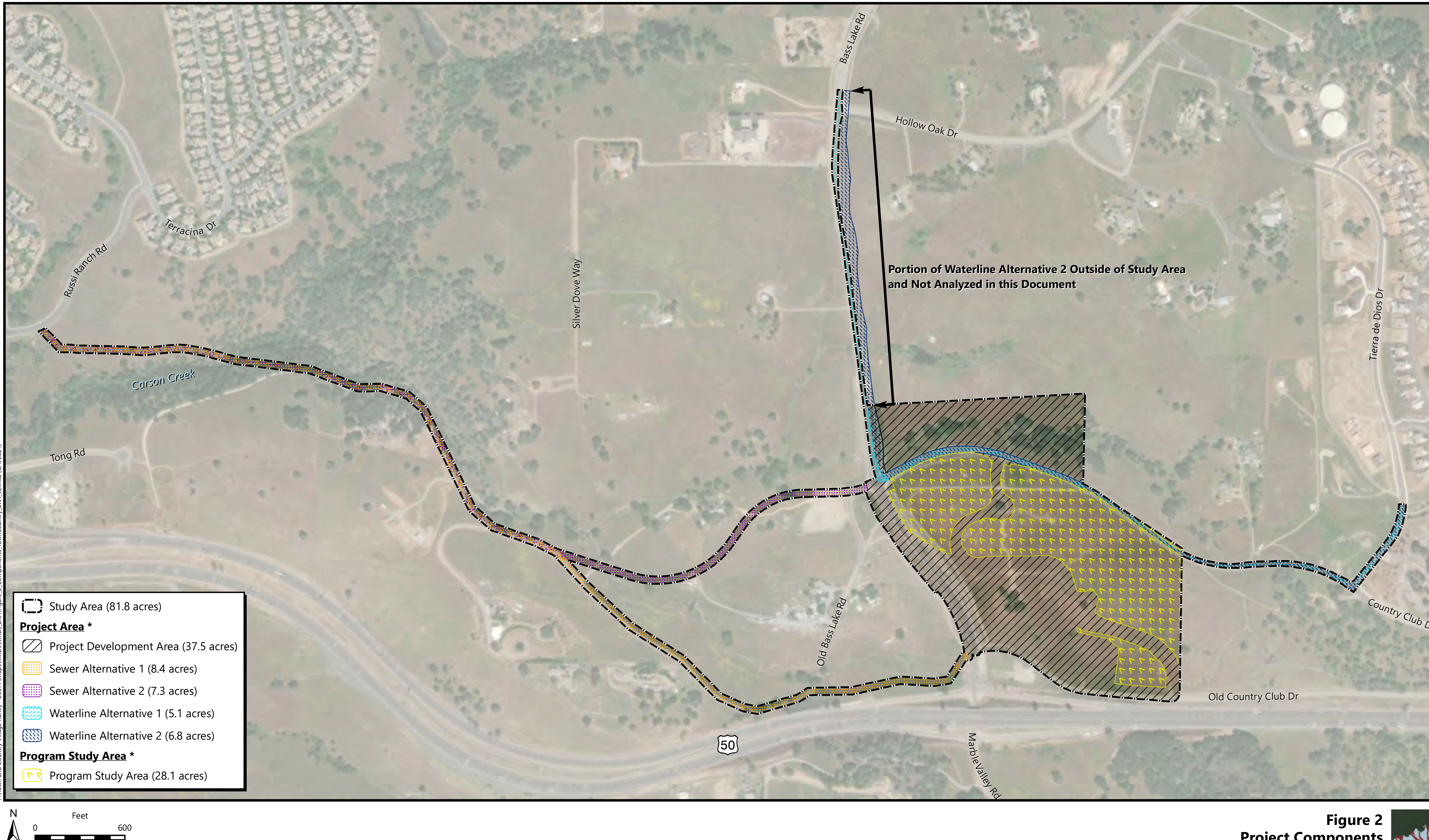
Feet
0 1,000 2,000

Source: United States Geologic Survey, 2021
"Clarksville, California" 7.5-Minute Topographic Quadrangle
Section 1, Township 9 North, Range 8 East, MDBM and
Sections 5-7, Township 9 North, Range 9 East, MDBM
Latitude (NAD83): 38.658668°, Longitude (NAD83): -121.029902°

Figure 1
Site and Vicinity

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING



* *Component acreages do not sum to the Study Area acreage due to overlapping alternatives*

Boundary Source: CTA Engineering & Surveying
Aerial Source: Maxar, 1 May 2022

Figure 2
Project Components

Town and Country Village El Dorado
El Dorado County, California

Attachments

Attachment A

Site Plan

TOWN & COUNTRY VILLAGE EL DORADO

OVERALL SITE PLAN

EL DORADO COUNTY, CALIFORNIA

SCALE: 1"=100' MARCH, 2024

APPLICANT

JOSH PANE
1123 J STREET, 3RD FLOOR
SACRAMENTO, CA 95814

OWNER

MOHAMMAD MOHANNA
CAP FUNDING
1025 9th STREET, SUITE 205
SACRAMENTO, CA 95814

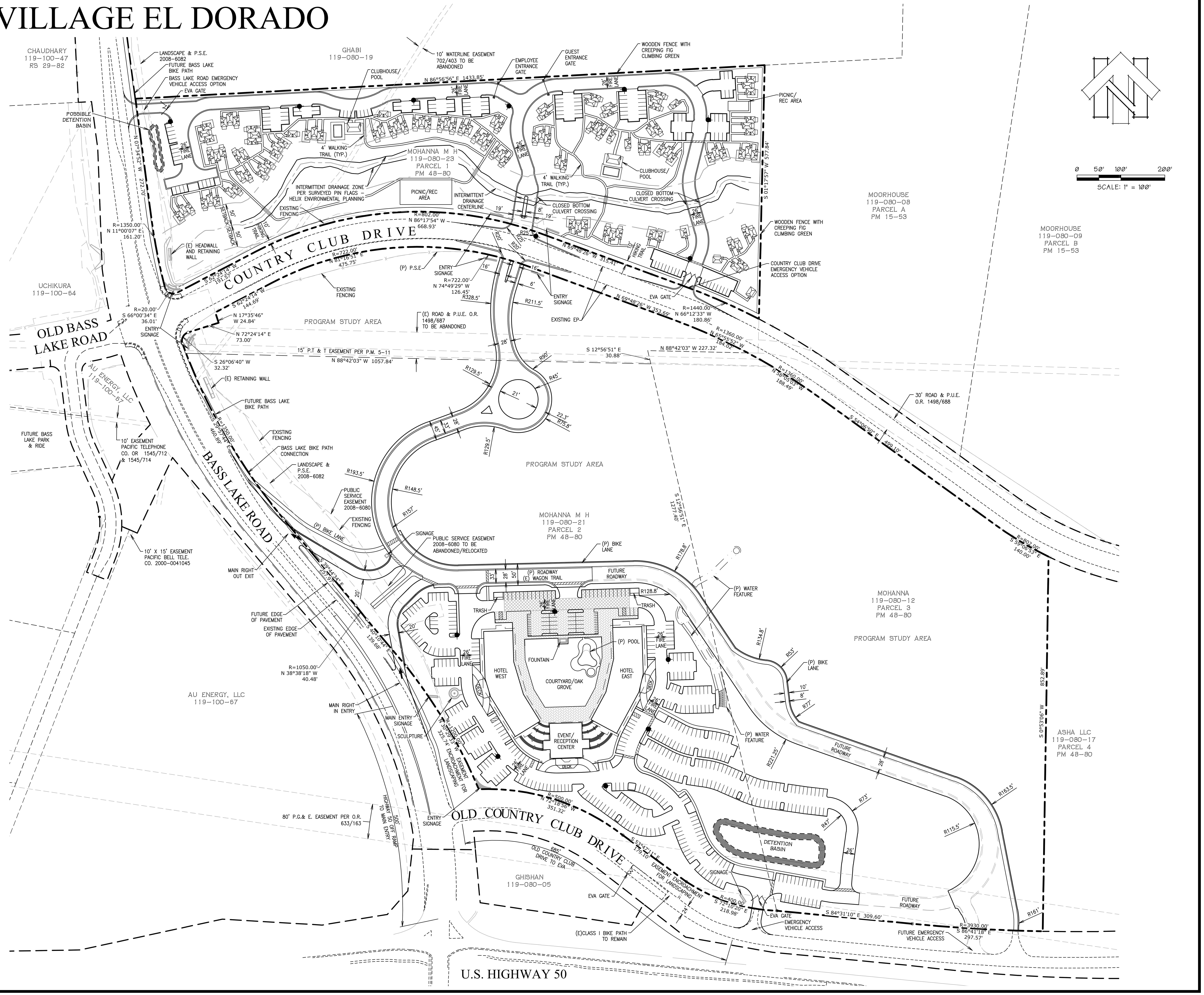
ENGINEER

cta Engineering & Surveying
Civil Engineering ■ Land Surveying ■ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ▪ F (916) 638-2479 ▪ www.ctaes.net

PROPOSED BUILDINGS	GROSS SQUARE FOOTAGE (FOOTPRINT)
HOTELS	16,000
EVENT CENTER	7,000
COTTAGES	280
CLUBHOUSES	600

LEGEND

- PROJECT BOUNDARY
- (E) LOT BOUNDARY
- (E) RIGHT OF WAY
- (E) EASEMENT
- (E) EDGE OF PAVEMENT
- (E) FENCE
- GRASS PAVERS
- LANDSCAPE PAVERS
- FIRE DEPARTMENT PATH OF TRAVEL TURNING RADII INSIDE RADIUS=35' OUTSIDE RADIUS=55'
- FIRE HYDRANT



Attachment B

Tree Inventory Data

Oak Tree Inventory for Town and Country Village

Tree #	Common Name	Scientific Name	DBH (in)	Dripline Radius (ft)	Condition	MultiStem DBH	Notes	Woodland Classification
1	Blue Oak	*Quercus douglasii*	24.0	20	Fair to Good	12, 12	Health and structure fair. No tag and DBH estimated due to poison oak. Evidence of past mistletoe infestation, but currently minimal. Included bark at 2 main trunk unions	Not Oak Woodland
525	Interior Live Oak	*Quercus wislizenii*	25.5	32	Fair to Good		Health and Structure Fair	Oak Woodland
526	Blue Oak	*Quercus douglasii*	38.5	25	Fair to Good		Health and Structure Good	Not Oak Woodland
527	Valley Oak	*Quercus lobata*	35.0	42	Fair to Good		Health and Structure Excellent	Not Oak Woodland
528	Blue Oak	*Quercus douglasii*	17.0	22	Fair to Good		Health fair, structure good	Not Oak Woodland
529	Valley Oak	*Quercus lobata*	43.1	40	Fair to Good		Health and Structure Excellent	Not Oak Woodland
530	Blue Oak	*Quercus douglasii*	31.4	35	Fair to Good		Health good, structure fair. Large cavity at base that appears to be healing, no evidence of decay	Oak Woodland
531	Interior Live Oak	*Quercus wislizenii*	58.2	20	Fair to Good	13.7, 21.9, 6.1, 16.5	Health and Structure Good	Oak Woodland
532	Interior Live Oak	*Quercus wislizenii*	57.7	75	Fair to Good	12.8, 13.7, 19.6, 11.6	Health fair, Structure fair to poor. Tree has a very substantial uphill lean. Would not be acceptable in an urban setting, but does not indicate increased potential for the trees premature mortality.	Oak Woodland
533	Interior Live Oak	*Quercus wislizenii*	26.5	35	Fair to Good		Health and Structure Fair	Oak Woodland
534	Blue Oak	*Quercus douglasii*	24.5	30	Fair to Good		Health and Structure Good	Oak Woodland
535	Blue Oak	*Quercus douglasii*	28.9	28	Fair to Good		Health fair, structure good	Oak Woodland
536	Interior Live Oak	*Quercus wislizenii*	26.6	22	Poor		Health and structure poor. Fair amount of branch die off, mistletoe growing out of trunk, cavity under the trunk	Not Oak Woodland
2204	Interior Live Oak	*Quercus wislizenii*	43.7	50	Fair to Good		Health and Structure Fair. DBH measured at 3 ft due to branching.	Oak Woodland
2205	Interior Live Oak	*Quercus wislizenii*	48.0	35	Fair to Good	22.0, 26.0	Health and Structure Fair. Numerous branches have fallen off recently, so few that are dead remain.	Oak Woodland
2209	Interior Live Oak	*Quercus wislizenii*	25.4	25	Poor		Health poor, structure fair	Oak Woodland
2210	Interior Live Oak	*Quercus wislizenii*	37.8	35	Fair to Good		Health and Structure Fair	Oak Woodland
2211	Valley Oak	*Quercus lobata*	40.3	35	Fair to Good		Health fair, structure good	Oak Woodland
2212	Interior Live Oak	*Quercus wislizenii*	31.7	12.5	Fair to Good	18.5, 13.2	Health and Structure Fair	Oak Woodland
2215	Interior Live Oak	*Quercus wislizenii*	29.0	38	Poor	14.9, 14.1	Health fair, structure poor. Cavities below trunk	Oak Woodland
2217	Valley Oak	*Quercus lobata*	38.0	35	Fair to Good		Health and structure good. DBH estimated due to poison oak	Oak Woodland
2225	Valley Oak	*Quercus lobata*	24.8	35	Fair to Good		Health and Structure Good	Oak Woodland
2240	Interior Live Oak	*Quercus wislizenii*	43.3	35	Poor	26.2, 17.1	Health and structure poor. One of main trunks has been girdled - no bark all the way around.	Oak Woodland
2242	Interior Live Oak	*Quercus wislizenii*	57.1	40	Fair to Good	16.6, 11.0, 29.5	Health good, structure fair. Several cavities and one main branch rests on ground. DBH of biggest trunk measured at 2 ft due to branching.	Oak Woodland
2243	Interior Live Oak	*Quercus wislizenii*	26.1	32	Poor		Health and structure poor. Extensive branch tip die back. Polypore mushrooms growing out of cavity in trunk.	Oak Woodland
2244	Interior Live Oak	*Quercus wislizenii*	38.4	35	Poor	15.9, 22.5	Health fair, structure poor. Numerous cavities with active decay	Oak Woodland
2245	Interior Live Oak	*Quercus wislizenii*	24.0	20	Fair to Good	16.0, 8.0	Health and Structure Fair	Oak Woodland
2246	Interior Live Oak	*Quercus wislizenii*	28.9	24	Poor	9.5, 11.0, 8.4	Health and structure poor. Numerous extensive cavities with decay	Oak Woodland
2250	Interior Live Oak	*Quercus wislizenii*	36.7	35	Fair to Good		Health good, structure fair. One good sized cavity with decay, remainder of tree looks good.	Oak Woodland
2251	Interior Live Oak	*Quercus wislizenii*	46.2	25	Fair to Good	4.8, 8.2, 17.2, 16.0	Health good, structure fair.	Oak Woodland
2255	Interior Live Oak	*Quercus wislizenii*	33.4	35	Fair to Good	18.7, 5.4, 9.3	Health good, structure fair to poor. 1 branch with numerous cavities, some small healing cavities in main trunk	Oak Woodland
2258	Interior Live Oak	*Quercus wislizenii*	30.5	22	Poor	11.4, 10.5, 8.6	Health and structure poor. 2 of 3 branches are dead and the third appears to be dying.	Oak Woodland
2259	Interior Live Oak	*Quercus wislizenii*	39.6	35	Fair to Good	15.4, 13.2, 11.0	Health good, structure fair. DBH estimated due to poison oak	Oak Woodland
2260	Interior Live Oak	*Quercus wislizenii*	29.1	28	Fair to Good	25.0, 4.1	Health good, structure fair.	Oak Woodland
2261	Interior Live Oak	*Quercus wislizenii*	46.4	35	Fair to Good	22.1, 7.8, 16.5	Health and structure fair. DBH estimated due to poison oak.	Oak Woodland
2264	Interior Live Oak	*Quercus wislizenii*	36.2	45	Fair to Good	15.6, 20.6	Health good, structure fair.	Oak Woodland
2270	Interior Live Oak	*Quercus wislizenii*	41.1	42	Fair to Good	20.2, 20.9	Health and Structure Good	Oak Woodland

Oak Tree Inventory for Town and Country Village

Tree #	Common Name	Scientific Name	DBH (in)	Dripline Radius (ft)	Condition	MultiStem DBH	Notes	Woodland Classification
2276	Interior Live Oak	*Quercus wislizenii*	64.9	30	Fair to Good	17.2, 23.8, 14.9, 9.0	Health good, structure fair.	Oak Woodland
2278	Interior Live Oak	*Quercus wislizenii*	26.6	32	Fair to Good		Health and structure fair. an additional stem 19.4 dbh is almost dead and not included in size Calc	Oak Woodland
2279	Interior Live Oak	*Quercus wislizenii*	54.8	35	Fair to Good	21.9, 21.4, 11.5	Health fair and Structure fair to poor. Several cavities.	Oak Woodland
2285	Interior Live Oak	*Quercus wislizenii*	29.9	50	Fair to Good		Health and Structure Fair	Oak Woodland
2290	Interior Live Oak	*Quercus wislizenii*	59.4	50	Fair to Good	14.4, 20.0, 25.0	Health good, structure fair	Oak Woodland
2291	Interior Live Oak	*Quercus wislizenii*	40.1	45	Fair to Good	29.8, 10.3	Health and Structure Fair	Oak Woodland
2293	Interior Live Oak	*Quercus wislizenii*	39.2	38	Fair to Good	30.5, 8.7	Health and Structure Fair	Oak Woodland
2294	Interior Live Oak	*Quercus wislizenii*	31.1	45	Fair to Good	11.2, 19.9	Health and Structure Fair	Oak Woodland
2295	Interior Live Oak	*Quercus wislizenii*	48.2	50	Fair to Good	11.8, 32.9, 3.5	Health good, structure fair	Oak Woodland
2296	Interior Live Oak	*Quercus wislizenii*	23.4	15	Poor	9.8, 4.7, 8.9	Health poor, structure fair	Not Oak Woodland
2310	Interior Live Oak	*Quercus wislizenii*	44.9	45	Fair to Good	13.0, 10.7, 21.2	Health and Structure Fair	Oak Woodland
2312	Interior Live Oak	*Quercus wislizenii*	30.8	32	Poor	17.0, 13.8	Health fair, structure poor. Very large basal cavity.	Oak Woodland
2314	Interior Live Oak	*Quercus wislizenii*	27.0	25	Fair to Good	9.5, 17.5	Health and Structure Fair	Oak Woodland
2317	Interior Live Oak	*Quercus wislizenii*	25.2	38	Fair to Good	17.0, 8.2	Health and Structure Fair	Oak Woodland
2324	Interior Live Oak	*Quercus wislizenii*	49.2	32	Fair to Good	15.3, 11.7, 13.5, 8.7	Health and Structure Fair	Oak Woodland
2325	Interior Live Oak	*Quercus wislizenii*	34.0	25	Fair to Good	21.8, 12.2	Health and Structure Fair	Oak Woodland
2327	Interior Live Oak	*Quercus wislizenii*	33.8	30	Fair to Good	9.5, 9.4, 14.9	Health and Structure Fair	Oak Woodland
2328	Blue Oak	*Quercus douglasii*	29.8	40	Fair to Good		Health and Structure Good	Oak Woodland
2329	Interior Live Oak	*Quercus wislizenii*	37.3	40	Fair to Good		Health and structure good. DBH measured at 18" due to branching	Oak Woodland
2331	Interior Live Oak	*Quercus wislizenii*	71.1	48	Fair to Good	16.0, 16.7, 38.4	Health and Structure Good	Oak Woodland
2333	Interior Live Oak	*Quercus wislizenii*	46.9	35	Fair to Good	14.2, 15.0, 17.7	Health and Structure Fair	Oak Woodland
2336	Interior Live Oak	*Quercus wislizenii*	31.5	28	Fair to Good		Health good, structure fair	Oak Woodland
2337	Interior Live Oak	*Quercus wislizenii*	29.4	35	Fair to Good	17.9, 7.6, 3.9	Health and Structure Fair	Oak Woodland
2338	Interior Live Oak	*Quercus wislizenii*	29.4	24	Fair to Good	11.8, 17.6	Health and Structure Fair	Oak Woodland
2340	Interior Live Oak	*Quercus wislizenii*	44.2	40	Fair to Good	11.5, 13.1, 19.6	Health and Structure Fair	Oak Woodland
2342	Valley Oak	*Quercus lobata*	30.0	30	Fair to Good		Health and Structure Good	Not Oak Woodland
2343	Blue Oak	*Quercus douglasii*	30.0	34	Fair to Good		Health and Structure Good	Not Oak Woodland
2344	Valley Oak	*Quercus lobata*	33.3	40	Fair to Good		Health and Structure Fair	Not Oak Woodland
2345	Valley Oak	*Quercus lobata*	37.1	34	Poor		Health good, structure poor. Large cavity under uphill side of tree. Some major roots gone, and root flare is getting undermined. With almost all foliage on downhill side of tree, this tree could fail during strong easterly	Not Oak Woodland
2346	Valley Oak	*Quercus lobata*	25.2	28	Fair to Good		Health and Structure Good	Not Oak Woodland
2347	Valley Oak	*Quercus lobata*	15.7	23	Poor		Health fair, structure poor. Large cavity in the base of the trunk; unhealed, extensive decay	Not Oak Woodland
2348	Valley Oak	*Quercus lobata*	16.3	28	Fair to Good		Health and Structure Good	Not Oak Woodland
2349	Valley Oak	*Quercus lobata*	25.8	35	Fair to Good		Health and Structure Good	Not Oak Woodland
2350	Valley Oak	*Quercus lobata*	36.6	40	Fair to Good		Health good, structure fair to poor. Large unhealed cavity on uphill side of trunk and strange sinuous branch growth.	Not Oak Woodland
2351	Blue Oak	*Quercus douglasii*	45.3	38	Fair to Good		Health good, structure fair to poor	Not Oak Woodland

Attachment C

Map of Impacts to Oak Resources

Prepared For:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

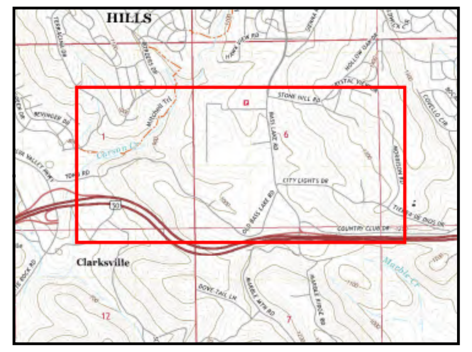
Sources
Aerial: Maxar, 1 May 2022
Boundary : CTA Engineering & Surveying

Biologist: D.Snider
Map Prepared by: J.Swager
Date Map Prepared: 4 June 2024

** Small summation errors may occur due to rounding*

N
Feet
0 100 200 300 600

Main Map Scale:
1 inch = 300 feet (at 18"x33")
Coordinate System
NAD 1983 State Plane California II
(U.S. Feet)



Study Area (81.8 acres)

Project Impact and Avoidance Areas *

Permanent Impact (37.8 acres)
Temporary Impact (8.9 acres)
Program Level (28.1 acres)
Avoided (7.0 acres)

Oak Resources

Blue Oak (9)
Interior Live Oak (50)
Valley Oak (13)
Oak Woodland (6.2 acres)

Oak Dripline

Avoided Tree (46)
Permanently Impacted Tree (26)

Impacts to Oak Resources
Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

Attachment D

Summary Data Sheet of
Oak Resources Impacts for the
Project Plus Sewer Alternative 1

COMMUNITY DEVELOPMENT SERVICES
PLANNING AND BUILDING DEPARTMENT
2850 Fairlane Court, Placerville, CA 95667
Phone: (530) 621-5355 www.edcgov.us/Planning/

Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits

Description		Blue *(Quercus douglasii)*	California Black *(Quercus kelloggii)*	Canyon Live *(Quercus chrysolepis)*	Interior Live *(Quercus wislizeni)*	Oregon White *(Quercus garryana)*	Valley *(Quercus loabata)*	Oracle (hybrid) *(Quercus x morehus)*
Individual Native Oak Trees								
Quantity (number of trees) of individual native oak trees to be removed, by species (6-23.9")		1	0	0	0	0	0	0
Quantity (number of trees) of individual native oak trees to be removed, greater than 24 inches and less than 36 inches (dbh), by species (outside of oak woodland)		1	0	0	0	0	0	0
Total trunk diameter inches (dbh) to be removed*	41.0							
Heritage Trees								
Quantity (number of trees) of Heritage Trees to be removed, by species		0	0	0	8	0	1	0
Total trunk diameter inches (dbh) to be removed*	423.3							
Oak Woodlands								
Total Acreage of existing oak woodlands**	6.2							
Acreage of existing oak woodlands to be removed	2.7							
Percentage of existing oak woodlands to be removed*	44%							

Information used for purposes of calculating in-lieu mitigation fee payment.
***** If Heritage Trees occur within oak woodlands, the area of impacted Heritage Tree(s) should be included in oak woodland acreage calculations.***

Revised 11/22/2017

Attachment E

**Summary Data Sheet of
Oak Resources Impacts for the
Project Plus Sewer Alternative 2**

COMMUNITY DEVELOPMENT SERVICES
PLANNING AND BUILDING DEPARTMENT
2850 Fairlane Court, Placerville, CA 95667
Phone: (530) 621-5355 www.edcgov.us/Planning/

Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits

Description		Blue *(Quercus douglasii)*	California Black *(Quercus kelloggii)*	Canyon Live *(Quercus chrysolepis)*	Interior Live *(Quercus wislizeni)*	Oregon White *(Quercus garryana)*	Valley *(Quercus loabata)*	Oracle (hybrid) *(Quercus x morehus)*
Individual Native Oak Trees								
Quantity (number of trees) of individual native oak trees to be removed, by species (6-23.9")		0	0	0	0	0	0	0
Quantity (number of trees) of individual native oak trees to be removed, greater than 24 inches and less than 36 inches (dbh), by species (outside of oak woodland)		0	0	0	0	0	1	0
Total trunk diameter inches (dbh) to be removed*	35.0							
Heritage Trees								
Quantity (number of trees) of Heritage Trees to be removed, by species		1	0	0	8	0	0	0
Total trunk diameter inches (dbh) to be removed*	418.7							
Oak Woodlands								
Total Acreage of existing oak woodlands**	6.2							
Acreage of existing oak woodlands to be removed	2.7							
Percentage of existing oak woodlands to be removed*	44%							

Information used for purposes of calculating in-lieu mitigation fee payment.
***** If Heritage Trees occur within oak woodlands, the area of impacted Heritage Tree(s) should be included in oak woodland acreage calculations.***

Attachment F

Avoidance and Minimization Measures

Measures to Avoid and Minimize Impacts to Retained Oak Resources

Pre-construction

- The limits of project disturbance within 50 feet of all oak trees shall be clearly defined with bright colored flagging or orange construction fencing prior to construction. Flagging and/or the fence shall remain in place until construction is complete. No construction activities shall occur outside the construction limits. Flagging or fencing shall be removed and cleared from the Project area upon completion of the project to prevent wildlife entrapment in refuse left onsite.
- There shall be no driving, parking, or storage of supplies or equipment outside the flagged/fenced project limits.
- Limb pruning of any retained trees should be conducted by an arborist or tree worker that is ISA certified and licensed by the State of California for tree service. Pruning shall be conducted in accordance with American National Standard Institute (ANSI) A300 Pruning Standard and adhere to the most recent edition of ANSI Z133.1.
- Canopy thinning or additional pruning shall not occur outside the flagged/fenced project limits. It is more beneficial for a tree to have the most amount of foliage possible in order to promote new root growth.

During Vegetation Clearing

- Trees shall be felled inside the flagged/fenced project limits

Attachment G

Oak Resources

Technical Report Checklist

COMMUNITY DEVELOPMENT SERVICES
PLANNING AND BUILDING DEPARTMENT
2850 Fairlane Court, Placerville, CA 95667
Phone: (530) 621-5355 www.edcgov.us/Planning/

OAK RESOURCES TECHNICAL REPORT CHECKLIST

The following information is required for all Oak Resources Technical Reports consistent with Section 2.5 (Oak Resources Technical Reports) of the Oak Resources Management Plan (ORMP):

FORMS AND MAPS REQUIRED

Place a check (√) on the "Applicant" lines for those items completed. The planner receiving the application will check (√) the "County" line.

Check (√) Applicant	County		
[X]	[ ]	1)	Identify, locate, and quantify all oak resources on the property, as applicable:
Attachment C			a) Oak woodlands shall be mapped and assessed in accordance with the CDFG 2009 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* and subsequent updates, and the *List of Vegetation Alliances and Associations* (CDFG 2010) and subsequent updates;
Attachment B			b) Data collected for individual native oak trees and Heritage Trees shall include: location, species, trunk diameter (dbh), height, canopy radius, and general health and structural condition.
[X]	[ ]	2)	Identify and quantify project-related impacts to oak resources Section 4.0
[X]	[ ]	3)	Measures identifying how specific trees and woodlands (or retained portions thereof) shall be protected during development and related work Attachment F

Check (√) Applicant	County		
[X]	[ ]	4)	Proposed actions to mitigate impacts to oak resources, consistent with the requirements included in the ORMP:

Section 5.0

a) For replacement planting, the report shall provide detail regarding the quantity, location, planting density, replacement tree size(s), and acorn/seedling source consistent with the definition of Replacement Planting included in the ORMP;

b) For conservation easement placement/acquisition and/or land acquisition in fee title, the report shall provide documentation of easement placement on-site and/or documentation of easement or land acquisition off-site to the satisfaction of the County;

c) For in-lieu fee payment, the report shall document the quantity of impacts (acreage of oak woodlands and/or total diameter inches of individual native oak trees/Heritage Trees) and the total in-lieu fee payment necessary (presented separately for oak woodlands, individual native oak trees, and Heritage Trees, where applicable).

[ ] [ ] 5) Identification of responsible parties N/A

[ ] [ ] 6) Identification of maintenance, monitoring, and reporting requirements N/A

[ ] [ ] 7) Analysis of non-PCA conservation easement areas, where applicable N/A

[X] [ ] 8) Site map(s) depicting:

Attachment C — a) location of all oak woodlands, individual native oak trees, and Heritage Trees;

Attachment A — b) location of all proposed project-related improvements (including, but not limited to, the limits of grading, fuel modification/defensible space areas, and above- and below-ground infrastructure);

Attachment C — c) Site map(s) shall also clearly identify impacted oak resources.

[X] [ ] 9) Planning and Building Department Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits.

Attachments D and E

SUPPLEMENTAL DATA FOR INDIVIDUAL NATIVE OAK TREES WITHIN OAK WOODLANDS:

The ORMP and Oak Resources Conservation Ordinance (No. 5061) was adopted on October 24, 2017 and the Board of Supervisors will review implementation within 12 months after adoption. The Board requested the following supplemental information:

[X] [ ] 10) Provide an inventory (species and size) of impacted Individual Native Oak Trees greater than 24 inches and less than 36 inches (dbh) in oak woodlands.

Attachment B

Attachment H

Impacts to Aquatic Resources

Prepared For:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Sources
Aerial: Maxar, 1 May 2022
Boundary : CTA Engineering & Surveying

Biologist: D.Snider
Map Prepared by: J.Swager
Date Map Prepared: 13 June 2024
** Small summation errors may occur due to rounding*

N
Feet
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Main Map Scale:
1 inch = 300 feet (at 18"x33")
Coordinate System
NAD 1983 State Plane California II
(U.S. Feet)

Study Area (81.8 acres)

Project Impact and Avoidance Areas *
- Permanent Impact (37.8 acres)
- Temporary Impact (8.9 acres)
- Program Level (28.1 acres)
- Avoided (7.0 acres)

Aquatic Resources (1.059 acre) *

Wetlands (0.423 acre)
- Seasonal Wetland (0.031 acre)
- Seasonal Wetland Swale (0.017 acre)
- Seep (0.375 acre)

Other Waters (0.637 acre)
- Drainage Ditch (0.005 acre)
- Ephemeral Drainage (0.038 acre)
- Intermittent Drainage (0.311 acre)
- Perennial Creek (0.033 acre)
- Roadside Ditch (0.250 acre)

Impacts to Aquatic Resources
Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING
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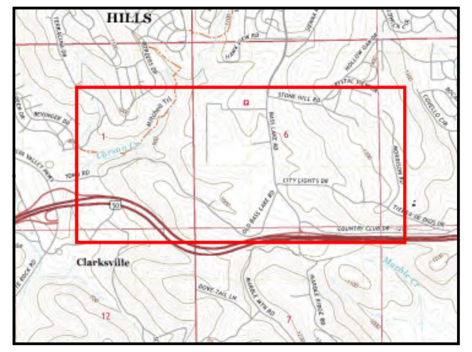
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

Attachment I

Impacts to Vegetation Communities

Impacts to Vegetation Communities
Town and Country Village El Dorado

El Dorado County, California



Prepared For:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Sources
Aerial: Maxar, 1 May 2022
Boundary : CTA Engineering & Surveying

Biologist: D.Snider
Map Prepared by: J.Swager
Date Map Prepared: 4 June 2024

** Small summation errors may occur due to rounding*

N

Feet
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Main Map Scale:
1 inch = 300 feet (at 18"x33")
Coordinate System
NAD 1983 State Plane California II
(U.S. Feet)

Study Area (81.8 acres)

Project Impact and Avoidance Areas *
- Permanent Impact (37.8 acres)
- Temporary Impact (8.9 acres)
- Program Level (28.1 acres)
- Avoided (7.0 acres)

Terrestrial Vegetation Communities *
- Annual Brome Grassland (64.9 acres)
- Arroyo Willow Riparian (0.1 acres)
- Dirt Road (1.5 acres)
- Oak Woodland (6.2 acres)
- Paved Road (9.1 acres)

MADRONE ECOLOGICAL CONSULTING
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Citrus Heights, California 95610
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Attachment J

Impacts to Oak Resources

Prepared For:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Sources
Aerial: Maxar, 1 May 2022
Boundary : CTA Engineering & Surveying

Biologist: D.Snider
Map Prepared by: J.Swager
Date Map Prepared: 4 June 2024
** Small summation errors may occur due to rounding*

N
Feet
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Main Map Scale:
1 inch = 300 feet (at 18"x33")
Coordinate System
NAD 1983 State Plane California II
(U.S. Feet)

Study Area (81.8 acres)

Project Impact and Avoidance Areas *
Permanent Impact (37.8 acres)
Temporary Impact (8.9 acres)
Program Level (28.1 acres)
Avoided (7.0 acres)

Oak Resources
Blue Oak (9)
Interior Live Oak (50)
Valley Oak (13)
Oak Woodland (6.2 acres)

Oak Dripline
Avoided Tree (46)
Permanently Impacted Tree (26)

Impacts to Oak Resources
Town and Country Village El Dorado
El Dorado County, California

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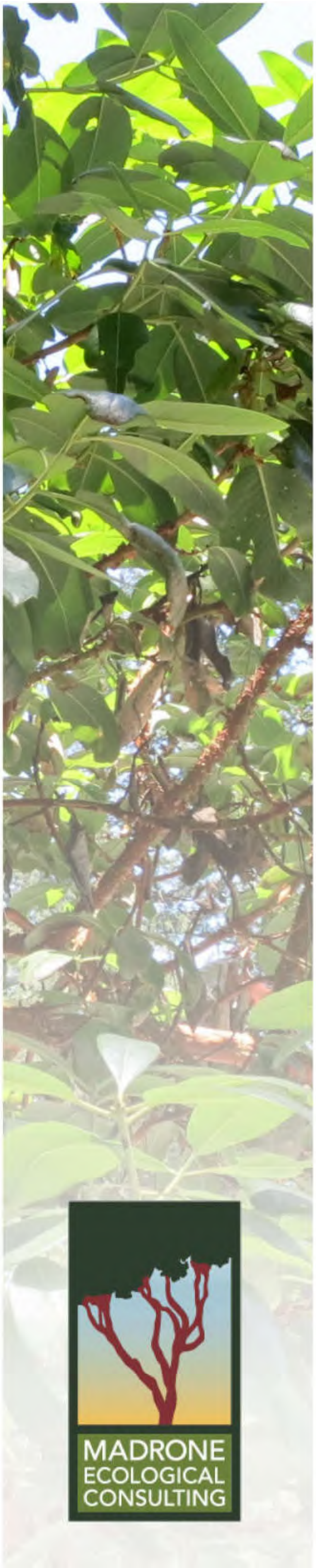


Oak Resources Technical Report

Town & Country Village El Dorado

El Dorado County, California
June 2024

Prepared for:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone). 2024. *Oak Resources Technical Report for Town & Country Village El Dorado*. Prepared for Raney Planning & Management, Inc. Published on 17 June 2024.

CONTENTS

Oak Resources Technical Report
Town & Country Village El Dorado

Tables

Figures

Attachments

1.0 INTRODUCTION

This report summarizes the Oak Resources present within the Town & Country Village El Dorado Study Area (Study Area). This report has been prepared to comply with El Dorado County's *Oak Resources Management Plan* (ORMP) (EDC 2017) and the associated *Oak Resources Technical Report Checklist* (Checklist).

The Study Area is located north of Interstate Highway 50, largely south of Stone Hill Road, east of Silva Valley Parkway, and largely west of Morrison Road in western El Dorado County, California (**Figure 1**). The Development Area is located generally north of Country Club Drive and east of Bass Lake Road. The approximately 81.8-acre Study Area is located in portions of Section 1, Township 9 North, Range 8 East and Sections 5-7, Township 9 North, Range 9 East (MDBM) of the "Clarksville, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

2.0 METHODOLOGY

Madrone Ecological Consulting, LLC (Madrone) Certified Arborist Daria Snider (#WE 8666A) mapped the oak woodlands within the Project Area and conducted an inventory of the following native oak trees within the Study Area or with driplines overhanging the Study Area on 27 September and 6 October 2023:

- All native oak trees outside of mapped oak woodlands that have a single trunk 6" in Diameter at Breast Height (DBH) or greater or multiple trunks with an aggregate of 10" DBH or greater
- All native oak trees within mapped oak woodlands that were 24" DBH or greater

For each tree inventoried, Ms. Snider nailed aluminum tags with a unique identification number into the trunk (for those that did not already have a tag), recorded the tree identification number, tree species, DBH, approximate dripline radius, and general health and structure. Health and structure rating criteria are listed in **Table 1**, below. The location of each tree was recorded with a GPS unit capable of sub-meter accuracy (Arrow 100).

Table 1. Health and Structure Rating Criteria

Rating	Health Criteria	Structure Criteria
Excellent	Foliage is vigorous with virtually no dead branches	No cavities are present, major branch attachments have no included bark and have ideal attachment angles, and general structure is appropriate for the species.
Good	Foliage is vigorous with few dead branch tips	One or two small cavities may be present, or one or two major branch attachments may not be ideal, but none of these compromise the longevity of the tree. General structure is appropriate for the species.

Table 1. Health and Structure Rating Criteria

Rating	Health Criteria	Structure Criteria
Fair	Foliage is acceptable, but there may be a few dead branches, and some foliage may be discolored.	Several cavities may be present, several branch attachments may have included bark or attachment angles could make them prone to failure, and/or the tree may be inappropriately branched for the species. All of these issues could be rectified with treatment.
Poor	Tree is obviously in decline with extensive dead areas, some conks may be present, and foliage is extremely sparse.	Large, decaying cavities may be present within the main trunk of the tree, large portions of the tree may have fallen off, destabilizing the remainder of the tree, or other structural problem that cannot be treated.
Dead	No live foliage present when foliage is present on other trees.	

Note that the health and structure ratings recorded during the course of this survey may be used for general planning purposes but shall not be considered to be a hazard assessment for public safety purposes.

The Town & Country Village El Dorado Project (Project) includes work proposed onsite within the Project Development Area as well as off-site infrastructure, comprised of water and sewer lines (collectively, the Project Area). At the present time, two alternatives have been identified for both the off-site sewer line and the off-site water line; the impacts analysis presented in **Section 4.0** presents impact estimates for each scenario. The Site Plan is included as **Attachment A**, and a Project Components map that shows the different areas is included as **Figure 2**. Please note that no oak resources occur within the Program Study Area shown on **Figure 2**, and no impacts within that area are currently proposed, so this report only discusses oak resources and impacts within the Project Area, as defined above.

3.0 EXISTING CONDITIONS AND OAK RESOURCES

The Study Area is largely comprised of ungrazed Annual Brome Grasslands with widely scattered oak trees. Oak Woodlands occur in the vicinity of the intermittent drainage and perennial Carson Creek. The intermittent drainage is located in the northern portion of the Study Area, and Carson Creek is in the western portion. Carson Creek runs over bedrock, and the adjacent slopes are quite steep, restricting the extent of riparian vegetation, which consists of a narrow band of Arroyo Willow Riparian Scrub. The Oak Woodland south of the creek has a dense, closed canopy, as is typical for north-facing slopes in the region. Bass Lake Road cuts from north to south through the Study Area, and Country Club Drive runs from west to east. Portions of Old Bass Lake Road and Old Country Club Drive also occur within portions of the Study Area. Several seasonal wetlands and two seasonal wetland swales occur just north of Old Country Club Drive, and one seasonal wetland occurs near an ephemeral drainage in the western portion of the Study Area. A few seeps occur on slopes in the Annual Brome Grasslands. Roadside ditches run along the edges of a number of roadways within the Study Area, and three portions of ephemeral drainages occur within infrastructure-related portions of the Study Area. Inclusions of unvegetated areas are scattered throughout the Study

Area along farm roads. The terrain within the Study Area is gently rolling, and generally slopes from the east down towards the west. Elevations range from approximately 1,320 feet above mean sea level (MSL) at the eastern edge of the Study Area to approximately 800 feet at the western extent along Carson Creek and Russi Ranch Drive (**Figure 1**).

Surrounding properties are similar to those within the Study Area. They are largely comprised of ungrazed Annual Brome Grasslands, scattered Oak Woodlands, and rural residences. The western and eastern ends of the Study Area abut urban residential areas, and the Study Area is bordered by Interstate Highway 50 to the south.

3.1 Oak Resources

A total of 6.2 acres of Oak Woodland is present within the 81.8-acre Project Area. An additional 17 individual native oak trees greater than 6" DBH occur outside of the Oak Woodlands in the Study Area. 72 native oak trees were inventoried, including 17 individual native oaks outside of Oak Woodlands, 27 native oaks between 24" and 25" within Oak Woodlands, and 28 Heritage oaks (equal to or greater than 36" DBH) within Oak Woodlands (**Table 2**) (**Attachment B**).

Table 2. Oak Trees Inventoried within the Study Area

<table>
<tr><th colspan="3" rowspan="2"></th><th colspan="4">Number of Trees (DBH)</th></tr>
<tr><th>Blue Oak</th><th>Interior Live Oak</th><th>Valley Oak</th><th>Total</th></tr>
<tr><td rowspan="4">Within Oak Woodlands</td><td rowspan="2">Fair to Good</td><td>24-35" DBH</td><td>4 (114.6)</td><td>16 (468.1)</td><td>1 (24.8)</td><td>21 (607.5)</td></tr>
<tr><td>≥36" DBH</td><td>0</td><td>24 (1,148.9)</td><td>2 (78.3)</td><td>26 (1,227.2)</td></tr>
<tr><td rowspan="2">Poor Condition</td><td>24-35" DBH</td><td>0</td><td>6 (170.7)</td><td>0</td><td>6 (170.7)</td></tr>
<tr><td>≥36" DBH</td><td>0</td><td>2 (81.7)</td><td>0</td><td>2 (81.7)</td></tr>
<tr><td colspan="6">Subtotal</td><td>55 (2,079.1)</td></tr>
<tr><td rowspan="4">Outside of Oak Woodlands</td><td rowspan="2">Fair to Good</td><td>6-35" DBH</td><td>3 (71.0)</td><td>0</td><td>6 (165.6)</td><td>9 (236.6)</td></tr>
<tr><td>≥36" DBH</td><td>2 (83.8)</td><td>0</td><td>2 (79.7)</td><td>4 (163.5)</td></tr>
<tr><td rowspan="2">Poor Condition</td><td>6-35" DBH</td><td>0</td><td>2 (50.0)</td><td>1 (15.7)</td><td>3 (65.7)</td></tr>
<tr><td>≥36" DBH</td><td>0</td><td>0</td><td>1 (37.1)</td><td>1 (37.1)</td></tr>
<tr><td colspan="6">Subtotal</td><td>17 (502.9)</td></tr>
<tr><td colspan="3">Total</td><td>9 (269.4)</td><td>50 (1,911.4)</td><td>13 (401.2)</td><td>72 (2,582.0)</td></tr>
</table>

4.0 IMPACTS TO OAK RESOURCES

In accordance with the El Dorado County Oak Resources Conservation Ordinance, impacts to oak resources are calculated differently for Oak Woodland areas and non-Oak Woodland areas. Within mapped Oak Woodlands, impacts are calculated based on impact to oak canopy, plus impacts to any individual native oak trees within the woodland that are 36" of greater DBH. Outside of mapped Oak Woodlands, impacts are calculated based on impacts to each native oak tree that is 6" or greater DBH. Mitigation is only required for trees that are in Fair or better condition[1], and as a result, impacts have been broken out below based on condition. Note that trees were considered permanently impacted if the trunk fell within either the permanent or temporary impact boundary, or if greater than approximately 30% of the tree's dripline area would be permanently impacted. Impacted and avoided Oak Woodlands and oak trees are shown on **Attachment C**.

4.1 Project Development Area Impacts

A total of 0.3 acres of Oak Woodland will be permanently impacted within the Project Development Area, and 0.2 acre of Oak Woodland will be temporarily impacted within the Project Development Area. Within this area, a total of seven native oak trees with a DBH of 36" or greater will be impacted (six of which are in fair to good condition) (**Table 3**).

In addition, one individual native oak tree with a DBH of 6" or greater outside of Oak Woodlands will be permanently impacted within the Project Development Area, but this tree is in poor condition (**Table 3**).

In summary, a total of 0.5 acres of Oak Woodland and six individual trees in fair to good condition (with a cumulative DBH of 264.3 inches) would be subject to mitigation as a result of impacts within the Project Development Area (**Table 3**).

Table 3. Oak Tree Impacts within the Project Development Area

<table>
<tr><th colspan="3" rowspan="2"></th><th colspan="4">Number of Impacted Trees (DBH)</th></tr>
<tr><th>Blue Oak</th><th>Interior Live Oak</th><th>Valley Oak</th><th>Total</th></tr>
<tr><td rowspan="2">Trees ≥36" DBH Within Oak Woodlands</td><td colspan="2">Fair or Better</td><td>0</td><td>6 (264.3)</td><td>0</td><td>6 (264.3)</td></tr>
<tr><td colspan="2">Poor Condition</td><td>0</td><td>1 (38.4)</td><td>0</td><td>1 (38.4)</td></tr>
<tr><td colspan="6">Subtotal</td><td>7 (302.7)</td></tr>
<tr><td rowspan="4">Trees Outside of Oak Woodlands</td><td rowspan="2">Fair or Better</td><td>6-35" DBH</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>≥36" DBH</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td rowspan="2">Poor Condition</td><td>6-35" DBH</td><td>0</td><td>1 (23.4)</td><td>0</td><td>1 (23.4)</td></tr>
<tr><td>≥36" DBH</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="6">Subtotal</td><td>1 (23.4)</td></tr>
<tr><td colspan="3">Total Trees in Fair to Good Condition</td><td>0</td><td>6 (264.3)</td><td>0</td><td>6 (264.3)</td></tr>
<tr><td colspan="3">TOTAL</td><td>0</td><td>8 (326.1)</td><td>0</td><td>8 (326.1)</td></tr>
</table>

[1] Dead, dying and diseased trees are exempted from mitigation requirements in Section 2.1.9 of the ORMP.

4.2 Sewer Alternative Impacts

4.2.1 Sewer Alternative 1

A total of 1.2 acres of Oak Woodland would be permanently impacted by Sewer Alternative 1, and 1.0 acre of Oak Woodland would be temporarily impacted by Sewer Alternative 1. Within this area, two native oak trees with a DBH of 36" of greater will be impacted (both of which are in fair to good condition) (**Table 4**).

In addition, a total of four individual native oak trees with a DBH of 6" of greater outside of Oak Woodlands would be permanently impacted by Sewer Alternative 1 (three of which are in fair to good condition) (**Table 4**). Of those three trees in fair to good condition that may be impacted, one has a DBH of 36" of greater. In summary, a total of 2.2 acres of Oak Woodland and five individual trees in fair to good condition (with a cumulative DBH of 200 inches) would be subject to mitigation as a result of impacts within Sewer Alternative 1 (**Table 4**).

Table 4. Oak Tree Impacts within Sewer Alternative 1

			Number of Impacted Trees (DBH)			
			Blue Oak	**Interior Live Oak**	**Valley Oak**	**Total**
Trees ≥36" DBH Within Oak Woodlands	**Fair to Good**		0	2 (115.9)	0	2 (115.9)
	Poor Condition		0	0	0	0
Subtotal						2 (115.9)
Trees Outside of Oak Woodlands	**Fair to Good**	6-35" DBH	2 (41.0)	0	0	2 (41.0)
		≥36" DBH	0	0	1 (43.1)	1 (43.1)
	Poor Condition	6-35" DBH	0	1 (26.6)	0	1 (26.6)
		≥36" DBH	0	0	0	0
Subtotal						4 (110.7)
Total Trees in Fair to Good Condition			2 (41.0)	2 (115.9)	1 (43.1)	5 (200.0)
TOTAL			2 (41.0)	3 (142.5)	1 (43.1)	6 (226.6)

4.2.2 Sewer Alternative 2

A total of 1.2 acres of Oak Woodland would be permanently impacted by Sewer Alternative 2, and 1.0 acre of Oak Woodland would be temporarily impacted by Sewer Alternative 2. Within this area, two native oak trees with a DBH of 36" of greater will be impacted (both of which are in fair to good condition) (**Table 5**). In addition, a total of three individual native oak trees with a DBH of 6" of greater outside of Oak Woodlands would be permanently impacted by Sewer Alternative 2 (two of which are in fair to good condition) (**Table 5**). Of those two trees in fair to good condition that may be impacted, one has a DBH of 36" of greater. In summary, a total of 2.2 acres of Oak Woodland and four individual trees in fair to good condition (with a cumulative DBH of 189.4 inches) would be subject to mitigation as a result of impacts within Sewer Alternative 2 (**Table 5**).

Table 5. Oak Tree Impacts within Sewer Alternative 2

<table>
<tr><th colspan="3" rowspan="2"></th><th colspan="4">Number of Impacted Trees (DBH)</th></tr>
<tr><th>Blue Oak</th><th>Interior Live Oak</th><th>Valley Oak</th><th>Total</th></tr>
<tr><td rowspan="2">Trees ≥36” DBH Within Oak Woodlands</td><td colspan="2">Fair to Good</td><td>0</td><td>2 (115.9)</td><td>0</td><td>2 (115.9)</td></tr>
<tr><td colspan="2">Poor Condition</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="6">Subtotal</td><td>2 (115.9)</td></tr>
<tr><td rowspan="4">Trees Outside of Oak Woodlands</td><td rowspan="2">Fair to Good</td><td>6-35” DBH</td><td>0</td><td>0</td><td>1 (35.0)</td><td>1 (35.0)</td></tr>
<tr><td>≥36” DBH</td><td>1 (38.5)</td><td>0</td><td>0</td><td>1 (38.5)</td></tr>
<tr><td rowspan="2">Poor Condition</td><td>6-35” DBH</td><td>0</td><td>1 (26.6)</td><td>0</td><td>1 (26.6)</td></tr>
<tr><td>≥36” DBH</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="6">Subtotal</td><td>3 (100.1)</td></tr>
<tr><td colspan="3">Total Trees in Fair to Good Condition</td><td>1 (38.5)</td><td>2 (115.9)</td><td>1 (35.0)</td><td>4 (189.4)</td></tr>
<tr><td colspan="3">TOTAL</td><td>1 (38.5)</td><td>3 (142.5)</td><td>1 (35.0)</td><td>5 (216.0)</td></tr>
</table>

4.3 Overall Project Impacts

The Project combined with the sewer line would permanently impact 1.5 acres of Oak Woodland, and temporarily impact 1.2 acres of Oak Woodland. Within the Oak Woodlands, the Project combined with the sewer line would impact nine native oak trees with a DBH of 36” or greater (eight of which are in fair to good condition).

In addition, a total of 3 - 4 individual native oak trees with a DBH of 6” or greater outside of Oak Woodlands would be permanently impacted by the Project combined with the sewer line (2 - 3 of which are in fair to good condition). Of the 2 - 3 trees in fair to good condition that may be impacted, 2 have a DBH of 36” or greater (one along each sewer alternative).

Of these impacts, a cumulative total of 2.7 acres of Oak Woodland and 11-12 individual trees in fair to good condition (with a cumulative DBH of 453.7 - 464.3) would be subject to mitigation. The ranges above represent the full range of cumulative impacts, with the lower end assuming the least impactful sewer alternative, and the upper end assuming the most impactful sewer alternative. Where impacts are the same for both sewer alternative, no range is presented. A summary data sheet of oak resources impacts for the Project plus Sewer Alternative 1 is included as **Attachment D**, and a summary data sheet of oak resources impacts for the Project plus Sewer Alternative 2 is included as **Attachment E**.

The Project will avoid indirect impacts to Oak Resources outside of the impact area by implementing the tree avoidance and minimization measures outlined in **Attachment F**.

5.0 MITIGATION

The total cost to mitigate impacts to oak resources associated with the Project if accomplished via in-lieu fee ranges from $552,102.75 to $555,132.15, depending on which Sewer Alternative is implemented. Mitigation calculations are detailed below. We have attached the completed Checklist in **Attachment G**. As noted above, separate *Planning and Building Department Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits* have completed for the Project including Sewer Alternative 1 and the Project including Sewer Alternative 2. These are included as **Attachments D and E**, respectively.

5.1 Oak Woodland

The Project intends to mitigate for impacts to oak woodlands through payment of in-lieu fees to the County's Oak Woodland Conservation Fund. The Project as proposed would impact 0.5 acres of the 4.0 acres of Oak Woodland mapped within the Project Development Area. Implementation of either sewer alternative would result in impacts to 2.2 acres of Oak Woodland. This is a cumulative total of 2.7 acres (44%) of impact of the total 6.2 acres of Oak Woodland mapped within the Project Area[2]. In accordance with the ORMP, the Project proponent would be required to mitigate at a ratio of 1:1 for impacts to 0-50% of the Oak Woodland within the Project Area. Based on this ratio, the Project would require 2.7 acres of Oak Woodland mitigation. Based on the current fee of $8,285, payment of the in-lieu fee for this impact would cost a total of $22,369.50.

5.2 Individual and Heritage Oak Trees

Mitigation estimates are broken down by sewer alternative below. Per the ORMP, the mitigation may be accomplished via replacement planting on or off-site, via payment of an in-lieu fee, or via a combination of the two. Replacement planting on or off-site would require that the planting area be placed under a conservation easement; tree replacement sizes and inch for inch equivalency are provided in **Table 6**, below. If replacement planting is selected, a replacement planting plan must be prepared as detailed in the ORMP, and the planting density may be no greater than 200 trees per acre. The current in-lieu fee is $153 per DBH inch.

Table 6. Oak Tree Replacement Equivalencies

Replacement Tree Size	Number of Replacement Trees Required per DBH Inch of Mitigation
Acorn	3
1-gallon/TreePot 4	2
5-gallon	1.5
15-gallon	1

[2] The 2.2 acres of oak woodland that will be impacted by the sewer alternatives is a tiny portion of the oak woodland in that area; however, as the Project Proponent does not control that area, they cannot place a conservation easement over it. Therefore, impacts must be analyzed for the Project Area in isolation.

5.2.1 Project Plus Sewer Alternative 1

If Sewer Alternative 1 is selected, the cumulative oak tree impacts for the Project plus the sewer alternative would be two individual oak trees (41.0 DBH inches) and nine Heritage oak trees (423.3 DBH inches). The ORMP requires mitigation of individual oak trees at a 1:1 ratio, and mitigation of Heritage oak trees at a 3:1 ratio. Based on these ratios, the Project plus the Sewer Alternative 1 would require 1,310.9 DBH inches of mitigation. If this is accomplished via in-lieu fee, then based on the current in-lieu fee of $153 per DBH inch, this would cost $200,567.70. If this were accomplished entirely via replacement planting, it would require planting 1,311 15-gallon trees on a property no smaller than 6.6 acres.

5.2.2 Project Plus Sewer Alternative 2

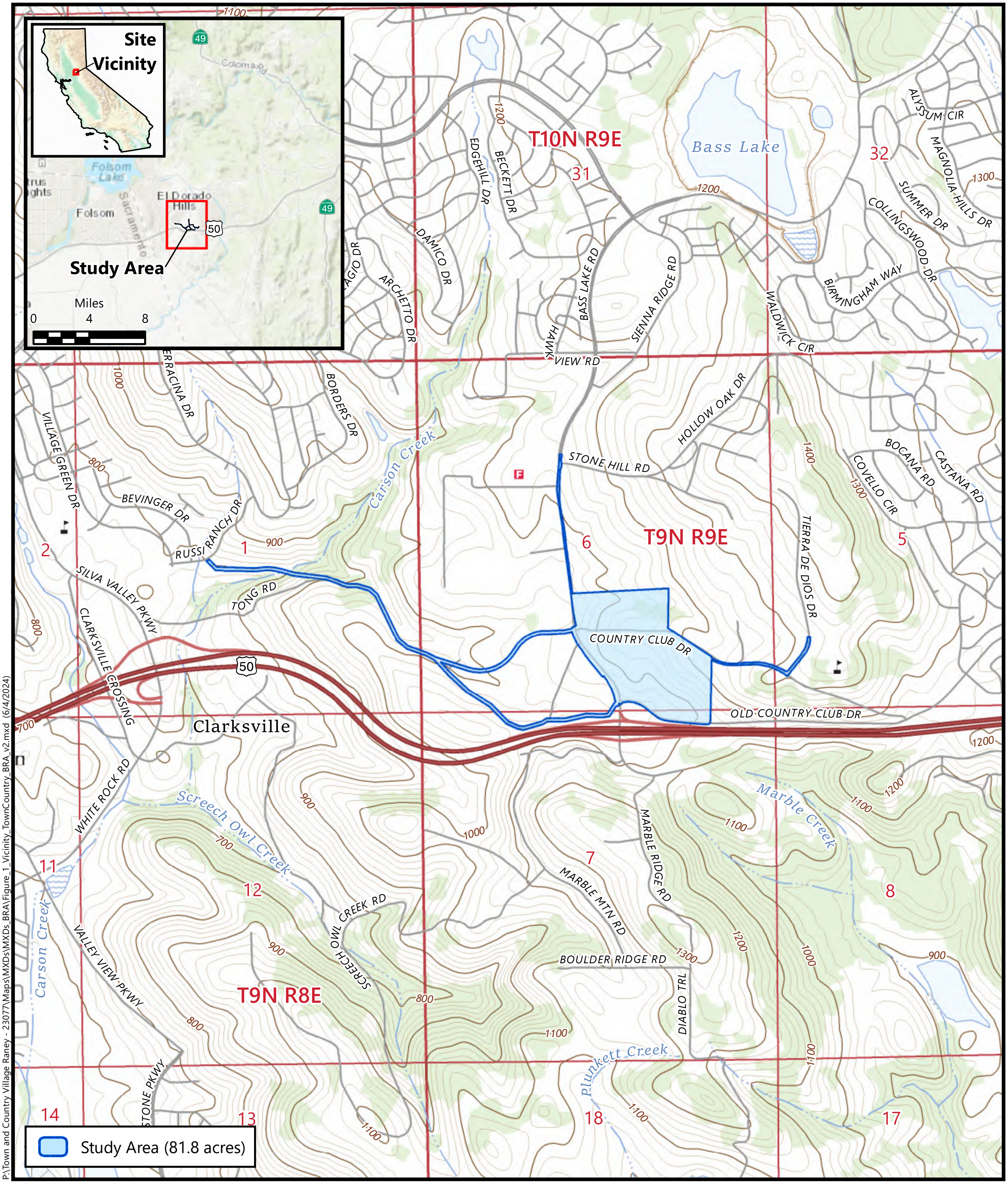
If Sewer Alternative 2 is selected, the cumulative oak tree impacts for the Project plus the sewer alternative would be one individual oak tree (35.0 DBH inches) and nine Heritage oak trees (418.7 DBH inches). The ORMP requires mitigation of individual oak trees at a 1:1 ratio, and mitigation of Heritage oak trees at a 3:1 ratio. Based on these ratios, the Project plus the Sewer Alternative 2 would require 1,291.1 DBH inches of mitigation. If this is accomplished via in-lieu fee, then based on the current in-lieu fee of $153 per DBH inch, this would cost $197,538.30. If this were accomplished entirely via replacement planting, it would require planting 1,292 15-gallon trees on a property no smaller than 6.5 acres.

6.0 REFERENCES

El Dorado County (EDC). 2017. *El Dorado County Oak Resources Management Plan*. Published by El Dorado County Community Development Agency, Long Range Planning Division. Dated September 2017.

U.S. Department of the Interior, Geological Survey (USGS). 2021. *Clarksville, California* 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.

Figures



N

Feet
0 1,000 2,000

Source: United States Geologic Survey, 2021
"Clarksville, California" 7.5-Minute Topographic Quadrangle
Section 1, Township 9 North, Range 8 East, MDBM and
Sections 5-7, Township 9 North, Range 9 East, MDBM
Latitude (NAD83): 38.658668°, Longitude (NAD83): -121.029902°

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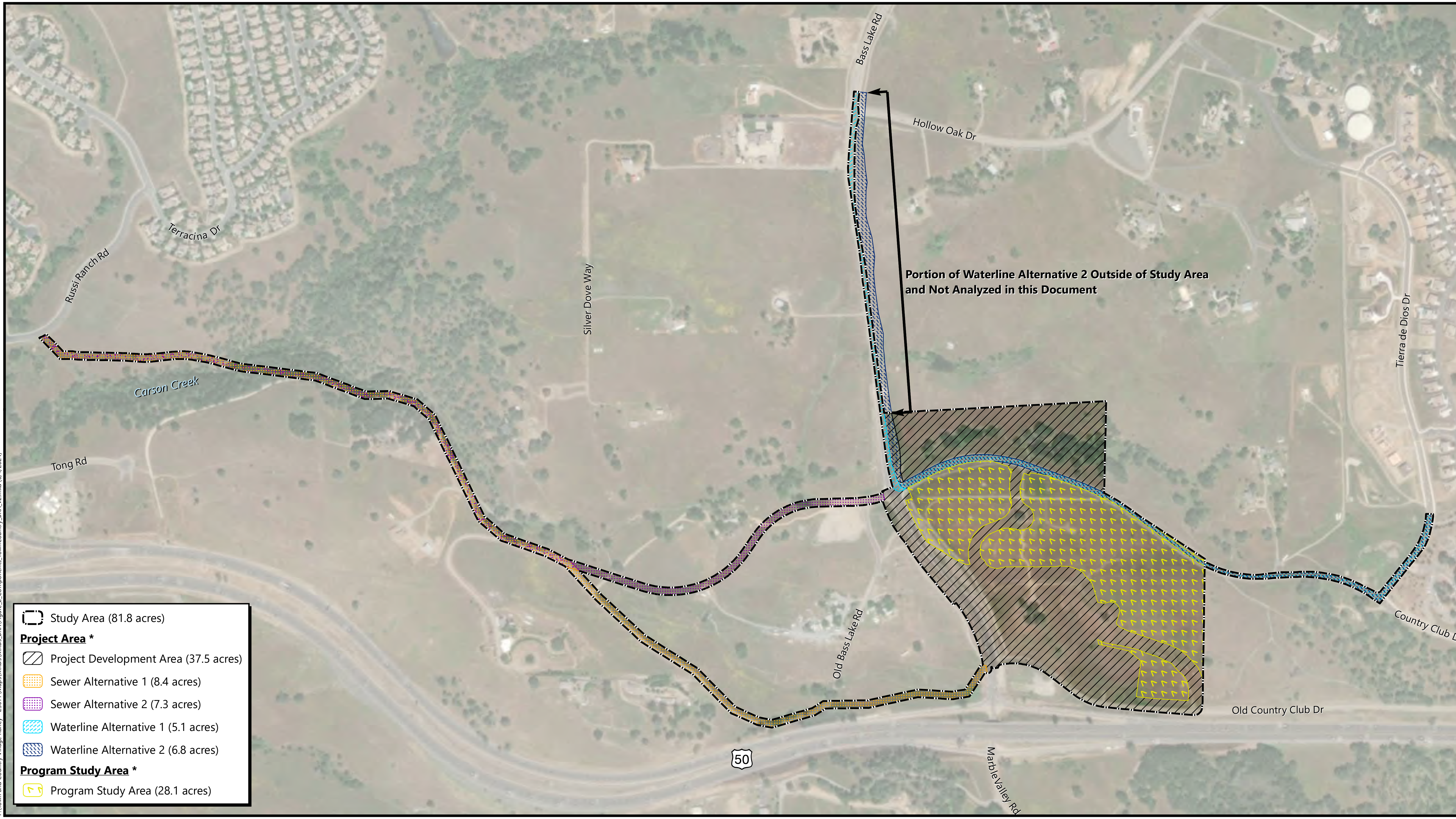
Figure 1
Site and Vicinity

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING



N

Feet
0 600

** Component acreages do not sum to the Study Area acreage due to overlapping alternatives*

Boundary Source: CTA Engineering & Surveying
Aerial Source: Maxar, 1 May 2022

Figure 2
Project Components

Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING

Attachments

Attachment A. Site Plan

Attachment B. Tree Inventory Data

Attachment C. Map of Impacts to Oak Resources

Attachment D. Summary Data Sheet of Oak Resources Impacts for the Project Plus Sewer Alternative 1

Attachment E. Summary Data Sheet of Oak Resources Impacts for the Project Plus Sewer Alternative 2

Attachment F. Avoidance and Minimization Measures

Attachment G. Oak Resources Technical Report Checklist

Attachment A

Site Plan

TOWN & COUNTRY VILLAGE EL DORADO

OVERALL SITE PLAN

EL DORADO COUNTY, CALIFORNIA

SCALE: 1"=100' MARCH, 2024

APPLICANT

JOSH PANE
1123 J STREET, 3RD FLOOR
SACRAMENTO, CA 95814

OWNER

MOHAMMAD MOHANNA
CAP FUNDING
1025 9th STREET, SUITE 205
SACRAMENTO, CA 95814

ENGINEER

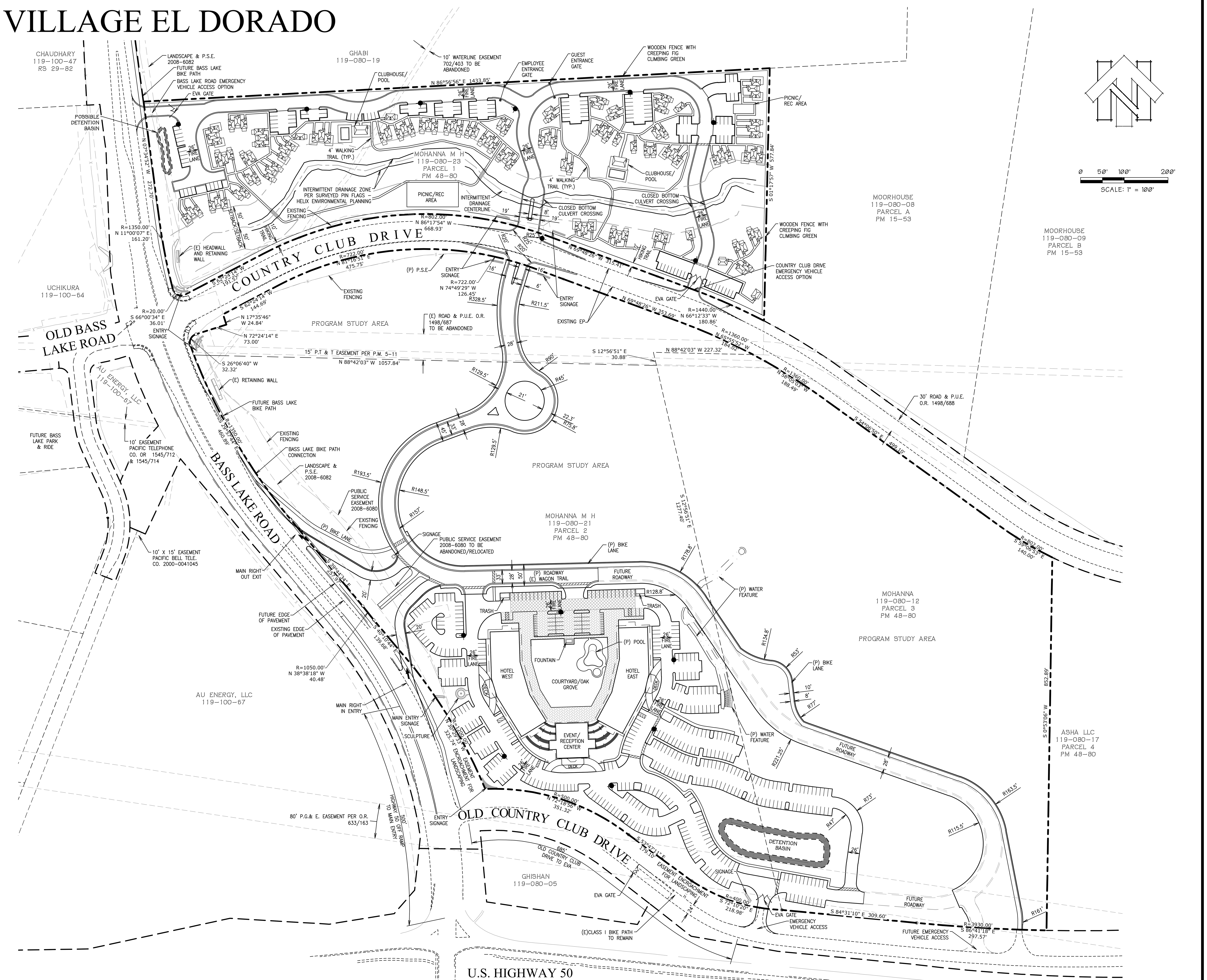
cta Engineering & Surveying

Civil Engineering ■ Land Surveying ■ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ■ F (916) 638-2479 ■ www.ctaes.net

PROPOSED BUILDINGS	GROSS SQUARE FOOTAGE (FOOTPRINT)
HOTELS	16,000
EVENT CENTER	7,000
COTTAGES	280
CLUBHOUSES	600

LEGEND

PROJECT BOUNDARY
(E) LOT BOUNDARY
(E) RIGHT OF WAY
(E) EASEMENT
(E) EDGE OF PAVEMENT
(E) FENCE
GRASS PAVERS
LANDSCAPE PAVERS
FIRE DEPARTMENT PATH OF TRAVEL TURNING RADII
INSIDE RADIUS=35'
OUTSIDE RADIUS=55'
FIRE HYDRANT



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Attachment B

Tree Inventory Data

Oak Tree Inventory for Town and Country Village

Tree #	Common Name	Scientific Name	DBH (in)	Dripline Radius (ft)	Condition	MultiStem DBH	Notes	Woodland Classification
1	Blue Oak	*Quercus douglasii*	24.0	20	Fair to Good	12, 12	Health and structure fair. No tag and DBH estimated due to poison oak. Evidence of past mistletoe infestation, but currently minimal. Included bark at 2 main trunk unions	Not Oak Woodland
525	Interior Live Oak	*Quercus wislizenii*	25.5	32	Fair to Good		Health and Structure Fair	Oak Woodland
526	Blue Oak	*Quercus douglasii*	38.5	25	Fair to Good		Health and Structure Good	Not Oak Woodland
527	Valley Oak	*Quercus lobata*	35.0	42	Fair to Good		Health and Structure Excellent	Not Oak Woodland
528	Blue Oak	*Quercus douglasii*	17.0	22	Fair to Good		Health fair, structure good	Not Oak Woodland
529	Valley Oak	*Quercus lobata*	43.1	40	Fair to Good		Health and Structure Excellent	Not Oak Woodland
530	Blue Oak	*Quercus douglasii*	31.4	35	Fair to Good		Health good, structure fair. Large cavity at base that appears to be healing, no evidence of decay	Oak Woodland
531	Interior Live Oak	*Quercus wislizenii*	58.2	20	Fair to Good	13.7, 21.9, 6.1, 16.5	Health and Structure Good	Oak Woodland
532	Interior Live Oak	*Quercus wislizenii*	57.7	75	Fair to Good	12.8, 13.7, 19.6, 11.6	Health fair, Structure fair to poor. Tree has a very substantial uphill lean. Would not be acceptable in an urban setting, but does not indicate increased potential for the trees premature mortality.	Oak Woodland
533	Interior Live Oak	*Quercus wislizenii*	26.5	35	Fair to Good		Health and Structure Fair	Oak Woodland
534	Blue Oak	*Quercus douglasii*	24.5	30	Fair to Good		Health and Structure Good	Oak Woodland
535	Blue Oak	*Quercus douglasii*	28.9	28	Fair to Good		Health fair, structure good	Oak Woodland
536	Interior Live Oak	*Quercus wislizenii*	26.6	22	Poor		Health and structure poor. Fair amount of branch die off, mistletoe growing out of trunk, cavity under the trunk	Not Oak Woodland
2204	Interior Live Oak	*Quercus wislizenii*	43.7	50	Fair to Good		Health and Structure Fair. DBH measured at 3 ft due to branching.	Oak Woodland
2205	Interior Live Oak	*Quercus wislizenii*	48.0	35	Fair to Good	22.0, 26.0	Health and Structure Fair. Numerous branches have fallen off recently, so few that are dead remain.	Oak Woodland
2209	Interior Live Oak	*Quercus wislizenii*	25.4	25	Poor		Health poor, structure fair	Oak Woodland
2210	Interior Live Oak	*Quercus wislizenii*	37.8	35	Fair to Good		Health and Structure Fair	Oak Woodland
2211	Valley Oak	*Quercus lobata*	40.3	35	Fair to Good		Health fair, structure good	Oak Woodland
2212	Interior Live Oak	*Quercus wislizenii*	31.7	12.5	Fair to Good	18.5, 13.2	Health and Structure Fair	Oak Woodland
2215	Interior Live Oak	*Quercus wislizenii*	29.0	38	Poor	14.9, 14.1	Health fair, structure poor. Cavities below trunk	Oak Woodland
2217	Valley Oak	*Quercus lobata*	38.0	35	Fair to Good		Health and structure good. DBH estimated due to poison oak	Oak Woodland
2225	Valley Oak	*Quercus lobata*	24.8	35	Fair to Good		Health and Structure Good	Oak Woodland
2240	Interior Live Oak	*Quercus wislizenii*	43.3	35	Poor	26.2, 17.1	Health and structure poor. One of main trunks has been girdled - no bark all the way around.	Oak Woodland
2242	Interior Live Oak	*Quercus wislizenii*	57.1	40	Fair to Good	16.6, 11.0, 29.5	Health good, structure fair. Several cavities and one main branch rests on ground. DBH of biggest trunk measured at 2 ft due to branching.	Oak Woodland
2243	Interior Live Oak	*Quercus wislizenii*	26.1	32	Poor		Health and structure poor. Extensive branch tip die back. Polypore mushrooms growing out of cavity in trunk.	Oak Woodland
2244	Interior Live Oak	*Quercus wislizenii*	38.4	35	Poor	15.9, 22.5	Health fair, structure poor. Numerous cavities with active decay	Oak Woodland
2245	Interior Live Oak	*Quercus wislizenii*	24.0	20	Fair to Good	16.0, 8.0	Health and Structure Fair	Oak Woodland
2246	Interior Live Oak	*Quercus wislizenii*	28.9	24	Poor	9.5, 11.0, 8.4	Health and structure poor. Numerous extensive cavities with decay	Oak Woodland
2250	Interior Live Oak	*Quercus wislizenii*	36.7	35	Fair to Good		Health good, structure fair. One good sized cavity with decay, remainder of tree looks good.	Oak Woodland
2251	Interior Live Oak	*Quercus wislizenii*	46.2	25	Fair to Good	4.8, 8.2, 17.2, 16.0	Health good, structure fair.	Oak Woodland
2255	Interior Live Oak	*Quercus wislizenii*	33.4	35	Fair to Good	18.7, 5.4, 9.3	Health good, structure fair to poor. 1 branch with numerous cavities, some small healing cavities in main trunk	Oak Woodland
2258	Interior Live Oak	*Quercus wislizenii*	30.5	22	Poor	11.4, 10.5, 8.6	Health and structure poor. 2 of 3 branches are dead and the third appears to be dying.	Oak Woodland
2259	Interior Live Oak	*Quercus wislizenii*	39.6	35	Fair to Good	15.4, 13.2, 11.0	Health good, structure fair. DBH estimated due to poison oak	Oak Woodland
2260	Interior Live Oak	*Quercus wislizenii*	29.1	28	Fair to Good	25.0, 4.1	Health good, structure fair.	Oak Woodland
2261	Interior Live Oak	*Quercus wislizenii*	46.4	35	Fair to Good	22.1, 7.8, 16.5	Health and structure fair. DBH estimated due to poison oak.	Oak Woodland
2264	Interior Live Oak	*Quercus wislizenii*	36.2	45	Fair to Good	15.6, 20.6	Health good, structure fair.	Oak Woodland
2270	Interior Live Oak	*Quercus wislizenii*	41.1	42	Fair to Good	20.2, 20.9	Health and Structure Good	Oak Woodland

Oak Tree Inventory for Town and Country Village

Tree #	Common Name	Scientific Name	DBH (in)	Dripline Radius (ft)	Condition	MultiStem DBH	Notes	Woodland Classification
2276	Interior Live Oak	*Quercus wislizenii*	64.9	30	Fair to Good	17.2, 23.8, 14.9, 9.0	Health good, structure fair.	Oak Woodland
2278	Interior Live Oak	*Quercus wislizenii*	26.6	32	Fair to Good		Health and structure fair. an additional stem 19.4 dbh is almost dead and not included in size Calc	Oak Woodland
2279	Interior Live Oak	*Quercus wislizenii*	54.8	35	Fair to Good	21.9, 21.4, 11.5	Health fair and Structure fair to poor. Several cavities.	Oak Woodland
2285	Interior Live Oak	*Quercus wislizenii*	29.9	50	Fair to Good		Health and Structure Fair	Oak Woodland
2290	Interior Live Oak	*Quercus wislizenii*	59.4	50	Fair to Good	14.4, 20.0, 25.0	Health good, structure fair	Oak Woodland
2291	Interior Live Oak	*Quercus wislizenii*	40.1	45	Fair to Good	29.8, 10.3	Health and Structure Fair	Oak Woodland
2293	Interior Live Oak	*Quercus wislizenii*	39.2	38	Fair to Good	30.5, 8.7	Health and Structure Fair	Oak Woodland
2294	Interior Live Oak	*Quercus wislizenii*	31.1	45	Fair to Good	11.2, 19.9	Health and Structure Fair	Oak Woodland
2295	Interior Live Oak	*Quercus wislizenii*	48.2	50	Fair to Good	11.8, 32.9, 3.5	Health good, structure fair	Oak Woodland
2296	Interior Live Oak	*Quercus wislizenii*	23.4	15	Poor	9.8, 4.7, 8.9	Health poor, structure fair	Not Oak Woodland
2310	Interior Live Oak	*Quercus wislizenii*	44.9	45	Fair to Good	13.0, 10.7, 21.2	Health and Structure Fair	Oak Woodland
2312	Interior Live Oak	*Quercus wislizenii*	30.8	32	Poor	17.0, 13.8	Health fair, structure poor. Very large basal cavity.	Oak Woodland
2314	Interior Live Oak	*Quercus wislizenii*	27.0	25	Fair to Good	9.5, 17.5	Health and Structure Fair	Oak Woodland
2317	Interior Live Oak	*Quercus wislizenii*	25.2	38	Fair to Good	17.0, 8.2	Health and Structure Fair	Oak Woodland
2324	Interior Live Oak	*Quercus wislizenii*	49.2	32	Fair to Good	15.3, 11.7, 13.5, 8.7	Health and Structure Fair	Oak Woodland
2325	Interior Live Oak	*Quercus wislizenii*	34.0	25	Fair to Good	21.8, 12.2	Health and Structure Fair	Oak Woodland
2327	Interior Live Oak	*Quercus wislizenii*	33.8	30	Fair to Good	9.5, 9.4, 14.9	Health and Structure Fair	Oak Woodland
2328	Blue Oak	*Quercus douglasii*	29.8	40	Fair to Good		Health and Structure Good	Oak Woodland
2329	Interior Live Oak	*Quercus wislizenii*	37.3	40	Fair to Good		Health and structure good. DBH measured at 18" due to branching	Oak Woodland
2331	Interior Live Oak	*Quercus wislizenii*	71.1	48	Fair to Good	16.0, 16.7, 38.4	Health and Structure Good	Oak Woodland
2333	Interior Live Oak	*Quercus wislizenii*	46.9	35	Fair to Good	14.2, 15.0, 17.7	Health and Structure Fair	Oak Woodland
2336	Interior Live Oak	*Quercus wislizenii*	31.5	28	Fair to Good		Health good, structure fair	Oak Woodland
2337	Interior Live Oak	*Quercus wislizenii*	29.4	35	Fair to Good	17.9, 7.6, 3.9	Health and Structure Fair	Oak Woodland
2338	Interior Live Oak	*Quercus wislizenii*	29.4	24	Fair to Good	11.8, 17.6	Health and Structure Fair	Oak Woodland
2340	Interior Live Oak	*Quercus wislizenii*	44.2	40	Fair to Good	11.5, 13.1, 19.6	Health and Structure Fair	Oak Woodland
2342	Valley Oak	*Quercus lobata*	30.0	30	Fair to Good		Health and Structure Good	Not Oak Woodland
2343	Blue Oak	*Quercus douglasii*	30.0	34	Fair to Good		Health and Structure Good	Not Oak Woodland
2344	Valley Oak	*Quercus lobata*	33.3	40	Fair to Good		Health and Structure Fair	Not Oak Woodland
2345	Valley Oak	*Quercus lobata*	37.1	34	Poor		Health good, structure poor. Large cavity under uphill side of tree. Some major roots gone, and root flare is getting undermined. With almost all foliage on downhill side of tree, this tree could fail during strong easterly	Not Oak Woodland
2346	Valley Oak	*Quercus lobata*	25.2	28	Fair to Good		Health and Structure Good	Not Oak Woodland
2347	Valley Oak	*Quercus lobata*	15.7	23	Poor		Health fair, structure poor. Large cavity in the base of the trunk; unhealed, extensive decay	Not Oak Woodland
2348	Valley Oak	*Quercus lobata*	16.3	28	Fair to Good		Health and Structure Good	Not Oak Woodland
2349	Valley Oak	*Quercus lobata*	25.8	35	Fair to Good		Health and Structure Good	Not Oak Woodland
2350	Valley Oak	*Quercus lobata*	36.6	40	Fair to Good		Health good, structure fair to poor. Large unhealed cavity on uphill side of trunk and strange sinuous branch growth.	Not Oak Woodland
2351	Blue Oak	*Quercus douglasii*	45.3	38	Fair to Good		Health good, structure fair to poor	Not Oak Woodland

Attachment C

Map of Impacts to Oak Resources

Prepared For:
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

Sources
Aerial: Maxar, 1 May 2022
Boundary : CTA Engineering & Surveying

Biologist: D.Snider
Map Prepared by: J.Swager
Date Map Prepared: 4 June 2024
** Small summation errors may occur due to rounding*

N
Feet
0 100 200 300 600
Main Map Scale:
1 inch = 300 feet (at 18"x33")
Coordinate System
NAD 1983 State Plane California II
(U.S. Feet)

Study Area (81.8 acres)

Project Impact and Avoidance Areas *
Permanent Impact (37.8 acres)
Temporary Impact (8.9 acres)
Program Level (28.1 acres)
Avoided (7.0 acres)

Oak Resources
Blue Oak (9)
Interior Live Oak (50)
Valley Oak (13)
Oak Woodland (6.2 acres)

Oak Dripline
Avoided Tree (46)
Permanently Impacted Tree (26)

Impacts to Oak Resources
Town and Country Village El Dorado
El Dorado County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

Attachment D

Summary Data Sheet of
Oak Resources Impacts for the
Project Plus Sewer Alternative 1

COMMUNITY DEVELOPMENT SERVICES
PLANNING AND BUILDING DEPARTMENT

2850 Fairlane Court, Placerville, CA 95667
Phone: (530) 621-5355 www.edcgov.us/Planning/

Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits

Description		Blue (*Quercus douglasii*)	California Black (*Quercus kelloggii*)	Canyon Live (*Quercus chrysolepis*)	Interior Live (*Quercus wislizeni*)	Oregon White (*Quercus garryana*)	Valley (*Quercus loabata*)	Oracle (hybrid) (*Quercus x morehus*)
Individual Native Oak Trees								
Quantity (number of trees) of individual native oak trees to be removed, by species (6-23.9")		1	0	0	0	0	0	0
Quantity (number of trees) of individual native oak trees to be removed, greater than 24 inches and less than 36 inches (dbh), by species (outside of oak woodland)		1	0	0	0	0	0	0
Total trunk diameter inches (dbh) to be removed*	41.0							
Heritage Trees								
Quantity (number of trees) of Heritage Trees to be removed, by species		0	0	0	8	0	1	0
Total trunk diameter inches (dbh) to be removed*	423.3							
Oak Woodlands								
Total Acreage of existing oak woodlands**	6.2							
Acreage of existing oak woodlands to be removed	2.7							
Percentage of existing oak woodlands to be removed*	44%							

Information used for purposes of calculating in-lieu mitigation fee payment.
***** If Heritage Trees occur within oak woodlands, the area of impacted Heritage Tree(s) should be included in oak woodland acreage calculations.***

Attachment E

Summary Data Sheet of
Oak Resources Impacts for the
Project Plus Sewer Alternative 2

COMMUNITY DEVELOPMENT SERVICES
PLANNING AND BUILDING DEPARTMENT

2850 Fairlane Court, Placerville, CA 95667

Phone: (530) 621-5355 www.edcgov.us/Planning/

Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits

Description		Blue (*Quercus douglasii*)	California Black (*Quercus kelloggii*)	Canyon Live (*Quercus chrysolepis*)	Interior Live (*Quercus wislizeni*)	Oregon White (*Quercus garryana*)	Valley (*Quercus loabata*)	Oracle (hybrid) (*Quercus x morehus*)
Individual Native Oak Trees								
Quantity (number of trees) of individual native oak trees to be removed, by species (6-23.9")		0	0	0	0	0	0	0
Quantity (number of trees) of individual native oak trees to be removed, greater than 24 inches and less than 36 inches (dbh), by species (outside of oak woodland)		0	0	0	0	0	1	0
Total trunk diameter inches (dbh) to be removed*	35.0							
Heritage Trees								
Quantity (number of trees) of Heritage Trees to be removed, by species		1	0	0	8	0	0	0
Total trunk diameter inches (dbh) to be removed*	418.7							
Oak Woodlands								
Total Acreage of existing oak woodlands**	6.2							
Acreage of existing oak woodlands to be removed	2.7							
Percentage of existing oak woodlands to be removed*	44%							

Information used for purposes of calculating in-lieu mitigation fee payment.
***** If Heritage Trees occur within oak woodlands, the area of impacted Heritage Tree(s) should be included in oak woodland acreage calculations.***

Revised 11/22/2017

Attachment F

Avoidance and Minimization Measures

Measures to Avoid and Minimize Impacts to Retained Oak Resources

Pre-construction

- The limits of project disturbance within 50 feet of all oak trees shall be clearly defined with bright colored flagging or orange construction fencing prior to construction. Flagging and/or the fence shall remain in place until construction is complete. No construction activities shall occur outside the construction limits. Flagging or fencing shall be removed and cleared from the Project area upon completion of the project to prevent wildlife entrapment in refuse left onsite.
- There shall be no driving, parking, or storage of supplies or equipment outside the flagged/fenced project limits.
- Limb pruning of any retained trees should be conducted by an arborist or tree worker that is ISA certified and licensed by the State of California for tree service. Pruning shall be conducted in accordance with American National Standard Institute (ANSI) A300 Pruning Standard and adhere to the most recent edition of ANSI Z133.1.
- Canopy thinning or additional pruning shall not occur outside the flagged/fenced project limits. It is more beneficial for a tree to have the most amount of foliage possible in order to promote new root growth.

During Vegetation Clearing

- Trees shall be felled inside the flagged/fenced project limits

Attachment G

Oak Resources

Technical Report Checklist

COMMUNITY DEVELOPMENT SERVICES
PLANNING AND BUILDING DEPARTMENT

2850 Fairlane Court, Placerville, CA 95667
Phone: (530) 621-5355 www.edcgov.us/Planning/

OAK RESOURCES TECHNICAL REPORT CHECKLIST

The following information is required for all Oak Resources Technical Reports consistent with Section 2.5 (Oak Resources Technical Reports) of the Oak Resources Management Plan (ORMP):

FORMS AND MAPS REQUIRED

Place a check (√) on the "Applicant" lines for those items completed. The planner receiving the application will check (√) the "County" line.

Check (√) Applicant	County		
[X]	[ ]	1)	Identify, locate, and quantify all oak resources on the property, as applicable:
Attachment C		a)	Oak woodlands shall be mapped and assessed in accordance with the CDFG 2009 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* and subsequent updates, and the *List of Vegetation Alliances and Associations* (CDFG 2010) and subsequent updates;
Attachment B		b)	Data collected for individual native oak trees and Heritage Trees shall include: location, species, trunk diameter (dbh), height, canopy radius, and general health and structural condition.
[X]	[ ]	2)	Identify and quantify project-related impacts to oak resources Section 4.0
[X]	[ ]	3)	Measures identifying how specific trees and woodlands (or retained portions thereof) shall be protected during development and related work Attachment F

Check (√) Applicant	County		
[X]	[ ]	4)	Proposed actions to mitigate impacts to oak resources, consistent with the requirements included in the ORMP:

Section 5.0

a) For replacement planting, the report shall provide detail regarding the quantity, location, planting density, replacement tree size(s), and acorn/seedling source consistent with the definition of Replacement Planting included in the ORMP;

b) For conservation easement placement/acquisition and/or land acquisition in fee title, the report shall provide documentation of easement placement on-site and/or documentation of easement or land acquisition off-site to the satisfaction of the County;

c) For in-lieu fee payment, the report shall document the quantity of impacts (acreage of oak woodlands and/or total diameter inches of individual native oak trees/Heritage Trees) and the total in-lieu fee payment necessary (presented separately for oak woodlands, individual native oak trees, and Heritage Trees, where applicable).

[ ] [ ] 5) Identification of responsible parties N/A

[ ] [ ] 6) Identification of maintenance, monitoring, and reporting requirements N/A

[ ] [ ] 7) Analysis of non-PCA conservation easement areas, where applicable N/A

[X] [ ] 8) Site map(s) depicting:

Attachment C — a) location of all oak woodlands, individual native oak trees, and Heritage Trees;

Attachment A — b) location of all proposed project-related improvements (including, but not limited to, the limits of grading, fuel modification/defensible space areas, and above- and below-ground infrastructure);

Attachment C — c) Site map(s) shall also clearly identify impacted oak resources.

[X] [ ] 9) Planning and Building Department Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits.

Attachments D and E

SUPPLEMENTAL DATA FOR INDIVIDUAL NATIVE OAK TREES WITHIN OAK WOODLANDS:

The ORMP and Oak Resources Conservation Ordinance (No. 5061) was adopted on October 24, 2017 and the Board of Supervisors will review implementation within 12 months after adoption. The Board requested the following supplemental information:

[X] [ ] 10) Provide an inventory (species and size) of impacted Individual Native Oak Trees greater than 24 inches and less than 36 inches (dbh) in oak woodlands.

Attachment B

PRELIMINARY GEOTECHNICAL ENGINEERING STUDY
FOR
THE TOWN AND COUNTRY VILLAGE
Bass Lake Road and Country Club Drive
El Dorado Hills, California

Project No. E21526.002
February 2023

YOUNGDAHL
ESTABLISHED 1984

YOUNGDAHL CONSULTING GROUP, INC.
ESTABLISHED 1984

1234 Glenhaven Court, El Dorado Hills, CA 95762
4300 Anthony Court, Unit D, Rocklin, CA 95677
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net

Cap Funding – The Mohanna
1025 9th Street, Suite 205
Sacramento, California 95814

Project No. E21526.002
9 February 2023

Attention: Mr. Josh Pane

Subject: **THE TOWN AND COUNTRY VILLAGE**
Bass Lake Road and Country Club Drive, El Dorado Hills, California
PRELIMINARY GEOTECHNICAL ENGINEERING STUDY

References:
1. Preliminary Onsite Wastewater Treatment Feasibility Study for Town and Country Village, El Dorado, prepared by Youngdahl Consulting Group, Inc., dated 30 December 2021 (Project No. E21526.000).
2. Grading Plan for Town & Country Village El Dorado, prepared by CTA Engineering and Surveying, dated February 2022.
3. Fully Executed Contract and Proposal for The Town and Country Village Preliminary GES, prepared by Youngdahl Consulting Group, Inc., dated 4 January 2023.

Dear Mr. Pane:

In accordance with your authorization of the Reference 3 proposal and contract, Youngdahl Consulting Group, Inc. has prepared this preliminary geotechnical engineering study for the project site located at Bass Lake Road and Country Club Drive in El Dorado Hills, California. The purpose of this study was to prepare a site-specific preliminary geotechnical report that can be incorporated into design of the proposed site. To complete this task, our firm completed a site reconnaissance and prepared this report in accordance with the Reference 3 proposal and contract.

Based upon our observations, the geotechnical aspects of the site appear to be suitable for support of the proposed structure provided the recommendations presented in this report are incorporated into the design and construction. Geotechnical conditions associated with site development are anticipated to include processing existing grades for preparation to receive engineered fills, the placement of engineered fills, improvement for drainage controls, and the construction of foundations.

Due to the non-uniform nature of soils, other geotechnical issues may become more apparent during grading operations which are not listed above. The descriptions, findings, conclusions, and recommendations provided in this report are formulated as a whole; specific conclusions or recommendations should not be derived or used out of context. Please review the limitations and uniformity of conditions section of this report.

This report has been prepared for the exclusive use of the addressee of this report and their consultants, for specific application to this project, in accordance with generally accepted geotechnical engineering practice. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

Allie Denny
Staff Geologist

Reviewed By:

John Youngdahl, P.E.
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
JOHN C. YOUNGDAHL
NO. C60224
Exp. 06-30-22
CIVIL
STATE OF CALIFORNIA

2-9-23

Distribution: PDF to Client

TABLE OF CONTENTS

PRELIMINARY GEOTECHNICAL ENGINEERING STUDY
FOR
THE TOWN AND COUNTRY VILLAGE

1.0 INTRODUCTION

This report presents the results of our preliminary geotechnical engineering study performed for the proposed hotel planned to be constructed at Bass Lake Road and Country Club Drive in El Dorado Hills, California. The vicinity map provided on Figure A-1, Appendix A shows the approximate project location.

Project Understanding

We understand that the proposed project will consist of the development of multi-story hotel structures and lodges located at the intersection of Bass Lake Road and Country Club Lane in El Dorado Hills, California. We anticipate the structures will be up to four stories, of wood frame construction, and supported by conventional shallow foundations with slab-on-grade floors.

Background

Youngdahl Consulting Group, Inc. previously prepared the Reference 1 Preliminary Onsite Wastewater Treatment Feasibility Study which included a subsurface exploration consisting of 13 hand auger borings. Percolation testing was also performed by Youngdahl, which included the excavation of five exploratory test pits on 18 January 2022 and five additional test pits on 9 June 2022.

If studies or plans pertaining to the site exist and are not cited as a reference in this report, we should be afforded the opportunity to review and modify our conclusions and recommendations as necessary.

Purpose and Scope

Youngdahl Consulting Group, Inc. has prepared this report to provide geotechnical engineering recommendations and considerations for incorporation into the design and development of the site. The following scope of services were developed and performed for preparation of this report:

- A review of geotechnical and geologic data available to us at the time of our study;
- Performance of a field study consisting of a site reconnaissance;
- Evaluation of the data and information obtained from our field study and literature review for geotechnical conditions;
- Development of preliminary geotechnical recommendations and considerations regarding earthwork construction including, site preparation and grading, engineered fill criteria, seasonal moisture conditions, excavation characteristics, slope configuration and grading, and drainage;
- Preparation of this report summarizing our findings, conclusions, and preliminary recommendations regarding the above-described information.

2.0 SITE CONDITIONS

The following section describes our findings regarding the site conditions that we observed during our site reconnaissance.

Surface Observations
The project site is located at the corner of Bass Lake Road and Country Club Drive in El Dorado Hills, California and is bounded by vacant land to the north and east, Highway 50 to the south, and Bass Lake Road to the west. Topography at the site slopes in various directions with a maximum gradient of approximately 3H:1V (Horizontal:Vertical). At the time of our visit on 30 January 2023, the vegetation at the site consisted of seasonal grasses with scattered trees. Rock outcroppings were observed throughout the site and a paved road is located on the western side of the property.

Subsurface Conditions
Our field study included a site reconnaissance by a representative of our firm conducted on 30 January 2023. A subsurface exploration was not included in our scope of work for this project; however, as part of the Reference 1 report Youngdahl completed the excavation of 13 hand auger borings and 10 test pits on the site. Subsurface soil conditions were consistent at the locations evaluated and generally included silty clays and sandy clays to depths of 1 to 3 feet, underlain by moderately weathered bedrock.

Groundwater Conditions
Due to the shallow depth and low permeability of the underlying rock, perched water is common to the area and could be encountered during grading operations. Perched water was encountered at depths of 1 foot in one of the hand auger borings and at 2 feet in two of the hand auger borings. The presence of perched water can vary because of many factors such as the proximity to rock, topographic elevations, and the presence of utility trenches. Some evidence of past repeated exposure to subsurface water may include black staining, clay deposits, and surface markings indicating previous seepage. Based on our experience in the area, water may be perched on the bedrock horizon found beneath the site and could vary through the year with higher concentrations during or following precipitation.

Soil Expansion Potential
Based on previous subsurface exploration, we anticipate that some plastic materials, such as clay soils, will be encountered on the site. However, we do not anticipate that special design considerations for expansive soils will be necessary for the design or construction of the proposed improvements. If necessary, recommendations can be made based on our observations at the time of construction should expansive soils be encountered at the project site which were not encountered during our study.

3.0 GEOLOGY AND SEISMICITY

The geologic portion of this report includes a review of geologic data pertinent to the site based on an interpretation of our observations of the surface exposures and our observations in our exploratory test pits.

Geologic Conditions
The site is located in El Dorado Hills, California, which is found within the western foothills region of the Sierra Nevada geomorphic province This province is dominated by long belts of metamorphic rock formed by ancient subduction and related volcanism, continental accretion and uplift during the Jurassic and Cretaceous ages (CDMG, 1984, OFR 84-50). According to the Geologic Map of the Sacramento Quadrangle, California (Gutierrez C.I., 2011), the subject property and vicinity are underlain by metavolcanic rock.

Naturally Occurring Asbestos
Asbestos is classified by the EPA as a known human carcinogen. Naturally occurring asbestos (NOA) has been identified as a potential health hazard. The California Geological Survey published a map in 2018 (Bruijn; August 2018: Open File Report 2000-02 2018 Update) that qualitatively indicates the likelihood for NOA in western El Dorado County. Although most of the project site is not in a NOA review zone, the southeast corner of the site has been identified as being within an El Dorado County review area for naturally occurring asbestos, triggering some specific County requirements and additional recommendations for that portion of the property. El Dorado County Air Quality Management District Rule 223-2 regulates grading in asbestos review areas. Rule 223-2 requires that finished grade surface asbestos concentrations be below 0.25% as measured by California Air Resources Board Test Method 435 (ARB TM 435); potentially requiring testing and management for asbestos during grading followed by the testing of finished grades for asbestos. All export soil/rock is required to be tested along with the completion of special documentation to accompany the export. Disclosure is required for properties containing asbestos.

Seismicity
Our evaluation of seismicity for the project site included reviewing existing fault maps and obtaining seismic design parameters from the USGS online calculators and databases. For the purpose of this study, we used a latitude and longitude of 38.659496, -121.029290 to identify the project site.

<u>Alquist-Priolo Regulatory Faults</u>
Based upon the records currently available from the California Department of Conservation, the project site is not located within an Alquist-Priolo Regulatory Review Zone and there are no known faults located at the subject site. We do not anticipate special design or construction requirements for faulting at this project site.

<u>Code Based Seismic Criteria</u>
Based upon the subsurface conditions encountered during previous studies and our experience in the area, the site should be classified as Site Class C. The final choice of design parameters, however, remains the purview of the project structural engineer.

Table 1: Seismic Design Parameters*

Reference		Seismic Parameter	Recommended Value
ASCE 7-16	Table 20.3-1	Site Class	C
	Figure 22-7	Maximum Considered Earthquake Geometric Mean (MCEC) PGA	0.173g
	Table 11.8-1	Site Coefficient F_{PGA}	1.227
	Equation 11.8-1	$PGA_M = F_{PGA}\ PGA$	0.212g
2022 CBC	Figure 1613.2.1(1)	Short-Period MCE at 0.2s, S_S	0.405g
	Figure 1613.2.1(2)	1.0s Period MCE, S_1	0.207g
	Table 1613.2.3(1)	Site Coefficient, F_a	1.300
	Table 1613.2.3(2)	Site Coefficient, F_v	1.500
	Equation 16-20	Adjusted MCE Spectral Response Parameters, $S_{MS} = F_aS_s$	0.526g
	Equation 16-21	Adjusted MCE Spectral Response Parameters, $S_{M1} = F_vS_1$	0.310g
	Equation 16-22	Design Spectral Acceleration Parameters, $S_{DS} = ⅔S_{MS}$	0.351g
	Equation 16-23	Design Spectral Acceleration Parameters, $S_{D1} = ⅔S_{M1}$	0.207g
	Table 1613.2.5(1)	Seismic Design Category (Short Period), Occupancy I to III	C
	Table 1613.2.5(1)	Seismic Design Category (Short Period), Occupancy IV	D
	Table 1613.2.5(2)	Seismic Design Category (1-Sec Period), Occupancy I to IV	D

*Based on the online calculator available at https://earthquake.usgs.gov/ws/designmaps/

Earthquake Induced Liquefaction, Settlement, and Surface Rupture Potential

Liquefaction is the sudden loss of soil shear strength and sudden increase in porewater pressure caused by shear strains, as could result from an earthquake. Research has shown that saturated, loose to medium-dense sands with a silt content less than about 25 percent and located within the top 40 feet are most susceptible to liquefaction and surface rupture/lateral spreading.

Due to the absence of a permanently elevated groundwater table, the relatively low seismicity of the area and the relatively shallow depth to bedrock, the potential for seismically induced damage due to liquefaction, surface ruptures, and settlement is considered low. For the above-mentioned reasons mitigation for these potential hazards is not considered necessary for the development of this project.

Static and Seismically Induced Slope Instability

The existing slopes on the project site were observed to have adequate vegetation on the slope face, appropriate drainage away from the slope face, and no apparent tension cracks or slump blocks in the slope face or at the head of the slope. No other indications of slope instability such as seeps or springs were observed. Additionally, due to the absence of a permanently elevated groundwater table, the relatively low seismicity of the area, and the relatively shallow depth to bedrock, the potential for seismically induced slope instability for the existing slopes is considered low.

4.0 DISCUSSION AND CONCLUSIONS

Based upon the results of our field observations, findings, and analysis described above, it is our opinion that construction of the proposed improvements is feasible from a geotechnical standpoint, provided the recommendations contained in this report are incorporated into the design plans, specifications, and implemented during construction. The native soils, once processed and compacted as recommended below, may be considered “engineered” and suitable for support of the planned improvements.

Geotechnical Considerations for Development

The project site is generally comprised of a thin layer of soils over shallow bedrock, which is considered suitable for support of the proposed improvements. Generally, issues associated with development on similar sites are associated with the excavation of shallow bedrock and the presence of seepage at the soil to rock contact. Sites on slopes, such as those present at the project site, are generally developed by building a larger pad with a slope or supporting retaining wall, or a combination of both methods. Additionally, buildings spanning across transition lines (e.g., bedrock to soil, or native soils to engineered fills) may be more prone to differential settlements compared to sites built on relatively flat lots.

Based on the Reference 2 plans, it appears that the proposed building will likely be supported by native soils, bedrock, and/or engineered fills on the order of 10 feet. For these conditions, we have included the comments below. The preliminary geotechnical recommendations for this project are presented in the following sections.

- This report includes a recommendation for compaction of engineered fills to 95 percent and a minimum of 18 or 24 inches of embedment for foundations to reduce the potential for differential settlement.
- Buildings constructed on naturally sloping terrain and with shallow bedrock conditions may be more subject to seepage and poor drainage. Special attention should be given to configuring the landscaping to drain away from the foundation and how underground utilities are configured to prevent water migrating through the trench becoming impounded against the foundation. The installation of a subdrain and back of wall drains should be used to provide increased protection against unwanted water conditions.

- Due to the strength of bedrock, it may be difficult to excavate utilities. Consideration may be given to pre-excavating utility alignments during the building pad grading when larger equipment could be used and there is more site access. Some sites with similar shallow rock conditions are developed by overexcavating the rock approximately 2 feet from finish grade during grading to improve foundation excavations, landscape performance, and later utility installations.

5.0 SITE GRADING AND EARTHWORK IMPROVEMENTS

Site Preparation

Preparation of the project site should involve site drainage controls, dust control, clearing and stripping, overexcavation and recompaction of loose native soils, and exposed grade compaction considerations. The following paragraphs state our geotechnical comments and recommendations concerning site preparation.

Site Drainage Controls

We recommend that initial site preparation involve intercepting and diverting any potential sources of surface or near-surface water within the construction zones. Because the selection of an appropriate drainage system will depend on the water quantity, season, weather conditions, construction sequence, and methods used by the contractor, final decisions regarding drainage systems are best made in the field at the time of construction. All drainage and/or water diversion performed for the site should be in accordance with the Clean Water Act and applicable Storm Water Pollution Prevention Plan.

Dust Control

Dust control provisions should be provided for as required by the local jurisdiction's grading ordinance (i.e., water truck or other adequate water supply during grading). Dust control is the purview of the grading contractor. Additionally, dust control should adhere to the project's Asbestos Dust Mitigation Plan.

Clearing and Stripping of Organic Materials

Clearing and stripping operations should include the removal of all organic laden materials including trees, bushes, root balls, root systems, and any soft or loose soil generated by the removal operations. Short or mowed dry grasses may be pulverized and lost within fill materials provided no concentrated pockets of organics result. It is the responsibility of the grading contractor to remove excess organics from the fill materials. **No more than 2 percent of organic material, by weight, should be allowed within the fill materials at any given location.** Preserved trees may require tree root protection which should be addressed on an individual basis by a qualified arborist.

A representative of our firm should be present during site clearing operations to identify the location and depth of potential fills or loose soils, some of which may be present at the site. We should also be present to observe removal of deleterious materials, and to identify any existing site conditions which may require mitigation or further recommendations prior to site development.

Expansive Soil Mitigation

If expansive soils are encountered, these soils should be mixed thoroughly with less expansive on-site materials (silts, sands, and gravels) and should not be present in concentration within 5 feet of the building envelope, either vertically or laterally. Proper disposition of clays on site should be documented by a representative of Youngdahl Consulting Group, Inc. Any final determination of mitigation measures should be based on the conditions observed during grading.

Overexcavation and Recompaction of Loose Native Soils
Following general site clearing, all/any existing loose or saturated native soils within the development footprint should be overexcavated down to firm native materials and backfilled with engineered fill as detailed in the engineered fill section below. Any depressions extending below final grade resulting from the removal of fill materials or other deleterious materials should be properly prepared as discussed below and backfilled with engineered fill.

Exposed Grade Compaction
Exposed soil grades following initial site preparation activities and overexcavation operations should be scarified to a minimum depth of 8 inches and compacted to the requirements for engineered fill. Generally, where rock conditions are exposed, no scarification should be necessary; however, these surfaces should be moisture conditioned and compacted to mitigate disturbance resulting from site preparation. Prior to placing fill, the exposed grades should be in a firm and unyielding state. Any localized zones of soft or pumping soils observed within the exposed grade should either be scarified and recompacted or be overexcavated and replaced with engineered fill as detailed in the engineered fill section below.

Soil Moisture Considerations
The compaction of soil to a desired relative compaction is dependent on conditioning the soil to a target range of moisture content. Moisture contents that are excessively dry or wet could limit the ability of the contractor to compact soils to the requirements for engineered fill. When dry, moisture should be added to the soil and the soils blended to improve consistency. Wet soil will need to be dried to become compactable. Generally, this includes blending and working the soil to avoid trapping moisture below a dryer surficial crust. Other options are available to reduce the time involved but typically have higher costs and require more evaluation prior to implementation.

The largest contributor to excessive soil moisture is generally precipitation and seepage during the rainy season. In recognition of this, we suggest that consideration be given to the seasonal limitations and costs of winter grading operations on the site. Special attention should be given regarding the drainage of the project site. If the project is expected to work through the wet season, the contractor should install appropriate temporary drainage systems at the construction site and should minimize traffic over exposed subgrades due to the moisture-sensitive nature of the on-site soils. During wet weather operations, the soil should be graded to drain and should be sealed by rubber tire rolling to minimize water infiltration.

Excavation Characteristics
The uppermost site soils are anticipated to be excavatable with conventional earthwork equipment, such as a backhoe or mini-excavator. Excavations will become increasingly difficult with depth due to the underlying bedrock condition and can limit production of backhoes and smaller dozers. Sites with similar subsurface conditions generally resort to using mid-size excavators and larger dozers with single shank rippers.

Where hard rock cuts in fractured rock are proposed, the orientation and direction of excavation/ripping will likely play a large role in the rippability of the material. Blasting cannot be ruled out in areas of resistant rock. When hard rock is encountered, we should be contacted to provide additional recommendations prior to performing an alternative such as blasting. Water inflow into any excavation approaching the hard rock surface is likely to be experienced in all but the driest summer and fall months.

Site Drainage Controls
We recommend that initial site preparation involve intercepting and diverting any potential sources of surface or near-surface water within the construction zones. Because the selection of an appropriate drainage system will depend on the water quantity, season, weather conditions, construction sequence, and methods used by the contractor, final decisions regarding drainage systems are best made in the field at the time of construction. All drainage and/or water diversion performed for the site should be in accordance with the Clean Water Act and applicable Storm Water Pollution Prevention Plan.

Engineered Fill Criteria
All materials placed as fills on the site should be placed as “Engineered Fill" which is observed, tested, and compacted as described in the following paragraphs.

Suitability of Onsite Materials
We expect that soil generated from excavations on the site, excluding deleterious material, may be used as engineered fill provided the material does not exceed 8 inches in maximum dimension. Any expansive soils should be thoroughly blended with non-expansive material prior to use as engineered fill. The contractor should either dispose of the excess oversized materials to an offsite location or mechanically reduce the rock to less than 8 inches. The soil/rock mixture should be thoroughly mixed so as to preclude nesting or the formation of voids.

Fill Placement and Compaction
Engineered fills should be placed in thin horizontal lifts not to exceed 8 inches in uncompacted thickness. If the contractor can achieve the recommended relative compaction using thicker lifts, the method may be judged acceptable based on field verification by a representative of our firm using standard density testing procedures. Lightweight compaction equipment may require thinner lifts to achieve the recommended relative compaction. Fills should have a maximum particle size of 8 inches unless approved by our firm.

The relative compaction of engineered fills is based on the maximum density and optimum moisture determined through the ASTM D1557 test method. We have considered the potential for differential settlement for this site and recommend that the engineered fills be placed at a relative compaction of 95 percent. Depending on the moisture condition of the soils, the engineered fills may require moisture conditioning to be within a suitable compaction range.

Our firm should be requested for consultation, observation, and testing for the earthwork operations prior to the placement of any fills. Fill soil compaction should be evaluated by means of in-place density tests performed during fill placement so that adequacy of soil compaction efforts may be determined as earthwork progresses. Should conventional testing methods not be achievable due to high rock content within the fill, a method specification should be provided by our firm at the time of construction.

Import Materials
The recommendations presented in this report are based on the assumption that the import materials will be similar to the materials present at the project site. High quality materials are preferred for import; however, these materials can be more dependent on source availability. Import material should be approved by our firm prior to transporting it to the project site.

Material for this project should consist of a material with the geotechnical characteristics presented below. If these requirements are not met, additional testing and evaluation may be necessary to determine the appropriate design parameters for foundations, pavement, and other improvements.

Table 2: Select Import Criteria

Behavior Property	Reference Document	Recommendation
Direct Shear Strength	ASTM D3080	≥ 32° when compacted
Plasticity Index	ASTM D4318	< 12
Expansion Index	ASTM D4829	≤ 20
Sieve Analysis	ASTM D1140	Not more than 30% Passing the No. 200 sieve
Maximum Aggregate Size	ASTM D1140	< 6"

Slope Configuration and Grading
The project site is proposed to have cuts and fill with a maximum slope orientation of 2H:1V (Horizontal:Vertical). Generally, a cut slope orientation of 2H:1V is considered stable with the material types encountered on the site. A fill slope constructed at the same orientation is considered stable if compacted to the engineered fill recommendations as stated in the recommendations section of this report. All slopes should have appropriate drainage and vegetation measures to minimize erosion of slope soils.

Placement of Fills on Slopes
Placement of fill material on natural slopes should be stabilized by means of keyways and benches. Where the slope of the original ground equals or exceeds 5H:1V, a keyway should be constructed at the base of the fill. The keyway should consist of a trench excavated to a depth of at least 2 feet into firm, competent materials. The keyway trench should be at least 10 feet wide or as designated by our firm based on the conditions at the time of construction. Benches should be cut into the original slope as the filling operation proceeds. Each bench should consist of a level surface excavated at least 6 feet horizontally into firm soils or 4 feet horizontally into rock. The rise between successive benches should not exceed 36 inches. The need for subdrainage should be evaluated at the time of construction. Refer to Figure B-1 in Appendix B for typical keyway and bench construction.

Slope Face Compaction
All slope fills should be laterally overbuilt and cut back such that the required compaction is achieved at the proposed finish slope face. As a less preferable alternative, the slope face could be track walked or compacted with a wheel. If this second alternative is used, additional slope maintenance may be necessary.

Slope Drainage
Surface drainage should not be allowed to flow uncontrolled over any slope face. Adequate surface drainage control should be designed by the project civil engineer in accordance with the latest applicable edition of the CBC. All slopes should have appropriate drainage and vegetation measures to minimize erosion of slope soils.

6.0 PRELIMINARY DESIGN RECOMMENDATIONS
The contents of this section include recommendations for foundations, slabs-on-grade, retaining walls, pavements, and drainage.

Shallow Conventional Foundations
Shallow conventional foundation systems are considered suitable for construction of the planned improvements, provided that the site is prepared in accordance with the recommendations discussed in Section 5.0 of this report.

The provided values do not constitute a structural design of foundations which should be performed by the structural engineer. In addition to the provided recommendations, foundation design and construction should conform to applicable sections of the 2022 California Building Code.

Foundation Capacities
The preliminary foundation bearing and lateral capacities are presented in the table below. The allowable bearing capacity is for support of dead plus live loads based on the foundation configuration presented in this report. The allowable capacity may be increased by 1/3 for short-term wind and seismic loads. Lateral forces on structures may be resisted by passive pressure acting against the sides of shallow footings and/or friction between the foundation bearing material and the bottom of the footing. Section 1806.3 of the 2022 CBC allows for the combination of the friction factor and passive resistance value to lateral resistance. Consideration should be given to ignoring passive resistance where soils could be disturbed later or within 6 feet horizontally of the slope face.

Table 3: Foundation Capacities

Soil Type	Design Condition	Design Value	Applied Factor of Safety
Engineered Fill or Firm Native Soil	Allowable Bearing Capacity	2,000 psf	3.0
	Allowable Friction Factor*	0.25	1.5
	Allowable Passive Resistance	150 psf/ft	1.5
Bedrock	Allowable Bearing Capacity	4,000 psf	3.0
	Allowable Friction Factor*	0.50	1.5
	Allowable Passive Resistance	400 psf/ft	1.5
* Friction Factor is calculated as tan(ϕ)			

Preliminary Foundation Configuration
Conventional shallow foundations should be a minimum of 12 inches wide and founded a minimum of 18 inches below the lowest adjacent soil grade for single-story structures. Foundations should be a minimum of 18 inches wide and founded a minimum of 24 inches below the lowest adjacent soil grade for three- and four-story structures. Isolated pad foundations should be a minimum of 24 inches in plan dimension.

Foundation reinforcement should be provided by the structural engineer. The reinforcement schedule should account for typical construction issues such as load consideration, concrete cracking, and the presence of isolated irregularities. At a minimum, we recommend that continuous footing foundations be reinforced with four No. 4 reinforcing bars, two located near the bottom of the footing and two near the top of the stem wall.

Slab-on-Grade Construction
It is our opinion that soil-supported slab-on-grade floors could be used for the main floor of the structures, contingent on proper subgrade preparation. Often the geotechnical issues regarding the use of slab-on-grade floors include proper soil support and subgrade preparation, proper

transfer of loads through the slab underlayment materials to the subgrade soils, and the anticipated presence or absence of moisture at or above the subgrade level. We offer the following comments and recommendations concerning support of slab-on-grade floors. The slab design (concrete mix design, curing procedures, reinforcement, joint spacing, moisture protection, and underlayment materials) is the purview of the project Structural Engineer.

Slab Subgrade Preparation

All subgrades proposed to support slab-on-grade floors should be prepared and compacted to the requirements of engineered fill as discussed in Section 5.0 of this report.

Slab Underlayment

As a minimum for slab support conditions, the slab should be underlain by a minimum 4-inch-thick crushed rock layer that is covered by a minimum 10-mil thick moisture retarding plastic membrane. The membrane may only be functional when it is above the vapor sources. The bottom of the crushed rock layer should be above the exterior grade to act as a capillary break and not a reservoir, unless it is provided with an underdrain system. The slab design and underlayment should be in accordance with ASTM E1643 and E1745.

An optional 1-inch blotter sand layer placed above the plastic membrane, is sometimes used to aid in curing of the concrete. Although historically common, this blotter layer is not currently included in slabs designed according to the 2022 Green Building Code. When omitted, special wet curing procedures will be necessary. If installed, the blotter layer can become a reservoir for excessive moisture if inclement weather occurs prior to pouring the slab, excessive water collects in it from the concrete pour, or an external source of water enters above or bypasses the membrane.

Our experience has shown that vapor transmission through concrete is controlled through proper concrete mix design. As such, proper control of moisture vapor transmission should be considered in the design of the slab as provided by the project architect, structural or civil engineer. It should be noted that placement of the recommended plastic membrane, proper mix design, and proper slab underlayment and detailing per ASTM E1643 and E1745 will not provide a waterproof condition. If a waterproof condition is desired, we recommend that a waterproofing expert be consulted for slab design.

Slab Thickness and Reinforcement

Geotechnical reports have historically provided minimums for slab thickness and reinforcement for general crack control. The concrete mix design and construction practices can additionally have a large impact on concrete crack control. All concrete should be anticipated to crack. As such, these minimums should not be considered to be standalone items to address crack control, but are suggested to be considered in the slab design methodology.

In order to help control the growth of cracks in interior concrete from becoming significant, we suggest the following minimums. Interior concrete slabs-on-grade not subject to heavy loads, should be a minimum of 4-inches thick and reinforced. A minimum of No. 3 deformed reinforcing bars placed at 24 inches on center both ways, at the center of the structural section is suggested. Joint spacing should be provided by the structural engineer. Troweled joints recovered with paste during finishing or “wet sawn” joints should be considered every 10 feet on center. Expansion joint felt should be provided to separate floating slabs from foundations and at least at every third joint. Cracks will tend to occur at recurrent corners, curved or triangular areas and at points of fixity. Trim bars can be utilized at right angle to the predicted crack extending 40 bar diameters past the predicted crack on each side.

Vertical Deflections
Soil-supported slab-on-grade floors can deflect downward when vertical loads are applied, due to elastic compression of the subgrade. For preliminary design of concrete floors, a modulus of subgrade reaction of k = 150 psi per inch would be applicable for engineered fills.

Exterior Flatwork
Exterior concrete flatwork is recommended to have a 4-inch-thick rock cushion. This could consist of vibroplate compacted crushed rock or compacted ¾-inch aggregate baserock. If exterior flatwork concrete is against the floor slab edge without a moisture separator it may transfer moisture to the floor slab. Expansion joint felt should be provided to separate exterior flatwork from foundations and at least at every third joint. Contraction / groove joints should be provided to a depth of at least 1/4 of the slab thickness and at a spacing of less than 30 times the slab thickness for unreinforced flatwork, dividing the slab into nearly square sections. Cracks will tend to occur at recurrent corners, curved or triangular areas and at points of fixity. Trim bars can be utilized at right angle to the predicted crack extending 40 bar diameters past the predicted crack on each side.

Retaining Walls
Our design recommendations and comments regarding retaining walls for the project site is based on presumptive building code values addressed in Section 1610 of the California Building Code. *Retaining wall foundations should be designed in accordance with the Shallow Conventional Foundations section above.*

Retaining Wall Lateral Pressures
Based on our observations and testing, the retaining wall should be designed to resist lateral pressure exerted from a soil media having an equivalent fluid weight provided in the table below. The values presented below are not factored and are for conditions when firm native soil or engineered fill is used within the zone behind the wall defined as twice the height of the retaining wall. Additionally, the values do not account for the friction of the backfill on the retaining wall which may or may not be present depending on the wall materials and construction.

Table 4: Retaining Wall Pressures

Wall Type	Wall Slope Configuration	Equivalent Fluid Weight (pcf)
Free Cantilever	Flat	45
Restrained	Flat	100

* The surcharge loads should be applied as uniform loads over the full height of the walls as follows: Surcharge Load (psf) = (q) (K), where q = surcharge in psf, and K = coefficient of lateral pressure. Final design is the purview of the project structural engineer.

Wall Drainage
The criteria presented above is based on fully drained conditions as detailed in the attached Figure B-2, Appendix B. For these conditions, we recommend that a blanket of filter material be placed behind all proposed walls. Permeable materials are specified in Section 68 of the California Department of Transportation Standard Specifications, current edition. The filter material should conform to Class 1, Type B permeable material in combination with a filter fabric to separate the open graded gravel/rock from the surrounding soils. Generally, a clean ¾ inch crushed rock should be acceptable. Consistent with Caltrans Standards, when Class 2 permeable materials are used, the filter fabric may be omitted unless otherwise designed.

The blanket of filter material should be a minimum of 12-inches thick and should extend from the bottom of the wall to within 12 inches of the ground surface. The top 12 inches of wall backfill should consist of a compacted soil cap. A filter fabric having specifications equal to or greater than those for Mirafi 140N should be placed between the gravel filter material and the surrounding soils to reduce the potential for infiltration of soil into the gravel. A 4-inch diameter drain pipe should be installed near the bottom of the filter blanket with perforations facing down. The drainpipe should be underlain by at least 4 inches of filter-type material. An adequate gradient should be provided along the top of the foundation to discharge water that collects behind the retaining wall to a controlled discharge system.

The configuration of a long retaining wall generally does not allow for a positive drainage gradient within the perforated drain pipe behind the wall since the wall footing is generally flat with no gradient for drainage. Where this condition is present, to maintain a positive drainage behind the walls, we recommend that the wall drains be provided with a discharge to an appropriate non-erosive outlet a maximum of 50 feet on center. **In addition, if the wall drain outlets are temporarily stubbed out in front of the walls for future connection during building construction, it is imperative that the outlets be routed into the tight pipe area drainage system and not buried and rendered ineffective.**

Asphalt Concrete Pavement Design

We understand that asphalt pavements will be used for the associated roadways. The following comments and recommendations are given for pavement design and construction purposes. All pavement construction and materials used should conform to applicable sections of the latest edition of the California Department of Transportation Standard Specifications.

Relative Compaction

The asphalt concrete pavement section should be constructed to achieve the minimum relative compactions specified in Section 5.0 of this report. Deviation from the following values should be reviewed by the governing agency when the pavements are to be constructed within their right-of-way.

Subgrade Stability

All subgrades and aggregate base should be proof-rolled with a full water truck or equivalent immediately before paving, in order to evaluate their condition. If unstable subgrade conditions are observed, these areas should be overexcavated down to firm materials and the resulting excavation backfilled with suitable materials for compaction (i.e., drier native soils or aggregate base). Areas displaying significant instability may require geotextile stabilization fabric within the overexcavated area, followed by placement of aggregate base. Final determination of any required overexcavation depth and stabilization fabric should be based on the conditions observed during subgrade preparation.

Subgrade Resistance Value

Critical features that govern the durability of a pavement section include the stability of the subgrade; the presence or absence of moisture, free water, and organics; the fines content of the subgrade soils; the traffic volume; and the frequency of use by heavy vehicles. Soil conditions can be defined by a soil resistance value, or “R-Value,” and traffic conditions can be defined by a Traffic Index (TI). An R-Value test is not included in our scope of work for this project. Based on our experience in the area, R-values for the region generally range from 10 to 45. For the purposes of this report, we assume an R-Value of 27.

Proper surface and landscape drainage design is integral in performance of adjacent street sections with respect to stability and degradation of the asphalt. Due to the redistribution of materials that occurs during grading operations, we should review pavement subgrades to determine the appropriateness of the provided sections, and provide additional pavement design recommendations as field conditions dictate.

Section Thickness

The recommended design thicknesses presented in the following table were calculated in accordance with the methods presented in the Sixth Edition of the California Department of Transportation Highway Design Manual. A varying range of traffic indices are provided for use by the project Civil Engineer for roadway design.

Table 5: Asphalt Pavement Section Recommendations

Design Traffic Indices	Alternative Pavement Sections (Inches)	
	Asphalt Concrete *	Aggregate Base **
4.0	2.0 2.5	6.0 4.5
4.5	2.5 3.0	6.0 5.0
5.0	2.5 3.0	7.0 6.0
5.5	3.0 3.5	7.5 6.5
6.0	3.0 3.5	9.0 8.0
6.5	3.5 4.0	9.5 8.5
7.0	4.0 4.5	10.5 9.5
7.5	4.5 5.0	11.0 10.0
8.0	4.5 5.0	12.5 11.5

* Asphalt Concrete: must meet specifications for Caltrans Hot Mix Asphalt Concrete
** Aggregate Base: must meet specifications for Caltrans Class II Aggregate Base (R-Value = minimum 78)

Drainage

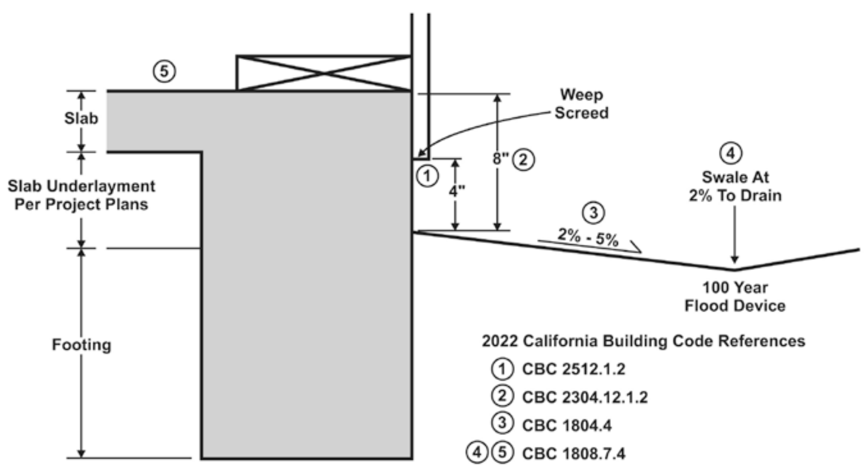
In order to maintain the engineering strength characteristics of the soil presented for use in this report, maintenance of the site will need to be performed. This maintenance generally includes, but is not limited to, proper drainage and control of surface and subsurface water which could affect structural support and fill integrity. A difficulty exists in determining which areas are prone to the negative impacts resulting from high moisture conditions due to the diverse nature of potential sources of water; some of which are outlined in the paragraph below. We suggest that measures be installed to minimize exposure to the adverse effects of moisture, but this will not guarantee that excessive moisture conditions will not affect the structure.

Some of the diverse sources of moisture could include water from landscape irrigation, annual rainfall, offsite construction activities, runoff from impermeable surfaces, collected and channeled water, and water perched in the subsurface soils. Some of these sources can be controlled through drainage features installed either by the owner or contractor. Others may not become evident until they, or the effects of the presence of excessive moisture, are visually observed on the property.

Some measures that can be employed to minimize the buildup of moisture include, but are not limited to proper backfill materials and compaction of utility trenches within the footprint of the proposed structures; grout plugs at foundation penetrations; collection and channeling of drained water from impermeable surfaces (i.e., roofs, concrete or asphalt paved areas); installation of subdrain/cut-off drain provisions; utilization of low flow irrigation systems; proper design and maintenance of landscaping and drainage facilities.

Drainage Adjacent to Buildings

All grades should provide rapid removal of surface water runoff; ponding water should not be allowed on building pads or adjacent to foundations or other structural improvements (during and following construction). All soils placed against foundations during finish grading should be compacted to minimize water infiltration. Finish and landscape grading should include positive drainage away from all foundations. Section 1808.7.4 of the 2022 California Building Code (CBC) states that for graded soil sites, the top of any exterior foundation shall extend above the elevation of the street gutter at the point of discharge or the inlet of an approved drainage device a minimum of 12 inches plus 2 percent. If overland flow is not achieved adjacent to buildings, the drainage device should be designed to accept flows from a 100-year event. Grades directly adjacent to foundations should be no closer than 8 inches from the top of the slab (CBC 2304.12.1.2), and weep screeds are to be placed a minimum of 4 inches clear of soil grades and 2 inches clear of concrete or other hard surfacing (CBC 2512.1.2). From this point, surface grades should slope a minimum of 2 percent away from all foundations for at least 5 feet but preferably 10 feet, and then 2 percent along a drainage swale to the outlet (CBC 1804.4). Downspouts should be tight piped via an area drain network and discharged to an appropriate non-erosive outlet away from all foundations.



Typical 2022 California Building Code
Drainage Requirements

The above referenced elements pertaining to drainage of the proposed structures is provided as general acknowledgement of the California Building Code requirements, restated and graphically illustrated for ease of understanding. Surface drainage design is the purview of the Project Architect/Civil Engineer. Review of drainage design and implementation adjacent to the building envelopes is recommended as performance of these improvements is crucial to the performance of the foundation and construction of rigid improvements.

Subdrainage
Reduction of potential moisture related issues could be addressed by the construction of subdrains in addition to the drainage provisions provided in the 2022 CBC. Typical subdrain construction would include a 3 feet deep trench (or depth required to intercept the bottom of utility trenches) constructed as detailed on Figure B-3, Appendix B. The water collected in the subdrain pipe would be directed to an appropriate non-erosive outlet. We recommend that a representative from our firm be present during the subdrain installation procedures to document that the drain is installed in accordance with the observed field conditions, as well as to provide additional consultation as the conditions dictate.

Post Construction
All drainage related issues may not become known until after construction and landscaping are complete. Therefore, some mitigation measures may be necessary following site development. Landscape watering is typically the largest source of water infiltration into the subgrade. Given the soil conditions on site, excessive or even normal landscape watering could contribute to moisture related problems and/or cause distress to foundations and slabs, pavements, and underground utilities, as well as creating a nuisance where seepage occurs.

7.0 DESIGN REVIEW AND CONSTRUCTION MONITORING

To confirm that the assumptions used in this report are applicable, an evaluation of the subsurface conditions exposed at the site should be performed during construction activities. This evaluation would involve logging of the excavated conditions, obtaining representative samples for laboratory testing (if required) and preparation of a final engineering report confirming the preliminary assumptions used are applicable. Any adjustments to our recommendations would be provided at that time.

Construction Monitoring

Construction monitoring is a continuation of geotechnical engineering to confirm or enhance the findings and recommendations provided in this report. It is essential that our representative be involved with all grading activities in order for us to provide supplemental recommendations as field conditions dictate. Youngdahl Consulting Group, Inc. should be notified at least two working days before site clearing or grading operations commence, and should observe the stripping of deleterious material, overexcavation of soft soils and existing fills (if present), and provide consultation, observation, and testing services to the grading contractor in the field. At a minimum, Youngdahl Consulting Group, Inc. should be retained to provide services listed in Table 6 below.

The recommendations included in this report have been based in part on assumptions about strata variations that may be tested only during earthwork. Accordingly, these recommendations should not be applied in the field unless Youngdahl Consulting Group, Inc. is retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method. Youngdahl Consulting Group, Inc. cannot assume responsibility or liability for the adequacy of its recommendations when they are used in the field without Youngdahl Consulting Group, Inc. being retained to observe construction.

Post Construction Drainage Monitoring

Due to the elusive nature of subsurface water, the alteration of water features for development, and the introduction of new water sources, all drainage related issues may not become known until after construction and landscaping are complete. Youngdahl Consulting Group, Inc. can provide consultation services upon request that relate to proper design and installation of drainage features during and following site development.

8.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. This report has been prepared for the exclusive use of the addressee of this report for specific application to this project. The addressee may provide their consultants authorized use of this report. Youngdahl Consulting Group, Inc. has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Youngdahl Consulting Group, Inc. makes no other warranty, expressed or implied.

2. As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they be due to natural processes or to the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may cause this report to be invalid, wholly or partially. Therefore, this report should not be relied upon after a period of three years without our review nor should it be used or is it applicable for any properties other than those studied.

3. Section [A] 107.3.4 of the 2022 California Building Code states that, in regard to the design professional in responsible charge, the building official shall be notified in writing by the owner if the registered design professional in responsible charge is changed or is unable to continue to perform the duties.

   WARNING: Do not apply any of this report's conclusions or recommendations if the nature, design, or location of the facilities is changed. If changes are contemplated, Youngdahl Consulting Group, Inc. must review them to assess their impact on this report's applicability. Also note that Youngdahl Consulting Group, Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of this report's subsurface data or engineering analyses without the express written authorization of Youngdahl Consulting Group, Inc.

4. The analyses and recommendations contained in this report are based on limited windows into the subsurface conditions and data obtained from subsurface exploration. The methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. Should any variations or undesirable conditions be encountered during the development of the site, Youngdahl Consulting Group, Inc. will provide supplemental recommendations as dictated by the field conditions.

Table 6: Checklist of Recommended Services

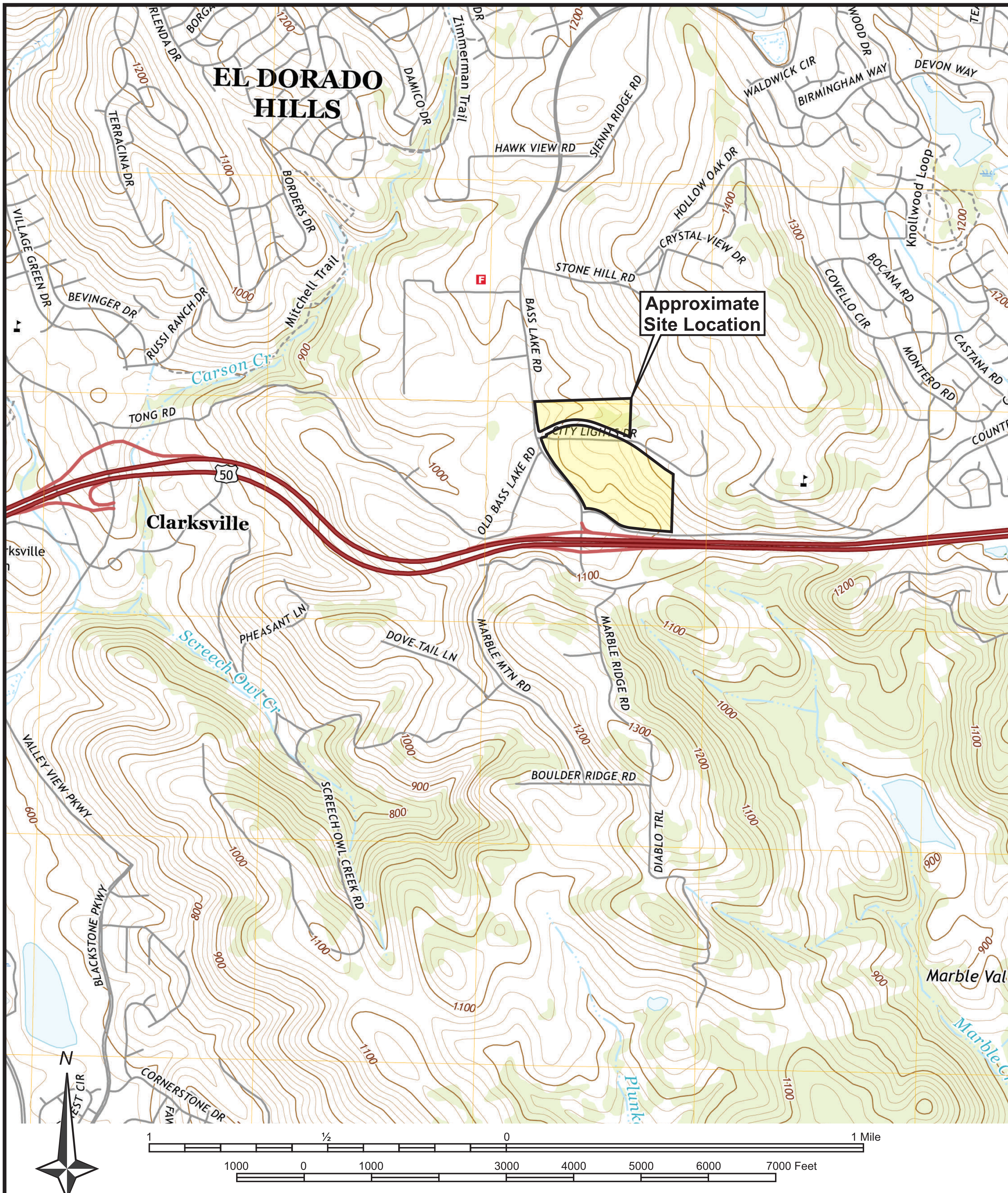
Item Description		Recommended	Not Anticipated
1	Provide foundation design parameters	Included	
2	Review grading plans and specifications	✓	
3	Review foundation plans and specifications	✓	
4	Observe and provide recommendations regarding demolition		✓
5	Observe and provide recommendations regarding site stripping	✓	
6	Observe and provide recommendations on moisture conditioning removal, and/or recompaction of unsuitable existing soils	✓	
7	Observe and provide recommendations on the installation of subdrain facilities	✓	
8	Observe and provide testing services on fill areas and/or imported fill materials	✓	
9	Review as-graded plans and provide additional foundation recommendations, if necessary	✓	
10	Observe and provide compaction tests on storm drains, water lines and utility trenches		✓
11	Observe foundation excavations and provide supplemental recommendations, if necessary, prior to placing concrete	✓	
12	Observe and provide moisture conditioning recommendations for foundation areas and slab-on-grade areas prior to placing concrete		✓
13	Provide design parameters for retaining walls	Included	
14	Observe the installation of retaining wall drains	✓	
15	Provide finish grading and drainage recommendations	Included	
16	Provide geologic observations and recommendations for keyway excavations and cut slopes during grading	✓	
17	Excavate and recompact all test pits within structural areas		✓

APPENDIX A

Field Study

Vicinity Map

Site Plan



Scale: 1:24,000

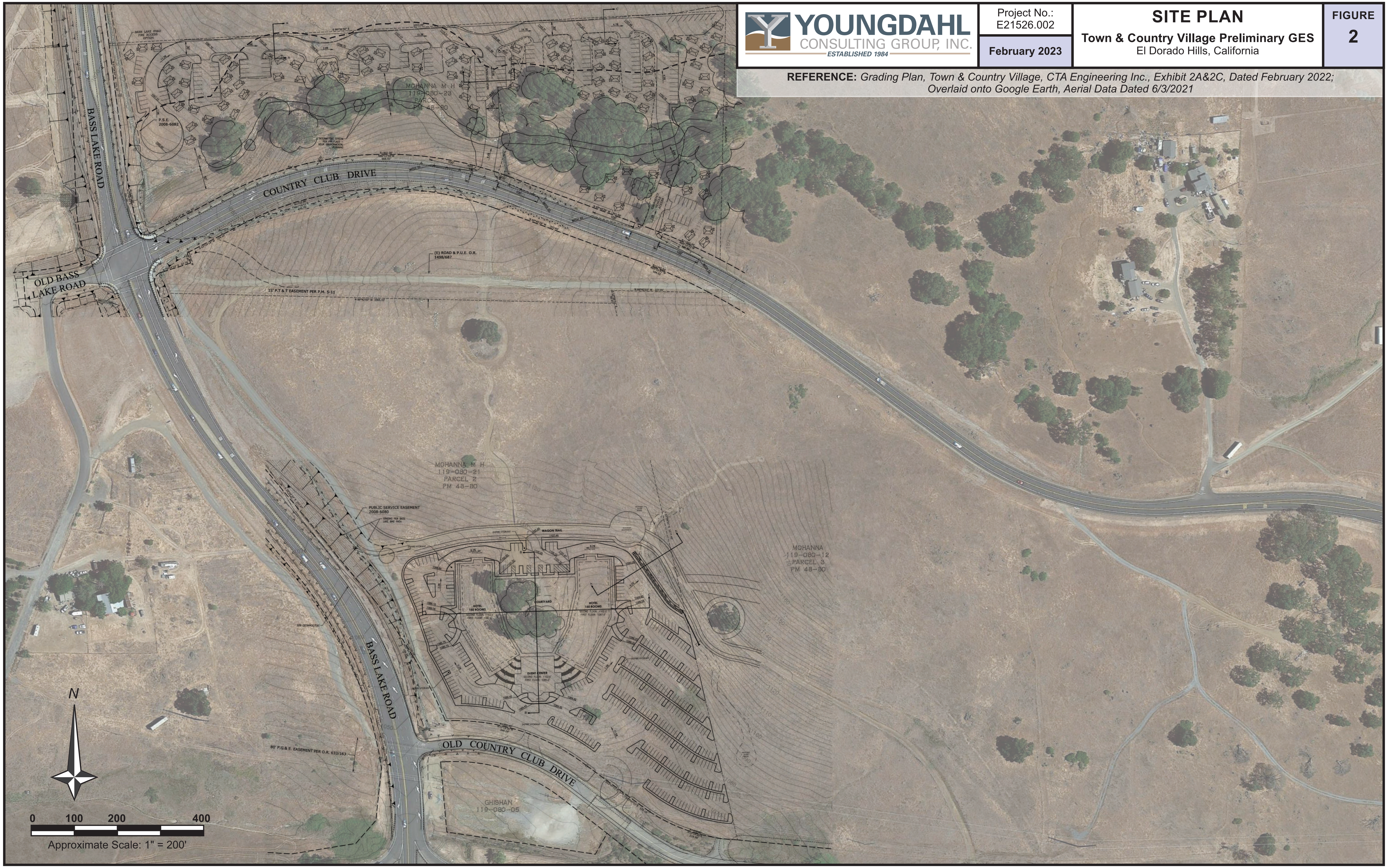
BASE MAP REFERENCE: *U.S.G.S. 7.5 Minute Topographic Series, Clarksville Quadrangle, Dated 2018*

YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.002	**VICINITY MAP**	**FIGURE**
	February 2023	**Town & Country Village Preliminary GES** El Dorado Hills, California	**1**

YOUNGDAHL
CONSULTING GROUP, INC.
ESTABLISHED 1984

Project No.:	SITE PLAN	FIGURE
E21526.002	**Town & Country Village Preliminary GES**	2
February 2023	El Dorado Hills, California	

REFERENCE: *Grading Plan, Town & Country Village, CTA Engineering Inc., Exhibit 2A&2C, Dated February 2022; Overlaid onto Google Earth, Aerial Data Dated 6/3/2021*

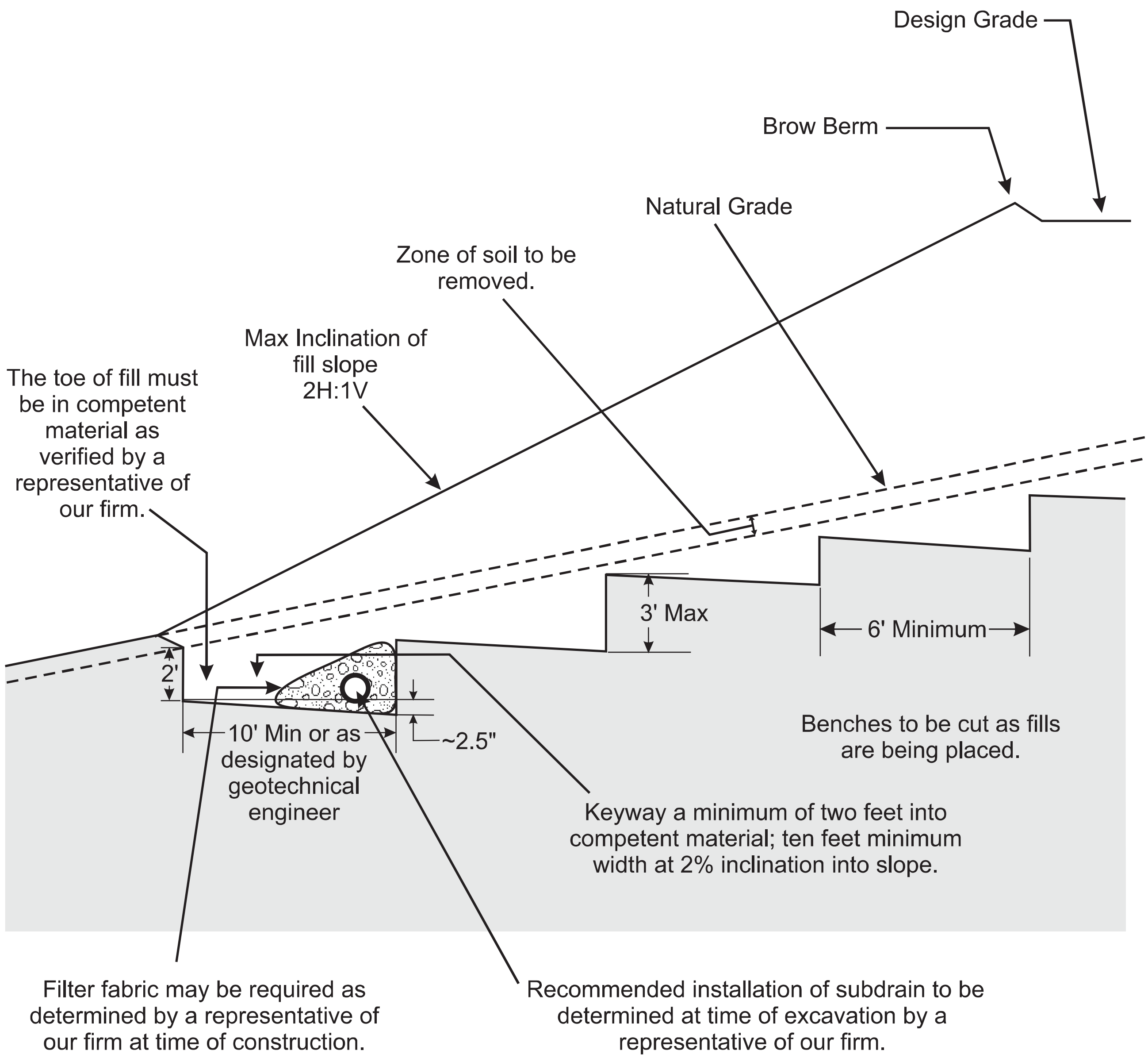


APPENDIX B
Details

Keyway and Bench with Drain
Site Wall Drainage
Subdrain

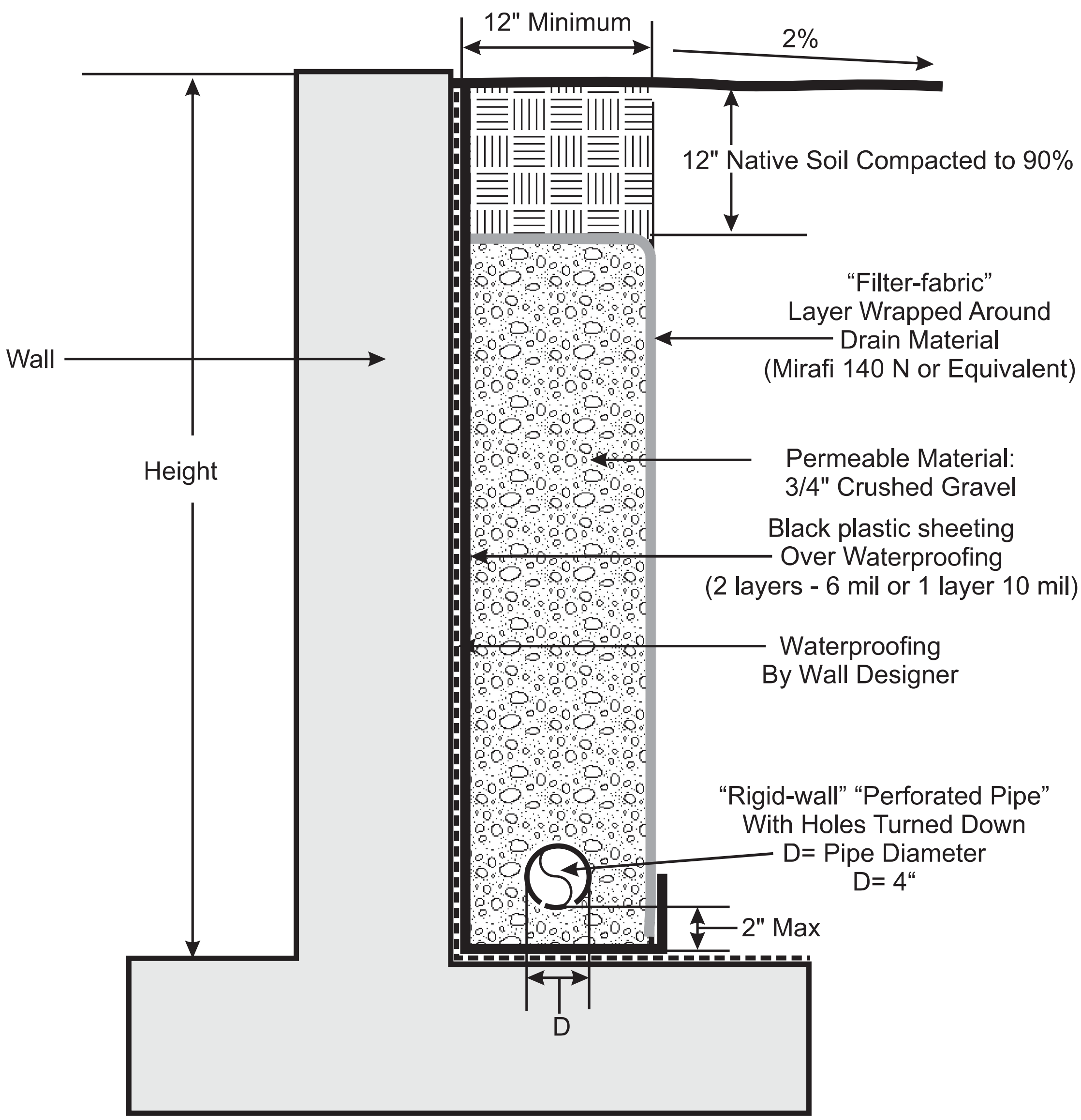
PLACEMENT OF FILL ON NATURAL SLOPE
(Typical)

All keyways should be observed and approved prior to placement of fill.
A keyway is required by CBC for fills on natural slopes of 5H:1V or steeper.



Retaining Wall With "Perforated Pipe Sub-Drain"

(Typical Cross Section)

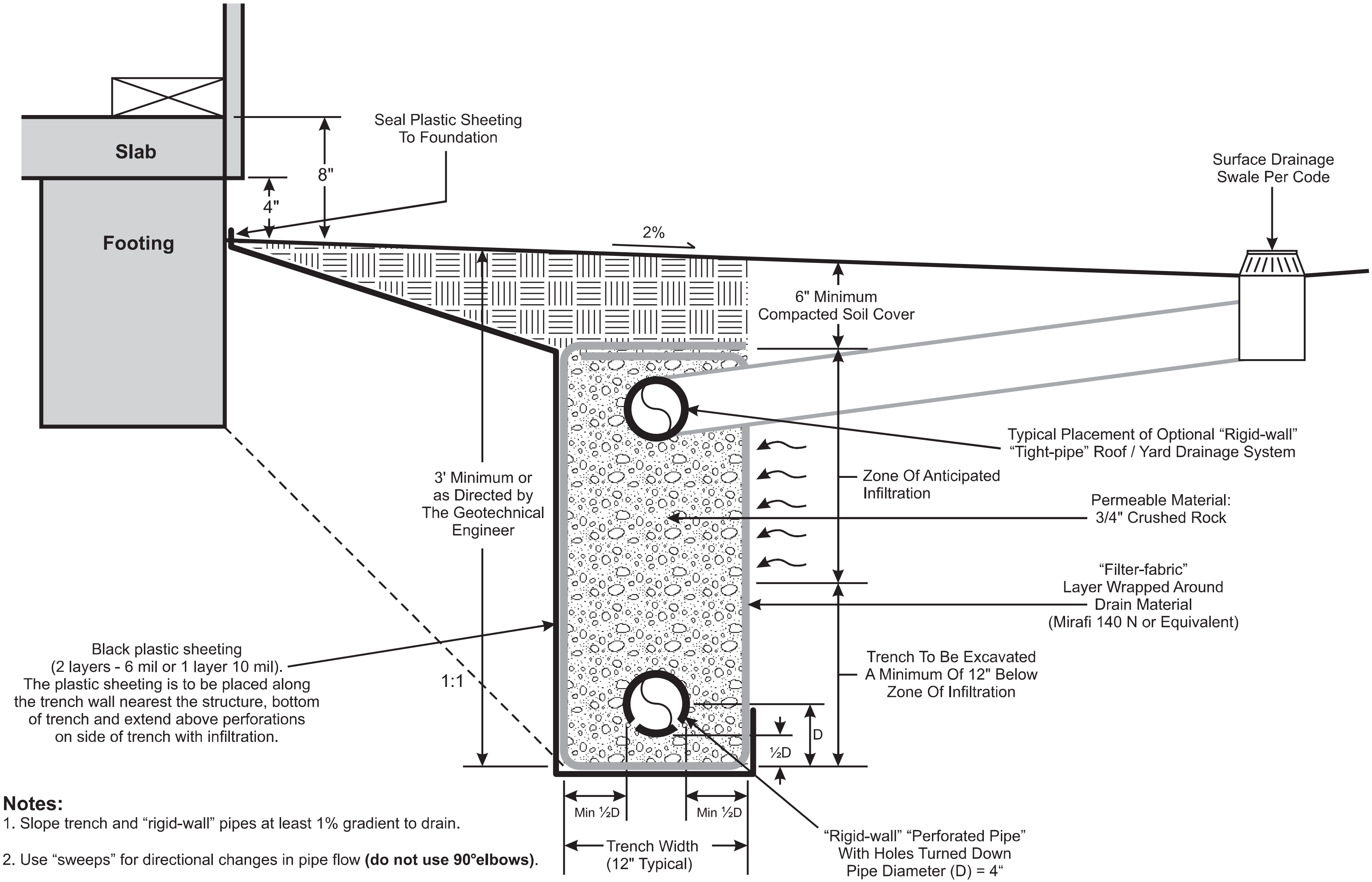


Notes:

1. Slope footing and "rigid-wall" pipes along flow line parallel to wall at least 1% gradient to drain to an appropriate outfall area away from residence.
2. Use "sweeps" for directional changes in pipe flow **(do not use 90°elbows)**.
3. Provide periodic "clean-outs".
4. Washed clean permeable material.

Not To Scale

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E21526.002 **February 2023**	**RETAINING WALL DRAIN DETAIL** **The Town and Country Village GES** El Dorado Hills, California	**FIGURE** **B-2**



Notes:

1. Slope trench and "rigid-wall" pipes at least 1% gradient to drain.
2. Use "sweeps" for directional changes in pipe flow **(do not use 90°elbows)**.
3. Provide sweeps to periodic "clean-outs".
4. Washed clean permeable material.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E21526.002 **February 2023**	**SUB-DRAIN DETAIL** **The Town and Country Village GES** El Dorado Hills, California	**FIGURE** **B-3**

Cap Funding – The Mohanna
1025 9th Street, Ste. 205
Sacramento, CA 95814

Project No. E21526.000
30 December 2021

Attention: Mr. Josh Pane

Subject: **TOWN AND COUNTRY VILLAGE, EL DORADO**
Bass Lake Road and Country Club Drive, El Dorado Hills
Preliminary Onsite Wastewater Treatment Feasibility Study

References:
1) Standards for the Site Evaluation, Design and Construction of Onsite Wastewater Treatment Systems (OWTS Manual), prepared by El Dorado County Department of Environmental Management, dated 13 May 2018.
2) California Plumbing Code, Appendix H Private Sewage Disposal Systems, California Code of Regulations Title 24, Part 5.
3) Contract for the Town and Country Village between Youngdahl Consulting Group, Inc. and Cap Funding – The Mohana, executed 8 December 2021.

Dear Mr. Pane:
With the authorization of Cap Funding – The Mohanna, Youngdahl Consulting Group, Inc. (Youngdahl) has completed a preliminary feasibility study for onsite wastewater disposal for the planned Town and Country, El Dorado Project. Our scope included:

1) A review of preliminary project conceptual plans;
2) A review of existing soils data and topographic plans;
3) Subsurface exploration;
4) Constraints mapping;
5) Wastewater loading estimates;
6) Estimation of application rates based on observed soils;
7) Estimation of required area for onsite wastewater treatment;
8) Identification of potential areas to use of onsite wastewater treatment; and
9) Recommendations for further feasibility assessment.

1.0 EXECUTIVE SUMMARY

The Town & Country Village El Dorado is planned to include two 150-room hotels each with a restaurant, an event center, and up to 97 hotel staff residences and a guest cottages camp. The hotels, restaurants, and events center are estimated to generate approximately 31,900 gallons of wastewater per day. The cottages are estimated to generate approximately 33,950 gallons of wastewater per day. Site exploration conditions using a backhoe were precluded by saturated ground conditions, so an electrically powered auger was used to observe near surface soil types for which an absorption rate of 2½ gallons per day per square-foot was estimated. Significant site constraints such as shallow groundwater, the presence of seasonal drainages and a flowing stream, and rocky outcrops indicative of shallow soil conditions were identified. A minimum of 3.1 acres was estimated to be required for the hotels, restaurants, and events center. A minimum of 1.7 acres was estimated to be required for the cottages. An area 13½ acres in extent on the property might be suitable. We recommend the construction of backhoe test pits and percolation testing when conditions dry sufficiently. Future assessment is likely to result in a substantial increase the sizes of these estimated areas.

2.0 INTRODUCTION

Youngdahl is of the Understanding that Cap Funding – The Mohanna is planning to construct two 150-room hotels with restaurants, an event center, up to 97 hotel staff residences and a guest cottage camp, and other improvements just east of Bass Lake Road, south of Country Club Drive, and north of Old Country Club Drive, in El Dorado Hills, California (Subject Property). Currently, the nearest sewer service capable of handling projected wastewater loadings is approximately 7,000 feet east of the Subject Property. The purpose of this Preliminary Onsite Wastewater Treatment Feasibility Study (Feasibility Study) is to evaluate the feasibility of onsite wastewater treatment for the planned facilities as a temporary solution to managing wastewater until sanitary sewer facilities are constructed closer to the project.

3.0 EXISTING SITE CONDITIONS

The subject properties consist of El Dorado County Assessor Parcel Numbers (APNs) 119-080-021, 119-080-012, and 119-080-023, with the latter parcel traversed west to east by Country Club Drive. The slopes are gently rolling with gradients ranging from nearly flat to a few small areas exceeding 40 percent. The Subject Property is mostly grass covered with several oak trees. There are numerous rock outcrops in the northeastern portion. Seeps were observed. A seasonal creek flows westward through APN 119-080-023, the northernmost property. There are numerous drainage swales present. The Subject Property is accessed through gates on the north and south sides.

According to the Natural Resources Conservation Service Soil Web website, the Subject Property is predominately covered by Auburn very rocky silt loam, 2 to 30 percent slopes, and Auburn silt loam, 2 to 30 percent slopes. Both soils are described as having a soil profile of from 0 to 14 inches as being silt loam and underlain by unweathered bedrock. Both are described as having a capacity to transmit water as being low to moderately low.

4.0 SUBSURFACE EXPLORATION

On 17 December 2021, subsurface conditions were explored using an electrically powered 8-inch diameter soil auger. The use of a backhoe was precluded by saturated soil conditions resulting from recent rains eliminating access. Thirteen borings were constructed. In general soils were found to be either SANDY CLAY LOAM or LOAMY SAND. The depths to auger refusal ranged from 1-foot to 2½ feet. Groundwater was encountered in three borings. These depths are inadequate to explore the vertical constraints for onsite wastewater treatment systems, but are sufficient to allow a classification of near surface soils.

The northern drainage was observed to be flowing, likely due to recent periods of heavy rainfall. Two flowing seeps were observed on APNs 119-080-021and 119-080-012. A wet area was observed on the southern side of APN 119-080-021.

5.0 PRELIMINARY WASTEWATER LOADING ESTIMATES

Wastewater loading for the proposed improvements was estimated using Table 201.1(3) from the 2019 California Plumbing Code (CPC).

<u>150-Room Hotel</u>

The CPC specifies 60 gallons per day of wastewater per bed. If an assumption is made that there are 1¼ beds per room, the estimated loading is 11,250 gallons per day (gpd) per hotel.

<u>Restaurant</u>

For restaurant waste the CPC specifies 7 gpd per customer with toilet waste and 6 gpd for kitchen waste per customer. If there is a cocktail lounge, the CPC lists 2 gpd per customer. If the

Restaurant has 300 customers per day there would be 3,900 gpd of wastewater. If we assume there is a cocktail lounge handling 150 customers per day, there would an additional 300 gpd bringing the total to 4,200 gpd per restaurant.

Event Center
The CPC doesn't present a loading rate for event centers. The closest is for a church with a kitchen at 7 gpd per seat per day. If we assume an event of 250 people, that would equate to 1,750 gallons per day of wastewater. However, events are usually weighted towards weekend occurrences; weekday loading is generally much less. Flow equalization via storage tanks can be used to distribute the flow more evenly over extended periods of time. Therefore, for this loading estimate, we will use a value of 1,000 gpd.

Hotel Staff Residences and Guest Cottages Camp
Up to 97 small cottages are planned for the northern portion of the property. These are planned to be no more than 450 square feet each in size. These are planned to be managed more as hotel staff residences and a guest cottages camp then as regular residences. The OWTS Manual (Reference No. 1) indicates that non-residential flows are to be estimated using the CPC. The CPC lists a loading rate of 50 gpd per person for camps. If two people per cottage are planned, this would equate to a 9,700 gpd net loading.

6.0 ESTIMATED APPLICATION RATES
The shallow soils exposed by the auger include SANDY CLAY LOAM and LOAMY SAND. The OWTS Manual specifies a maximum absorption capacity of 2½ gpd per ft^2 for these kinds of soils.

We were unable to profile deeper soils and/or the weathered bedrock. The deeper soils may have significantly lower absorption capacity.

7.0 ESTIMATED REQUIRED DISPOSAL AREA
The area required for disposal is a function of the daily volume of wastewater, the characteristics of the treatment area, and the technology used for treatment/disposal. In EL Dorado County commercial properties are required to have 300 percent replacement areas. The hotels, restaurants, events center and hotel staff residences and guest cottage camp are considered to be commercial uses.

The total estimated loading for the hotels, restaurants, events center, and hotel staff residences and guest cottages camp is 41,600 gpd. At a 2½ gpd per ft^2 application rate, 16,640 ft^2 of area would be needed. Typical disposal trenches are 3 feet deep by 3 feet wide. If trenches are filled with rock, the application area is the trench sidewall measured from the invert of the distribution pipe to the trench bottom. This equates to 3 ft^2 of sidewall area per lineal foot of trench. If the trenches are filled with polystyrene pellet bundles, the bottom area of the trench can be used increasing the application area to 6 ft^2 per lineal foot. Under this later scenario, 2,774 lineal feet of trenches would be needed.

Individual disposal trenches can be no longer than 100 feet and can be no closer than 10 feet on centers. In practice, it can be difficult to install numerous trenches on 10-foot centers; 12 or more feet is more realistic. Twenty-eight trenches would be needed. With 12-foot spacings and 10-foot setbacks, a minimum of an area approximately 356 feet by 120 feet (0.98 acres) would be required. The 300 percent replacement system requirement increases this to about 3.9 acres. The system should be dispersed into several smaller areas in order to minimize groundwater mounding.

8.0 POTENTIAL ONSITE WASTEWATER TREATMENT AREAS

Borings identified a few potentially suitable areas and several unsuitable areas. Subsurface exploration identified an area underlain by shallow saturated groundwater conditions on the south side of the property. Large areas contain numerous rock outcrops, indicative of shallow rock. Several drainage swales, two seeps, and a seasonally flowing creek were identified. These are all subject to setbacks ranging from 50 to 100 feet. An area approximately 13½ acres in size was identified on the western portion of the property north of the planned commercial development. Selected areas will still require the excavation of soil profile pits to a depth of at least 8 feet and percolation testing to validate them.

9.0 FINDINGS AND RECOMMENDATIONS

The shallow soils on the property are indicative of potentially suitable areas for onsite wastewater treatment and disposal. Saturated soil conditions prevented the use of excavation equipment that would otherwise be needed to evaluate soil and rock conditions to depths of at least 8 feet. The area on the western side of the property and north of the planned commercial development is the most likely suitable area for onsite wastewater treatment/disposal, pending further assessment.

When conditions dry sufficiently, soil profile test pits should be constructed in planned disposal areas and percolation testing of soils to planned trench depths should be performed. The results of this additional study should be used to refine likely onsite wastewater treatment and disposal options for this project.

This study has been performed following standards of practice common to onsite wastewater feasibility and evaluation at the time and geographic vicinity of our study. This is not a design level study. No warranties are expressed or implied. Please do not hesitate contacting us with any questions.

Very truly yours,
Youngdahl Consulting Group, Inc.

CERTIFIED ENGINEERING GEOLOGIST
DAVID C. SEDERQUIST
NO. 2133
EXPIRATION DATE
9-20-22
STATE OF CALIFORNIA

David C. Sederquist

David C. Sederquist, C.E.G., C.HG.
Senior Engineering Geologist/Hydrogeologist

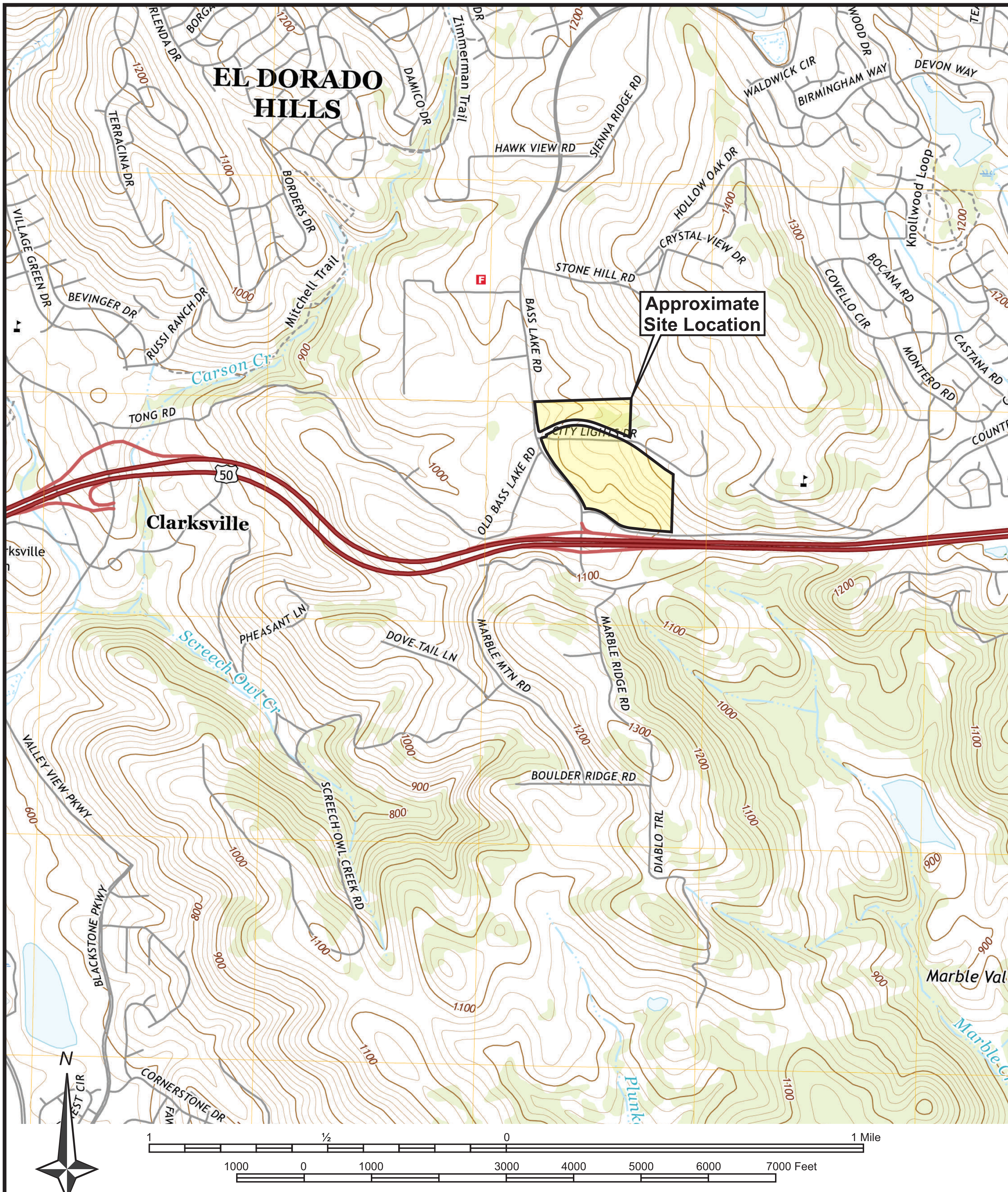
1-6-22

Attachments:
Table 1: Soil Descriptions
Figures 1 – 2

Distribution: One electronic copy to client

Table 1: Soil Descriptions

Boring	Depth	Coordinates (Latitude, Longitude)	Description
TC-1	2’	38.660898, -121.029356	SANDY CLAY LOAM, 7.5YR3/3 Dark Brown
TC-2	1’	38.660958, -121.030608	SANDY CLAY LOAM, 7.5YR3/3 Dark Brown
TC-3	2.5’	38.656232, -121.027046	SANDY CLAY LOAM, 7.5YR3/3 Dark Brown, water at 2’
TC-4	3’	38.656451, -121.027549	SANDY CLAY LOAM, 7.5YR3/3 Dark Brown, water at 2’
TC-5	1.5’	38.656652, -121.028351	SANDY CLAY LOAM, 7.5YR3/3 Dark Brown, less clay content
TC-6	2.5’	38.656822, -121.028842	LOAMY SAND, 7.5YR3/4
TC-7	2’	38.657234, -121.029427	SANDY CLAY LOAM, 7.5YR3/3 Dark Brown
TC-8	1’	38.658192, -121.029478	LOAMY SAND, 7.5YR3/4
TC-9	1’	38.658310, -121.028157	LOAMY SAND, 7.5YR3/4, water at 1’
TC-10	1’	38.657559, -121.026931	LOAMY SAND, 7.5YR3/4, slight clay binder
TC-11	1’	38.657747, -121.025933	LOAMY SAND, 7.5YR3/4, slight clay binder
TC-12	1.5’	38.657177, -121.025674	LOAMY SAND, 7.5YR3/4, slight clay binder
TC-13	2’	38.655968, -121.025479	SANDY CLAY LOAM, 7.5YR3/3 Dark Brown



Scale: 1:24,000

BASE MAP REFERENCE: *U.S.G.S. 7.5 Minute Topographic Series, Clarksville Quadrangle, Dated 2018*

YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.000 December 2021	**VICINITY MAP** **The Town & Country Village El Dorado** El Dorado Hills, California	**FIGURE** **1**

YOUNGDAHL CONSULTING GROUP, INC.
ESTABLISHED 1984

Project No.: E21526.000

December 2021

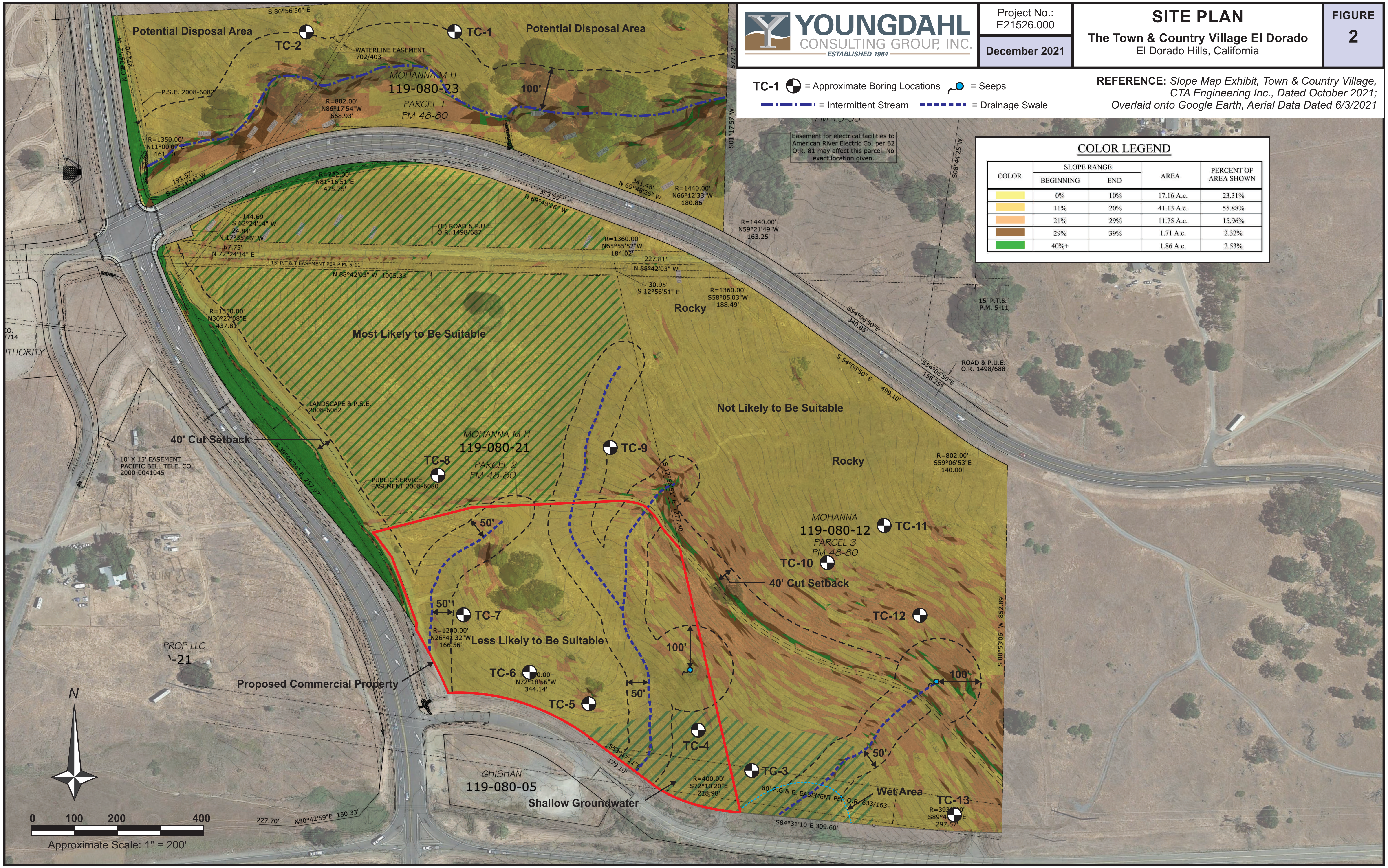
SITE PLAN

The Town & Country Village El Dorado
El Dorado Hills, California

FIGURE 2

TC-1 = Approximate Boring Locations; = Seeps; = Intermittent Stream; = Drainage Swale

REFERENCE: *Slope Map Exhibit, Town & Country Village, CTA Engineering Inc., Dated October 2021; Overlaid onto Google Earth, Aerial Data Dated 6/3/2021*



COLOR LEGEND

COLOR	SLOPE RANGE		AREA	PERCENT OF AREA SHOWN
	BEGINNING	END		
	0%	10%	17.16 A.c.	23.31%
	11%	20%	41.13 A.c.	55.88%
	21%	29%	11.75 A.c.	15.96%
	29%	39%	1.71 A.c.	2.32%
	40%+		1.86 A.c.	2.53%

1234 Glenhaven Court, El Dorado Hills, CA 95762
4300 Anthony Court, Unit D, Rocklin, CA 95677
ph 916.933.0633 fx 916.933.6482
www.youngdahl.net

Cap Funding – The Mohanna
1025 9th Street, Ste. 205
Sacramento, CA 95814

Project No. E21526.000
13 March 2022

Attention: Mr. Josh Pane

Subject: **TOWN AND COUNTRY VILLAGE, EL DORADO**
Bass Lake Road and Country Club Drive, El Dorado Hills
Preliminary Onsite Wastewater Percolation and Mantle Testing

References:
1) Standards for the Site Evaluation, Design and Construction of Onsite Wastewater Treatment Systems (OWTS Manual), prepared by El Dorado County Department of Environmental Management, dated 13 May 2018.
2) California Plumbing Code, Appendix H Private Sewage Disposal Systems, California Code of Regulations Title 24, Part 5.
3) Contract for the Town and Country Village between Youngdahl Consulting Group, Inc. and Cap Funding – The Mohana, executed 8 December 2021.
4) Preliminary Onsite Wastewater Treatment Feasibility Study, Town and Country Village, El Dorado, prepared by Youngdahl Consulting Group, Inc. date 30 December 2021.
5) Town and Country Village, El Dorado, Change Order No. 1, dated 10 January 2022.

Dear Mr. Pane:
With the authorization of Cap Funding – The Mohanna, Youngdahl Consulting Group, Inc. (Youngdahl) has completed preliminary percolation and mantle testing for the planned Town and Country, El Dorado Project. Our scope included:

1) The selection of test pit (mantle test) locations for an Underground Services Alert;
2) Subsurface exploration using a mini-excavator;
3) Observations of soil profiles by Youngdahl and a representative of the El Dorado County Environmental Health Department;
4) Percolation testing;
5) Updated estimation of wastewater application rates based on percolation test results and soil profiles;
6) Estimation of the minimum required area for onsite wastewater treatment;
7) Further identification of potential areas for the use of onsite wastewater treatment; and
8) The preparation of this report.

1.0 EXECUTIVE SUMMARY
The Town & Country Village El Dorado is planned to include two 150-room hotels each with a restaurant, an event center, and up to 97 hotel staff residences and a guest cottages camp. The hotels, restaurants, and events center are estimated to generate approximately 31,900 gallons of wastewater per day. The cottages are estimated to generate approximately 9,700 gallons of wastewater per day. A previous study was performed that evaluated shallow soil textures to estimate potential onsite wastewater application rates. However, due to site access being extremely limited due to rainfall saturated soils, the soils were only evaluated to relatively shallow depths and a follow up study was recommended. This follow up study was performed to address full soil profiles and the percolation rates of deeper soils.

Five test pits were excavated in the upper ridge area identified as most likely being suitable for onsite wastewater disposal by the previous study. The upper 2 to 3 feet of soil was composed of silty to sandy clay. This was underlain by highly weathered metavolcanic bedrock to the 4-to-8-

foot total pit depths. Four percolation tests were performed next to each test pit location. Percolation tests at depths of 3 feet generally did not percolate significantly within the 4-hour test timeframe. Shallow percolation test rates were found to be as high as 7 minutes per inch at a depth of 1-foot. An average percolation rate of 109 minutes per inch was estimated.

The previous study estimated loading rates of 41,600 gallons per day. Using trench systems, an estimated two hundred eighteen trenches 100 feet in length would be needed resulting in a minimum of 17.3 acres required for disposal area. Subsurface drip disposal was estimated to require at least 12.7 acres for disposal.

We conclude that the site is significantly constrained by relatively thin soils overlying fractured bedrock. However, onsite treatment and disposal is likely feasible using an advanced treatment system. This report should be provided to a design wastewater engineer to further evaluate the feasibility of onsite treatment and disposal.

2.0 INTRODUCTION

Youngdahl is of the Understanding that Cap Funding – The Mohanna is planning to construct two 150-room hotels with restaurants, an event center, up to 97 hotel staff residences configured as a guest cottage camp, and other improvements, just east of Bass Lake Road, south of Country Club Drive, and north of Old Country Club Drive, in El Dorado Hills, California (Subject Property). Currently, the nearest sewer service capable of handling the projected wastewater loadings is approximately 7,000 feet west of the Subject Property. Youngdahl prepared a Preliminary Onsite Wastewater Treatment Feasibility Study (Feasibility Study) to evaluate the feasibility of onsite wastewater treatment for the planned facilities as a temporary solution to managing wastewater until sanitary sewer facilities are constructed closer to the project. Site conditions were not conducive to accessing the site with subsurface exploration equipment at the time of the study. Subsurface conditions were explored using a portable electric soil auger which proved to be limited to only very near surface shallow soil. A recommendation was made to excavate test pits and to perform percolation testing when site conditions dried sufficiently. This is the report of the results of this follow up effort.

3.0 EXISTING SITE CONDITIONS

The subject properties consist of El Dorado County Assessor Parcel Numbers (APNs) 119-080-021 and 119-080-023, with the latter parcel traversed west to east by Country Club Drive. The slopes are gently rolling with gradients ranging from nearly flat to a few small areas exceeding 40 percent. The Subject Property is mostly grass covered with several oak trees. There are numerous rock outcrops. A seasonal creek flows westward through APN 119-080-023, the northernmost property. There are drainage swales present. The Subject Property is accessed through gates on the north and south sides.

This upper ridge area was identified by the Preliminary Feasibility Study to be the area most likely be suitable for onsite wastewater disposal. Five test locations were selected in this area. The test locations were marked with white stakes on 12 January 2022 and a call was placed with Underground Services Alert Northern California.

4.0 SUBSURFACE EXPLORATION

On 18 January 2022, subsurface conditions were explored using a Takeuchi TB380 excavator equipped with an 18-inch bucket. In general, the soil profiles were found to range from 1 to 1½ feet of brown SILTY CLAY over 0.5 to 1.5 feet of brown SANDY CLAY, over strong brown intensely weathered and highly fractured metavolcanic rock. Test pit (mantle test) total depths ranged from 4 to 8 feet to practical refusal depths. No caving or groundwater was observed. Each pit was logged using the United States Department of Agriculture soil classification system. Each pit was observed by a representative of the El Dorado County Department of Environmental Health.

5.0 PERCOLATION TESTING

On the 18th of January an 8-inch diameter electric auger was used to advance borings to the depths shown in Table 1. Percolation testing apparatus with pea gravel packing was installed into each boring. Water was than added to a height of 12 inches above the hole bottoms and maintained for a period of 4 hours. On the following day, water was added to a depth of at least 6 inches above the hole bottoms and the rate of drop was measured for 4 hours, with refilling performed as necessary.

Table 1 – Percolation Testing Results

Percolation Test	Depth (feet)	Final Percolation Rate (minutes per inch)
1A	3	DNP*
1B	2.5	300
1C	2	20
1D	2	43
2A	3	DNP
2B	2.5	300
2C	2	100
2D	1.5	50
3A	3	DNP
3B	2.5	19
3C	2	30
3D	1.5	150
4A	3	DNP
4B	2.5	150
4C	3	DNP
4D	1	9
5A	3	300
5B	2.5	300
5C	2	43
5D	1	7

DNP= Did Not Percolate

In general, the shallow soils were found to have good percolation rates and the underlying weathered bedrock did not have significant percolation rates. The bedrock acts as a limiting layer.

6.0 ESTIMATED APPLICATION RATES

The shallow soils are predominately silty to sandy clay. This overlies highly weathered bedrock, which represents a limiting layer. The fact that the deep soils within the bedrock were found to be moist is indicative that there is infiltration in this limiting layer. If the percolation rates from depths of 2½ feet or shallower from Table 1 are averaged, the result is 109 minutes per inch. For trench applications, the Reference No. 1 manual specifies that the application rate would be 0.48 gallons per day per square-foot (gpd/ft^2).

With the shallow restrictive layer, the effluent may be required to be substantially treated. A subsurface drip disposal system might then be considered. For silty clay with a moderate to strong structure, the GeoFlow, Inc. website specifies a disposal rate of 0.3 gpd/ft^2.

7.0 PRELIMINARY WASTEWATER LOADING ESTIMATES

Wastewater loading for the proposed improvements was estimated using Table 201.1(3) from the 2019 California Plumbing Code (CPC).

150-Room Hotel

The CPC specifies 60 gallons per day of wastewater per bed. If an assumption is made that there are 1¼ beds per room, the estimated loading is 11,250 gallons per day (gpd) per hotel.

Restaurant

For restaurant waste the CPC specifies 7 gpd per customer with toilet waste and 6 gpd for kitchen waste per customer. If there is a cocktail lounge, the CPC lists 2 gpd per customer. If the Restaurant has 300 customers per day there would be 3,900 gpd of wastewater. If we assume there is a cocktail lounge handling 150 customers per day, there would an additional 300 gpd bringing the total to 4,200 gpd per restaurant.

Event Center

The CPC doesn't present a loading rate for event centers. The closest listed facility is for a church with a kitchen at 7 gpd per seat per day. If we assume an event of 250 people, that would equate to 1,750 gallons per day of wastewater. However, events are usually weighted towards weekend occurrences; weekday loading is generally much less. Flow equalization via storage tanks can be used to distribute the flow more evenly over extended periods of time. Therefore, for this loading estimate, we will use a value of 1,000 gpd.

Hotel Staff Residences and Guest Cottages Camp

Up to 97 small cottages are planned for the northern portion of the property. These are planned to be no more than 450 square feet each in size. These are planned to be managed more as hotel staff residences and a guest cottages camp then as regular residences. The OWTS Manual (Reference No. 1) indicates that non-residential flows are to be estimated using the CPC. The CPC lists a loading rate of 50 gpd per person for camps. If two people per cottage are planned, this would equate to a 9,700 gpd net loading.

8.0 ESTIMATED REQUIRED DISPOSAL AREA

The area required for disposal is a function of the daily volume of wastewater, the characteristics of the treatment area, and the technology used for treatment/disposal. In El Dorado County, commercial properties are required to have 300 percent replacement areas. The hotels, restaurants, events center and hotel staff residences and guest cottage camp are considered to be commercial uses.

The total estimated loading for the hotels, restaurants, events center, and hotel staff residences and guest cottages camp is 41,600 gpd. At a 0.48 gpd per ft^2 application rate, 87,000 ft^2 of area would be needed. The 2½ to 3-foot depth of practical soil reduces the feasibility of leaching trenches. Such trenches might have to be 1 to 2 feet deep by 3 feet wide and constructed with a capping fill. If trenches are filled with rock, the application area is the trench sidewall measured from the invert of the distribution pipe to the trench bottom. This equates to 1 ft^2 of sidewall area per lineal foot of trench. If the trenches are filled with polystyrene pellet bundles, the bottom area of the trench can be used increasing the application area to 4 ft^2 per lineal foot. Under this later scenario, 21,750 lineal feet of trenches would be needed.

Individual disposal trenches can be no longer than 100 feet and can be no closer than 10 feet on centers. In practice, it can be difficult to install numerous trenches on 10-foot centers; 12 or more feet is more realistic. Two hundred eighteen trenches would be needed. With 12-foot spacings and 10-foot setbacks, a minimum area of approximately 2,088 feet by 120 feet (5.8 acres) would be required. The 300 percent replacement system requirement increases this to about 17.3 acres. The system should be dispersed into zones and pressure dosed in order to minimize groundwater mounding.

Alternatively, subsurface drip could be used. These would be installed in large fields approximately 6 to 9 inches below the surface. Using the 0.3 gpd/ft^2 loading rate discussed above, approximately 140,000 square feet of area (approximately 3.2 acres) would be required. Applying the 300 percent replacement area requirement, this would sum up to approximately 12.7 acres, with some additional area required due to the presence of rock outcrops and other constraints. Such a design should implement zones of drip emitters to minimize the potential for groundwater mounding.

9.0 FINDINGS AND RECOMMENDATIONS

The site is significantly constrained by relatively thin soils overlying fractured bedrock. The fractured bedrock represents a limiting layer, however one that still infiltrates water at a slow rate. Onsite waste water disposal using an advanced treatment system is likely feasible. This report should be supplied to a design wastewater engineer to further evaluate the feasibility of onsite wastewater treatment and disposal.

This study has been performed following standards of practice common to onsite wastewater feasibility and evaluation at the time and geographic vicinity of our study. This is not a design level study. No warranties are expressed or implied. Please do not hesitate contacting us with any questions.

Very truly yours,
Youngdahl Consulting Group, Inc.

CERTIFIED ENGINEERING GEOLOGIST
DAVID C. SEDERQUIST
NO. 2133
EXPIRATION DATE
9-20-22
STATE OF CALIFORNIA

David C. Sederquist, C.E.G., C.HG.
Senior Engineering Geologist/Hydrogeologist
3-11-22

Attachments:
Percolation Test Results
Figures 1 – 10

Distribution: One electronic copy to client

Percolation Test Data Sheet

Project No. E21526.000
Test Pit No.
Date: 1/18/2022
Testhole No.: 1A
Sheet No.: 1 of 10
GPS 38.659837 -121.030097 **Testhole Depth:** 3' **Width:** 12"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:00:00 AM	10:30:00 AM	0:30	11	11	0.00
10:30:00 AM	11:00:00 AM	0:30	11	10.9	0.10
11:00:00 AM	11:30:00 AM	0:30	10.9	10.7	0.20
11:30:00 AM	12:00:00 PM	0:30	10.7	10.7	0.00
12:00:00 AM	12:30:00 AM	0:30	10.7	10.7	0.00
12:30:00 AM	1:00:00 AM	0:30	10.7	10.7	0.00
1:00:00 AM	1:30:00 AM	0:30	10.7	10.5	0.20
1:30:00 AM	2:00:00 AM	0:30	10.5	10.5	0.00

Testhole No.: 1B
GPS 38.659818 -121.030023 **Testhole Depth:** 2.5' **Width:** 12"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:00:00 AM	10:30:00 AM	0:30	7	6.2	0.80
10:30:00 AM	11:00:00 AM	0:30	6.2	6	0.20
11:00:00 AM	11:30:00 AM	0:30	6	5.9	0.10
11:30:00 AM	12:00:00 PM	0:30	8.5	7.5	1.00
12:00:00 AM	12:30:00 AM	0:30	7.5	7	0.50
12:30:00 AM	1:00:00 AM	0:30	7	6.6	0.40
1:00:00 AM	1:30:00 AM	0:30	6.6	6.3	0.30
1:30:00 AM	2:00:00 AM	0:30	6.3	6.2	0.10

Testhole No.: 5C

GPS 38.659243 -121.03 Testhole Depth: 2" Width: 12"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:14:00 AM	10:44:00 AM	0:30			0.00
10:44:00 AM	11:14:00 AM	0:30			0.00
11:14:00 AM	11:44:00 AM	0:30			0.00
11:44:00 AM	12:14:00 PM	0:30			0.00
12:14:00 AM	12:44:00 AM	0:30			0.00
12:44:00 AM	1:14:00 AM	0:30			0.00
1:14:00 AM	1:44:00 AM	0:30			0.00
1:44:00 AM	2:14:00 AM	0:30			0.00

Testhole No.: 5D

GPS 38.659205 -121.03 Testhole Depth: 1" Width: 12"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:14:00 AM	10:44:00 AM	0:30			0.00
10:44:00 AM	11:14:00 AM	0:30			0.00
11:14:00 AM	11:44:00 AM	0:30			0.00
11:44:00 AM	12:14:00 PM	0:30			0.00
12:14:00 AM	12:44:00 AM	0:30			0.00
12:44:00 AM	1:14:00 AM	0:30			0.00
1:14:00 AM	1:44:00 AM	0:30			0.00
1:44:00 AM	2:14:00 AM	0:30			0.00

Percolation Test Data Sheet

Project No. E21526.000

Test Pit No.

Date: 1/18/2022

Testhole No.: 1A **Sheet No.:** 1 of 10

GPS 38.65984 -121.030097 **Testhole Depth:** 3' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:00:00 AM	10:30:00 AM	0:30	11	11	0.00
10:30:00 AM	11:00:00 AM	0:30	11	10.9	0.10
11:00:00 AM	11:30:00 AM	0:30	10.9	10.7	0.20
11:30:00 AM	12:00:00 PM	0:30	10.7	10.7	0.00
12:00:00 AM	12:30:00 AM	0:30	10.7	10.7	0.00
12:30:00 AM	1:00:00 AM	0:30	10.7	10.7	0.00
1:00:00 AM	1:30:00 AM	0:30	10.7	10.5	0.20
1:30:00 AM	2:00:00 AM	0:30	10.5	10.5	0.00

Testhole No.: 1B

GPS 38.659818 -121.030023 **Testhole Depth:** 2.5' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:00:00 AM	10:30:00 AM	0:30	7	6.2	0.80
10:30:00 AM	11:00:00 AM	0:30	6.2	6	0.20
11:00:00 AM	11:30:00 AM	0:30	6	5.9	0.10
11:30:00 AM	12:00:00 PM	0:30	8.5	7.5	1.00
12:00:00 AM	12:30:00 AM	0:30	7.5	7	0.50
12:30:00 AM	1:00:00 AM	0:30	7	6.6	0.40
1:00:00 AM	1:30:00 AM	0:30	6.6	6.3	0.30
1:30:00 AM	2:00:00 AM	0:30	6.3	6.2	0.10

Percolation Test Data Sheet

Testhole No.: 1C

GPS 38.65983 -121.030039 **Testhole Depth:** 2' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:00:00 AM	10:30:00 AM	0:30	7.2	3.8	3.40
10:30:00 AM	11:00:00 AM	0:30	6.5	4.2	2.30
11:00:00 AM	11:30:00 AM	0:30	6.8	4.5	2.30
11:30:00 AM	12:00:00 PM	0:30	6.8	4.4	2.40
12:00:00 AM	12:30:00 AM	0:30	6.9	4.6	2.30
12:30:00 AM	1:00:00 AM	0:30	7	5	2.00
1:00:00 AM	1:30:00 AM	0:30	6.6	4.6	2.00
1:30:00 AM	2:00:00 AM	0:30	7.5	5	1.50

Testhole No.: 1D

GPS 38.65982 -121.029957 **Testhole Depth:** 2' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:00:00 AM	10:30:00 AM	0:30	7.2	5.4	1.80
10:30:00 AM	11:00:00 AM	0:30	7.3	6.1	1.20
11:00:00 AM	11:30:00 AM	0:30	6.1	5.4	0.70
11:30:00 AM	12:00:00 PM	0:30	7.5	6.8	0.70
12:00:00 AM	12:30:00 AM	0:30	6.8	6.1	0.70
12:30:00 AM	1:00:00 AM	0:30	6.1	5.7	0.40
1:00:00 AM	1:30:00 AM	0:30	6.4	5.9	0.50
1:30:00 AM	2:00:00 AM	0:30	6.7	6	0.70

Percolation Test Data Sheet

Testhole No.: 2A

GPS 38.659659 -121.028586 **Testhole Depth:** 3' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:05:00 AM	10:35:00 AM	0:30	8	7.5	0.50
10:35:00 AM	11:05:00 AM	0:30	7.5	7.4	0.10
11:05:00 AM	11:35:00 AM	0:30	7.4	7.3	0.10
11:35:00 AM	12:05:00 PM	0:30	7.3	7.2	0.10
12:05:00 AM	12:35:00 AM	0:30	7.2	7.2	0.00
12:35:00 AM	1:05:00 AM	0:30	7.2	7	0.20
1:05:00 AM	1:35:00 AM	0:30	7	7	0.00
1:35:00 AM	2:05:00 AM	0:30	7	7	0.00

Testhole No.: 2B

GPS 38.659699 -121.028543 **Testhole Depth:** 2.5' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:05:00 AM	10:35:00 AM	0:30	8.9	8.9	0.00
10:35:00 AM	11:05:00 AM	0:30	8.9	8.8	0.10
11:05:00 AM	11:35:00 AM	0:30	8.8	8.8	0.00
11:35:00 AM	12:05:00 PM	0:30	8.8	8.8	0.00
12:05:00 AM	12:35:00 AM	0:30	8.8	8.6	0.20
12:35:00 AM	1:05:00 AM	0:30	8.6	8.6	0.00
1:05:00 AM	1:35:00 AM	0:30	8.6	8.5	0.10
1:35:00 AM	2:05:00 AM	0:30	8.5	8.4	0.10

Percolation Test Data Sheet

Testhole No.: 2C

GPS 38.65969 -121.028507 **Testhole Depth:** 2' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:05:00 AM	10:35:00 AM	0:30	7	7	0.00
10:35:00 AM	11:05:00 AM	0:30	7	6.5	0.50
11:05:00 AM	11:35:00 AM	0:30	6.5	6.2	0.30
11:35:00 AM	12:05:00 PM	0:30	6.2	6	0.20
12:05:00 AM	12:35:00 AM	0:30	6	5.8	0.20
12:35:00 AM	1:05:00 AM	0:30	6.9	6.8	0.10
1:05:00 AM	1:35:00 AM	0:30	6.8	6.4	0.40
1:35:00 AM	2:05:00 AM	0:30	6.4	6.1	0.30

Testhole No.: 2D

GPS 38.659692 -121.028489 **Testhole Depth:** 1.5' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:05:00 AM	10:35:00 AM	0:30	6.9	4.3	2.60
10:35:00 AM	11:05:00 AM	0:30	7.5	5	2.50
11:05:00 AM	11:35:00 AM	0:30	6.9	5.1	1.80
11:35:00 AM	12:05:00 PM	0:30	6.7	5.1	1.60
12:05:00 AM	12:35:00 AM	0:30	6.7	5.1	1.60
12:35:00 AM	1:05:00 AM	0:30	6.9	5.1	1.80
1:05:00 AM	1:35:00 AM	0:30	6.7	5.1	1.60
1:35:00 AM	2:05:00 AM	0:30	6.6	6	0.60

Percolation Test Data Sheet

Testhole No.: 3A

GPS 38.658833 -121.028628 **Testhole Depth:** 3' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:10:00 AM	10:40:00 AM	0:30	10.5	10.4	0.10
10:40:00 AM	11:10:00 AM	0:30	10.4	10.2	0.20
11:10:00 AM	11:40:00 AM	0:30	10.2	10.1	0.10
11:40:00 AM	12:10:00 PM	0:30	10.1	10.1	0.00
12:10:00 AM	12:40:00 AM	0:30	10.1	10.1	0.00
12:40:00 AM	1:10:00 AM	0:30	10.1	10.1	0.00
1:10:00 AM	1:40:00 AM	0:30	10.1	10.1	0.00
1:40:00 AM	2:10:00 AM	0:30	10.1	10.1	0.00

Testhole No.: 3B

GPS 38.658849 -121.028603 **Testhole Depth:** 2.5' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:10:00 AM	10:40:00 AM	0:30	7	4.3	2.70
10:40:00 AM	11:10:00 AM	0:30	7	5.3	1.70
11:10:00 AM	11:40:00 AM	0:30	8.2	6.3	1.90
11:40:00 AM	12:10:00 PM	0:30	6.3	5	1.30
12:10:00 AM	12:40:00 AM	0:30	6.8	5.8	1.00
12:40:00 AM	1:10:00 AM	0:30	7.7	6.1	1.60
1:10:00 AM	1:40:00 AM	0:30	6.1	5.2	0.90
1:40:00 AM	2:10:00 AM	0:30	8	6.4	1.60

Percolation Test Data Sheet

Testhole No.: 3C

GPS 38.658856 -121.028593 **Testhole Depth:** 2' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:10:00 AM	10:40:00 AM	0:30	7.4	5.4	2.00
10:40:00 AM	11:10:00 AM	0:30	7.2	5.6	1.60
11:10:00 AM	11:40:00 AM	0:30	7	5.9	1.10
11:40:00 AM	12:10:00 PM	0:30	7.1	5.9	1.20
12:10:00 AM	12:40:00 AM	0:30	7	5.8	1.20
12:40:00 AM	1:10:00 AM	0:30	6.9	5.9	1.00
1:10:00 AM	1:40:00 AM	0:30	6.6	5.5	1.10
1:40:00 AM	2:10:00 AM	0:30	6.4	5.4	1.00

Testhole No.: 3D

GPS 38.658788 -121.028598 **Testhole Depth:** 1.5' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:10:00 AM	10:40:00 AM	0:30	7.4	6.5	0.90
10:40:00 AM	11:10:00 AM	0:30	6.5	6.2	0.30
11:10:00 AM	11:40:00 AM	0:30	6.2	6	0.20
11:40:00 AM	12:10:00 PM	0:30	6	5.7	0.30
12:10:00 AM	12:40:00 AM	0:30	7	6.7	0.30
12:40:00 AM	1:10:00 AM	0:30	6.7	6.4	0.30
1:10:00 AM	1:40:00 AM	0:30	6.4	6	0.40
1:40:00 AM	2:10:00 AM	0:30	6	5.8	0.20

Percolation Test Data Sheet

Testhole No.: 4A

GPS 38.65861 -121.029769 **Testhole Depth:** 3' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
2:00:00 PM	2:30:00 PM	0:30	8.4	8.1	0.30
2:30:00 PM	3:00:00 PM	0:30	8.1	8	0.10
3:00:00 PM	3:30:00 PM	0:30	8	7.9	0.10
3:30:00 PM	4:00:00 PM	0:30	7.9	7.9	0.00
4:00:00 PM	4:30:00 PM	0:30	7.9	7.6	0.30
4:30:00 PM	5:00:00 PM	0:30	7.6	7.6	0.00
5:00:00 PM	5:30:00 PM	0:30	7.6	7.6	0.00
5:30:00 PM	6:00:00 PM	0:30	7.6	7.6	0.00

Testhole No.: 4B

GPS 38.658592 -121.029796 **Testhole Depth:** 2.5' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:02:00 AM	10:32:00 AM	0:30	9.4	9	0.40
10:30:00 AM	11:00:00 AM	0:30	9	8.8	0.20
11:02:00 AM	11:32:00 AM	0:30	8.8	8.4	0.40
11:32:00 AM	12:02:00 PM	0:30	8.4	8.2	0.20
12:02:00 AM	12:32:00 AM	0:30	8.2	8	0.20
12:32:00 AM	1:02:00 AM	0:30	8	7.8	0.20
1:02:00 AM	1:32:00 AM	0:30	7.8	7.6	0.20
1:32:00 AM	2:02:00 AM	0:30	7.6	7.4	0.20

Percolation Test Data Sheet

Testhole No.: 4C

GPS 38.658568 -121.029209 **Testhole Depth:** 3' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
2:00:00 PM	2:30:00 PM	0:30	8.4	8.1	0.30
2:30:00 PM	3:00:00 PM	0:30	8.1	8	0.10
3:00:00 PM	3:30:00 PM	0:30	8	7.9	0.10
3:30:00 PM	4:00:00 PM	0:30	7.9	7.9	0.00
4:00:00 PM	4:30:00 PM	0:30	7.9	7.6	0.30
4:30:00 PM	5:00:00 PM	0:30	7.6	7.6	0.00
5:00:00 PM	5:30:00 PM	0:30	7.6	7.6	0.00
5:30:00 PM	6:00:00 PM	0:30	7.6	7.6	0.00

Testhole No.: 4D

GPS 38.658513 -121.029743 **Testhole Depth:** 1' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
2:00:00 PM	2:30:00 PM	0:30	6.2	2.2	4.00
2:30:00 PM	3:00:00 PM	0:30	6.5	3	3.50
3:00:00 PM	3:30:00 PM	0:30	6.2	2.9	3.30
3:30:00 PM	4:00:00 PM	0:30	6.5	3.2	3.30
4:00:00 PM	4:30:00 PM	0:30	6	3.4	2.60
4:30:00 PM	5:00:00 PM	0:30	6	3.1	2.90
5:00:00 PM	5:30:00 PM	0:30	6.1	3.1	3.00
5:30:00 PM	6:00:00 PM	0:30	6.5	3	3.50

Percolation Test Data Sheet

Testhole No.: 5A

GPS 38.659236 -121.030322 **Testhole Depth:** 3' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:14:00 AM	10:44:00 AM	0:30	8	7.2	0.80
10:44:00 AM	11:14:00 AM	0:30	7.2	7	0.20
11:14:00 AM	11:44:00 AM	0:30	7	6.3	0.70
11:44:00 AM	12:14:00 PM	0:30	6.3	6.2	0.10
12:14:00 AM	12:44:00 AM	0:30	6.2	5.4	0.80
12:44:00 AM	1:14:00 AM	0:30	5.4	5.4	0.00
1:14:00 AM	1:44:00 AM	0:30	5.4	5.4	0.00
1:44:00 AM	2:14:00 AM	0:30	5.4	5.3	0.10

Testhole No.: 5B

GPS 38.659243 -121.030311 **Testhole Depth:** 2.5' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
10:14:00 AM	10:44:00 AM	0:30	8.5	7.8	0.70
10:44:00 AM	11:14:00 AM	0:30	7.8	7.8	0.00
11:14:00 AM	11:44:00 AM	0:30	7.8	7.8	0.00
11:44:00 AM	12:14:00 PM	0:30	7.8	7.5	0.30
12:14:00 AM	12:44:00 AM	0:30	7.5	7.4	0.10
12:44:00 AM	1:14:00 AM	0:30	7.4	7.1	0.30
1:14:00 AM	1:44:00 AM	0:30	7.4	6.9	0.50
1:44:00 AM	2:14:00 AM	0:30	6.9	6.8	0.10

Percolation Test Data Sheet

Testhole No.: 5C

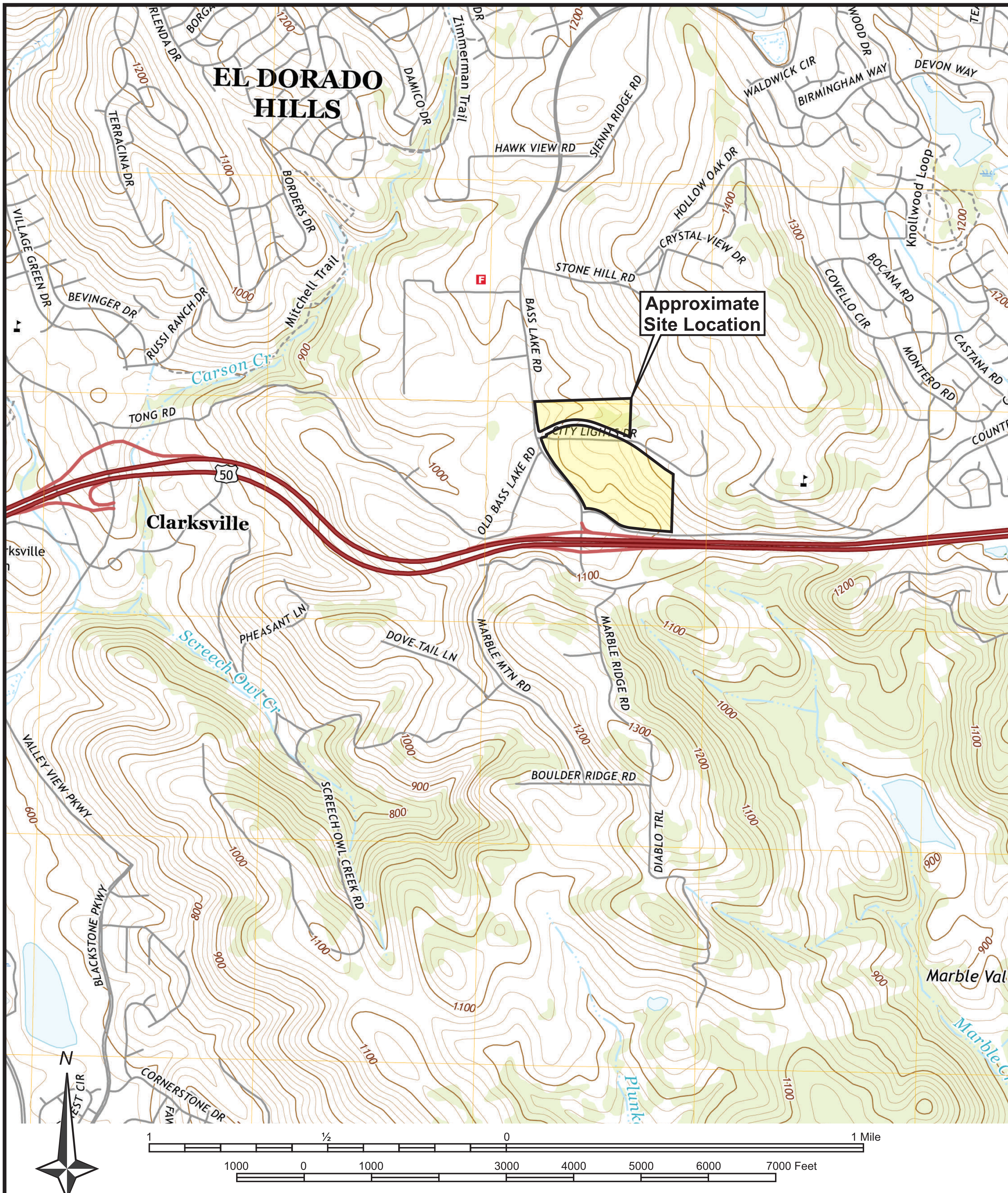
GPS 38.659243 -121.030283 **Testhole Depth:** 2' **Width:** 8"

Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
2:10:00 PM	2:40:00 PM	0:30	6.7	5.8	0.90
2:40:00 PM	3:10:00 PM	0:30	6.3	5.8	0.50
3:10:00 PM	3:40:00 PM	0:30	6.5	5.8	0.70
3:40:00 PM	4:10:00 PM	0:30	6.9	6.4	0.50
4:10:00 PM	4:40:00 PM	0:30	6.4	5.8	0.60
4:40:00 PM	5:10:00 PM	0:30	6.5	6.1	0.40
5:10:00 PM	5:40:00 PM	0:30	6.1	5.8	0.30
5:40:00 PM	6:10:00 PM	0:30	7.1	6.4	0.70

Testhole No.: 5D

GPS 38.659205 -121.03025 **Testhole Depth:** 1' **Width:** 8"

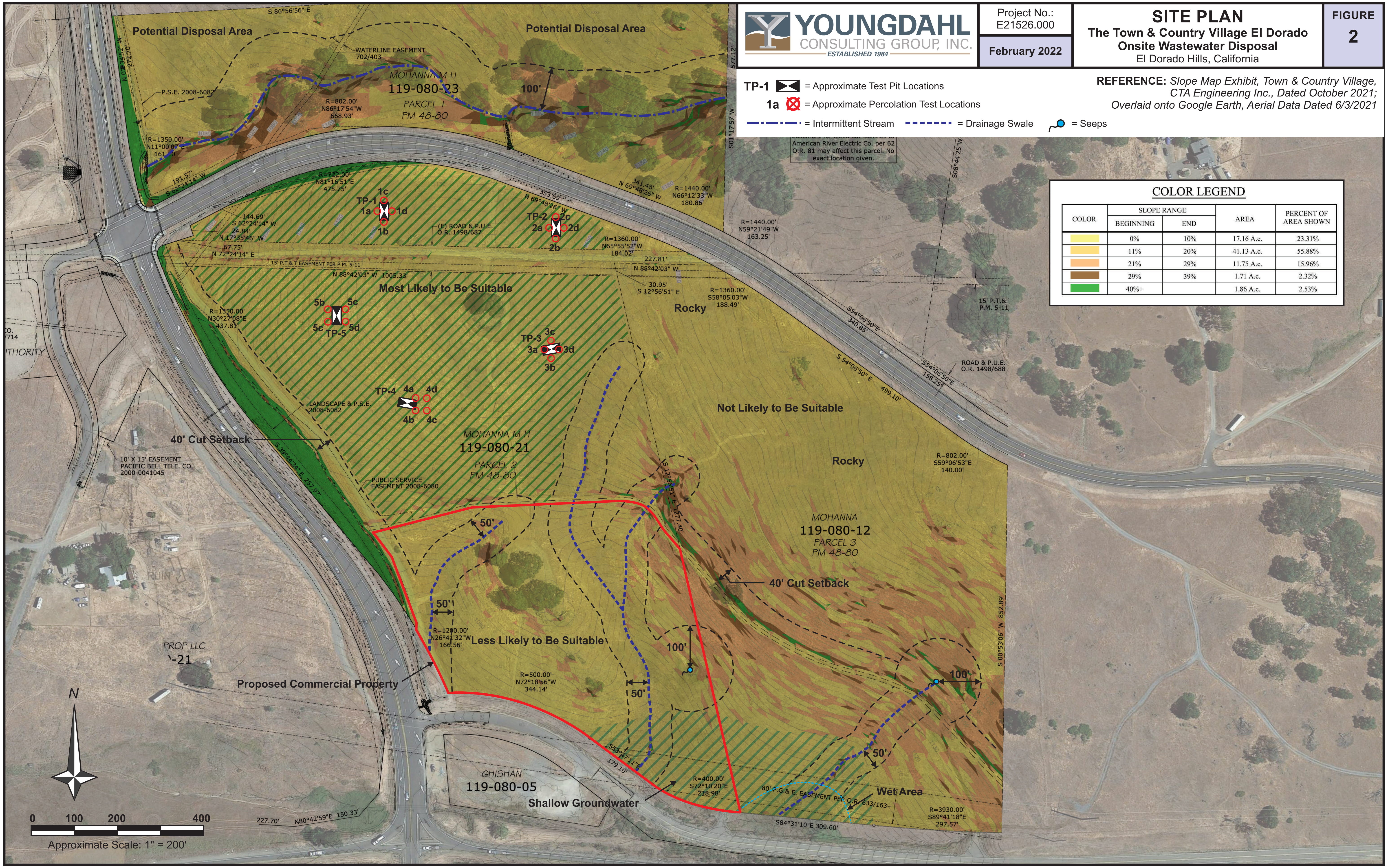
Start Time	End Time	Elapsed Time	Water-level Start (inches)	Water-level End (inches)	Difference in Water Level (inches)
2:10:00 PM	2:40:00 PM	0:30	6.3	1.1	5.20
2:40:00 PM	3:10:00 PM	0:30	6.4	1.3	5.10
3:10:00 PM	3:40:00 PM	0:30	6.5	1.6	4.90
3:40:00 PM	4:10:00 PM	0:30	6.3	1.8	4.50
4:10:00 PM	4:40:00 PM	0:30	7	2	5.00
4:40:00 PM	5:10:00 PM	0:30	6.5	2.1	4.40
5:10:00 PM	5:40:00 PM	0:30	6.4	2.1	4.30
5:40:00 PM	6:10:00 PM	0:30	6.5	2	4.50



Scale: 1:24,000

BASE MAP REFERENCE: *U.S.G.S. 7.5 Minute Topographic Series, Clarksville Quadrangle, Dated 2018*

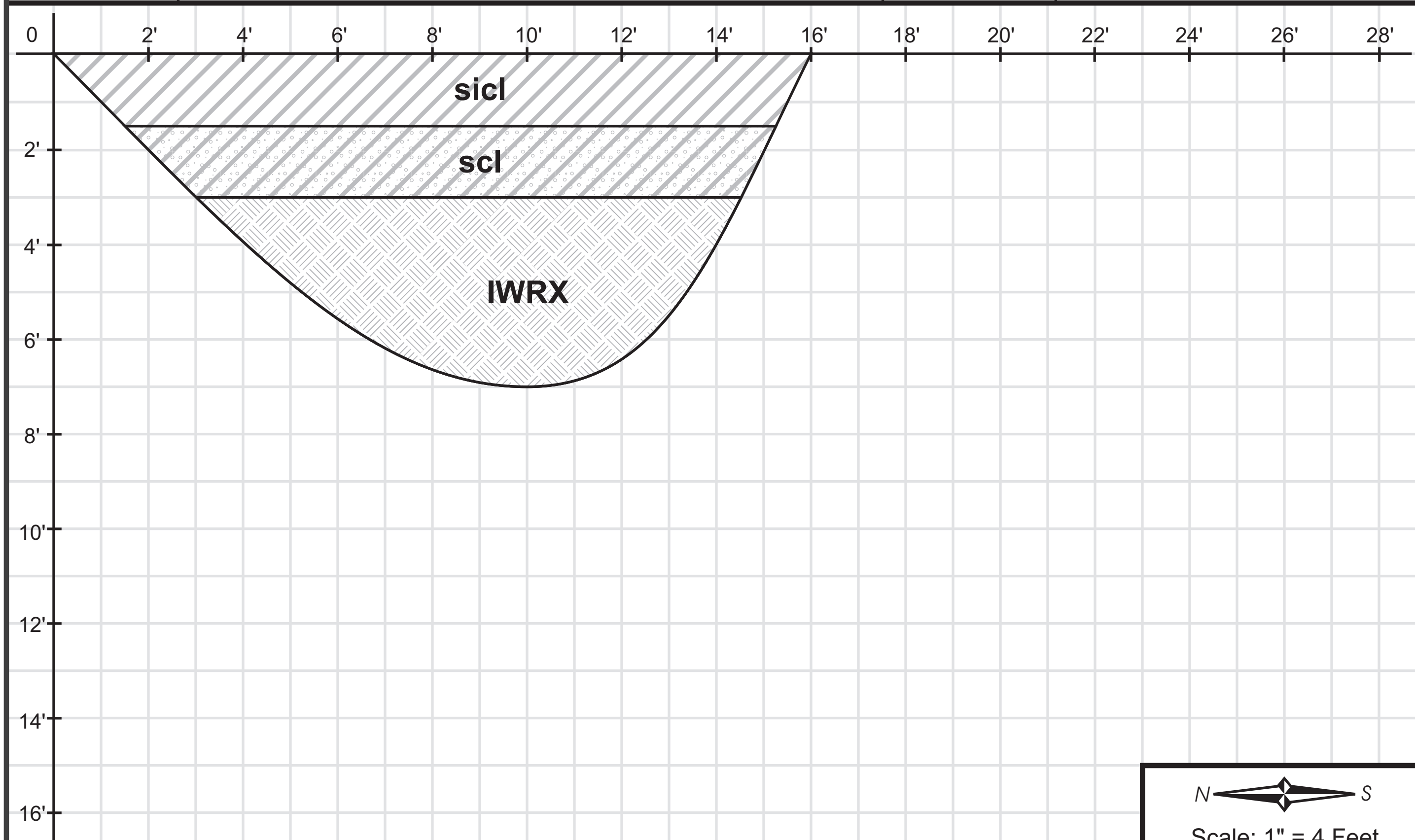
YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.000 **February 2022**	**VICINITY MAP** **The Town & Country Village El Dorado** **Onsite Wastewater Disposal** El Dorado Hills, California	**FIGURE** **1**



COLOR	SLOPE RANGE		AREA	PERCENT OF AREA SHOWN
	BEGINNING	END		
	0%	10%	17.16 A.c.	23.31%
	11%	20%	41.13 A.c.	55.88%
	21%	29%	11.75 A.c.	15.96%
	29%	39%	1.71 A.c.	2.32%
	40%+		1.86 A.c.	2.53%

Logged By: **DCS**	Date: **18 January 2022**	Lat / Lon: **N 35.659800° / W 121.029992°**		Pit No. **TP-1**
Equipment: **Takeuchi with 18" Bucket**		Pit Orientation: **186°**	Elevation: **~**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0′ - 1.5′	Brown (7.5 YR 4/3) **SILTY CLAY**, 10% gravel, no redoximorphic features, finely granular, many medium interstitial and tubular pores, very friable, slightly plastic, slightly sticky, few fine roots, diffuse irregular boundary, moist		
@ 1.5′ - 3′	Brown (7.5 YR 5/4) **SANDY CLAY**, 10% gravel, 10% stone, many redoximorphic concentrations (7.5 YR 6/4) and depletions (Gley 5/5B), massive granular, few fine interstitial soil pores, very friable, moderately plastic, slightly sticky, no roots, clear irregular boundary, moist		
@ 3′ - 7′	Strong brown (7.5 YR 6/4) intensely weathered metavolcanic rock, 60% stone, few redoximorphic concentrations (7.5 YR 6/4), massive, few tubular soil pores, friable, slightly plastic, slightly sticky, no roots, moist		
	Test pit terminated at 7' (practical refusal) No free groundwater encountered No caving noted		



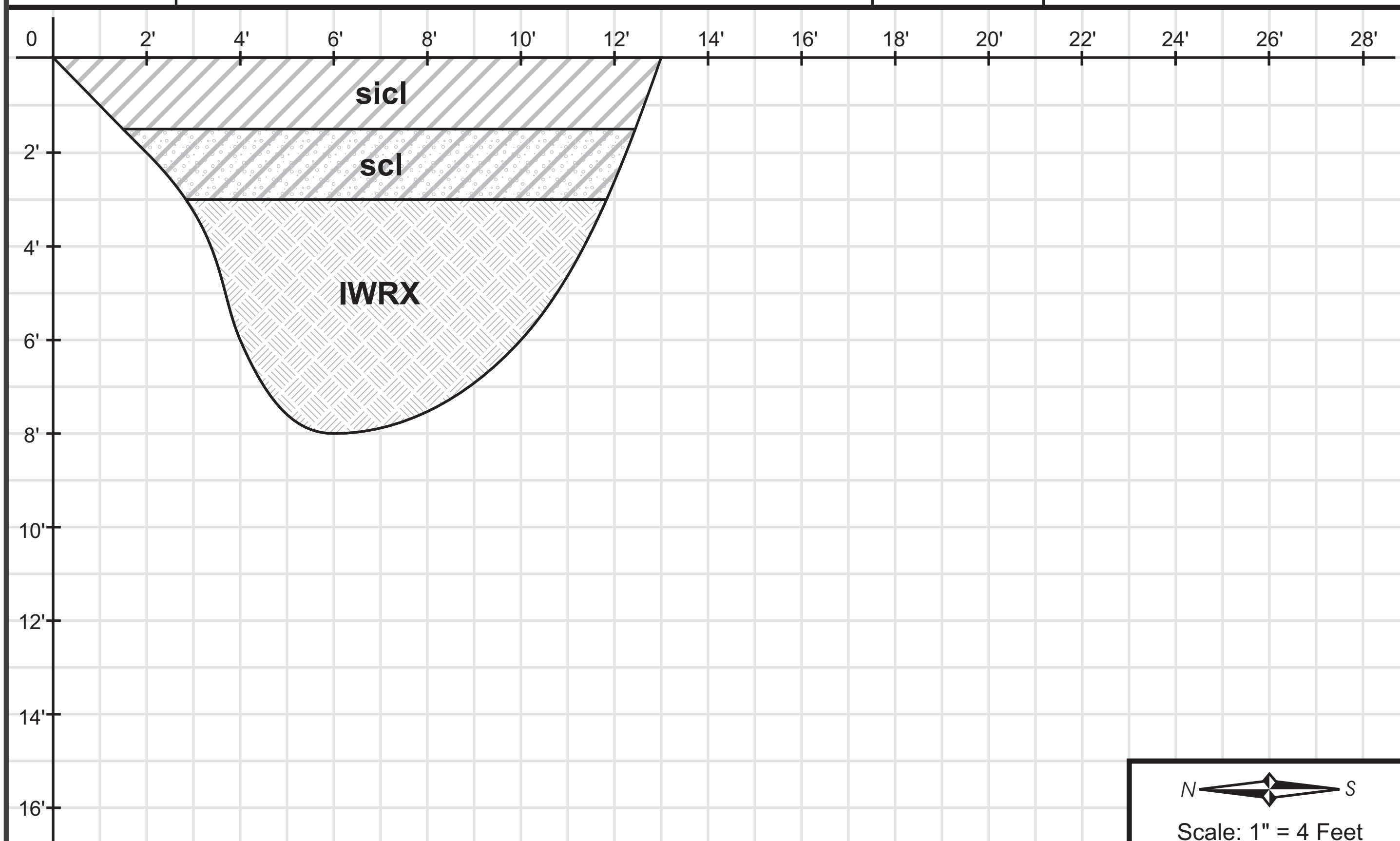
Scale: 1" = 4 Feet

Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.000	**EXPLORATORY TEST PIT LOG**	FIGURE
	February 2022	**The Town & Country Village El Dorado Onsite Wastewater Disposal** El Dorado Hills, California	**3**

Logged By: **DCS**	Date: **18 January 2022**	Lat / Lon: **N 35.659720° / W 121.020520°**		Pit No. **TP-2**
Equipment: **Takeuchi with 18" Bucket**		Pit Orientation: **180°**	Elevation: **~**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0' - 1.5'	Brown (7.5 YR 4/3) **SILTY CLAY**, 10% gravel, no redoximorphic features, finely granular, many medium interstitial and tubular pores, very friable, slightly plastic, slightly sticky, few fine roots, diffuse irregular boundary, moist		
@ 1.5' - 3'	Brown (7.5 YR 5/4) **SANDY CLAY**, 10% gravel, 10% stone, many redoximorphic concentrations (7.5 YR 6/4) and depletions (Gley 5/5B), massive granular, few fine interstitial soil pores, very friable, moderately plastic, slightly sticky, no roots, clear irregular boundary, moist		
@ 3' - 8'	Strong brown (7.5 YR 6/4) intensely weathered metavolcanic rock, 60% stone, few redoximorphic concentrations (7.5 YR 6/4), massive, few tubular soil pores, friable, slightly plastic, slightly sticky, no roots, moist		
	Test pit terminated at 8' (practical refusal) No free groundwater encountered No caving noted		

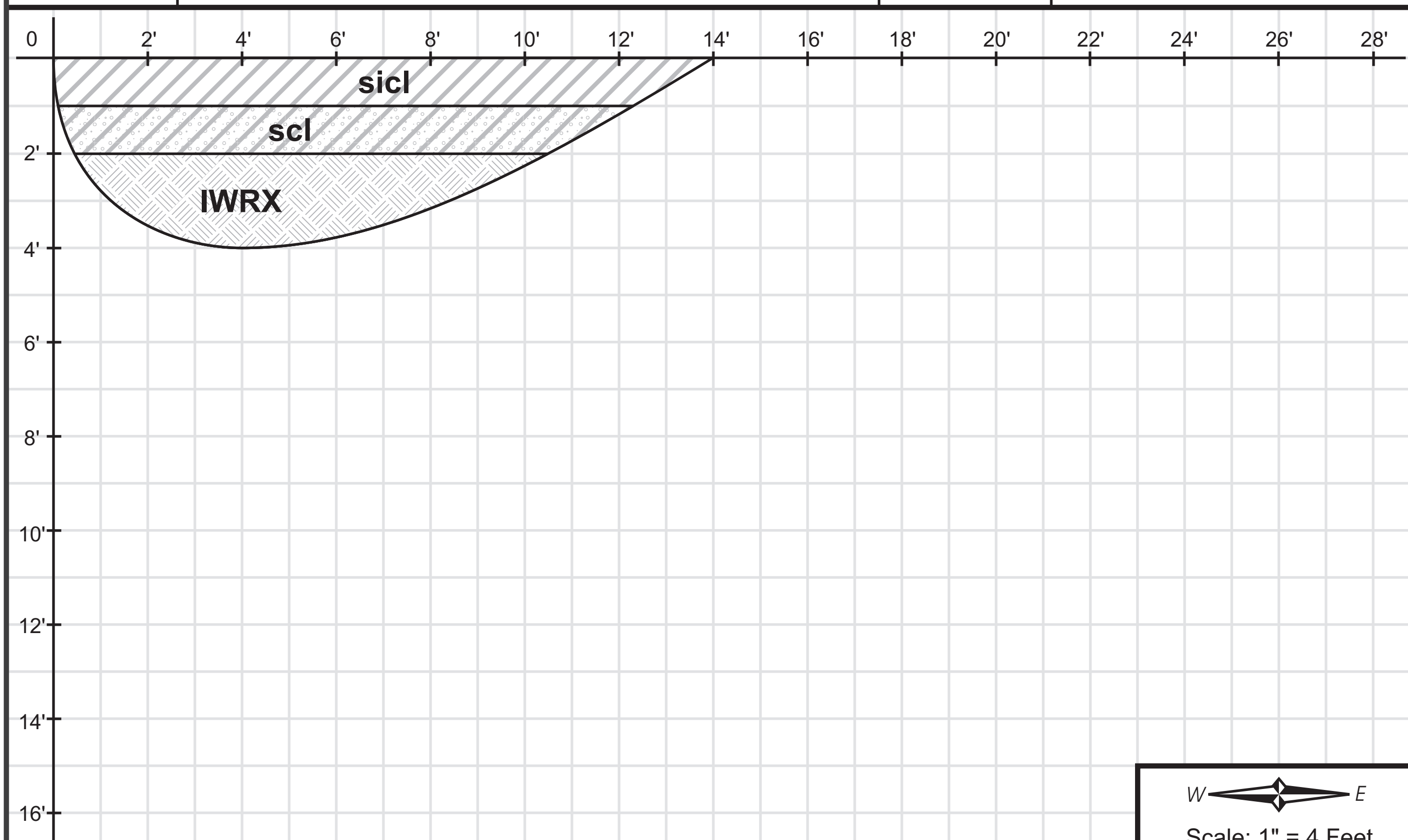


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.000 **February 2022**	**EXPLORATORY TEST PIT LOG** **The Town & Country Village El Dorado** **Onsite Wastewater Disposal** El Dorado Hills, California	**FIGURE 4**

Logged By: **DCS**	Date: **18 January 2022**	Lat / Lon: **N 35.658890° / W 121.028620°**		Pit No. **TP-3**
Equipment: **Takeuchi with 18" Bucket**		Pit Orientation: **260°**	Elevation: **~**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0' - 1'	Brown (7.5 YR 4/3) **SILTY CLAY**, 10% gravel, no redoximorphic features, finely granular, many medium interstitial and tubular pores, very friable, slightly plastic, slightly sticky, few fine roots, diffuse irregular boundary, moist		
@ 1' - 2'	Brown (7.5 YR 5/4) **SANDY CLAY**, 10% gravel, 10% stone, many redoximorphic concentrations (7.5 YR 6/4) and depletions (Gley 5/5B), massive granular, few fine interstitial soil pores, very friable, moderately plastic, slightly sticky, no roots, clear irregular boundary, moist		
@ 2' - 4'	Strong brown (7.5 YR 6/4) intensely weathered metavolcanic rock, 60% stone, few redoximorphic concentrations (7.5 YR 6/4), massive, few tubular soil pores, friable, slightly plastic, slightly sticky, no roots, moist		
	Test pit terminated at 4' (practical refusal) No free groundwater encountered No caving noted		



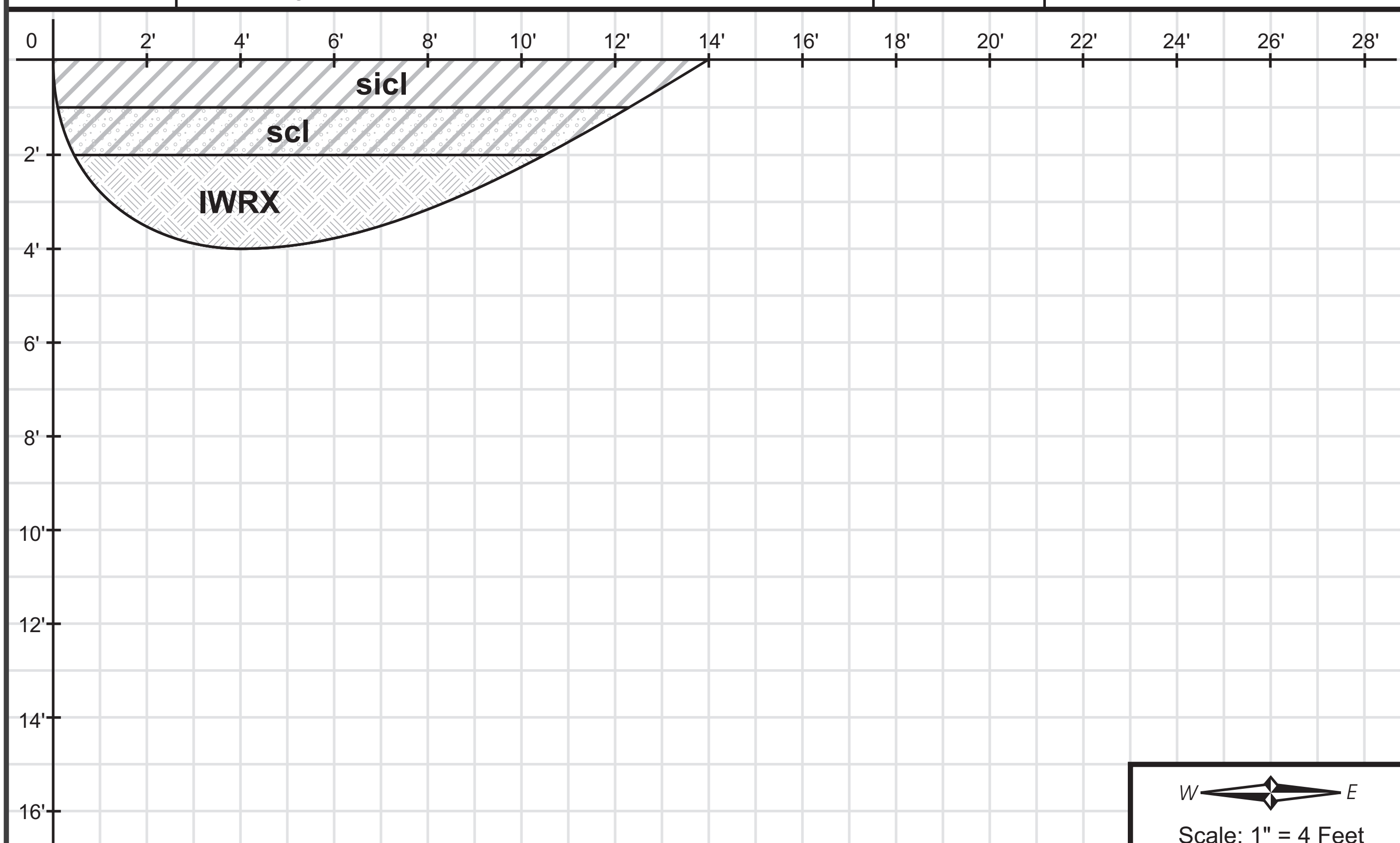
Scale: 1" = 4 Feet

Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.000	**EXPLORATORY TEST PIT LOG**	**FIGURE**
	February 2022	**The Town & Country Village El Dorado Onsite Wastewater Disposal** El Dorado Hills, California	**5**

Logged By: **DCS**	Date: **18 January 2022**	Lat / Lon: **N 35.658550° / W 121.029800°**		Pit No. **TP-4**
Equipment: **Takeuchi with 18" Bucket**		Pit Orientation: **100°**	Elevation: **~**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0' - 1.5'	Brown (7.5 YR 4/3) **SILTY CLAY**, 10% gravel, no redoximorphic features, finely granular, many medium interstitial and tubular pores, very friable, slightly plastic, slightly sticky, few fine roots, diffuse irregular boundary, moist		
@ 1.5' - 2'	Brown (7.5 YR 5/4) **SANDY CLAY**, 10% gravel, 10% stone, many redoximorphic concentrations (7.5 YR 6/4) and depletions (Gley 5/5B), massive granular, few fine interstitial soil pores, very friable, moderately plastic, slightly sticky, no roots, clear irregular boundary, moist		
@ 2' - 4'	Strong brown (7.5 YR 6/4) intensely weathered metavolcanic rock, 60% stone, few redoximorphic concentrations (7.5 YR 6/4), massive, few tubular soil pores, friable, slightly plastic, slightly sticky, no roots, moist		
	Test pit terminated at 4' (practical refusal) No free groundwater encountered No caving noted		

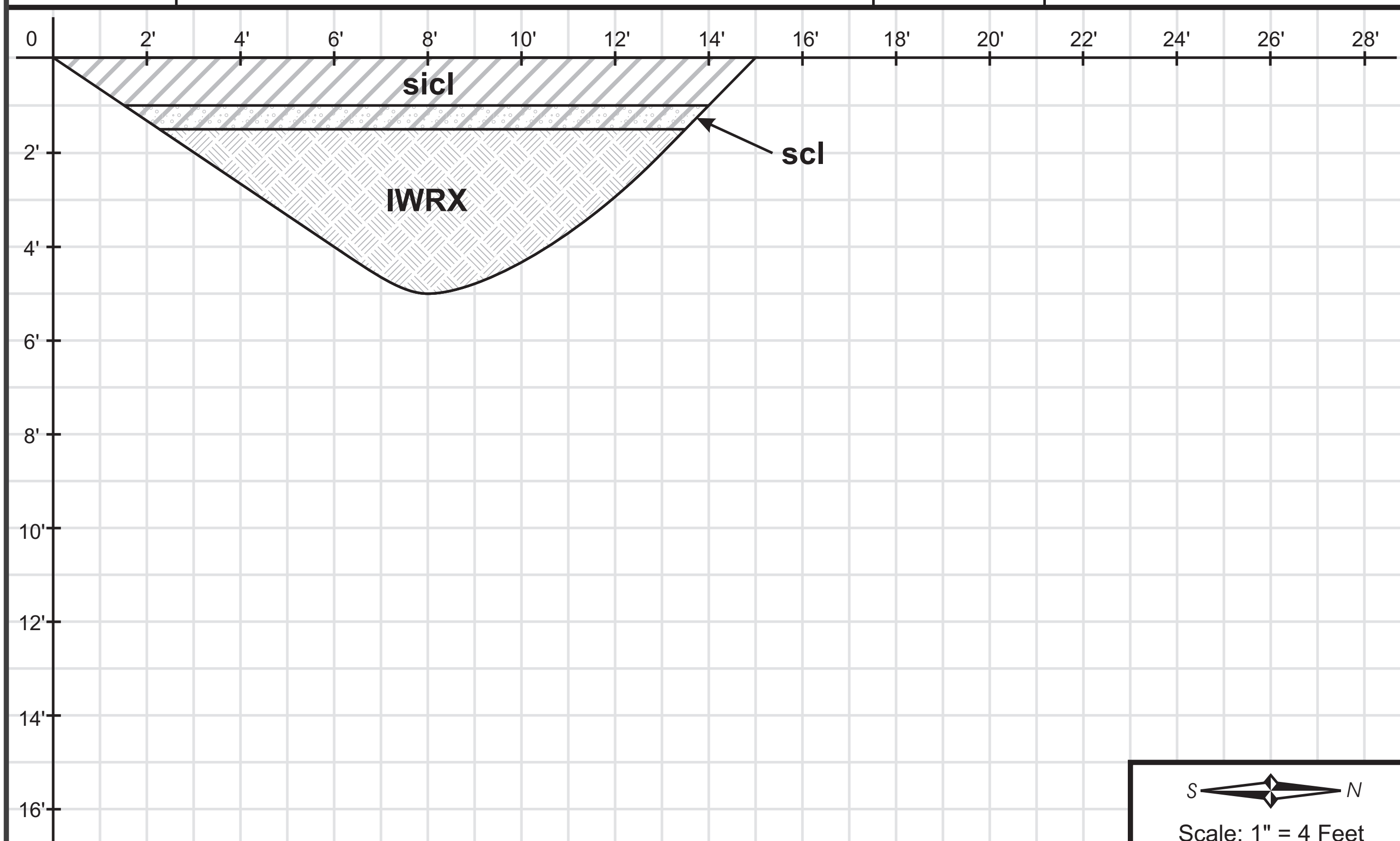


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.000 **February 2022**	**EXPLORATORY TEST PIT LOG** **The Town & Country Village El Dorado** **Onsite Wastewater Disposal** El Dorado Hills, California	**FIGURE 6**

Logged By: **DCS**	Date: **18 January 2022**	Lat / Lon: **N 35.659160° / W 121.030330°**	Pit No. **TP-5**
Equipment: **Takeuchi with 18" Bucket**		Pit Orientation: **5°** / Elevation: **~**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0' - 1'	Brown (7.5 YR 4/3) **SILTY CLAY**, 10% gravel, no redoximorphic features, finely granular, many medium interstitial and tubular pores, very friable, slightly plastic, slightly sticky, few fine roots, diffuse irregular boundary, moist		
@ 1' - 1.5'	Brown (7.5 YR 5/4) **SANDY CLAY**, 10% gravel, 10% stone, many redoximorphic concentrations (7.5 YR 6/4) and depletions (Gley 5/5B), massive granular, few fine interstitial soil pores, very friable, moderately plastic, slightly sticky, no roots, clear irregular boundary, moist		
@ 1.5' - 5'	Strong brown (7.5 YR 6/4) intensely weathered metavolcanic rock, 60% stone, few redoximorphic concentrations (7.5 YR 6/4), massive, few tubular soil pores, friable, slightly plastic, slightly sticky, no roots, moist		
	Test pit terminated at 4' (practical refusal) No free groundwater encountered No caving noted		



Scale: 1" = 4 Feet

Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. ESTABLISHED 1984	Project No.: E21526.000 **February 2022**	**EXPLORATORY TEST PIT LOG** **The Town & Country Village El Dorado** **Onsite Wastewater Disposal** El Dorado Hills, California	**FIGURE** **7**

Consultant: **YCG** | Date: **18 January 2022** | Parent Rock Type: **V** G MS A Other

SOIL PIT # 1 *1st Horizon* Depth: 0' to 1.5'

Slope: 9 **% Aspect:** FLAT

Texture: s ls sl sc scl l c cl sic **sicl** sil si DRX IWRX MWRX DG
Rock Fragments: gravel 10 % cobble ~ % stone ~ %
Color: 7.5 YR 4/3
Redoxymorphic Features: **none** few common many
RC color ~ RD color ~ RM color ~
Structure: **gran** platy block prism **f** m c single grain **massive**
Soil Pores: none few common **many** f **m** c **inters tubular**
Moist Consistence: l **vfr** fr f vf ef
Plasticity: np **sp** mp vp **Stickiness:** ns **ss** ms vs
Roots: none **few** common many vf f **m** c
Boundary Distinctness: **a** c g d **Topography:** s w **i** b
Moisture: dry **moist** wet saturated
NOTES: ~
Same as SOIL PIT # *Horizon* #

2nd Horizon Depth: 1.5' to 3'

Texture: s ls sl sc **scl** l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel 10 % cobble ~ % stone ~ %
Color: 7.5 YR 5/4
Redoxymorphic Features: none **few** common many
RC color ~ RD color ~ RM color
Structure: gran platy block prism f m c single grain **massive**
Soil Pores: none few common many **f** m c inters **tubular**
Moist Consistence: l **vfr** fr f vf ef
Plasticity: np sp **mp** vp **Stickiness:** ns **ss** ms vs
Roots: **none** few common many vf f m c
Boundary Distinctness: a **c** g d **Topography:** s w **i** b
Moisture: dry **moist** wet saturated
NOTES:
Same as SOIL PIT # *Horizon* #

3rd Horizon Depth: 3' to 7'

Texture: s ls sl sc scl l c cl sic sicl sil si DRX **IWRX** MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: 7.5 YR 5/6
Redoxymorphic Features: none **few** common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain **massive**
Soil Pores: none few common many **f** m c inters **tubular**
Moist Consistence: l vfr **fr** f vf ef
Plasticity: np **sp** mp vp **Stickiness:** ns **ss** ms vs
Roots: **none** few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry **moist** wet saturated
NOTES: ~
Same as SOIL PIT # *Horizon* #

4th Horizon Depth: ~ to ~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: ~
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # *Horizon* #

SOIL PIT # 2 *1st Horizon* Depth: 0' to 1.5'

Slope: 7 **% Aspect:** FLAT

Texture: s ls sl sc scl l c cl sic **sicl** sil si DRX IWRX MWRX DG
Rock Fragments: gravel 5 % cobble ~ % stone ~ %
Color: 7.5 YR 4/3
Redoxymorphic Features: **none** few common many
RC color ~ RD color ~ RM color ~
Structure: **gran** platy block prism **f** m c single grain **massive**
Soil Pores: none few common **many** f **m** c **inters tubular**
Moist Consistence: l **vfr** fr f vf ef
Plasticity: np **sp** mp vp **Stickiness:** ns **ss** ms vs
Roots: none **few** common many vf f **m** c
Boundary Distinctness: **a** c g d **Topography:** s w **i** b
Moisture: dry **moist** wet saturated
NOTES: ~
Same as SOIL PIT # 1 *Horizon* # 1

2nd Horizon Depth: 1.5' to 3'

Texture: s ls sl sc **scl** l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone 100 %
Color: 7.5 YR 5/4
Redoxymorphic Features: none **few** common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain **massive**
Soil Pores: none few common many **f** m c inters **tubular**
Moist Consistence: l **vfr** fr f vf ef
Plasticity: np sp **mp** vp **Stickiness:** ns **ss** ms vs
Roots: **none** few common many vf f m c
Boundary Distinctness: a **c** g d **Topography:** s w **i** b
Moisture: dry **moist** wet saturated
NOTES: ~
Same as SOIL PIT # 1 *Horizon* # 2

3rd Horizon Depth: 3' to 8'

~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX **IWRX** MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: 7.5 YR 5/6
Redoxymorphic Features: none **few** common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain **massive**
Soil Pores: none few common many **f** m c inters **tubular**
Moist Consistence: l vfr **fr** f vf ef
Plasticity: np **sp** mp vp **Stickiness:** ns **ss** ms vs
Roots: **none** few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry **moist** wet saturated
NOTES: ~
Same as SOIL PIT # 1 *Horizon* # 3

4th Horizon Depth: ~ to ~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: ~
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # *Horizon* #

Consultant: **YCG** | Date: **18 January 2022** | Parent Rock Type: V G MS A Other

SOIL PIT # 3

1ST Horizon **Depth:** 0' **to** 1.5'

Slope: 9 **% Aspect:** FLAT

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel 10 % cobble ~ % stone ~ %
Color: 7.5 YR 4/3
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 1

2nd Horizon **Depth:** 1.5' **to** 3'

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel 10 % cobble ~ % stone ~ %
Color: 7.5 YR 5/4
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES:
Same as SOIL PIT # 1 ***Horizon*** **#** 2

3rd Horizon **Depth:** 3' **to** 7'

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: 7.5 YR 5/6
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 3

4th Horizon **Depth:** ~ **to** ~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: ~
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # ***Horizon*** **#**

SOIL PIT # 4

1ST Horizon **Depth:** 0' **to** 1.5'

Slope: 7 **% Aspect:** FLAT

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel 5 % cobble ~ % stone ~ %
Color: 7.5 YR 4/3
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 1

2nd Horizon **Depth:** 1.5' **to** 3'

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone 100 %
Color: 7.5 YR 5/4
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 2

3rd Horizon **Depth:** 3' **to** 8'
~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: 7.5 YR 5/6
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 3

4th Horizon **Depth:** ~ **to** ~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: ~
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # ***Horizon*** **#**

YOUNGDAHL CONSULTING GROUP, INC.
ESTABLISHED 1984

Project No.: E21526.000
February 2022

EXPLORATORY SOIL PIT LOG
The Town & Country Village El Dorado
Onsite Wastewater Disposal
El Dorado Hills, California

FIGURE 9

Consultant: **YCG** | Date: **18 January 2022** | Parent Rock Type: [V] G MS A Other

SOIL PIT # 5 ***1ST Horizon*** **Depth:** 0' **to** 1.5'
Slope: 9 **% Aspect:** FLAT
Texture: s ls sl sc scl l c cl sic [sicl] sil si DRX IWRX MWRX DG
Rock Fragments: gravel 10 % cobble ~ % stone ~ %
Color: 7.5 YR 4/3
Redoxymorphic Features: [none] few common many
RC color ~ RD color ~ RM color ~
Structure: [gran] platy block prism [f] m c single grain [massive]
Soil Pores: none few common [many] f [m] c [inters tubular]
Moist Consistence: l [vfr] fr f vf ef
Plasticity: np [sp] mp vp **Stickiness:** ns [ss] ms vs
Roots: none [few] common many vf f [m] c
Boundary Distinctness: [a] c g d **Topography:** s w [i] b
Moisture: dry [moist] wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 1

2nd Horizon **Depth:** 1.5' **to** 3'

Texture: s ls sl sc [scl] l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel 10 % cobble ~ % stone ~ %
Color: 7.5 YR 5/4
Redoxymorphic Features: none [few] common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain [massive]
Soil Pores: none few common many [f] m c inters [tubular]
Moist Consistence: l [vfr] fr f vf ef
Plasticity: np sp [mp] vp **Stickiness:** ns [ss] ms vs
Roots: [none] few common many vf f m c
Boundary Distinctness: a [c] g d **Topography:** s w [i] b
Moisture: dry [moist] wet saturated
NOTES:
Same as SOIL PIT # 1 ***Horizon*** **#** 2

3rd Horizon **Depth:** 3' **to** 7'

Texture: s ls sl sc scl l c cl sic sicl sil si DRX [IWRX] MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: 7.5 YR 5/6
Redoxymorphic Features: none [few] common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain [massive]
Soil Pores: none few common many [f] m c inters [tubular]
Moist Consistence: l vfr [fr] f vf ef
Plasticity: np [sp] mp vp **Stickiness:** ns [ss] ms vs
Roots: [none] few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry [moist] wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 3

4th Horizon **Depth:** ~ **to** ~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: ~
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # ***Horizon*** **#**

SOIL PIT # ***1ST Horizon*** **Depth:** **to**
Slope: **% Aspect:**
Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color:
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # ***Horizon*** **#**

2nd Horizon **Depth:** **to**

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone 100 %
Color:
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 2

3rd Horizon **Depth:** **to**
~
Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color:
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # 1 ***Horizon*** **#** 3

4th Horizon **Depth:** ~ **to** ~

Texture: s ls sl sc scl l c cl sic sicl sil si DRX IWRX MWRX DG
Rock Fragments: gravel ~ % cobble ~ % stone ~ %
Color: ~
Redoxymorphic Features: none few common many
RC color ~ RD color ~ RM color ~
Structure: gran platy block prism f m c single grain massive
Soil Pores: none few common many f m c inters tubular
Moist Consistence: l vfr fr f vf ef
Plasticity: np sp mp vp **Stickiness:** ns ss ms vs
Roots: none few common many vf f m c
Boundary Distinctness: a c g d **Topography:** s w i b
Moisture: dry moist wet saturated
NOTES: ~
Same as SOIL PIT # ***Horizon*** **#**