

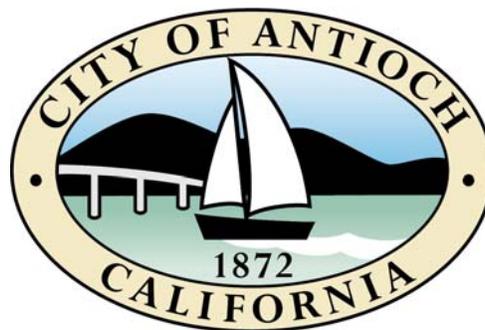
VINEYARDS AT SAND CREEK

SCH#2014092010

DRAFT ENVIRONMENTAL IMPACT REPORT

**VOLUME II OF II
APPENDICES D - O**

PREPARED FOR
THE CITY OF ANTIOCH



JUNE 2015

PREPARED BY



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APPENDIX D

**BIOLOGICAL RESOURCE ANALYSIS
THE VINEYARDS AT SAND CREEK
ANTIOCH, CONTRA COSTA COUNTY, CALIFORNIA**

March 11, 2015

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ATTACHMENTS

Attachment A: Case Closure Letter by RWQCB, February 2011.

Attachment B. Sheet 1: Draft Wetland Delineation Map of The Vineyards at Sand Creek Project Site.

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1. INTRODUCTION

Monk & Associates, Inc. (M&A) has prepared this biological resource analysis for the proposed Vineyards at Sand Creek Project (herein referred to as the proposed project) located in Antioch, Contra Costa County, California (Figures 1 and 2). The purpose of our analysis is to provide a description of existing biological resources on the project site and to identify potentially significant impacts that could occur to sensitive biological resources from the construction of a proposed residential development.

Biological resources include common plant and animal species, and special-status plants and animals as designated by the U.S. Fish and Wildlife Service (the Service), California Department of Fish and Wildlife (the Department), National Marine Fisheries Service (NMFS), and other resource organizations including the California Native Plant Society (CNPS). Biological resources also include waters of the United States and State, as regulated by the U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and the Department.

This biological resources analysis includes identification of “potentially significant” and “significant impacts” that could occur to sensitive biological resources as defined by the California Environmental Quality Act (CEQA). Finally, mitigation measures are presented for identified “potentially significant” and “significant” impacts that, upon implementation, would reduce impacts to levels considered less than significant pursuant to the CEQA.

2. PROPERTY LOCATION AND SETTING

The 141 acre project site is located 0.30 mile east of Highway 4 and 0.50 mile south of Lone Tree Way in the City of Antioch, Contra Costa County, California (Figures 1 and 2). The project site is identified by Assessor’s Parcel Numbers (APN) 057-030-003, and portions of APNs 057-030-004 and 057-050-017. The project site is a large parcel of undeveloped land that has been actively farmed for many years. Based upon available aerial photograph records, the proposed project has been disked and dry farmed every year since 1945, and there is at least one aerial photograph showing farming occurred on the project site as early as 1940 [based on historical aerial photographs from EDR, Environmental Data Resources, Inc., and Photo Sciences (formerly Hammon, Jensen, Wallen & Associates, Inc.)].

The project site is located in an area of Antioch that is rapidly transitioning from agricultural uses to residential and commercial development. This area is referred to by the City of Antioch as the Sand Creek Focus Area. The project site is surrounded by large plots of undeveloped land to the east, south, and west. Figure 3 provides an aerial photograph that shows the project site features and the surrounding land uses. The parcel directly west of the project site is the Aviano Development Project Site that is fully approved for a residential development. Aviano is scheduled to begin construction in the near future.

Heidorn Ranch Road runs north/south along the eastern boundary of the project site. Sand Creek Road dead ends at the southeast corner of the project site; this road comes from the Highway 4 Bypass in Brentwood east of the project site and is proposed to extend through the project site to the west onto the Aviano project site. North of the proposed project area there are residential

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houses, Heidorn and Williamson Ranch Park, and the Lone Tree Plaza shopping center to the northeast. Sand Creek flows east along the southern boundary of the project site and eventually enters Marsh Creek in the City of Brentwood.

A portion of the project site (Parcel 057-030-003, Shell/Aera site) was previously operated by Shell Oil as an office and maintenance yard for petroleum pipeline operations. Soil impacts were identified at the site. Remediation efforts included removal of all buildings, parking and storage areas (essentially the entire site). All soils were excavated, aired, and thus treated on-site pursuant to a Toxic Remediation Plan completed under Regional Water Quality Control Board (RWQCB) oversight. Thus, soils on this portion of the project site are uniformly highly disturbed. The Shell/Aera site was granted “Case Closure” by the RWQCB in February 2011 (see Attachment A).

3. PROPOSED PROJECT

The proposed project would be construction on a 141 acre project site, but includes improvements that will be constructed on approximately 2 acres at offsite locations. The proposed project includes the construction of up to 650 residential units on lots ranging from 3,600 to 5,200 square feet and the construction of associated parking, landscaping, utilities, access roads, detention basins, and other necessary infrastructure. Other associated construction include community amenities such as two parks, an extension of Sand Creek Road, and the construction of the Sand Creek Trail north of Sand Creek. In addition, the proposed project includes offsite improvements that include the construction of a stormdrain outfall into Sand Creek and improvements to Heidorn Ranch Road. Collectively, hereinafter, all improvements are evaluated as “the proposed project.”

4. ANALYSIS METHODS

The impact analysis in this report is based on the Preliminary Site Plan by Carlson, Barbee & Gibson, Inc. dated September 8, 2014 and titled “Preliminary Site Plan Promenade” [now named “The Vineyards at Sand Creek”].

Prior to preparing this biological resource analysis report, M&A researched the most recent version of the Department Natural Diversity Database, RareFind 3.1 application (CNDDDB 2014) for historic and recent records of special-status plant and animal species (that is, threatened, endangered, rare) known to occur in the region of the project site. M&A also searched the 2014 electronic version of the California Native Plant Society’s (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2001) for records of special-status plants known in the vicinity of the project site. All special-status species records were compiled in tables. M&A examined all known record locations and any available biological survey reports to determine if special-status species could occur on the project site or within an area of effect of the development project.

4.1 General Site Surveys

M&A biologists Ms. Hope Kingma and Ms. Molly Peterson conducted surveys of the project site on June 23 and June 27, 2014 to record biological resources and to assess the likelihood of agency regulated areas on the project site. The survey involved searching all habitats on the site

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and recording all plant and wildlife species observed. M&A's site evaluation included a thorough examination of the site to document potential habitats on or adjacent to the project site that could support special-status species and/or waters of the U.S. and state. M&A cross-referenced the habitats found on the project site against the habitat requirements of local or regionally known special-status species to determine if the proposed project could directly or indirectly impact such species.

4.2 Special-Status Plant Surveys

In the spring and summer of 2005 and 2006, M&A biologists Ms. Sarah Lynch and Ms. Stephanie Scolari completed focused surveys for special-status (that is, rare, threatened, or endangered) plants on the project site. Additional special-status plant surveys were conducted on the project site by M&A biologists Ms. Sarah Lynch and Ms. Christy Owens on July 30, 2014. The surveys followed CDFG (2000) and CNPS (2001) published survey guidelines. These guidelines state that special-status surveys should be conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. These guidelines also state that the surveys be floristic in nature with every plant observed identified to species, subspecies, or variety as necessary to determine their rarity status. Finally, these surveys must be conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Following these guidelines, surveys were conducted during the months when special-status plant species from the region are known to be evident and flowering. All areas of the project site were examined by walking systematic meandering transects through potential habitat, and by closely examining any existing microhabitats that could potentially support special-status plants.

Nearly all plant species found on the project site were identified to species; all were identified to the level needed to determine whether they qualify as special-status plants. A list of all vascular plant taxa encountered within the project site was recorded in the field. Plants that needed further evaluation were collected and keyed in the lab. Final determinations for collected plants were made by keying specimens using standard references such as *The Jepson Manual* (Hickman 1993). No rare plants were detected on site during appropriately-timed surveys.

4.3 Wetland Delineation

On June 23, June 27, and August 21, 2014 Ms. Hope Kingma and Ms. Molly Peterson conducted a wetland delineation of the project site, using criteria prescribed in the Corps' 1987 Wetland Delineation Manual (Corps 1987) and the Corps' Regional Supplement for the Arid West Region (Corps 2008). A draft wetland delineation map (Attachment B) was submitted to the Corps along with a Request for a Jurisdictional Determination on September 15, 2014. Currently, the draft jurisdictional map remains pending.

5. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES

5.1 Topography and Hydrology

The project site's elevation ranges from a maximum of approximately 175 feet above sea level on the western side of the project site to approximately 150 feet above sea level near the eastern portion of the project site (Figure 2). The project site has been disked and planted to wheat every

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year dating back to 1945, and there is at least one aerial photograph record available showing the project site was disked and farmed in 1940. The site may have been leveled in the 1940s or 1950s, or more simply on-going farming practices have been gradually leveling the site over the many years of agricultural production. The project site exhibits minimal depressional topography. Most of the site drains via infiltration.

Sand Creek, an intermittent creek, occurs just south of the project site and flows west to east along the southern project site boundary. This creek receives urban runoff from developments to the northwest, and from a larger as yet undeveloped watershed further to the northwest. The average distance between ordinary high water marks (OHWM) in Sand Creek is 12 feet and it is approximately 70 to 150 feet wide between the top-of-banks. Sand Creek is incised approximately 20 feet down below the existing grade of the project site; it has steeply-sloped banks and a flood plain terrace near the top of banks on each side of the thalweg.

5.2 Plant Communities and Associated Wildlife Habitats

M&A biologists examined the habitats and characterized the vegetation present on the project site. A complete list of plant species observed within the project site is presented in Table 1. Most of the project site is farmed annually resulting in limited vegetation and an agrestal plant community. Sand Creek, an intermittent creek occurs offsite and flows west to east along the southern boundary of the project site. This creek supports sporadically occurring riparian canopy vegetation. The old Shell/Aera parcel is dominated by highly disturbed ruderal plant species. Therefore, three plant communities occur on the project site: “agrestal” (farmed), ruderal, and riparian woodland. Nomenclature used for plant names follows *The Jepson Manual, 2nd edition* (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website.

5.2.1 “AGRESTAL” PLANT COMMUNITY

An “agrestal” community is a weed dominated community of rural, agricultural areas (Holland & Keil 1995). Agrestal communities form in areas that have been disturbed by cultivation. Most of the project site is an agrestal community. Many species of weeds thrive in the same environments as crop plants.

The existing vegetation over most of the proposed project area is classified as agrestal and is the result of long-term ground manipulation and cultivation. Plants introduced by man, generally for agricultural commodity crops, dominate these communities. The cultivation of agricultural fields continually disturbs the soil. As a result these areas typically do not support native plant species or communities. During the multiple site investigations the dominant weeds included species such as dove weed (*Croton setiger*), morning-glory (*Convolvulus arvensis*), alkali mallow (*Malvella leprosa*), California burclover (*Medicago polymorpha*), common knotweed (*Polygonum aviculare*), short-podded mustard (*Hirschfeldia incana*), ripgut brome (*Bromus diandrus*), and slender oats (*Avena barbata*).

In general, agrestal areas do not provide suitable habitat for many wildlife species. Most farms are “clean farmed” meaning that no naturalized habitats remain outside of intended crop species. The intense disking and manipulation of the soil tend to limit the number of species that occupy

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or use cropland habitats. Nevertheless, the disked field on the project site provides habitat for animal species adapted to human-induced disturbances, such as northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), rock pigeon (*Columba livia*), western meadowlark (*Sturnella neglecta*), American crow (*Corvus brachyrhynchos*), black-tailed hare (*Lepus californicus*), and domestic dog (*Canis familiaris*).

5.2.2 RUDERAL HABITAT

Ruderal (weedy) communities are assemblages of plants that thrive in waste areas, roadsides and other sites that have been disturbed by human activity. The Shell/Aera station has been highly disturbed and altered over the last few decades. Top soils were completely removed in 2011 during a toxic clean-up plan that was implemented under RWQCB oversight. The restored surface is a mix of soils that has now revegetated with a ruderal plant community.

Dominant plant species located within the Shell/Aera station portion of the project site include non-native species such as tumbleweed (*Salsola tragus*), soft chess (*Bromus hordeaceus*), Harding grass (*Phalaris aquatica*), stinkwort (*Dittrichia graveolens*), wall barley (*Hordeum murinum leporinum*), tumbling oracle (*Atriplex rosea*), white pigweed (*Chenopodium album*), and yellow star thistle (*Centaurea solstitialis*). Subdominants within this community include species such as prickly lettuce (*Lactuca serriola*), milk thistle (*Silybum marianum*), slender wild oat, and Italian ryegrass (*Festuca perennis*).

Ruderal habitats typically provide suitable environments for common animals that are adapted to living in association with humans. Common wildlife species observed using this ruderal community included raccoon (*Procyon lotor*), California ground squirrel (*Spermophilus beecheyi*), Audubon's cottontail (*Sylvilagus audubonii*), black-tailed hare, western fence lizard (*Sceloporus occidentalis*), American crow, European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and house finch (*Carpodacus mexicanus*).

5.2.3 RIPARIAN WOODLAND

Scattered riparian woodland is associated with Sand Creek, an intermittent creek that runs west to east along the southern border of the project site. Tree species found in the riparian woodland along Sand Creek include valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*), bluegum eucalyptus (*Eucalyptus globulus*), arroyo willow (*Salix lasiolepis*), and big-leaf maple (*Acer macrophyllum*). The open non-canopied habitats within Sand Creek allow for localized occurrences of herbaceous and shrubby understories. California rose (*Rosa californica*) grows in dense thickets along portions of the creek, while sneezeweed (*Helenium puberulum*), California sagebrush (*Artemisia californica*), California mugwort (*Artemisia douglasiana*), and white sweetclover (*Melilotus albus*) are scattered along the creek banks and at the water line. Annual beardgrass (*Polypogon monspeliensis*), cattails (*Typha latifolia*), brown-headed rush (*Juncus phaeocephalus* ssp. *paniculatus*), Baltic rush (*Juncus balticus* ssp. *ater*) and water cress (*Nasturtium officinale*) grow in scattered locations in the creek channel as well.

Wildlife associated with the riparian woodland onsite includes amphibians such as California slender salamander (*Batrachoseps attenuatus*) and the Pacific tree frog (*Hyla regilla*). Reptiles expected within the riparian community include western terrestrial garter snake (*Thamnophis*

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elegans) and northern alligator lizard (*Elgaria coerulea*). Common birds that have been observed in the riparian woodland onsite include red-tailed hawk (*Buteo lineatus*), great horned owl (*Bubo virginianus*), northern flicker (*Colaptes auratus*), downy woodpecker (*Picoides pubescens*), Nuttall's woodpecker (*Picoides nuttallii*), western scrub jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), and California towhee (*Pipilo crissalis*). Some common mammals that could be observed in the riparian woodland include raccoon, and gray fox (*Urocyon cinereoargenteus*). Table 2 provides a complete list of wildlife seen and/or heard during the site surveys. It is expected that at different times of the year different animals would be found in the riparian woodland on the project site, especially during the spring and fall migration months when Neotropical migrants typically use riparian habitats.

5.3 Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats.

The proposed project will not interfere with the movement of native wildlife as the majority of the project site is a disked agricultural field that has been consistently disturbed for years. Sand Creek, just south of the project site, provides a valuable wildlife corridor with suitable cover, foraging and water resources, and migration pathways that lead to other natural habitats. Sand Creek provides a local wildlife corridor for common mammals and birds such as raccoon, opossum (*Didelphis virginiana*), gray fox, coyote (*Canis latrans*), red-tailed hawk, great horned owl and Nuttall's woodpecker to name a few. However, mammals that use the riparian woodland as a wildlife corridor have been discouraged from using the project site for many years as the site is routinely disked. As such, medium and large mammal movements along this creek will remain unaffected by the proposed project. Finally, this dense and diverse riparian woodland provides important avian habitat that is used seasonally by migrants and year-round by resident birds; this function will also remain unaffected as nesting bird surveys will be conducted prior to commencement of construction. The project as currently proposed would not adversely impact wildlife movement corridors.

While a small portion of Sand Creek will be impacted during the construction of a stormwater outfall into the creek, the value of this wildlife corridor will be unaffected. In addition, prior to the commencement of construction, a wildlife exclusion fence will be installed along the southern perimeter of the project site and extend along the eastern and western edges to prevent mammals migrating along Sand Creek from entering the project site. Sand Creek is the only wildlife corridor in proximity to the project site and this function will be unaffected by the proposed development project and will continue to serve its function as a wildlife corridor.

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6. SPECIAL-STATUS SPECIES DEFINITION

6.1 Definitions

For purposes of this analysis, special-status species are plants and animals that are subject to the California and Federal Endangered Species Acts (CESA and FESA, respectively) and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq.*; 14 CCR §670.1 *et seq.*) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);
- plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;
- plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic *Inventory* (CNPS 2001). The California Department of Fish and Wildlife recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and the Department requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information (more on CNPS Rank species below);
- migratory nongame birds of management concern listed by U.S. Fish and Wildlife Service (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);
- animals that are designated as "species of special concern" by the Department (2014);
- Animal species that are "fully protected" in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

In the paragraphs below we provide further definitions as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. An endangered species under the FESA is any species which is in danger of extinction throughout all or a significant portion of its range. A Threatened species means any species which is likely to become an endangered species within

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the foreseeable future throughout all or a significant portion of its range. If it is necessary to take a Federally listed Endangered or Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the Service prior to initiating the take.

State Threatened Species. A species listed as Threatened under the state Endangered Species Act (§2050 of California Fish and Game Code) is protected from unauthorized “take” (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to “take” a state-listed Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the Department prior to initiating the “take.”

California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered “rare.” Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a “significant effect on the environment” (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species. The CNPS maintains an “Inventory” of special status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state or federally listed species), the Department requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. The Rank 1 and 2 species are defined below:

- Rank 1A – Presumed extinct in California;
- Rank 1B – Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
- Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the Fish and Game Code, and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern, and are review and watch lists, respectively.

Additionally, in 2006 CNPS updated their lists to include “threat code extensions” for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- .1 is considered “seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)”;
- .2 is “fairly endangered in California (20-80% of occurrences threatened)”;
- .3 is “not very endangered in California (less than 20% of occurrences threatened or no current threats known).”

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Under the CEQA review process only CNPS Rank 1 and 2 species are considered since these are the only CNPS species that meet CEQA's definition of "rare" or "endangered." Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds. Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time.

6.2 Potential Special-Status Plants that Could Be Affected By the Project

Figure 4 provides a graphical illustration of known CNDDDB and CNPS records for special-status species within 2 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. According to the Department's CNDDDB, a total of 7 special-status plant species are known to occur within 5 miles of the project site (Table 3). However, owing to the farmed conditions of the project site, special-status plants are not likely to occur. If present they would be expected to occur along Sand Creek or along the edges of farmed areas. The majority of the plants from Table 3 occur in specialized habitats such as meadows and seeps, marshes and swamps, coastal scrub, chenopod scrub, and/ or inland dunes which do not occur on or near the project site. Accordingly, species occurring in these specialized habitats were summarily dismissed from consideration in Table 3.

However, there are three rare plant species that thrive in disturbed areas and have potential to occur on the project site. These include big tarplant (*Blepharizonia plumosa*), a CNPS list 1B.1 species; rhomboid bract saltbush (*Atriplex depressa*), a CNPS list 1B.2 species; and round-leaved filaree (*California macrophylla*), a CNPS list 1B.1 species (Table 3). These species do not have special state or federal protections; however, pursuant to CEQA definitions for special-status species, these CNPS designated special-status are reviewed in this analysis.

In the spring and summer of 2005 and 2006, M&A completed focused surveys for special-status (that is, rare, threatened, or endangered) plants on the project site. Seven large-leaf storks-bill (*California macrophylla*) plants, formerly known as *Erodium macrophyllum*, were identified on the north end of the project site in a marginal area that disking missed that year. This small colony was recorded in the CNDDDB as Occurrence #48. On July 30, 2014 M&A botanists Ms. Sarah Lynch and Ms. Christy Owens conducted a rare plant survey of the project site. Ms. Lynch and Ms. Owens have extensive botanical survey experience and are experts at identifying special-status plants both in flower, and when possible vegetatively. No special-status plants were found on or adjacent to the project site during this botanical survey. Big tarplant and rhomboid bract saltbush were not observed during their known blooming periods in either 2005, 2006, or in 2014. Thus, it is concluded that these plants are absent from the project site and will not be impacted by the proposed project. Round-leaved filaree, while observed on a margin of the project site in 2005, was also not observed in 2014. In addition, the area of the project site supporting the small and depressed population was extensively farmed. M&A concludes that this small colony has been extirpated in the intervening 9 years since our last rare plant survey conducted on this project site. Accordingly, M&A concludes that the proposed project will not impact round-leaved filaree.

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All seven special status plant species known to occur within 2 miles of the project site (Table 3), and all other regionally known rare plants, are not expected to occur on the project site owing to unsuitable conditions (the site is highly disturbed and has been disked/farmed since the early 1940s). No rare plants were detected on site during appropriately-timed surveys in 2014. Thus, no impacts are expected to occur to rare plants from implementation of the proposed project.

6.3 Potential Special-Status Animals on the Project Site

Figure 4 provides a graphical illustration of the known CNDDDB records for special-status animal species within 2 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. A total of 11 special-status animal species are known to occur within 5 miles of the project site according to the Department's CNDDDB records (Table 4). Of these species, only the California red-legged frog (*Rana draytonii*), has been recorded in Sand Creek. In addition to discussing the California red-legged frog in detail below, potentially suitable habitat exists on the project site for 8 other species, including the California tiger salamander (*Ambystoma californiense*), western pond turtle (*Emys marmorata*), Swainson's hawk (*Buteo swainsonii*), white-tailed kite (*Elanus caeruleus*), western burrowing owl (*Athene cunicularia hypugaea*), loggerhead shrike (*Lanius ludovicianus*), tricolored blackbird (*Agelaius tricolor*), and San Joaquin kit fox (*Vulpes macrotis mutica*), all of which are also discussed in detail below.

6.3.1 CALIFORNIA RED-LEGGED FROG

The California red-legged frog (*Rana draytonii*) was federally listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the Federal Endangered Species Act. On March 16, 2010 the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). *The project site does not fall within mapped critical habitat* (see Figure 5).

The California red-legged frog is also a state "species of special concern." While the state designation "species of special concern" does not provide any legally mandated protection, species of special concern must be considered in any project undergoing a CEQA review.

The California red-legged frog is typically found in ponds, slow-flowing portions of perennial and intermittent streams that maintain water in the summer months. This frog is also found in hillside seeps that maintain pool environments or saturated soils throughout the summer months. Populations probably cannot be maintained if all surface water disappears (i.e., no available surface water for egg laying and larval development habitat). Larval California red-legged frogs require 11-20 weeks of permanent water to reach metamorphosis (i.e., to change from a tadpole into a frog), in water depths of 10 to 20 inches (USFWS 2002). Riparian vegetation such as willows and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present. Populations of California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrog, Centrarchid fish species (such as sunfish, bluegill, or large-mouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all of which are known California red-legged frog predators. However, the presence of these non-native species does not preclude the presence of the California red-legged frog.

California red-legged frogs also use upland habitats for migration and dispersal. The USFWS *Recovery Plan for the California Red-Legged Frog* states that frog overland excursions via uplands can vary between 0.25 mile up to 3 miles during the course of a wet season, and that frogs “have been observed to make long-distance movements that are straight-line, point to point migrations rather than using corridors for moving in between habitats” (USFWS 2002). The information presented in the USFWS’ Recovery Plan was taken from a publication by Bulger et al. (2003) that recounts a study in coastal redwoods in Santa Cruz area. M&A believes that such overland straight-line migrations are primarily limited to periods of heavy rainfall or during periods when ambient conditions exhibit high moisture levels such as in fog belts along the coast. Working in Pointe Reyes National Seashore on the coast of California, Fellers and Kleeman (2007) found approximately 31 percent of California red-legged frogs moved more than 30 meters from their breeding sites and about 69 percent moved less than 30 meters from their breeding site during seasonal movement periods. Similarly, Bulger et al. (2003) found that 60 percent of their radio tagged frogs stayed within 30 meters of their breeding sites.

In locations that are characterized by hot and seasonally dry climates, the California red-legged frog is inclined to stay closer to its aquatic environments or will not migrate. Tatarian (2005) who studied an inland population of California red-legged frogs in eastern Contra Costa County where the climate is far drier than the coastal environment, found that all movements started after the first 0.5 cm of rain in the fall, with more terrestrial movements being made in the fall pre-breeding season (57%) than in the winter breeding season (32%) or spring post-breeding season (11%). Tatarian (op. cit.) also found that California red-legged frogs moved greater average distances aquatically (84.6 m) than terrestrially (27.7 m). Greater terrestrial distances were moved in the pre-breeding season (35.2 m) than in the breeding season (15.5 m) or post-breeding season (16.3 m) with the majority of movements occurring for only one of the 3-4 day survey periods. The majority of frogs (57%) were position faithful within a pool, indicating they did not migrate at all. These data suggest that long forays across the landscape found in coastal populations are less likely in dry inland locations.

The USFWS *Recovery Plan for the California Red-Legged Frog* states that populations are “most likely to persist where multiple breeding areas are embedded within a matrix of habitats used for dispersal.” “The primary constituent elements for California red-legged frogs are aquatic and upland areas where suitable breeding and non-breeding habitat is interspersed throughout the landscape and is interconnected by unfragmented dispersal habitat” (USFWS 2002).

The closest known CNDDDB record of California red-legged frog is an M&A record recorded 0.90 miles southwest of the project site within Sand Creek (CNDDDB Occurrence No. 933). In addition, there are three additional CNDDDB records of this frog within 2 miles of the project site. Consequently, the Service regards Sand Creek as occupied habitat of the California red-legged frog. As Sand Creek is regarded as occupied, lands adjacent to the creek including the project site constitute potential upland dispersal habitat for this frog. Therefore the proposed project will impact up to 141 acres of potential California red-legged frog dispersal habitat.

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Installation of the outfall structure on the bank and bed of Sand Creek will also result in impacts to known occupied California red-legged frog habitat. *Accordingly, impacts to California red-legged frog are regarded as significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.2 CALIFORNIA TIGER SALAMANDER

The California tiger salamander (CTS) (*Ambystoma californiense*), Central California Distinct Population Segment, was federally listed as threatened on August 4, 2004. On August 19, 2010, the CTS was also state listed as a threatened species under the CESA. The Service designated critical habitat for the Central California DPS in 2005. *The project site is located outside of the closest mapped critical habitat for the Central California DPS which is Critical Habitat Unit 18 designated in Alameda County (Central Valley Geographic Unit 18, Map 14)* (see Figure 5).

CTS occur in grasslands and open oak woodlands that provide suitable over summering and/or breeding habitats. CTS spend the majority of their lives underground. They typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. Adult California tiger salamanders have been observed up to 2,092 meters (1.3 miles) from breeding ponds (USFWS 2004). As such, unobstructed migration corridors are an important component of CTS habitat.

CTS emerge during the first heavy, warm rains of the year, typically in late November and early December. In most instances, larger movements of CTS do not occur unless it has been raining hard and continuously for several hours. Typically, for larger movements of CTS to occur nighttime temperatures also must be above 48° F. CTS are able to move over, through or around almost all obstacles. Significant obstructions that block CTS movements include freeways and other major (heavy traffic) roads, rivers, and deep, vertical or near vertical sided, concrete irrigation/flood control ditches.

During the spring, summer, and fall months, most known populations of the CTS predominately use California ground squirrel burrows as over-summering habitat (Jennings and Hayes 1994; G. Monk personal observation). Other secondary subterranean refugia, or primary refugia where California ground squirrels are absent, likely include Botta's pocket gopher burrows, deep fissures in desiccated clay soils, and debris piles (e.g. downed wood, rock piles).

Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by CTS. In such locations, CTS attach their eggs to rooted, emergent vegetation, and other stable filamentous objects in the water column. Eggs are gelatinous and are laid singly or occasionally in small clusters. Eggs range in size from about ¾ the diameter of a dime to the full diameter of a dime. Occasionally CTS are found breeding in slow-moving, streams or ditches. Ditches and/or streams that are subject to rapid flows, even if only on occasion, typically will not support or sustain CTS egg attachment through hatching, and thus, are not usually used successfully by CTS for breeding (G. Monk and S. Lynch, pers. observations). Similarly, streams and/or ditches that support predators of CTS or their eggs and larvae such as fish, bullfrogs, red swamp crayfish, or signal crayfish, almost never constitute suitable breeding habitat.

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Typically seasonal wetlands that are used for breeding must hold water into the month of May to allow enough time for larvae to fully metamorphose. In dry years, seasonal wetlands may dry too early to allow enough time for CTS larvae to successfully metamorphose. Under such circumstances, desiccated CTS larvae can be found in dried pools. In addition, as pools dry down to very small areas of inundation, CTS larvae become concentrated and are very susceptible to predation. However, in years exhibiting wet springs, these same pools can remain inundated long enough through continual rewetting to allow CTS larvae ample time to successfully metamorphose.

The closest record for CTS occurs 0.60 mile south of the project site (CNDDDB Occurrence No. 856). CTS larvae are recorded to occur in a pond at this location. There are eight additional CTS records known from within two miles of the project site (Figure 4). Regardless, as the project site has been disked annually since the early 1940s, the project site does not provide suitable over-summering upland habitat for CTS, and the site does not provide any breeding habitat for this species. No record of California ground squirrel control was found, however there are no ground squirrels on the actively farmed project site. The Shell/Aera site has a few California ground squirrel burrows of recent origin. However, this portion of the project site was subjected to a contaminant remediation project that removed all soils from the prior developed site thereby removing any potential that this area provides any upland over summering habitat that could be used by the CTS. As such, no suitable CTS habitat will be affected by the proposed project. *Thus, no impacts to CTS are anticipated from the proposed project.*

6.3.3 WESTERN POND TURTLE

The western pond turtle (*Emys marmorata*) is a California “species of special concern.” The sensitivity of this species requires consideration by the lead agency during the CEQA review process. The western pond turtle is a habitat generalist, inhabiting a wide range of fresh and brackish, permanent and intermittent water bodies from sea level to about 4,500 feet above sea level (USFWS 1992). Typically, this species is found in ponds, marshes, ditches, streams, and rivers that have rocky or muddy bottoms. This turtle is most often found in aquatic environments with plant communities dominated by watercress, cattail, and other aquatic vegetation. It is a truly aquatic turtle that usually only leaves the aquatic site to reproduce and to overwinter. Field work has demonstrated that western pond turtles may overwinter on land or in water, or may remain active in water during the winter season; this pattern may vary considerably with latitude, water temperature, and habitat type and remains poorly understood (Jennings and Hayes 1994).

The western pond turtle also requires upland areas where it digs nests and buries its eggs. These nests can extend from 52 feet to 1,219 feet from watercourses (Jennings and Hayes 1992), however most pond turtles nest in uplands within 250 meters of water (Bury, unpublished). Upland nest sites are usually found in areas with sparse vegetation. Sunny, barren, and undisturbed (not disked) land provides optimal habitat, while shady riparian habitat and planted agricultural fields do not provide suitable habitat (op. cit.). Eggs are typically laid from March to August (Zeiner et al. 1988), with most eggs being laid in May and June. Hatchlings will stay in the nest until the following April (Bury, unpublished). Predators of juvenile western pond turtles include the non-native bullfrog and Centrarchid fish (sunfish). This turtle is most visible between April and July when it can be observed basking in the sun. In areas where the water is very warm

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during these months, however, it will bask in the warm water and will be more difficult to observe. It eats plants, insects, worms, fish and carrion (Stebbins 2003).

The closest CNDDDB record for western pond turtle is located 4.80 miles south of the project site in Marsh Creek Reservoir (CNDDDB Occurrence No. 131). Sand Creek provides potentially suitable habitat for the western pond turtle. Installation of the outfall structure on the bank and bed of Sand Creek may result in impacts to suitable western pond turtle habitat. *Accordingly, impacts to western pond turtle are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.4 WESTERN BURROWING OWL

The western burrowing owl (*Athene cunicularia hypugaea*) is a California “species of special concern.” Its nest, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, and §3800). The burrowing owl is also protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13). Finally, based upon this species’ rarity status, any unmitigated impacts to rare species would be considered a “significant effect on the environment” pursuant to §21068 of the CEQA Statutes and §15382 of the CEQA Guidelines. Thus, this owl species must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency. When these owls occur on project sites, typically, mitigation requirements are mandated in the conditions of project approval from the CEQA lead agency.

Burrowing owl habitat is usually found in annual and perennial grasslands, characterized by low-growing vegetation. Often, the burrowing owl utilizes rodent burrows, typically California ground squirrel (*Spermophilus beecheyi*) burrows, for nesting and cover. They may also on occasion dig their own burrows, or use man-made objects such as concrete culverts or rip-rap piles for cover. They exhibit high site fidelity, reusing burrows year after year. Occupancy of suitable burrowing owl habitat can be verified at a site by observation of these owls during the spring and summer months or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement (white wash) at or near a burrow. Burrowing owls typically are not observed in grasslands with tall vegetation or wooded areas because the vegetation obscures their ability to detect avian and terrestrial predators. Since burrowing owls spend the majority of their time sitting at the entrances of their burrows, grazed grasslands seem to be their preferred habitat because it allows them to view the world at 360 degrees without obstructions.

The closest CNDDDB record to the project site where western burrowing owls have been recorded is 0.10 mile to the southeast of the project site (CNDDDB Occurrence No. 857), south of Sand Creek. The majority of the project site consists of recently-disked farmed fields; however, there are a limited number of burrows of recent origin located within the Shell/Aera site. This site was recently subjected to a contaminant removal remediation project that removed all soil in the upper soil profile from this site. Thus, ground squirrel burrows are few and of recent origin. As western burrowing owls are highly mobile species they could get into burrows of recent origin.

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M&A did not observe western burrowing owls or any indirect evidence that burrowing owls are using or residing on the project site during multiple western burrowing owl surveys conducted in 2014. Although the site has been disked routinely since the 1940s greatly reducing the probability of western burrowing owl to occur, the small Shell/Aera parcel on site provides marginal habitat conditions for western burrowing owl. In addition, available burrows at the edges of farmed fields can be used by this owl when/if the farmer does not relatively quickly remove the ground squirrels (a routine farming practice that protects crops). *Accordingly, impacts to western burrowing owl are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.5 SWAINSON'S HAWK

The Swainson's hawk (*Buteo swainsonii*) is a state listed threatened species afforded protection pursuant to the CESA. While it has no special federal status, it is protected from direct take under the Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711). Swainson's hawks, their nests, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, §3513, and §3800). Finally, pursuant to CEQA, this hawk would be considered "rare" and impacts to its nest sites would be regarded as significant. Impacts to foraging habitat can be regarded as significant pursuant to the CEQA based upon guidelines provided by the Department of Fish and Wildlife for this raptor species.

The Swainson's hawk is generally a summer visitor to California. In the fall months, most Swainson's hawks migrate to South America before returning to the United States to breed once again in the late spring. There is a small population of Swainson's hawks that remain residents in California year-round. The nesting population of Swainson's hawks in California was reduced considerably over historical nesting populations when the species was afforded protections pursuant to the California Endangered Species Act in 1984. Since that time, the nesting population of Swainson's hawk has significantly recovered in California, as have other raptor species that were previously protected both as State and Federal listed species. Both the peregrine falcon (*Falco peregrinus ssp. anatum*) and the bald eagle (*Haliaeetus leucocephalus*) were similarly listed species under both the State and Federal Endangered Species Acts, but have both been delisted owing to population recovery. The Swainson's hawk nesting population also likely has greatly recovered, but owing to the absence of a thorough population census in California since the species was listed by the Department, it remains protected pursuant to the CESA.

The Swainson's hawk inhabits open to semi-open areas at low to middle elevations in valleys, dry meadows, foothills, and level uplands (Kochert 1986). It nests almost exclusively in trees and will nest in almost any tree species that is at least 10 feet tall (Schmutz et. al. 1984). Nests are constructed in isolated trees that are dead or alive along drainages and in wetlands, or in windbreaks in fields and around farmsteads (Palmer 1988). Swainson's hawks occasionally nest in shrubs, on telephone poles, and on the ground. In the Central Valley of California, the majority of Swainson's hawk nests and territories are associated with riparian systems and nests are commonly found in cottonwoods and oaks (Schlorff et. al. 1984). They have also been documented nesting in eucalyptus (*Eucalyptus* spp.), black walnut (*Juglans hindsii*), black locust

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(*Robinia pseudoacacia*), almond (*Prunus dulcis*), Osage orange (*Maclura pomifera*), Arizona cypress (*Cupressus arizonica*) and pine (*Pinus* spp.) (CNDDDB records).

Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. Its primary prey in the Central Valley is California meadow vole (*Microtus californicus*). Agricultural areas are often preferred over more natural grassland habitats due to larger prey populations. In addition, agricultural practices (planting, maintenance, harvesting, disking) allow for access to prey, and very likely increases foraging success of Swainson's hawks when farm equipment flushes prey during harvesting (observed many times by G. Monk). During the nesting season, Swainson's hawks usually forage within two miles of their nests. Swainson's hawk does not require habitats that contain many perches because it most often searches for prey aerially; therefore it can occupy habitats with few or no perches except the nest tree (James 1992).

The closest CNDDDB record for the species is 0.10 mile southeast of the project site (CNDDDB Occurrence No. 1681) in a large valley oak tree. No Swainson's hawks have been detected using or nesting on or adjacent to the project site during multiple project site surveys. That said, the project site Shell/Aera site, and trees in Sand Creek adjacent to the project site and where the stormwater outfall would be constructed, support suitable nesting trees. *Hence, prior to construction, nesting surveys must be conducted that confirm or negate this species' presence as a nesting bird on or adjacent to the project site. In addition, the project site constitutes foraging habitat that could be used by the Swainson's hawk. Accordingly, impacts to Swainson's hawk are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.6 WHITE-TAILED KITE

The white-tailed kite (*Elanus caeruleus*) is a "Fully Protected" species under the California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time. It is also protected under the Federal Migratory Bird Treaty Act (50 CFR 10.13). The white-tailed kite is typically found foraging in grassland, marsh, or cultivated fields where there are dense-topped trees or shrubs for nesting and perching. They nest in a wide variety of trees of moderate height and sometimes in tall bushes, such as coyote bush (*Baccharis pilularis*). Native trees used are live and deciduous oaks (*Quercus* spp.), willows (*Salix* spp.), cottonwoods (*Populus* spp.), sycamores (*Platanus* spp.), maples (*Acer* spp.), toyon (*Heteromeles arbutifolia*), and Monterey cypress (*Cupressus macrocarpa*). Although the surrounding terrain may be semiarid, kites often reside near water sources, where prey is more abundant. The particular characteristics of the nesting site do not appear to be as important as its proximity to a suitable food source (Shuford 1993). Kites primarily hunt small mammals, with California meadow voles (*Microtus californicus*) accounting from between 50-100% of their diet (Shuford 1993).

The nearest CNDDDB record for this species is located 1.50 miles northeast of the project site (Occurrence No. 87). The open grassland community provides suitable hunting grounds for white-

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tailed kites, and the trees on and immediately adjacent to the project site along Sand Creek provide potentially suitable nesting habitat. *Accordingly, impacts to white-tailed kite are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.7 LOGGERHEAD SHRIKE

The loggerhead shrike (*Lanius ludovicianus*) is a California “species of special concern.” It is also protected under the federal Migratory Bird Treaty Act and California Fish and Game Code (§3503 and 3800) that protects birds, their nests, eggs, and young. This small, predaceous bird of open and often arid habitats prefers areas with scattered shrubs, trees, posts, fences, utility lines, and other acceptable perching locations. This shrike preys mostly upon large insects, but also takes small birds, mammals, amphibians, reptiles, fish, carrion, and various invertebrates. It typically constructs a stick nest on a stable branch in a densely foliated tree or shrub. Blackberry (*Rubus* spp.), rose (*Rosa* spp.) and willows (*Salix* spp.) provide nest sites. Site selection is apparently based on the degree of protective cover rather than on a particular plant species (Shuford 1993). Although nest height varies from 1.5 to 30 feet above ground, it is rarely less than three feet (Shuford 1993). There has been a national decline in this species (Burrige 1995). The conversion of rural areas into subdivisions or commercial areas steadily reduces the available habitat for this small, predaceous bird.

The nearest CNDDDB record for this species is located 4.10 miles northeast of the project site (Occurrence No. 3). A loggerhead shrike was observed near the project site during the survey on July 30, 2014. Ruderal habitat and the riparian woodland provide suitable hunting grounds for loggerhead shrikes, and the trees on and immediately adjacent to the project site along Sand Creek provide potentially suitable nesting habitat. *Accordingly, impacts to loggerhead shrike are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.8 TRICOLORED BLACKBIRD

The tricolored blackbird (*Agelaius tricolor*) was emergency listed on December 3, 2014 by the California Fish and Game Commission. According to the California Endangered Species Act, the Commission may list a species when there is an imminent danger. Once listing is approved, the bird is protected for six months, after which time the listing may be renewed for another six months. The Commission will likely consider a formal listing petition sometime in the spring of 2015. It has no federal status. It is also protected under the federal Migratory Bird Treaty Act and California Fish and Game Code (§3503 and 3800) that protects birds, their nests, eggs, and young.

A gregarious species, the tricolored blackbird is typically found near freshwater, particularly near marsh habitat. Loss of wetland habitats is regarded as the principal factor responsible for this species’ population decline (Beedy, 1992). Nesting colonies are typically found in stands of cattail (*Typha* spp.) and bulrush (*Scirpus* spp.), although they are also known to utilize blackberry patches (*Rubus* sp.) and thistle clumps (*Cirsium* spp. and *Cynara* spp.) adjacent to water. Flooded lands,

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margins of ponds, and grassy fields in summer and winter provide typical foraging habitat for this species.

The closest known CNDDDB record for this species is located 3.90 miles south of the project site (Occurrence No. 267). Sand Creek provides potential nesting habitat within the creek corridor. Although no tricolored blackbirds have been detected on the site during multiple site surveys, construction activities adjacent to the creek and installation of the outfall structure in Sand Creek could disturb nesting birds. *Accordingly, impacts to tricolored blackbird are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.9 SAN JOAQUIN KIT FOX

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a federally listed endangered species protected pursuant to the FESA and is a state listed threatened species protected pursuant to the CESA. The San Joaquin kit fox live primarily in the lowlands of the San Joaquin Valley of California, but are also known to occur in several counties in the coast mountain ranges including Santa Barbara, San Luis Obispo, Monterey, San Benito, Santa Clara, Contra Costa and Alameda counties. This fox species is usually found in open grassland and shrub land communities, but has also been observed in ruderal plant communities.

The San Joaquin kit fox relies on dens for breeding, and to provide escape cover from potential predators. Dens are excavated in loose-textured soils, generally in areas with low to moderate relief. Kit fox will also utilize existing burrows dug by rabbits, ground squirrels, and on occasion, badgers (*Taxidea taxus*), and on occasion will use man-made structures for denning such as well-casings, culverts, and abandoned pipes. Typically, dens are small enough to discourage easy predation by coyotes (*Canis latrans*).

The San Joaquin kit fox is carnivorous, usually feeding on small rodents such as San Joaquin pocket mice (*Perognathus inornatus*), deer mice (*Peromyscus maniculatus*), western harvest mice (*Reithrodontomys megalotis*), kangaroo rats (*Dipodomys* spp.) and larger rodents such California ground squirrel (*Spermophilus beechyi*). Kit fox also prey upon lagomorphs such as black-tailed hare (*Lepus californicus*) and desert cottontail (*Sylvilagus audubonii*). Both adults care for pups until they are about four to five months old at which time family bonds begin to dissolve.

The closest CNDDDB record for this species is located 3.50 miles northwest of the project site (Occurrence No. 21) in Contra Loma Regional Park. This record dates from 1995. It is important to note that independently conducted surveys cited in *Relative Abundance of Endangered San Joaquin Kit Fox (Vulpes macrotis mutica) Based on Scat-Detection Dog Surveys* (Smith et. al. 2006) were unable to document presence of San Joaquin kit fox in Contra Costa County. This report suggests that it is likely that San Joaquin kit fox is extirpated from Contra Costa County. Regardless, the project site does not provide suitable sized burrows for denning. Based on all the available information, it can be concluded that the project site does not provide suitable habitat that would likely be occupied by the San Joaquin kit fox. Regardless, Figure 5 in the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (hereinafter HCP) that was prepared by the East Contra Costa County Conservancy and Trustee Agencies

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that include the Department and the Service, indicate that the project site is in “suitable core habitat” of the San Joaquin kit fox. Also, Figure 5 in the HCP indicates that the project site could conceivably be used as a migration corridor by the San Joaquin kit fox. While Sand Creek that flows west to east along the southern boundary of the project site is a suitable wildlife corridor and conceivably could be used as a migration corridor by the kit fox with the exception of a storm water outfall that will be constructed as part of the proposed project, it will remain largely unaffected by the proposed project. Any use of the project site as a migration corridor would be ancillary to potential kit fox movements through Sand Creek.

The federally listed San Joaquin kit fox is not expected to occur on the project site. *Hence, the proposed project is not expected to directly impact the federally listed San Joaquin kit fox; however, the proposed project could disrupt a potential migration corridor for this species. Accordingly, impacts to San Joaquin kit fox migration habitat are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts

7. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss their pertinence to the proposed development.

7.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.

Section 7 (§1536): Federal Consultation Requirement: requires federal agencies to consult with the Service or NMFS if their actions “may affect” a listed species. Federal agencies must also consult with the Service or NMFS regardless of a “no effect determination” that is rendered by the federal nexus agency if the project site in question is in mapped critical habitat of a federal listed species.

Section 9 (§1538): Prohibition on Take: prohibits the “taking” of a listed species by anyone, including private individuals, and State and local agencies.

Section 10: Exceptions to the Take Prohibition: non-federal entities can obtain an incidental take permit with the approval of a Habitat Conservation Plan.

In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by the National Marine Fisheries Service (NMFS). The Service enforces all other cases. Below,

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Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the “take” of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, “take” of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. “Take,” as defined by FESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” “Harm” includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, “harm” is further defined to mean “an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering” (50 CFR 17.3). A December 2001 decision by the 9th Circuit Court of Appeals (*Arizona Cattle Growers’ Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service (the Service) and Bureau of Land Management, and the Southwest Center for Biological Diversity*) ruled that the Service must show that a threatened or endangered species is present on a project site and that it would be taken by the proposed project activities. According to this ruling, the Service can no longer require mitigation based on the probability that the species could use the site. Rather they must show that it is actually present.

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If “take” of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an incidental take permit either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency), or requires preparation of a Habitat Conservation Plan (HCP) pursuant to Section 10 of FESA (for state and local agencies, or individuals, and projects without a federal “nexus”).

Section 7(a)(2) of the Act requires that each federal agency consult with the Service to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

““The Section 7 consultation process is triggered by a determination by a federal “action agency” – that is, the federal agency that is carrying out, funding, or approving a project - that the proposed project “may affect” a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the Service/NMFS is required. As part of the formal consultation, the Service/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in “jeopardy” to a listed species or if it could adversely modify designated critical habitat. If the Service/NMFS prepares a Biological Opinion it will contain either a “jeopardy” or “non-jeopardy” decision. A

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non-jeopardy Biological Opinion will conclude with an “incidental take statement” that authorizes “take” of federally listed species while otherwise carrying out legally sanctioned projects.

For non-federal entities or projects that lack a federal nexus, Section 10 provides the mechanism for obtaining take authorization. Under Section 10 of FESA, an applicant for an “incidental take permit” is required to submit a “conservation plan” to the Service or NMFS that specifies, among other things, the impacts that are likely to result from the taking, and the measures the permit applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as “habitat conservation plans” or “HCPs” for short. The terms “incidental take permit,” “Section 10 permit,” and “Section 10(a)(1)(B) permit” are used interchangeably by Service. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

7.1.1 RESPONSIBLE AGENCY

FESA gives regulatory authority to the Service for federally listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over federally listed marine mammals and anadromous fish.

7.1.2 APPLICABILITY TO THE PROPOSED PROJECT

Sand Creek does not provide habitat for anadromous fish species. The Corps initiated Section 7 consultation with NOAA’s National Marine Fisheries Service (NMFS) on December 6, 2007 regarding *the adjacent* Aviano Development Project (Corps File Number SPK – 200500628). NMFS provided a Section 7 consultation letter on March 18, 2008 which concluded that “the proposed project would not directly impact listed anadromous fish species because Sand Creek is not inhabited by listed anadromous fish. NMFS concurs that the proposed Aviano project is not likely to adversely affect listed species.” As the project site is immediately adjacent to the Aviano project site, the NMFS concurrence that listed anadromous fish would not be impacted by the Aviano project should conclusively suffice as a “no effect determination” for the currently proposed project. Based on the NMFS conclusions, consultation with NMFS would not be required for the Vineyards at Sand Creek Project.

Sand Creek provides known habitat for the California red-legged frog, and the project site provides habitat that would be regarded by the USFWS as potential migration habitat for the San Joaquin kit fox. Please note that while “suitable habitat” may be provided by the project site, M&A is not implying that San Joaquin kit fox are present on the project site, or that the project site supports San Joaquin kit fox. Suitability only infers the project site could support the species in question either temporarily or permanently.

Because the proposed project would likely be regarded by the Service as impacting habitat that supports California red-legged frog and migration habitat that potentially could be used by the San Joaquin kit fox, which are protected pursuant to the FESA, it is most likely that incidental take authorization will be required from the Service for the proposed project prior to the time the proposed project could commence. Since the proposed project includes an outfall structure on the bank of Sand Creek and thus will require a permit from the Corps, the Corps is required to

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consult with the USFWS pursuant to Section 7 of the FESA prior to the time it could issue a permit for the proposed project. *Since the potential impacts of the proposed project could be reduced to less than significant through the Mitigation Measures described below, the USFWS will likely be able to issue a “non-jeopardy” Biological Opinion and incidental take statement.*

7.2 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to “take” (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

Executive Order 13186 for conservation of migratory birds (January 11, 2001) requires that any project with federal involvement address impacts of federal actions on migratory birds. The order is designed to assist federal agencies in their efforts to comply with the Migratory Bird Treaty Act (MBTA) and does not constitute any legal authorization to take migratory birds. The order also requires federal agencies to work with the Service to develop a memorandum of understanding (MOU). Protocols developed under the MOU must promote the conservation of migratory bird populations through the following means:

- avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance habitat of migratory birds, as practicable; and prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

7.2.1 APPLICABILITY TO PROPOSED PROJECT

Birds of prey such as the Swainson’s hawk, white-tailed kite, red-tailed hawk, red shouldered hawk, and burrowing owl are all known to nest in the region of the project site. Inactive raptor nests were found in bluegum eucalyptus (*Eucalyptus globulus*) on and adjacent to the project site that provide suitable nesting habitat for these species. Similarly, many common passerine bird species could nest on the project site. All raptors (birds of prey) are subject to the MBTA. Also, the common songbirds and wading birds are also protected pursuant to this Act. As long as there is no direct mortality of species protected pursuant to this Act caused by development of the site, there should be no constraints to development of the site. While adult birds can typically fly out of harm’s way, nesting birds, their eggs and young are much more prone to being impacted by construction projects. To comply with the MBTA all active nest sites would have to be avoided while birds were nesting. Upon completion of nesting, the proposed project could commence as otherwise planned. Please review specific requirements for avoidance of nest sites for potentially occurring nesting birds in the Impacts and Mitigations section below.

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7.3 State Endangered Species Act

7.3.1 SECTION 2081 OF THE STATE ENDANGERED SPECIES ACT

In 1984, the state legislated the California Endangered Species Act (CESA) (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. Because CESA does not have a provision for "harm" (see discussion of FESA, above), the Department considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If a proposed project would result in take of a State listed species, an "incidental take" permit pursuant to §2081 of the Fish and Game Code would be necessary (versus a Federal incidental take permit for Federal listed species). The Department will issue an incidental take permit only if:

- 1) The authorized take is incidental to an otherwise lawful activity;
- 2) the impacts of the authorized take are minimized and fully mitigated;
- 3) measures required to minimize and fully mitigate the impacts of the authorized take:
 - a) are roughly proportional in extent to the impact of the taking on the species;
 - b) maintain the proposed project applicant's objectives to the greatest extent possible;
 - and,
 - c) capable of successful implementation; and,
- 4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of "take." These species are listed in several statutes that identify "fully protected" species and "specified birds." See Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a "fully protected" species or a "specified bird" occurs, an applicant must design the proposed project to avoid all take.

Fish and Game Code §2080.1 allows an applicant who has obtained a "non-jeopardy" federal Biological Opinion pursuant to Section 7, or who has received a federal 10(a) permit (federal incidental take permit), to submit the federal opinion or permit to the Department for a determination as to whether the federal document is "consistent" with CESA. If it is consistent with CESA, no further CESA permit is necessary. If the Department determines that the federal opinion or permit is not consistent with CESA, or that there are state listed species that were not considered in the federal Biological Opinion, then the applicant must apply for a state permit under Section 2081(b).

State and federal incidental take permits are issued to applicants that are proposing a project that could/would impact listed species if the permitting agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species and that the mitigation provided is roughly proportional to the impacts of the taking. In addition, management

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endowment fees are usually collected as part of the agreement for the incidental take permit(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

7.3.2 APPLICABILITY TO PROPOSED PROJECT

The CTS is a state listed species that will not be impacted by the proposed project. Swainson's hawk, tricolored blackbird and San Joaquin kit fox are state listed species; however, the proposed project will not result in direct take of these species, following implementation of the proposed mitigation measures, as detailed in the Impacts and Mitigation section below. *Consequently, the proposed project should not be required to obtain an Incidental Take Permit (ITP) from the State of California.*

7.4 California Fish and Game Code § 3503, 3503.5, 3511, and 3513

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the “take, possession, or destruction of birds, their nests or eggs.” Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered “take.” Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, “fully protected” birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code (§3511). “Fully protected” birds may not be taken or possessed (that is, kept in captivity) at any time.

7.4.1 APPLICABILITY TO THE PROPOSED PROJECT

Raptors that are known to nest in the region of the project site and for which suitable nesting habitat is provided by the project site include Swainson's hawk, white-tailed kite, red-tailed hawk, red shouldered hawk, and burrowing owl. Many common passerine birds also could nest on the project site. Preconstruction nesting surveys would have to be conducted for nesting birds to ensure that there is no direct take of these birds including their eggs, or young, during the construction of the proposed project. Any active nests that are found during preconstruction surveys would have to be avoided by the proposed project. Suitable non-disturbance buffers should be established around nest sites until the nesting cycle is complete. More specifics on nesting bird surveys and protection buffers are provided below in the Impacts and Mitigations section.

7.5 California Environmental Quality Act (CEQA) Regulations

Section 15380 of CEQA defines “endangered” species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. “Rare” species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will “substantially affect a rare or endangered species

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of animal or plant or the habitat of the species.” The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat of extinction to that species despite its legal status or lack thereof.

8. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE

This section presents an overview of the criteria used by the U.S. Army Corps of Engineers, the California Regional Water Quality Control Board, the State Water Resources Control Board, and the Department to determine those areas within a project area that would be subject to their regulation.

8.1 U.S. Army Corps of Engineers Jurisdiction and General Permitting

8.1.1 SECTION 404 OF THE CLEAN WATER ACT

Congress enacted the Clean Water Act “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 U.S.C. §1251(a)). Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the disposal of dredged or fill material into “waters of the United States” (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States.

In the Federal Register “waters of the United States” are defined as, “...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce...” (33 CFR Section 328.3).

Limits of Corps’ jurisdiction:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:

- (1) Extends to the mean high tide line, or
- (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:

- (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
- (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
- (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

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Section 404 jurisdiction in “other waters” such as lakes, ponds, and streams, extends to the upward limit of the ordinary high water mark (OHWM) or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is:

- the “line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR Section 328.3[e]).

Wetlands are defined as: “...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions” (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

8.1.1.1 Significant Nexus of Tributaries

On December 2, 2008, the Corps and the Environmental Protection Agency (EPA) issued joint guidance on implementing the U.S. Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (herein referred to simply as “Rapanos”) which address the jurisdiction over waters of the United States under the Clean Water Act. In this joint guidance these agencies provide guidance on where they will assert jurisdiction over waters of the U.S.

The EPA and Corps will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (for example, typically three months).
- Wetlands that directly abut such tributaries.

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to

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determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters; and

- Significant nexus includes consideration of hydrologic and ecologic factors.

8.1.1.2 Isolated Areas Excluded from Section 404 Jurisdiction

In addition to areas that may be exempt from Section 404 jurisdiction, some isolated wetlands and waters may also be considered outside of Corps jurisdiction as a result of the Supreme Court's decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers* (531 U.S. 159 [2001]). Isolated wetlands and waters are those areas that do not have a surface or groundwater connection to, and are not adjacent to a navigable "Waters of the U.S.," and do not otherwise exhibit an interstate commerce connection.

8.1.1.3 Permitting Corps Jurisdictional Areas

To remain in compliance with Section 404 of the Clean Water Act, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging any fill material into waters of the United States. The Corps must confirm the extent of its jurisdiction on a project site prior to the time it can authorize a fill permit.

Pursuant to Section 404 of the Clean Water Act, the Corps normally provides two alternatives for permitting impacts to the type of "waters of the United States" found in the proposed project area. The first alternative would be to use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)). The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an "alternatives analysis" that is prepared pursuant to Section 404(b) of the Clean Water Act (33 U.S.C. 1344(b)).

NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 27 general nationwide permit conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (i.e., must receive "verification" from the Corps).

On April 10, 2008, the Corps and the Environmental Protection Agency ("EPA") issued a Final Mitigation Rule governing mitigation requirements for unavoidable impacts to wetlands and other waters of the United States under the section 404 program of the Clean Water Act (Corps 2008). 70 Fed. Reg. 19594. In this Rule the Corps and the EPA established a new approach to mitigating the loss of wetlands and waters resulting from projects they permit under section 404 the Clean Water Act. This approach is summarized as follows:

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- Establish, to the extent feasible, equivalent standards for all forms of compensatory mitigation (i.e., mitigation banks, in-lieu fee programs, and permittee-responsible mitigation) and thus level the playing field and promote mitigation banking;
- Encourage watershed-based decisions on the best locations of mitigation sites;
- Require measurable, enforceable ecological performance standards for mitigation;
- Encourage the use of science-based assessment methods to evaluate impacts on wetlands and waters and the success of mitigation;
- Require written mitigation plans, suitable financial assurances, and legal arrangements to ensure long term protection of mitigation sites;
- Require regular performance monitoring of mitigation;
- Affirm the “sequential approach” to mitigation in which the Corps first considers avoidance of impacts, then minimization of impacts, and finally compensation for unavoidable impacts.

The Mitigation Rule also establishes a preference hierarchy for mitigation options for projects that impact waters of the U.S. as follows:

1. Mitigation bank credits
2. In-lieu fee program credits
3. Permittee-responsible mitigation under a watershed approach
4. On-site and/or in-kind permittee-responsible mitigation
5. Off-site and/or out-of-kind permittee-responsible mitigation

8.1.2 APPLICABILITY TO THE PROPOSED PROJECT

Sand Creek, an intermittent creek, is immediately south of the project site. It flows west to east along the southern project site boundary. Sand Creek is a tributary to Marsh Creek, which is a tributary to the San Joaquin River, a Traditional Navigable Water of the U.S. Therefore, Sand Creek would be regulated as “waters of the U.S.” pursuant to Section 404 of the Clean Water Act. A small portion of this creek will be affected by the proposed construction of a stormwater outfall structure. The proposed outfall structure will result in permanent impacts (fill) to 330 square feet (0.008 acre) (60 cubic yards of riprap) below the Ordinary High Water Mark (OHWM) of Sand Creek. The remaining portions of Sand Creek south of the project site will be preserved by the proposed project.

In addition, M&A mapped a linear “other waters” roadside ditch along the western shoulder of Heidorn Ranch Road. This ditch receives stormwater runoff from adjacent impervious surfaces of Heidorn Ranch Road and sheet water flows from adjacent properties. Unlike sheet water flows from the project site that flow towards Sand Creek, which ultimately flow to Marsh Creek and the San Joaquin River, this ditch flows north to a City of Antioch Stormdrain inlet. The City stormdrain system ultimately has multiple connections with the San Joaquin River/Sacramento

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River complex. The San Joaquin River flows into the Sacramento River that flows to the San Francisco Bay. Thus, this ditch (other waters) has indirect connectivity to a water of the U.S. A total of 0.02 acre (303 linear feet) of “other waters” ditch would be impacted by the proposed project.

Since the proposed project will result in impacts to waters of the U.S., the proposed project likely meets conditions to use Nationwide Permits (NWP) that are administered by the Corps pursuant to Section 404 of the Clean Water Act. The project will require the Corps’ authorization to use NWP 7 (Stormwater Outfall), NWP 29 (Residential Development), and NWP 33 (Temporary Construction, Access and Dewatering). A notification (i.e., known as a Preconstruction Notice) must be filed with the Corps’ District Engineer to obtain authorization to use these NWPs.

8.2 State Water Resources Control Board (SWRCB) / California Regional Water Quality Control Board (RWQCB)

8.2.1 SECTION 401 OF THE CLEAN WATER ACT

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the Corps administers a permitting program that authorizes impacts to waters of the United States, including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification or waiver of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the SWRCB’s mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality.

8.2.2 APPLICABILITY TO THE PROPOSED PROJECT

The impacts to Sand Creek from the outfall construction and the roadside ditch during road widening along Heidorn Ranch Road may be authorized by use of NWP by the Corps. To become operative, the Corps’ NWP authorization will require a water quality certification by the RWQCB pursuant to Section 401 of the Clean Water Act.

8.2.3 PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that “any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge” with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1)). The term “waters of the State” is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). Pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates “isolated wetlands,” or those wetlands considered to be outside of the Corps’ jurisdiction pursuant to the SWANCC decision (see Corps Section above).

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The RWQCB generally considers filling in waters of the State to constitute “pollution.” Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any “threat” to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices Plan (BMPs) of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a *Stormwater Pollution Prevention Plan* (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In addition, a post construction BMPs plan, or a Stormwater Management Plan (SWMP) must be developed and incorporated into any site development plan.

8.2.4 APPLICABILITY TO PROPOSED PROJECT

If the Corps determines there are waters of the U.S. on the project site (or within offsite areas of impact) these features would also be regarded as waters of the state. The RWQCB would have regulatory authority over these areas pursuant to Section 401 of the Clean Water Act. If the Corps determines there are “isolated waters” on the project site that are not within federal jurisdiction, these features would nonetheless be regarded as waters of the state and would be regulated by RWQCB pursuant to the Porter-Cologne Water Quality Control Act. Since any “threat” to water quality could conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, pre and post construction BMPs will be incorporated into the proposed project implementation plans.

M&A mapped isolated “other waters” swales and pools on the shoulders of Heidorn Ranch Road (see Sheet 1, Attachment B). These features do not have hydrologic connectivity to any “water of the U.S.” They are topographic low areas that are not within a drainage pattern except only as roadside surface flows spill into these low areas that have no release points to any tributary system. These “isolated” features typically would not be regulated by the Corps pursuant to the SWANCC and/or Rapanos Supreme Court decisions. However, these isolated features nonetheless would be regulated as “waters of the State.” A total of 0.11 acre of isolated waters of the State would be impacted by the proposed project.

A Storm Water Management Plan shall be prepared by the proposed project civil engineer or other qualified party and should be submitted to the City of Antioch for their review to verify compliance with their NPDES MS4 permit requirements (See Municipal Storm Water Section Below for more on MS4). The *Storm Water Management Plan* will provide an analysis of post-construction stormwater controls incorporating both hydromodification and treatment analyses, and BMPs that will be constructed to reduce storm water pollution. The BMPs will ensure that the Proposed Project does not result in degradation of receiving waters and that it otherwise remains in compliance with the Porter-Cologne Water Quality Control Act/ MS4 requirements. The City of Antioch’s NPDES compliance manager will review the Storm Water Control Plan to determine if it is sufficient to meet the proposed project’s detention, hydromodification, and water quality requirements.

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8.2.5 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

In 1972 the Clean Water Act was amended to state that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. While federal regulations allow two permitting options for stormwater discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide Construction General Permit at this time that will apply to all stormwater discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (CalTrans). The Construction General Permit requires all dischargers where construction activity disturbs greater than one acre of land or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface to:

1. Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies BMPs that will prevent all construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters.
2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
3. Perform inspections of all BMPs.

This General Permit is implemented and enforced by the nine California Regional Water Quality Control Boards (RWQCBs).

Types of Construction Activity Covered by the Construction General Permit

Construction activity subject to this General Permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre or more of total land area. Construction activity that results in soil disturbances to a smaller area would still be subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses greater than one acre of soil disturbance, or if there is significant water quality impairment resulting from the activity. Construction activity does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility, nor does it include emergency construction activities required to protect public health and safety.

8.2.6 2009 CHANGES TO THE NPDES PROGRAM AND USE OF THE GENERAL PERMIT

In 2009, the California SWRCB adopted NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (“Construction General Permit”). The Construction General Permit was issued pursuant to the federal Clean Water Act. The Construction General Permit does not completely carry forward the former qualitative and self-selected compliance approach based on preparation of a SWPPP. Instead, developers and construction contractors must implement specific BMPs, achieve quantitatively-defined (i.e., numeric) pollutant-specific discharge standards, and conduct much more rigorous monitoring based on the proposed project’s projected risk level.

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The State Water Board's new quantitative standards take a two-tiered approach, depending on the risk level associated with the site in question. Exceedance of a benchmark Numeric Action Level ("NAL") measured in terms of pH and turbidity (a measure related to both the amount of sediment in and the velocity of site runoff) triggers an additional obligation to implement additional BMPs and corrective action to improve SWPPP performance. New minimum BMPs include Active Treatment Systems, which may be necessary where traditional erosion and sediment controls do not effectively control accelerated erosion; where site constraints inhibit the ability to construct a correctly-sized sediment basin; where clay and/or highly erosive soils are present; or where the site has very steep or long slope lengths.

In addition, the Construction General Permit includes several "post-construction" requirements. These requirements entail that site designs provide no net increase in overall site runoff and match pre-project hydrology by maintaining runoff volume and drainage concentrations. To achieve the required results where impervious surfaces such as roofs and paved surfaces are being increased, developers must implement non-structural off-setting BMPs, such as landform grading, site design BMPs, and distributed structural BMPs (bioretention cells, rain gardens, and rain cisterns). This "runoff reduction" approach is essentially a State Water Board-imposed regulatory requirement to implement Low Impact Development ("LID") design features. Volume that cannot be addressed using non-structural BMPs must be captured in structural BMPs that are approved by the RWQCB.

Finally, the Construction General Permit requires electronic filing of all Permit Registration Documents, NOIs, SWPPPs, annual reports, Notices of Termination, and NAL/NEL Exceedance Reports. This information will be readily available to the Water Boards and citizen enforcers who can then determine whether to initiate enforcement actions—actions which can result in significant penalties and legal fees.

8.2.7 APPLICABILITY TO THE PROPOSED PROJECT

On September 2, 2009, the SWRCB adopted Order No. 2009-0009-DWQ, which reissued the Construction General Permit (CGP) for projects disturbing one or more acres of land surface, or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface. The applicant will be responsible for obtaining coverage under the General Permit prior to commencement of construction activities since the proposed project will disturb greater than one acre of area.

8.3 RWQCB Municipal Storm Water Permitting Program

The Municipal Storm Water Permitting Program regulates storm water discharges from municipal separate storm sewer systems (MS4s). MS4 permits were issued in two phases. Under Phase I, which started in 1990, the RWQCBs have adopted NPDES storm water permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. These permits are reissued as the permits expire.

As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller

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municipalities, including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes.

The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

8.3.1 RWQCB PHASE II PROGRAM REQUIREMENTS

The CWA provides that NPDES permits for Municipal Separate Storm Sewer Systems (MS4) must require municipalities to reduce pollutants in their storm water discharges to the “maximum extent practicable” (CWA §402(p)(3)(B).) MS4 permits “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods.” Under the Phase II Requirements implemented by the RWQCB, permittees that operate an MS4 that serves 50,000 people or more, or that serve an area of high growth (which is defined as more than 25% over 10 years), must comply with the Supplemental Provisions contained in Attachment 4 of the Small MS4 General Permit.

The General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems WQO No. 2003-0005-DWQ (Small MS4 General Permit) requires that dischargers develop and implement a Storm Water Management Program (SWMP) that describes the best management practices (BMPs), measurable goals, and time schedules of implementation as well as assigns responsibility of each task. Also, as required by the Small MS4 General Permit, the SWMP must be available for public review and must be approved by the appropriate RWQCB, or its Executive Officer (EO), prior to permit coverage commencing. This information is provided to facilitate the process of an MS4 obtaining Small MS4 General Permit coverage.

The General Permit requires all Permittees to develop and implement a SWMP designed to reduce the discharge of pollutants through their MS4s to the maximum extent practicable. The General Permit requires the SWMP to be fully implemented by the end of the permit term (or five years after designation for those designated subsequent to General Permit adoption).

Permittees must have a Post Construction SWMP for new developments and redevelopment projects. The maximum extent practicable standard involves applying BMPs that are effective in reducing the discharge of pollutants in storm water runoff. In discussing the maximum extent practicable standard, the State Board has said the following: “There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that the maximum extent practicable has not been met. On the other hand, if a permittee employs all applicable BMPs,

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except those that are demonstrated to be not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard.

The MS4 municipality is required to develop and implement a program that provides local oversight of construction projects within the municipality to ensure that pollutants being discharged from construction sites into the MS4 are reduced. The program must include adopting an ordinance requiring storm water quality controls at construction sites, reviewing site plans, receiving comments from the public regarding the discharge of pollutants from construction sites, inspecting construction sites to ensure that pollutants are not being discharged in storm water runoff, and taking enforcement when necessary. In contrast, the General Construction Permit requires projects to have a site specific SWPPP and to implement BMPs specific to activities at the construction site. The General Construction Permit directly regulates landowners engaged in construction involving land disturbance of 10,000 square feet or more.

8.3.2 APPLICABILITY TO THE PROPOSED PROJECT

The City of Antioch is a Phase I MS4 Area Wide Permittee [*California Regional Water Quality Control Board, Central Valley Region, East Contra Costa County Municipal NPDES Permit, Waste Discharge Requirements Order R5-2010-0102, NPDES Permit No. CAS083313, 23 September 2010*]. This Order expires on September 1, 2015, five years from the effective date of this Order. To remain in compliance with this Order, the City of Antioch is required to enforce development of a project specific post construction SWMP that incorporates pre- and post-construction BMPs into the proposed project. Accordingly, the applicant should be directed to prepare a SWMP that can be reviewed by the City of Antioch for verification that the proposed project is in compliance with the Cities MS4 permit requirements.

8.4 California Department of Fish and Wildlife Protections

8.4.1 SECTION 1602 OF CALIFORNIA FISH AND GAME CODE

Pursuant to Section 1602 of the California Fish and Game Code: “An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake...” California Department of Fish and Wildlife (the Department) regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which the Department typically considers to include its riparian vegetation. Any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, would require entering into a Streambed Alteration Agreement (SBAA) with the Department prior to commencing with work in the stream. However, prior to authorizing such permits, the Department typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

8.4.2 APPLICABILITY TO PROPOSED PROJECT

Any project modifications to Sand Creek would be subject to the Department’s jurisdiction pursuant to Section 1602 of the California Fish and Game Code. The applicant will be applying

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for a SBAA with the Department for the proposed outfall structure that will be constructed as part of the proposed project on the northern bank of Sand Creek.

9. IMPACTS ANALYSIS

In this section we discuss potential impacts to sensitive biological resources including special-status animal species and waters of the United States and/or State. We follow each impact with a mitigation prescription that when implemented would reduce impacts to the greatest extent possible. The impact analysis in this report is based on the Preliminary Site Plan by Carlson, Barbee & Gibson, Inc. dated September 8, 2014 and titled “Preliminary Site Plan Promenade [now named The Vineyards at Sand Creek]”.

9.1 Significance Criteria

A significant impact is determined using CEQA and CEQA Guidelines. Pursuant to CEQA §21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. Pursuant to CEQA Guideline §15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. Other Federal, State, and local agencies’ considerations and regulations are also used in the evaluation of significance of proposed actions.

Direct and indirect adverse impacts to biological resources are classified as “significant,” “potentially significant,” or “less than significant.” Biological resources are broken down into four categories: vegetation, wildlife, threatened and endangered species, and regulated “waters of the United States” and/or stream channels.

9.1.1 THRESHOLDS OF SIGNIFICANCE

9.1.1.1 Plants, Wildlife, Waters

In accordance with Appendix G (Environmental Checklist Form) of the CEQA Guidelines, implementing the proposed project would have a significant biological impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected “wetlands” as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

9.1.1.2 Waters of the United States and State.

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the discharge of dredged or fill material into waters of the United States, which includes wetlands, as discussed in the bulleted item above, and also includes “other waters” (stream channels, rivers) (33 CFR Parts 328 through 330). Substantial impacts to Corps regulated areas on a project site would be considered a significant adverse impact. Similarly, pursuant to Section 401 of the Clean Water Act, and to the Porter-Cologne Water Quality Control Act, the RWQCB regulates impacts to waters of the state. Thus, substantial impacts to RWQCB regulated areas on a project site would also be considered a significant adverse impact.

9.1.1.3 Stream Channels

Pursuant to Section 1602 of the California Fish and Game Code, the Department regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which the Department typically considers to include riparian vegetation. Any proposed activity that would result in substantial modifications to a natural stream channel would be considered a significant adverse impact.

10. IMPACT ASSESSMENT AND PROPOSED MITIGATION

10.1 Impact BIO-1. Development of the proposed project would have a significant impact on California red-legged frogs.

In 2005, adult frogs were observed in Sand Creek upstream of the project site (CNDDDB Occurrence No. 933) and Sand Creek provides suitable [breeding and dispersal] habitat for the California red-legged frog. Consequently, the Service regards Sand Creek as occupied habitat of the California red-legged frog. As Sand Creek is regarded as occupied, lands adjacent to the creek including the project site constitute potential upland dispersal habitat for this frog. Therefore the proposed project will impact up to 141 acres of potential California red-legged frog dispersal habitat. In addition, included within the 141 acres, installation of the stormwater outfall structure on the bank and bed of Sand Creek will result in impacts to known occupied habitat for this species. *Accordingly, impacts to California red-legged frog are regarded as significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

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10.2 Mitigation BIO-1. Mitigation for significant impacts to California red-legged frogs With Benefits Afforded to the California Tiger Salamander.

To ensure that implementation of project site grading and the installation of the outfall structure in Sand Creek will not injure, kill, or harass an individual California red-legged frog, the following mitigation measures will be implemented:

- 1) An education program will be conducted by a qualified biologist to explain the endangered species concerns to contractors/operators working at the project site. This education/training program will include a description of the frog and its habitat, a review of the Endangered Species Act and the federal listing of the frog, the general protection measures to be implemented to protect the frog and minimize take, and a delineation of the limits of the work area.
- 2) A qualified 10(a)(1)(A) biologist would conduct preconstruction surveys of the creek work areas no more than 14 days prior to dewatering and other work activities. If any California red-legged frogs are identified in the work area, the Service and the Department will be notified and if permitted, relocated outside of the work area.
- 3) The work areas adjacent to Sand Creek will be isolated with suitable wildlife exclusion fencing (see below) that would block the movement of California red-legged frogs from entering the work areas. The wildlife exclusion fence will also prevent mammals migrating along Sand Creek from entering the project site. This fence will be installed prior to the time any site grading or other construction-related activities are implemented. The fence will remain in place during site grading or other construction-related activities and will prevent frogs and wildlife from entering the project site work areas.

While normally California red-legged frog exclusion fencing often consists of silt fencing, owing to the duration of the development project, a more weather resilient fence is recommended. The wildlife exclusion fence should consist of a 4-foot wall of ¼-inch mesh, galvanized wire (*i.e.*, welded wire hardware cloth- no woven wire will be allowed) *or other commercially available exclusion fencing* (e.g. ERTEC Fence). Initially, staking would be installed along the route of the wildlife exclusion fencing in a 4 inch deep trench. Then, the bottom of the fence would be firmly seated in the trench. The fencing above the ground would be anchored to metal staking with wire. Finally, the top 10-inches or less would be bent over in a semi-circle towards the outside of the fence to ensure that the fence cannot be climbed. This fence could be expected to last the duration of the development project.

- 4) A qualified biologist will be onsite when grading activities occurs within 300 feet of Sand Creek to conduct daily inspections of the fencing and to otherwise ensure that stranded animals are salvaged and relocated back to the stream channel. The biological monitor will be responsible for ensuring that the wildlife exclusion fencing is not compromised, and shall notify the onsite contractor representative when fencing needs to be repaired.

5) All construction work in Sand Creek associated with the outfall structure will be scheduled for the dry season (May 15 through October 15) and when there is reduced flow in Sand Creek. No work will occur when water is flowing within the work area. Any necessary in-drainage work when there are flows will be isolated from flows via the installation of temporary coffer dams that have flow-through bypass pipes. Flows will be diverted around isolated work areas either by gravity flow or if necessary by pumping water around the work area. No silty water would be allowed to reenter the tributary below any in-drainage work area. Methods and materials will be adapted in the field to match the size, shape, and anticipated flow volume of the drainage, and will be pre-approved by the biological monitor. All diversions will conform to the following provisions:

- Drainage diversion will be practiced only where deemed unavoidable by the proposed project engineer and biological monitor.
- Diversion will be limited to the minimum time period necessary to complete the work and restore the channel.
- Construction equipment will work from above the top-of-bank unless equipment is authorized to operate below the top-of-bank by the Department, Service, Corps, and/or RWQCB pertaining to their respective jurisdictions. Unless permitted by these agencies within their respective jurisdictions, there will be no vehicle passage, vehicle parking, or materials storage below the top of bank. .
- All in-drainage and diversion work plans will reflect and incorporate standard erosion control measures and BMP's as prescribed in the Project's SWPPP.
- In certain cases where water seeps into the dewatered area, sump pits may be excavated in the work area and seepage water would then be pumped back upstream behind the coffer dam. All discharged water will be silt free. If silt is a problem, water will be pumped through a silt sock into baker tank(s) prior to discharge back into the channel.
- All downstream flows will be maintained throughout the period that coffer dams are installed.
- The entire work area below the top of bank, including the coffer dam location, will be restored to the approximate pre-construction contours and will be stabilized as necessary to withstand the expected high water flows. All dam materials will be completely removed from the channel when work is complete, and will not be disposed of in or near the channel.
- A qualified 10(a)(1)(A) biologist will conduct preconstruction surveys for California red-legged frog prior to isolating any work area within Sand Creek. If any frogs are found in the work area, the Service and the Department will be notified, and the frogs will be moved from the work area to up or downstream areas of Sand Creek, whichever is closest to the capture site. Upon completion of the survey, coffer dams may be installed. Any isolated water shall be seined by

the proposed project biologist to search for frogs prior to pumping water out of the isolated work areas.

- The project biological monitor will be present during all in-drainage work. Dewatered work areas shall not result in stranded aquatic wildlife.
 - All trash that might attract predators to the project site will be properly contained and removed from the site and disposed of regularly. All construction debris and trash will be removed from the site when construction activities are complete.
 - All fueling and maintenance of equipment and vehicles, and staging areas will be at least 20 meters from Sand Creek. The construction personnel will ensure that contamination of California red-legged frog habitat does not occur and will have a plan to promptly address any accidental spills.
- 6) To mitigate for impacts to federally listed species, including impacts to the California red-legged frog, the applicant will preserve 272 acres as offsite mitigation (hereinafter called the Marsh Creek Property) located off Marsh Creek Road in eastern Contra Costa County. An alternative mitigation property approved by the Service that possesses comparable biological resources for the affected federally listed species may also be used for mitigation in lieu of the Marsh Creek Property. The Marsh Creek Property is located immediately north of and adjacent to East Bay Regional Park District's (EBRPD) Round Valley Regional Preserve. The geographic location of the Marsh Creek Property adjacent to EBRPD Round Valley Regional Park makes it a valuable preservation property that will add permanently preserved acreage to existing regionally significant preserved lands (Round Valley Regional Preserve).

There is a 1982 record for California red-legged frogs along Marsh Creek on the Marsh Creek Property (CNDDDB Occurrence No. 546), and a total of 79 reported occurrences of California red-legged frogs within 5 miles of the property. Hence, the habitat to be preserved at this mitigation property supports grassland habitat that provides upland dispersal habitat and aquatic habitat for California red-legged frogs, and Marsh Creek provides potential breeding habitat for California red-legged frog. The combination of breeding habitat in proximity to suitable upland habitat is most important for the ongoing viability of the California red-legged frog populations.

While the proposed project will not affect the California tiger salamander, preservation of the mitigation site would nonetheless provide benefits to this salamander. This salamander is known from the area of the mitigation site. There is a 1982 record for California tiger salamander in a pond in annual grassland adjacent to Marsh Creek located 0.24 mile upstream (west) of the mitigation site (CNDDDB Occurrence No. 170), and there are a total of 69 reported occurrences of California tiger salamanders within 5 miles of the mitigation site. The mitigation site supports one seasonal pond that provides breeding habitat for California tiger salamanders. Several large seasonal ponds also occur immediately north and east of the mitigation site, forming a seasonal pond complex that likely supports breeding California tiger salamanders. Owing to the abundance of known California tiger salamander records in the vicinity of the Marsh Creek Property and the presence of a robust California ground squirrel colony within the grasslands on the

property, which provide necessary refugia habitats for California tiger salamanders, the Marsh Creek Property would most likely be regarded by the U.S. Fish and Wildlife Service and the Department of Fish and Wildlife as supporting suitable upland over-summering habitat for this salamander. Therefore the proposed mitigation site will provide appropriate mitigation for impacts to 141 acres of long-term disced agricultural land (has been farmed annually since at least 1945 based upon aerial photograph research completed by M&A).

- 7) The project proponent will record a conservation easement over the Marsh Creek Property preserving it in perpetuity as wildlife habitat. The easement will be granted to a qualified conservation organization such as the EBRPD. The project proponent will also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site. A Resource Management Plan (RMP) shall be developed for the management of natural resources to be preserved on the Marsh Creek Property.

Implementation of these mitigation measures would reduce impacts to the California red-legged frog to a level considered less than significant pursuant to CEQA.

10.3 Impact BIO-2. Development of the proposed project would have a potentially significant adverse impact on western pond turtles.

Sand Creek provides potentially suitable habitat for the western pond turtle. Installation of the outfall structure on the bank and bed of Sand Creek may result in impacts to suitable western pond turtle habitat. *Accordingly, impacts to western pond turtle are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

10.4 Mitigation BIO-2. Mitigation for potential impacts to western pond turtle.

A qualified biologist will conduct a preconstruction survey of the work area in Sand Creek, and if a western pond turtle is identified in the work area, the turtle will be relocated to suitable habitat downstream. The work areas adjacent to Sand Creek will be isolated with exclusion fencing that will prevent western pond turtle from entering the work site and accidentally being harmed by construction activities.

The deeply incised channel with steep slopes makes it very unlikely that a western pond turtle would climb up onto the project site to nest. As such, no potential nesting sites are likely to be affected by the proposed project. Regardless, preconstruction surveys for turtle nest sites in uplands adjacent to suitable aquatic habitat during spring and summer months will be conducted within 30 days prior to beginning any activities. If no nests are found, no further consideration for western pond turtle nests is warranted. If nest sites are located during preconstruction surveys adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced where it intersects a project work area to avoid impacts to the eggs or hatchlings which over-winter at the nest site. In addition, if nest(s) are located during surveys, moth balls (naphthalene) should be sprinkled around the vicinity of the nest (no closer than 10 feet) to mask human scent and discourage predators.

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Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by the Department, the agency responsible for overseeing the protection of the pond turtle. If the Department allows translocation of any nestling pond turtles this shall be completed by a qualified biologist under the direction of the Department.

A 272 acre Mitigation Property will be preserved along Marsh Creek Road in eastern Contra Costa County (or an alternative mitigation property with comparable biological resource values may also be used for mitigation in lieu of the Marsh Creek Property) to compensate for project related impacts to the California red-legged frog and the San Joaquin kit fox (see mitigation measures for these two species). Marsh Creek runs west to east through the Marsh Creek Property. This creek supports optimal western pond turtle basking pools and supports suitable nesting habitat that can be used by the western pond turtle. Thus, the permanent preservation of the Marsh Creek Property required to compensate for project impacts to the California red-legged frog and the San Joaquin kit fox will also benefit the western pond turtle.

Implementation of the mitigation measures above in addition to the permanent preservation of the Marsh Creek Property (see California red-legged frog and San Joaquin kit fox above) would reduce potential impacts to western pond turtle to a level considered less than significant pursuant to CEQA.

10.5 Impact BIO-3. Development of the proposed project would have a potentially significant adverse impact on western burrowing owls.

The western burrowing owl is a California Species of Special Concern. This raptor (that is, bird of prey) is also protected under the Migratory Bird Treaty Act (50 CFR 10.13) and its nest, eggs, and young are protected under California Fish and Game Code Sections 3503, 3503.5. The closest CNDDDB record for western burrowing owl is 0.10 mile southeast of the project site, located south of Sand Creek (CNDDDB Occurrence No. 857). Although the site has been disked routinely since the 1940s greatly reducing the probability of western burrowing owl to occur, the margins of the farmed areas and the relatively small Shell/Aera parcel portion of the project site provides suitable habitat conditions, albeit marginal habitat, for this owl. *Accordingly, impacts to western burrowing owl from the proposed project would be regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

10.6 Mitigation Measure BIO-3. Mitigation for potential impacts to western burrowing owls.

Based on records for western burrowing owl in the proposed project vicinity and the potential habitat found on the project site, a preconstruction survey for burrowing owls should be conducted. The Department's 2012 Staff Report states that take avoidance (preconstruction) surveys should be conducted 14 days prior to ground disturbance. As burrowing owls may recolonize a site after only a few days, time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance to ensure absence of the species.

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a. Burrowing owl surveys should be conducted by walking the entire project site and (where possible) in areas within 150 meters (approx. 500 feet) of the proposed project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the proposed project area which may be impacted by factors such as noise and vibration (heavy equipment) during project construction.

Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be 7 meters to 20 meters and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. Poor weather may affect the surveyor's ability to detect burrowing owls thus, avoid conducting surveys when wind speed is greater than 20 kilometers per hour and there is precipitation or dense fog. To avoid impacts to owls from surveyors, owls and/or occupied burrows should be avoided by a minimum of 50 meters (approx. 160 ft.) wherever practical to avoid flushing occupied burrows. Disturbance to occupied burrows should be avoided during all seasons.

b. If burrowing owls are detected on the site, the following restricted activity dates and setback distances are recommended per the Department's Staff Report (2012).

- From April 1 through October 15, low disturbance and medium disturbance activities should have a 200 meter buffer while high disturbance activities should have a 500 meter buffer from occupied nests.
- From October 16 through March 31, low disturbance activities should have a 50 meter buffer, medium disturbance activities should have a 100 meter buffer, and high disturbance activities should have a 500 meter buffer from occupied nests.
- No earth-moving activities or other disturbance should occur within the aforementioned buffer zones of occupied burrows. These buffer zones should be fenced as well. If burrowing owls were found in the proposed project area, a qualified biologist would also need to delineate the extent of burrowing owl habitat on the site.

c. In addition, the proposed preservation of the Marsh Creek Mitigation Property will preserve 272 acres that will benefit western burrowing owls. The permanent preservation of this mitigation land provides suitable mitigation for impacts that will occur to 141 acres of marginal western burrowing owl habitat. The Marsh Creek Property supports grassland habitat and a robust California ground squirrel population that provides suitable habitat for western burrowing owls.

Implementation of these mitigation measures would reduce impacts to western burrowing owl to a level considered less than significant.

10.7 Impact BIO-4. Development of the proposed project would have potentially significant adverse impacts to Swainson's Hawks.

The Swainson's hawk is a state listed threatened species. It is also protected from direct take pursuant to the Federal Migratory Bird Treaty Act. Active Swainson's hawk nests are also

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protected pursuant to California Fish and Game Code §3503.5 and 3513. Swainson's hawks are not known to currently nest on the project site. However, in the absence of nesting season surveys, impacts to the Swainson's hawk are considered potentially significant. Potential impacts to this species from the proposed project include disturbance to nesting birds and the loss of foraging habitat. In addition, the loss of foraging habitat is also a potential impact. The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). As a known Swainson's hawk nesting record occurs 0.10 mile south of the project site, the project site constitutes likely foraging habitat of this hawk. *Accordingly, impacts to nesting Swainson's hawk from the proposed project would be regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

10.8 Mitigation Measure BIO-4. Mitigation for potential impacts to Swainson's Hawks.

To avoid impacts to nesting Swainson's hawks, the Department has prepared guidelines for conducting surveys for Swainson's hawk entitled: *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFG 2000). These survey recommendations were developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating nesting Swainson's hawks, and thus, reduce the potential for nest failures as a result of project activities and/or disturbances. To meet the Department's recommendations for mitigation and protection of Swainson's hawks in this guideline, surveys should be conducted by a qualified raptor biologist for a 0.25-mile radius around all project activities and should be completed for at least two survey periods as is found in the Department's 2000 survey guidelines (CDFG 2000). The guidelines provide specific recommendations regarding the number of surveys based on when the proposed project is scheduled to begin and the time of year the surveys are conducted. A copy of this survey report should be provided to the City of Antioch prior to starting construction.

If the proposed project could impact the Swainson's hawk, its nest, or eggs, typically assumed to be the case if a nest is detected within a 0.25-mile of the project site, the applicant shall prepare a Swainson's Hawk *Monitoring and Habitat Management Plan* if a qualified raptor biologist determines that a nest site could be impacted or project activities could otherwise cause "take" of the Swainson's hawk, its eggs, or young. If take could occur as determined by a qualified raptor biologist, protective buffers will be established on the project site that will prevent such take from occurring. The protective buffer shall be maintained until such time that the Swainson's hawks have completed their nesting cycle as determined by a qualified raptor biologist. The nest protection buffer shall be coordinated with the Department.

The 272 acre Marsh Creek Mitigation Property (or an alternative mitigation property with comparable biological resources) will compensate for project related impacts from the loss of the 141 acres of project site farmland that constitutes suitable foraging habitat for the Swainson's hawk. Mitigation that compensate for the loss of suitable Swainson's hawk foraging habitat shall include the preservation of the 272 acre Marsh Creek Property, which supports grasslands that provide suitable foraging habitat for Swainson's hawks.

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Implementation of these mitigation measures would reduce impacts to Swainson's hawk and its foraging habitat to a less than significant level pursuant to CEQA.

10.9 Impact BIO-5. Development of the proposed project would have a potentially significant adverse impact on other nesting raptors.

Large stick nests in the bluegum eucalyptus on and adjacent to the project site, and in mature trees along Sand Creek indicate that raptors have nested on and adjacent to the project site in the recent past. White-tailed kite, red-tailed hawk, and red shouldered hawk all are known from the area, and conceivably they could nest on or adjacent to the project site within a zone of influence, in future years. All of these raptors (that is, birds of prey) are also protected under the Migratory Bird Treaty Act (50 CFR 10.13) and their eggs and young are protected under California Fish and Game Codes Sections 3503, 3503.5. Any project-related impacts to these species would be considered a significant adverse impact. Potential impacts to these species from the proposed project include disturbance to nesting birds, and possibly death of adults and/or young. *Accordingly, impacts to nesting raptors from the proposed project would be regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

10.10 Mitigation Measure BIO-5. Mitigation for potential impacts to nesting raptors

In order to avoid impacts to nesting raptors, a nesting survey shall be conducted prior to commencing with construction if this work would commence between February 1st and August 31st. The raptor nesting surveys shall include examination of all trees within 300 feet of the entire project site, not just trees slated for removal.

If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 300-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer intersects the project site. *The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance.* If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1st. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st.

Implementation of these mitigation measures would reduce impacts to nesting raptors to a level considered less than significant pursuant to CEQA.

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10.11 Impact BIO-6. Development of the proposed project could have a potentially significant adverse impact on nesting special-status bird species and nesting common bird species.

Special-status birds, such as loggerhead shrike and tricolored blackbird, and other common birds could be impacted by the proposed project. Passerine birds and their nests are protected under the California Fish and Game Code (Sections 3503, 3503.5), and the Federal Migratory Bird Treaty Act. *Impacts to nesting birds, their eggs, and/or young caused by implementation of the proposed project would be regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

10.12 Mitigation Measure BIO-6. Mitigation for potential impacts to nesting special-status bird species and nesting common bird species.

If project site disturbance associated with the proposed project would commence between March 1st and September 1st, a preconstruction nesting survey should be completed in the 15 day period prior to commencing with any proposed project related disturbance on the project site. The nesting survey should be conducted on the project site and within a zone of influence around the project site. The zone of influence includes those areas off the project site where birds could be disturbed by earth-moving vibrations or noise. Accordingly, the nesting survey(s) must cover the project site and an area around the project site boundary.

If special-status birds are identified nesting on or adjacent to the project site, a non-disturbance buffer of 100 feet should be established or as otherwise prescribed by a qualified ornithologist. If common (that is, not special-status) birds for example, California towhee, western scrub jay, or acorn woodpeckers are identified nesting on or adjacent to the project site, a non-disturbance buffer of 75 feet should be established or as otherwise prescribed by a qualified ornithologist. The buffer should be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer should be postponed until it is determined by a qualified ornithologist that the young have fledged and have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.

Typically, most passerine birds in the region of the project site are expected to complete nesting by August 1st. However, many species can complete nesting by the end of June or early to mid-July. Regardless, nesting buffers should be maintained until September 1st unless a qualified ornithologist determines that young have fledged and are independent of their nests at an earlier date. If buffers are removed prior to September 1st, the qualified biologist conducting the nesting surveys should prepare and submit a report to the City of Antioch that provides details about the nesting outcome and the removal of buffers. This report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1st.

Implementation of these mitigation measures would reduce impacts to nesting special status species and common bird species to a level considered less than significant pursuant to CEQA.

10.13 Impact BIO-7. Development of the proposed project could have a potentially significant adverse impact on San Joaquin kit fox.

The closest CNDDDB record for the San Joaquin kit fox to the project site is a 1995 observation that was located 3.5 miles to the northwest (Occurrence No. 21) in Contra Loma Regional Park. However, independently conducted surveys cited in *Relative Abundance of Endangered San Joaquin Kit Fox (Vulpes macrotis mutica) Based on Scat-Detection Dog Surveys* (Smith et. al. 2006) were unable to document presence of San Joaquin kit fox in Contra Costa County. This report suggests that it is likely that San Joaquin kit fox is extirpated from Contra Costa County. Regardless, the project site does not provide suitable sized burrows for denning. Based on all the available information, it can be concluded that the project site does not provide suitable habitat for the San Joaquin kit fox. This state and federally listed species is not expected to occur on the project site. *Hence, the proposed project will not directly impact the state and federally listed San Joaquin kit fox; however, the proposed project could disrupt a potential migration corridor for this species.*

The proposed project will result in impacts to 141 acres of potential migration habitat for San Joaquin kit fox. *Accordingly, impacts to San Joaquin kit fox from the proposed project would be regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

10.14 Mitigation Measure BIO-7. Mitigation for potential impacts to San Joaquin kit fox.

To compensate for the permanent loss of 141 acres of potential San Joaquin kit fox migration habitat, albeit farmed habitat, the proposed project includes the permanent preservation and protection of the Marsh Creek Property. An alternative mitigation property approved by the Service that possesses comparable biological resources may also be used for mitigation in lieu of the Marsh Creek Property. The Marsh Creek Property is 272 acres that will be managed to benefit San Joaquin kit fox and that provides suitable mitigation for the loss of 141 acres of farmland that otherwise provides marginal San Joaquin kit fox migration habitat.

There is a 1991 occurrence for San Joaquin kit fox that was recorded approximately 0.50 mile to the east of the Marsh Creek Property (CNDDDB Record No. 573), and there are 9 additional reported occurrences of San Joaquin kit fox within 5 miles of the property. Thus, the Marsh Creek Property has moderate value to the San Joaquin kit fox, as compared to the project site, an agricultural property that has marginal value to the kit fox as migration habitat.

The East Contra County Conservancy in concert with the Service and the Department, in the East Contra Costa county HCP indicate that the Marsh Creek Property is located in an area deemed to have high value for preservation. In the HCP, the property is mapped within an area designated as within the “Medium Level of Acquisition Effort” category in “Suitable Core Habitat” for the San Joaquin kit fox. The mitigation property is also mapped in the HCP as a “Potential Kit Fox Movement Route” indicating that the property has value to the San Joaquin kit fox. The geographic location of the property adjacent to EBRPD Round Valley Regional Park further makes it a valuable mitigation property with significant regional importance as a preservation property.

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In addition, the applicant will implement standard avoidance measures to reduce the possibility of impacts to the species:

- 1) An education program will be conducted by a qualified biologist prior to the start of construction to explain the endangered species concerns to contractors working at the project site. The program will include an explanation of the FESA and CESA and any endangered species concerns in the area.
- 2) Qualified biologists would conduct preconstruction den surveys no more than 14 days prior to site grading to ensure that potential kit fox dens are not disrupted.

If “potential dens” are located, infrared camera stations will be set up and maintained for 3 consecutive nights at den openings prior to initiation of grading activities to determine the status of the potential dens. If no kit fox is found to be using the den, site grading can proceed unhindered. However, if a kit fox is found using a den site within the project site the Service and the Department will be notified and consulted before work activities resume.

- 3) To prevent harm to San Joaquin kit fox, any steep-walled holes and/or trenches excavated on the project site will be completely covered at the end of each workday, or escape ramps will be provided to allow any entrapped animals to escape unharmed. All pipe sections stored at the project site overnight that are four inches in diameter or greater will be inspected for San Joaquin kit fox before the pipes are moved or buried. If San Joaquin kit fox are identified in the work area at any time, the Service and/or the Department will be notified and consulted before work activities resume. All trash items will be removed from the site to reduce the potential for attracting predators of San Joaquin kit fox. Contractors will be prohibited from bringing firearms and pets to the job site.

Implementation of these mitigation measures would reduce impacts to San Joaquin kit fox to a level considered less than significant pursuant to CEQA.

10.15 Impact BIO-8. Development of the proposed project would have a significant impact on Waters of the United States and/or State

The proposed project will result in impacts to areas that are within the Corps’ and RWQCB’s jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act, respectively. Areas subject to potential jurisdiction by these two agencies include Sand Creek, and an “other waters” roadside ditch and other isolated features along the shoulder of Heidorn Ranch Road. The proposed project will result in permanent impacts to 0.027 acre of waters of the U.S. and a total of 0.11 acre of “isolated other waters” that would be regulated as “waters of the State.” *Impacts to waters of the United States and/or State would be regarded as significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

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10.16 Mitigation Measure BIO-8. Mitigation for impacts to Waters of the United States and/or State

The applicant is proposing to mitigate for project-related impacts to 0.027 acre of waters of U.S. and a total of 0.11 acre of “waters of the State” via the purchase of 0.20-acre seasonal wetland credits from the Cosumnes Mitigation Bank or other Mitigation Bank or as otherwise required by the Corps and the RWQCB provided that the mitigation is no less than 1:1 (replacement:impact). The Service Area for the Cosumnes Mitigation Bank covers the project site.

Alternatively, the applicant may create, preserve, and manage new seasonal wetlands at the Marsh Creek Property (or comparable offsite location) at a 2:1 mitigation ratio (acres created and preserved: acre impacted). A project-specific Wetland Mitigation and Monitoring Plan prepared by a qualified restoration ecologist that includes the following information will be provided to the City/Corps/RWQCB prior to conducting any activity that would result in the placement of any fill material into a water of the U.S. or water of the state:

- 1) a description of the impacted water;
- 2) a map depicting the location of the mitigation site(s) and a description of existing site conditions;
- 3) a detailed description of the mitigation design that includes: (i) the location of the new seasonal wetlands; (ii) proposed construction schedule; (iii) a planting/vegetation plan; (iv) specific monitoring metrics, and objective performance and success criteria, such as delineation of created area as jurisdictional waters using Corps published methods; and (v) contingency measures if the created wetlands do not achieve the specified success criteria; and
- 4) short-term and long-term management and monitoring methods.

If the wetland mitigation site is a separate mitigation property that is not subject to mitigation measure BIO-1, the applicant will grant a conservation easement to a qualified entity, as defined by Section 81.5.3 of the California Civil Code, preserving the created seasonal wetland(s) in perpetuity, and establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the created seasonal wetland(s).

Implementation of the measures described above would reduce significant impacts to waters of the United States/State to a level considered less-than-significant pursuant to the CEQA.

10.17 Impact BIO-9. Development of the proposed project would have a significant impact on Department of Fish and Wildlife Fish and Game Code Section 1602 jurisdictional areas.

The proposed project will result in impacts to Sand Creek during the construction of a single storm water outfall structure. Sand Creek is within the Department’s jurisdiction pursuant to Section 1602 of the California Fish and Game Code. *Impacts to Section 1602 jurisdictional areas would be regarded as significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

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10.18 Mitigation Measure BIO-9. Mitigation for impacts to Section 1602 jurisdictional areas.

The applicant will implement appropriate BMPs to prevent construction related impacts that could introduce di minimus fill or other pollutants into Sand Creek. These measures include the installation of wildlife friendly hay wattles and/or silt fence that will prevent unintended di minimus fill impact to Sand Creek while the stormwater outfall is constructed. In addition, orange silt fencing shall be installed at the top-of-bank of Sand Creek to prevent unintended human and equipment traffic in areas that are not relevant to the construction of the proposed project. Finally, the dripline of all protected trees within the footprint of the proposed project including trees that could be impacted by the construction of the outfall structure in Sand Creek shall be protected via the installation of orange construction fencing.

The applicant may satisfy this mitigation by providing the City of Antioch with a fully executed copy of a SBAA with the Department for the proposed outfall structure that includes these, or other functionally equivalent, BMPs. The implementation of the executed SBAA shall become a condition of project approval.

Implementation of these measures would reduce significant impacts to Section 1602 jurisdictional areas to a level considered less-than-significant pursuant to the CEQA.

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11. LITERATURE CITED

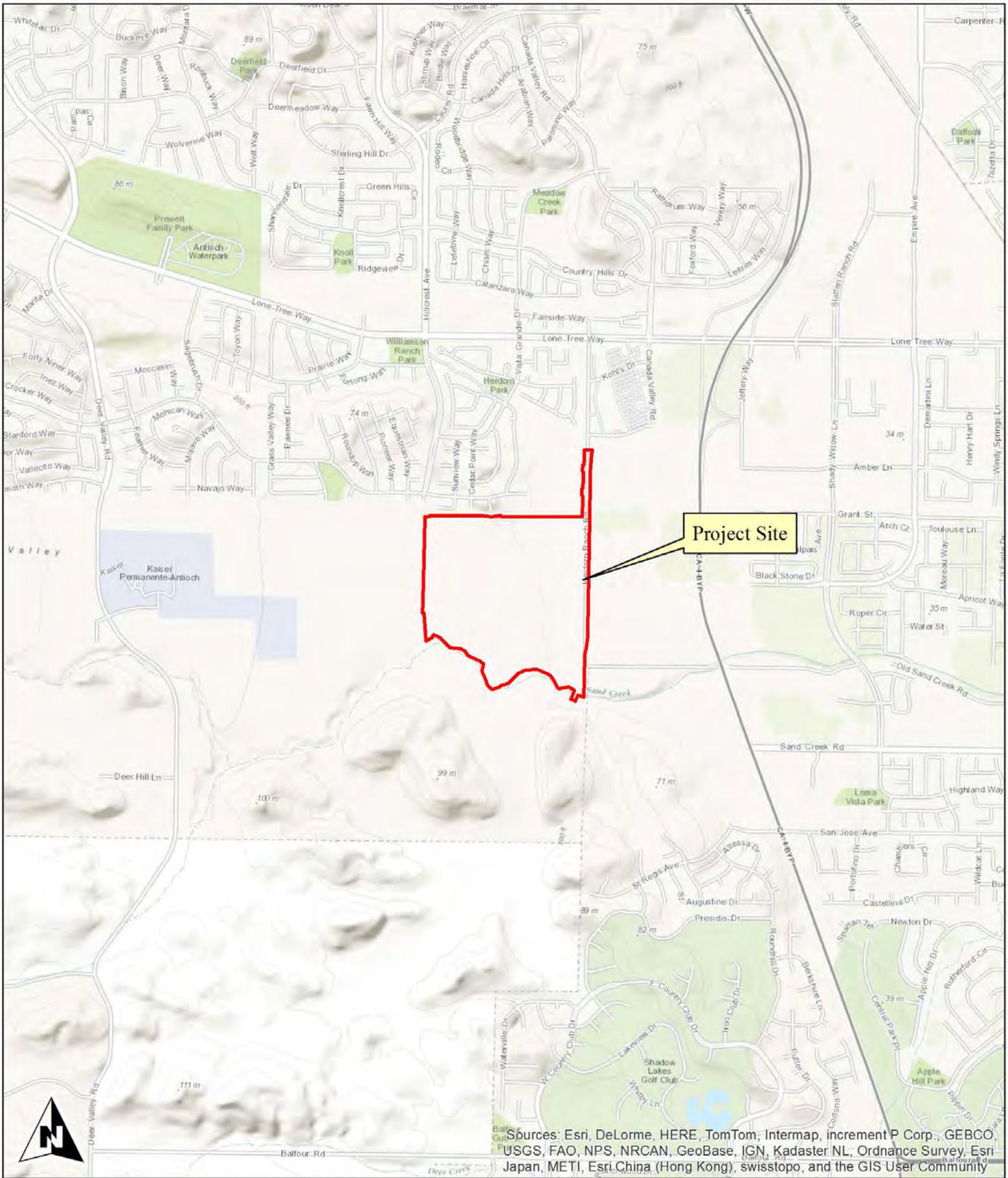
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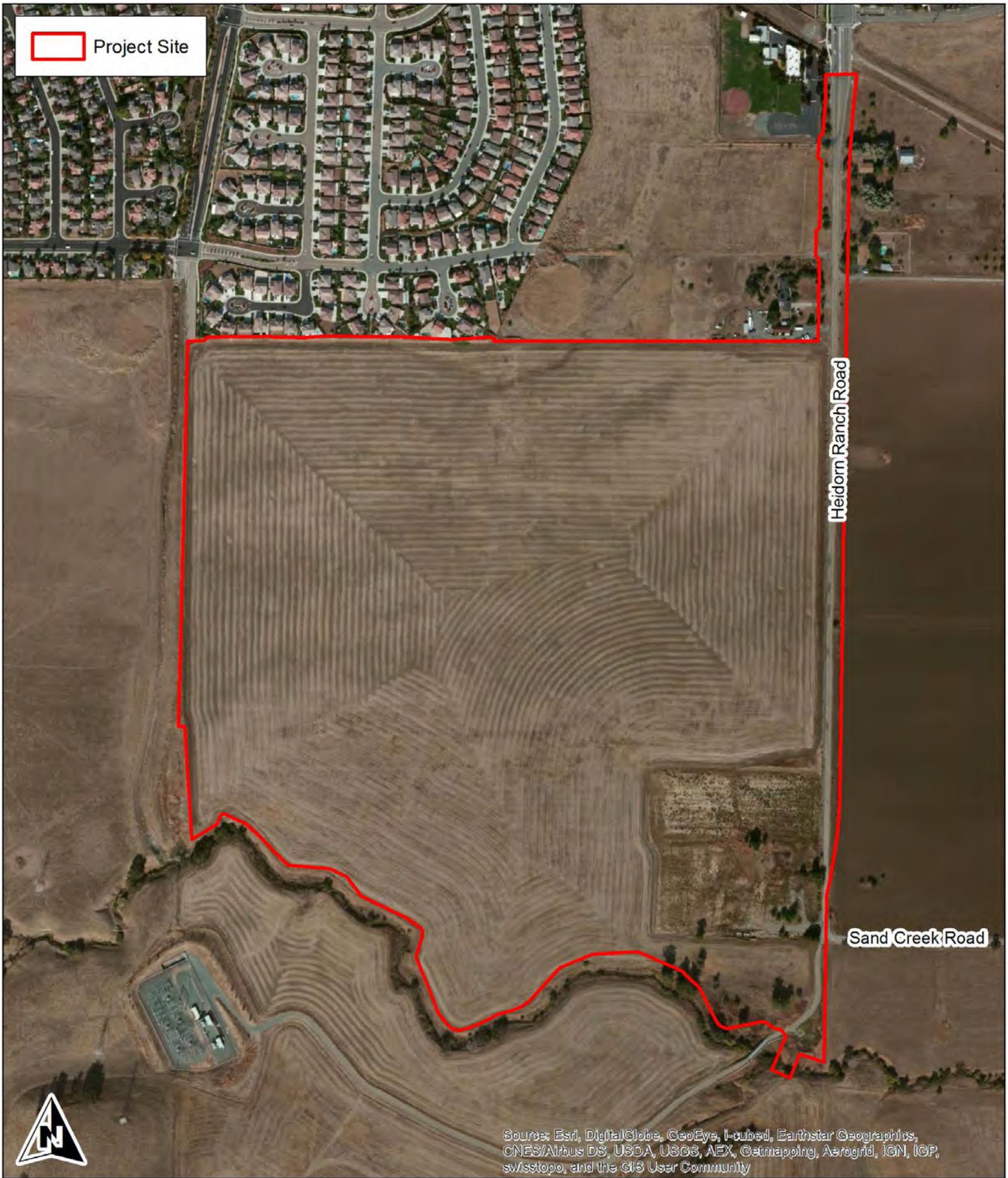


Sources: Esri, DeLorme, HERE, TomTom; Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

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Figure 2. The Vineyards at Sand Creek
 Project Site Location Map
 Brentwood, California

Section: 9; T1N R2E
 7.5-Minute Antioch South quadrangle
 Topography Source: ESRI
 Map Preparation Date: September 12, 2014



Project Site

Heidorn Ranch Road

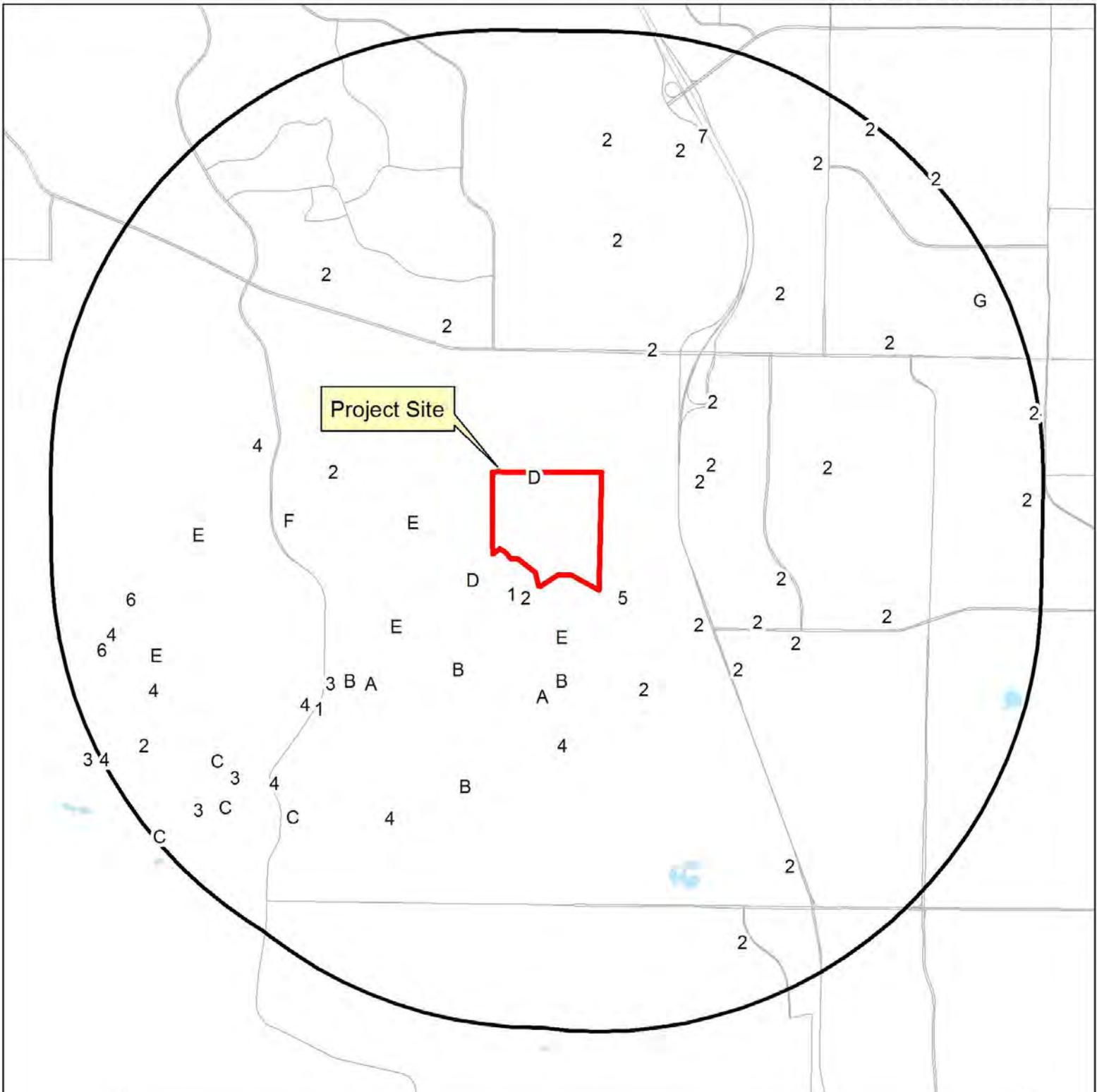
Sand Creek Road

Source: Esri, DigitalGlobe, GeoEye, I-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 3. Aerial Photograph of
The Vineyards at Sand Creek Project Site
Brentwood, California

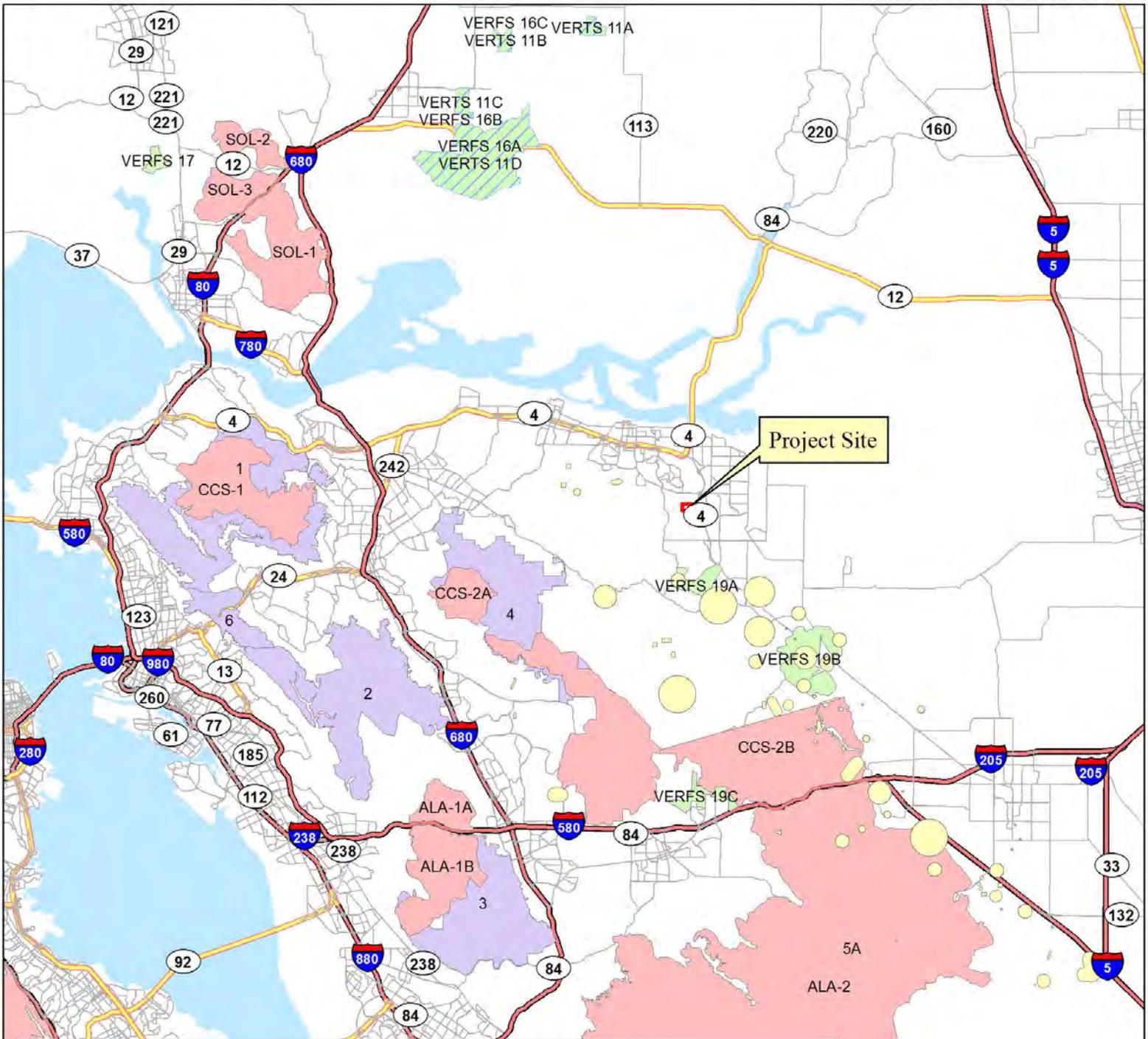
Aerial Photograph Source: ESRI
Map Preparation Date: September 12, 2014



1 American badger	6 Vernal pool fairy shrimp	D <i>California macrophylla</i>
2 Burrowing owl	7 White-tailed kite	E <i>Hesperolinon breweri</i>
3 California red-legged frog	A <i>Atriplex depressa</i>	F <i>Madia radiata</i>
4 California tiger salamander	B <i>Atriplex joaquinana</i>	G <i>Oenothera deltoides ssp. howellii</i>
5 Swainson's hawk	C <i>Blepharizonia plumosa</i>	



Figure 4. Special-Status Species Occurrences within 2 Miles of The Vineyards at Sand Creek Project Site



Legend

- Alameda Whipsnake Critical Habitat (Federal Register (Oct 3, 2000))
- CA Red-Legged Frog Critical Habitat (Federal Register (Mar 17, 2010))
- CA Tiger Salamander Critical Habitat (Federal Register (Aug 31, 2011))
- San Joaquin Kit Fox CNDDDB Occurrence
- Vernal Pool Fairy Shrimp Critical Habitat (Federal Register (Feb 10, 2006))
- Vernal Pool Tadpole Shrimp Critical Habitat (Federal Register (Feb 10, 2006))

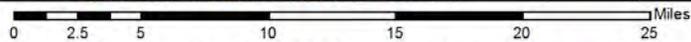


Figure 5. Critical Habitat in the Vicinity of The Vineyards at Sand Creek Project Site Contra Costa County, California

Table 1

Plant Species Observed on The Vineyards at Sand Creek Project Site

Gymnosperms

Pinaceae

* <i>Pinus halepensis</i>	Aleppo pine
<i>Pinus radiata</i>	Monterey pine

Angiosperms - Dicots

Adoxaceae

<i>Sambucus nigra</i> subsp. <i>caerulea</i>	Blue elderberry
--	-----------------

Amaranthaceae

* <i>Amaranthus albus</i>	Tumble pigweed
<i>Amaranthus blitoides</i>	Mat amaranth
* <i>Amaranthus retroflexus</i>	Rough pigweed

Apocynaceae

<i>Asclepias fascicularis</i>	Narrow-leaf milkweed
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Asteraceae

* <i>Anthemis cotula</i>	Mayweed
<i>Artemisia californica</i>	California sagebrush
<i>Artemisia douglasiana</i>	California mugwort
<i>Baccharis glutinosa</i>	Marsh baccharis
<i>Baccharis pilularis</i> subsp. <i>consanguinea</i>	Coyote brush
<i>Baccharis salicifolia</i> subsp. <i>salicifolia</i>	Mule fat
* <i>Carduus pycnocephalus</i> subsp. <i>pycnocephalus</i>	Italian thistle
* <i>Centaurea melitensis</i>	Tocalote
* <i>Centaurea solstitialis</i>	Yellow starthistle
* <i>Cirsium vulgare</i>	Bull thistle
* <i>Cynara cardunculus</i> subsp. <i>cardunculus</i>	Artichoke thistle
* <i>Dittrichia graveolens</i>	Stinkwort
<i>Grindelia camporum</i>	Great Valley gumplant
<i>Helenium puberulum</i>	Sneezeweed
* <i>Helminthotheca echioides</i>	Bristly ox-tongue
* <i>Lactuca serriola</i>	Prickly lettuce
* <i>Silybum marianum</i>	Milk thistle
<i>Xanthium strumarium</i>	Cocklebur

Boraginaceae

<i>Amsinckia menziesii</i>	Common fiddleneck
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Brassicaceae

* <i>Brassica nigra</i>	Black mustard
* <i>Hirschfeldia incana</i>	Short-podded mustard
* <i>Lepidium latifolium</i>	Broadleaf pepperweed
* <i>Nasturtium officinale</i>	Water cress
* <i>Sinapis arvensis</i>	Wild mustard

Chenopodiaceae

* <i>Atriplex rosea</i>	Tumbling oracle
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* Indicates a non-native species

Table 1**Plant Species Observed on The Vineyards at Sand Creek Project Site**

<i>Bassia hyssopifolia</i>	Five-horn smother weed
* <i>Chenopodium album</i>	White pigweed
* <i>Chenopodium sp.</i>	Goosefoot
* <i>Salsola tragus</i>	Russian-thistle
Convolvulaceae	
* <i>Convolvulus arvensis</i>	Bindweed
Euphorbiaceae	
<i>Croton setiger</i>	Turkey mullein
* <i>Triadica sebifera</i>	Chinese tallowtree
Fabaceae	
* <i>Medicago polymorpha</i>	California burclover
* <i>Melilotus albus</i>	White sweetcover
* <i>Robinia pseudoacacia</i>	Black locust
* <i>Vicia sativa</i>	Common vetch
Fagaceae	
<i>Quercus lobata</i>	Valley oak
Frankeniaceae	
<i>Frankenia salina</i>	Alkali heath
Geraniaceae	
* <i>Erodium cicutarium</i>	Red-stem filaree
Juglandaceae	
<i>Juglans californica</i>	Southern California black walnut
<i>Juglans hindsii</i>	Northern California black walnut
Lamiaceae	
* <i>Marrubium vulgare</i>	Horehound
Lythraceae	
* <i>Punica granatum</i>	Pomegranate
Malvaceae	
* <i>Malva parviflora</i>	Cheeseweed
<i>Malvella leprosa</i>	Alkali mallow
Myrtaceae	
* <i>Eucalyptus globulus</i>	Blue gum
* <i>Eucalyptus sp.</i>	Eucalyptus
Oleaceae	
* <i>Olea europaea</i>	Olive
Onagraceae	
<i>Epilobium brachycarpum</i>	Summer cottonweed
Polygonaceae	
* <i>Polygonum aviculare</i>	Common knowntweed
* <i>Rumex crispus</i>	Curly dock

* Indicates a non-native species

Table 1**Plant Species Observed on The Vineyards at Sand Creek Project Site****Rosaceae**

<i>Malus sp.</i>	Apple tree
* <i>Prunus dulcis</i>	Almond tree
<i>Prunus sp.</i>	Prunus
<i>Rosa californica</i>	California rose

Salicaceae

<i>Salix laevigata</i>	Red willow
<i>Salix lasiolepis</i>	Arroyo willow

Sapindaceae

<i>Acer macrophyllum</i>	Big-leaf maple
<i>Aesculus californica</i>	California buckeye

Solanaceae

* <i>Datura sp.</i>	Thornapple
* <i>Nicotiana glauca</i>	Tree tobacco
* <i>Nicotiana sp.</i>	Tobacco

Angiosperms -Monocots**Cyperaceae**

<i>Cyperus eragrostis</i>	Tall flatsedge
<i>Scirpus sp.</i>	Bulrush

Juncaceae

<i>Juncus balticus subsp. ater</i>	Baltic rush
<i>Juncus phaeocephalus var. paniculatus</i>	Panicled rush

Poaceae

* <i>Avena barbata</i>	Slender wild oat
* <i>Bromus diandrus</i>	Rippgut grass
* <i>Bromus hordeaceus</i>	Soft chess
* <i>Cynodon dactylon</i>	Bermudagrass
<i>Elymus glaucus</i>	Blue wildrye
<i>Elymus triticoides subsp. triticoides</i>	Creeping wildrye
* <i>Eragrostis sp.</i>	Lovegrass
* <i>Festuca bromoides</i>	Brome fescue
* <i>Festuca myuros</i>	Rattail sixweeks grass
* <i>Festuca perennis</i>	Italian ryegrass
* <i>Hordeum marinum subsp. gussoneanum</i>	Mediterranean barley
* <i>Hordeum murinum subsp. leporinum</i>	Hare barley
* <i>Phalaris aquatica</i>	Harding grass
* <i>Phalaris minor</i>	Littleseed canary grass
* <i>Phalaris paradoxa</i>	Paradox canary-grass
* <i>Polypogon monspeliensis</i>	Annual beard grass
* <i>Triticum aestivum</i>	Wheat

Typhaceae

<i>Typha angustifolia</i>	Narrow-leaved cattail
<i>Typha latifolia</i>	Broad-leaved cattail

* Indicates a non-native species

Table 2
Wildlife Species Observed on The Vineyards at Sand Creek Project Site

Fish	
Mosquito fish	<i>Gambusia affinis</i>
Reptiles	
Western fence lizard	<i>Sceloporus occidentalis</i>
Birds	
Cattle egret	<i>Bubulcus ibis</i>
Turkey vulture	<i>Cathartes aura</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
American kestrel	<i>Falco sparverius</i>
Killdeer	<i>Charadrius vociferus</i>
Rock pigeon	<i>Columba livia</i>
Mourning dove	<i>Zenaida macroura</i>
Great Horned owl	<i>Bubo virginianus</i>
Long-eared owl	<i>Asio otus</i>
Anna's hummingbird	<i>Calypte anna</i>
Nuttall's woodpecker	<i>Picoides nuttallii</i>
Black phoebe	<i>Sayornis nigricans</i>
Western kingbird	<i>Tyrannus verticalis</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Western scrub jay	<i>Aphelocoma californica</i>
American crow	<i>Corvus brachyrhynchos</i>
Tree swallow	<i>Tachycineta bicolor</i>
Northern mockingbird	<i>Mimus polyglottos</i>
House finch	<i>Carpodacus mexicanus</i>
Mammals	
Fox squirrel	<i>Sciurus niger</i>
Audubon's cottontail	<i>Sylvilagus audubonii</i>
Black-tailed hare	<i>Lepus californicus</i>
California ground squirrel	<i>Spermophilus beecheyi</i>
Coyote	<i>Canis latrans</i>

Table 3

Known Special Status Plant Species in the Vicinity of The Vineyards at Sand Creek Project Site.

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Asteraceae					
<i>Blepharizonia plumosa</i> Big tarplant	Fed: - State: - CNPS: Rank 1B.1	July-October	Valley and foothill grassland.	Record for this species located 1.5 miles southwest from the project site (Occurrence No. 33). One more record for this species within 2 miles of the project site.	None. Not observed during appropriately timed surveys.
<i>Madia radiata</i> Show golden madia	Fed: - State: - CNPS: Rank 1B.1	March-May	Cismontane woodland; valley and foothill grassland.	Historic record for this species located 0.9 mile west from the project site (Occurrence No. 25).	None. No suitable habitat; site is currently heavily disturbed. Annual disking has occurred since circa 1940.
Chenopodiaceae					
<i>Atriplex depressa</i> Rhomboid bract saltbush	Fed: - State: - CNPS: Rank 1B.2	May-October	Chenopod scrub; playas; valley and foothill grassland; [alkaline or clay].	Record for this species located 0.5 mile southwest from the project site (Occurrence No. 74). One more record for this species within 2 miles of the project site.	None. Not observed during appropriately timed surveys.
<i>Atriplex joaquinana</i> San Joaquin spearscale	Fed: - State: - CNPS: Rank 1B.2	April-October	Chenopod scrub; meadows; valley and foothill grassland; [alkaline].	Record for this species located 0.4 mile south from the project site (Occurrence No. 104). A total of 4 records for this species within 2 miles of the project site.	None. Not observed during appropriately timed surveys.
Geraniaceae					
<i>California macrophylla</i> Round-leaved filaree	Fed: - State: - CNPS: Rank 1B.1	March-May	Cismontane woodland; valley and foothill grassland/clay.	2005 record for this species located on the project site (Occurrence No. 48). One more record for this species within 2 miles of the project site.	None. This species was not detected on the project site.

Table 3

Known Special Status Plant Species in the Vicinity of The Vineyards at Sand Creek Project Site.

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Linaceae					
<i>Hesperolinon breweri</i> Brewer's western flax	Fed: - State: - CNPS: Rank 1B.2	May-July	Chaparral; cismontane woodland; valley and foothill grassland; [mostly serpentine].	Record for this species located on the project site (Occurrence No. 32).	None. No suitable habitat on the project site. Species not observed during appropriately timed surveys.
Onagraceae					
<i>Oenothera deltoides howellii</i> Antioch dunes evening-primrose	Fed: FE State: CE CNPS: Rank 1B.1	March-September	Interior dunes.	Record for this species located 2.8 miles northeast from the project site (Occurrence No. 12).	None. No suitable habitat on the project site.

***Status**

- Federal:
 FE - Federal Endangered
 FT - Federal Threatened
 FPE - Federal Proposed Endangered
 FPT - Federal Proposed Threatened
 FC - Federal Candidate
- State:
 CE - California Endangered
 CT - California Threatened
 CR - California Rare
 CC - California Candidate
 CSC - California Species of Special Concern
- CNPS:
 Rank 1A - Presumed extinct in California
 Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
 Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
 Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
 Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)

- CNPS Continued:
 Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
 Rank 2A - Extirpated in California, common elsewhere
 Rank 2B.1 - Seriously endangered in California, but more common elsewhere
 Rank 2B.2 - Fairly endangered in California, but more common elsewhere
 Rank 2B.3 - Not very endangered in California, but more common elsewhere
 Rank 3 - Plants about which we need more information (Review List)
 Rank 3.1 - Plants about which we need more information (Review List)
 Seriously endangered in California
 Rank 3.2 - Plants about which we need more information (Review List)
 Fairly endangered in California
 Rank 4 - Plants of limited distribution - a watch list

Table 4
Known Special Status Wildlife Species in the Vicinity of The Vineyards at Sand Creek Project Site.

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Invertebrates				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Fed: FT State: - Other:	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains. Inhabit static rain-filled/vernal pools, small, clear water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression	Record from 2003 for this species is located in uplands 1.6 miles west of the project site (Occurrence No. 353). Once additional record for this species within 2 miles of the project site.	None. No suitable vernal pool habitat on site at this time. Site has been intensely farmed since 1940.
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	Fed: FE State: - Other:	Inhabits vernal pools with turbid and/or silty water. Mud substrate typical.	No known CNDDDB records for this species within 2 miles of the project site.	None. No suitable habitat on site at this time.
Amphibians				
California tiger salamander <i>Ambystoma californiense</i>	Fed: FT State: CT Other:	In Sonoma Co. is listed as Endangered by USFWS. Found in grassland habitats of the valleys and foothills. Requires burrows for aestivation and standing water until late spring (May) for larvae to metamorphose.	Record for this species located 0.6 mile south of the project site in a pond (Occurrence No. 856). A total of 9 records for this species within 2 miles of the project site.	None. Project site has been disked annually since 1940, resulting in highly disturbed upland habitat.
California red-legged frog <i>Rana draytonii</i>	Fed: FT State: CSC Other:	Occurs in lowlands and foothills in deeper pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Record for this species located within Sand Creek 0.9 mile southwest of the project site (Occurrence No. 933). A total of 4 records for this species within 2 miles of the project site.	Species present in Sand Creek. See Impacts and Mitigation section in CEQA.
Reptiles				
Western Pond Turtle <i>Emys marmorata</i>	Fed: -- State: CSC Other:	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying. Occurs in the Central Valley and Contra Costa County.	No known CNDDDB records for this species within 2 miles of the project site. Known from the project region.	Low. Sand Creek provides suitable habitat. Unlikely for WPT to nest in uplands on site.

Table 4
Known Special Status Wildlife Species in the Vicinity of The Vineyards at Sand Creek Project Site.

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Birds				
White-tailed kite <i>Elanus leucurus</i>	Fed: - State: CT Other: FP	Found in lower foothills and valley margins with scattered oaks and along river bottomlands or marshes adjacent to oak woodlands. Nests in trees with dense tops.	Record for this species located in a pine tree 1.5 miles northeast of the project site (Occurrence No. 87).	Potential nesting habitat in Sand Creek. See Impacts and Mitigation section in CEQA.
Swainson's hawk <i>Buteo swainsoni</i>	Fed: - State: CT Other:	Migratory and resident raptor that breeds in open areas with scattered trees. Prefers riparian and sparse oak woodland habitats for nesting. Requires nearby grasslands, grain fields, or alfalfa for foraging.	Record for this species located 0.1 mile southeast of the project site in large valley oak (Occurrence No. 1681).	Project site provides foraging habitat. Suitable nesting habitat along Sand Creek. Preconstruction nesting bird surveys will be conducted. See Impacts and Mitigation section in CEQA.
Western burrowing owl <i>Athene cucularia hypugaea</i>	Fed: -- State: CSC Other:	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Record for this species located 0.1 mile southeast of the project site south of the project site (Occurrence No. 857). There are 24 CNDDDB records for this species within 2 miles of the project site.	Potential to nest in burrows on site. Preconstruction nesting bird surveys will be conducted. See Impacts and Mitigation section in CEQA.
Tricolored blackbird <i>Agelaius tricolor</i>	Fed: -- State: CSC Other:	Colonial nester in dense cattails, tules, brambles or other dense vegetation. Requires open water, dense vegetation, and open grassy areas for foraging.	No known CNDDDB records for this species within 2 miles of the project site. Known from the project region.	Low. Marginal nesting habitat in cattails within Sand Creek.
Mammals				
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	Fed: FE State: CT Other:	Inhabits open grasslands with scattered shrubs. Needs loose-textured sand soils for burrowing.	No known CNDDDB records for this species within 2 miles of the project site; however project site is located within the agency-recognized migration corridor for this species.	Potential. Possible migration corridor. Preconstruction surveys will be conducted. See Impacts and Mitigation section in CEQA.

Table 4
Known Special Status Wildlife Species in the Vicinity of The Vineyards at Sand Creek Project Site.

Species	*Status	Habitat	Closest Locations	Probability on Project Site
American badger <i>Taxidea taxus</i>	Fed: - State: CSC Other:	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils & open, uncultivated ground. Prey on burrowing rodents. Dig burrows.	Record for this species located 0.2 mile south of the project site (Occurrence No. 398).Burrow observed off the project site south of Sand creek. One other record for this species found within 2 miles of the project site.	None. No potential burrows of appropriate size discovered on the project site. Project site has been recently disced.

***Status**

- | | |
|--|---|
| Federal: | State: |
| FE - Federal Endangered | CE - California Endangered |
| FT - Federal Threatened | CT - California Threatened |
| FPE - Federal Proposed Endangered | CR - California Rare |
| FPT - Federal Proposed Threatened | CC - California Candidate |
| FC - Federal Candidate | CSC - California Species of Special Concern |
| FPD - Federally Proposed for delisting | FP - Fully Protected |
| | WL - Watch List. Not protected pursuant to CEQA |



California Regional Water Quality Control Board Central Valley Region

Katherine Hart, Chair



Linda S. Adams
Acting Secretary for
Environmental Protection

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

Edmund G. Brown Jr.
Governor

17 February 2011

Mr. Doc Heath
Glenn Springs Holding, Inc.
5005 LBJ Freeway, Suite 1350
Dallas, Texas 75244-6119

Project No.	01-024-026
Project Name	OXY Shell Yard
Date	2/17/11
Data Entry	
Category	A-2

NO FURTHER ACTION DETERMINATION, EFFECTIVE DATE, FORMER SHELL YARD, 3052 HEIDORN RANCH ROAD, ANTIOCH, CONTRA COSTA COUNTY

In a 13 December 2010 letter, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) Executive Officer issued a Conditional No Further Action Determination to you in regards to the petroleum release at 3052 Heidorn Ranch Road in Antioch (Site). The Conditional No Further Action Determination stated that the effective date of this Determination will be issued to you after Central Valley Water Board staff receives documentation that the monitoring wells were destroyed with Contra Costa County Environmental Health Division (County) approval and oversight.

In a letter dated 2 February 2011, you provided documentation demonstrating that the monitoring wells were destroyed between 28 and 31 January 2011 with County oversight. Therefore, the No Further Action Determination for this Site is effective as of the date of this letter.

Issuance of a No Further Action Determination does not preclude future action by the Central Valley Water Board if subsequent monitoring, testing, or analysis at the Site indicates that the remedial action standards and objectives were not achieved; a new or previously undiscovered release occurs at the Site; or new information indicates that further site investigation and remedial action are required to prevent a significant risk to human health and safety, the environment, or water quality.

If you have questions about this letter, you may call Kristi Shelton at (916) 464-4819.

ANTONIA K.J. VORSTER, P.E.
Site and Groundwater Cleanup Program Manager

cc: Contra Costa County Environmental Health Services, Martinez
Mr. David Provance, The Source Group, Pleasant Hill



- Data Points
- ▨ Sand Creek within Project Area (1,488 Sq. Ft., 0.034 Acre)
- ▨ Potential Isolated Other Water Pools (615 Sq. Ft., 0.014 Acre)
- ▨ Potential Isolated Other Waters (4,225 Sq. Ft., 0.097 Acre)
- ▨ Potential Other Waters (303 Lin. Ft., 812 Sq. Ft., 0.02 Acre)
- ⋯ Top of Bank
- ⋯ 50 Foot Setback From Project Site Boundary
- ▬ Edge of Riparian
- ▬ Ordinary High Water Mark (OHWM)
- City Stormdrain
- Corrugated Metal Pipe
- ▭ Limits of Delineation

Other Waters #	Sq. Ft.
OW1	44
OW2	777

Isolated Other Waters #	Sq. Ft.	Isolated Other Water Pools #	Sq. Ft.
IOW1	388	IOWP 1	439
IOW2	2,964	IOWP 2	84
IOW3	201	IOWP 3	61
IOW4	414	IOWP 4	31
IOW5	258		

- Corps Verified Features**
Corps File # 5PK200500628
- ▨ Jurisdictional Other Waters (541 Sq. Ft., 0.012 Acre)
 - ▨ Jurisdictional Other Water Pools (303 Sq. Ft., 0.007 Acre)
 - ▨ Isolated Other Water Pools (Non-jurisdictional) (991 Sq. Ft., 0.023 Acre)

Please note that while M&A can estimate Corps regulated areas, only the Corps can confirm the extent of area falling under their jurisdiction. Thus, it is most important to have a confirmed map from the Corps which can be relied upon for project planning purposes.



Sheet 1. Draft Wetland Delineation of the Vineyards at Sand Creek Project Site Antioch, Contra Costa County, California

APPENDIX E



Gibson & Skordal, LLC

WETLAND CONSULTANTS

December 15, 2014

Mr. Nick Pappani
Raney Planning and Management, Inc.
1501 Sports Drive, Suite A
Sacramento, California 95834

Subject: Peer Review – Biological Resource Analysis, The Vineyards at Sand Creek, Antioch, Contra Costa County, California

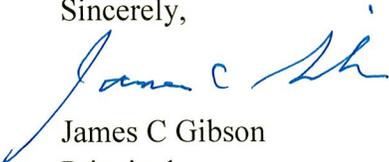
Dear Mr. Pappani:

I have completed my review of the above subject report prepared by Monk & Associates, Inc. The report is well written and technically complete. I, therefore, only have a few comments as identified below.

- Paragraph 8.1.1.3, Page 28 – The report states that Corps' authorization under NWP 7, NWP 29, and NWP 33 must be filed with the Corps of Engineers to obtain authorization. Unless there is some reason to do otherwise, the NWP 29 authorization can also include work under NWP 7 and NWP 33.
- Paragraph 8.2.3 – It should be clarified that currently the California Regional Water Quality Control Board will process waters of the state covered by Section 401 and those covered under Porter-Cologne in a single Section 401 application. If there are no Section 401 waters impacted, an application of waste discharge is required.
- Paragraph 10.16 – The Corps' mitigation ratios are determined by utilizing **“Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios”** prepared by the South Pacific Division of the Corps of Engineers. This document was prepared July 30, 2013 and updated August 5, 2013.

If you have any questions or need additional information, please contact me at (916)822-3230.

Sincerely,



James C Gibson
Principal

APPENDIX F

RESOURCE MANAGEMENT PLAN
VINEYARDS AT SAND CREEK

March 2015

Prepared for

GBN Partners, LLC
3820 Blackhawk Road
Danville, California 94506

Attention: Mr. Mathew Beinke
(925) 736-1571

Prepared by

Monk & Associates, Inc.
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
Contact: Ms. Hope Kingma

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FIGURES

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Figure 1. The Vineyards at Sand Creek Project Site Regional Map.

Figure 2. The Vineyards at Sand Creek Project Site Location Map.

Figure 3. Aerial photograph of the Vineyards at Sand Creek Project Site.

Figure 4. Aerial photograph of the Marsh Creek Mitigation Site.

1. INTRODUCTION

The Resource Management Element of the City of Antioch's General Plan generally requires the preparation of a "Resource Management Plan." The purpose of the Resource Management Plan is to (1) determine the significance of the resources found onsite and their relationship to resources in the surrounding area; (2) define areas that should be maintained as open space, based on the significance of the onsite resources and their relationship to resources in the surrounding area; and (3) identify mechanisms to protect and manage open spaces. [City of Antioch General Plan, § 10.3.2e] The General Plan includes a "Framework Resources Management Plan" (Framework) [City of Antioch General Plan, Appendix A]. The Framework provides the criteria that subsequent Resource Management Plans should use to evaluate the significance of any onsite natural resources within the Sand Creek Focus Area, and their relationship to the surrounding area, and to determine the appropriate amount and type of mitigation for impacts to onsite natural resources.

The Framework takes a broad and integrated approach to natural resources within the Sand Creek Focus Area. The approach is based on three, specifically enumerated, principles of conservation biology, which this Resource Management Plan has employed. First, the onsite biological resources are considered in terms of their contribution to natural communities at a regional scale. Second, the Framework utilizes the concept of landscape corridors to link existing areas of preserved habitat. Third, methods for minimizing and mitigating the adverse effects of development are addressed under the Framework. These three principles are addressed in this Resource Management Plan for the Vineyards at Sand Creek project, presented below.

2. THE VINEYARDS AT SAND CREEK PROJECT

The 141 acre proposed Vineyards at Sand Creek project site is located in the northeasterly corner of the City of Antioch, Sand Creek Focus Area (Figures 1 and 2), which is an area of Antioch that is rapidly transitioning from agricultural uses to residential and commercial development. The project site is currently undeveloped, and has been actively farmed since the 1940s [Environmental Data Resources, Inc., and Photo Sciences (formerly Hammon, Jensen, Wallen & Associates, Inc.)]. There are large plots of undeveloped land to the east, south, and west of the site (Figure 3). The City has approved the Aviano residential development project, immediately west of the site, and it is scheduled to begin construction in the near future.

The project site is located 0.30 mile east of Highway 4 and 0.50 mile south of Lone Tree Way. Heidorn Ranch Road runs north/south along the eastern boundary of the project site. Sand Creek Road dead ends at the southeast corner of the project site; this road comes from the Highway 4 Bypass in Brentwood east of the project site and is proposed to extend through the project site to the west onto the Aviano project site. North of the proposed project area there are residential houses, Heidorn and Williamson Ranch Park, and the Lone Tree Plaza shopping center to the northeast. Sand Creek flows east along the southern boundary of the project site and eventually enters Marsh Creek in the City of Brentwood.

An approximately 10-acre portion of the project site, the "Shell/Aera site," was previously operated by Shell Oil as an office and maintenance yard for petroleum pipeline operations. The area was excavated and treated pursuant to a Toxic Remediation Plan under the Regional Water

Quality Control Board's (RWQCB) oversight, and granted "Case Closure" by the RWQCB in February 2011. Thus, soils on this portion of the project site are uniformly highly disturbed.

The proposed Vineyards at Sand Creek project (the "project") would construct up to 650 residential units, new infrastructure, landscaping, parks and other residential related improvements on the 141-acre project site. In addition, the proposed project includes offsite improvements; a stormdrain outfall into Sand Creek and improvements to Heidorn Ranch Road.

3. MARSH CREEK MITIGATION SITE

The project applicant is proposing to mitigate the potential effects to biological resources by preserving and managing 272 acres in eastern Contra Costa County, immediately north of and adjacent to the East Bay Regional Park District's (EBRPD) Round Valley Regional Preserve, known as the "Marsh Creek mitigation site" (Figure 4). The mitigation site occurs on both sides of Marsh Creek and it is bordered to the north and northeast by non-native annual grassland and to the west and south by oak woodlands. Ruderal and non-native grasslands are the dominant plant communities of the Marsh Creek mitigation site, although blue oak (*Quercus douglasii*) woodland dominates the western/southwestern portion of the mitigation site. The Marsh Creek mitigation site provides suitable habitat for an abundance of wildlife including a number of special status species.

Figure 4 provides an aerial photograph showing the Marsh Creek mitigation site and is indicative of the rural setting of the property. Historic aerial photographs from as early as 1939 show evidence of hay farming on the northeastern portion of the property. The southwestern portion of the property, adjacent to Marsh Creek Road, is comprised of non-native annual grassland, occurring on steeply sloping southern-facing hills (Figure 4).

4. NATURAL COMMUNITIES

The Framework identifies four natural communities within the Sand Creek Focus Area that must be considered: (1) Grassland; (2) stream and riparian; (3) chaparral, scrub and rock outcrop; and (4) oak woodland and savannah. According to the Framework, these natural communities support "umbrella" and other special status species. The Framework addresses the relationship between these natural communities and the existing preserved lands located in regional proximity to the Focus Area. Resource Management Strategies for each of the natural communities are also addressed by the Framework. Each of the natural communities, their presence on the Vineyards at Sand Creek and Marsh Creek mitigation sites, and the applicability of the Framework's Resource Management Strategies are discussed below.

4.1 Grassland Community

The Framework defines grassland communities as areas that are vegetated by both annual and perennial grasses, with lesser amounts of forbs that are commonly used as rangeland. Grassland communities include areas that have been "lightly cultivated for dryland farming in some years, which retain key ecological characteristics of grassland under this use." The Framework excludes areas "that have been intensively cultivated in most years" from grassland communities [City of Antioch General Plan, App. A, p.4]. In the east Contra Costa County area immediately surrounding the Focus Area, the Framework recognizes relatively narrow bands of grasslands

that extend west from the Altamont Pass area to the southeast of the Focus Area, through the cities of Brentwood and Antioch, and along the north flank of Mt. Diablo and into EBRPD lands to the west of the Focus Area [City of Antioch General Plan, App. A, p.4].

Habitats and species the Framework typically associates with the grassland community include a small number of vernal pools (some with vernal pool fairy shrimp) located in the eastern part of the Focus Area, San Joaquin kit fox, California tiger salamander, burrowing owl, and Alameda whipsnake (in grasslands within several hundred feet of chaparral, scrub and rock outcrops) [City of Antioch General Plan, App. A, pp. 5-7]. The San Joaquin kit fox and burrowing owl are considered “umbrella” species by the Framework, although the Framework recognizes that the Focus Area is at the northerly edge of the kit fox’s range and the kit fox’s presence within the Focus Area would only be on an irregular basis in very small numbers. The Framework describes the distribution of burrowing owls in and around the Focus Area as variable.

Significant areas of grasslands west, northwest and south of the Focus Area have been set aside in regional parks and permanent open spaces, as shown on Figure 1 of the Framework. The Framework recommends preserving grasslands in and around the Focus Area that are connected to these existing grasslands. Within the Focus Area, the Framework classifies strategic grassland communities that should be targeted for preservation. Grasslands east of Deer Valley Road are classified as the least important for preservation, areas in the Lone Tree Valley between Deer Valley Road and Empire Mine Road have intermediate strategic value (where adjoining land uses are urban on one side) (the Vineyards at Sand Creek project site is in this area), and areas west of Empire Mine Road and in Horse Valley have the highest strategic value (where adjoining parkland and open space are preserved for natural values) [City of Antioch General Plan, App. A, p.10]. Outside of the Focus Area, the Framework recommends closing the “gap” between Cowell Ranch and Black Diamond Mines Regional Preserve by preserving the grassland community within Horse Valley and Deer Valley, and lands between those two valleys [City of Antioch General Plan, App. A, p.10].

Consistent with these recommendations, the Framework identifies the following Resource Management Strategies for Grassland Corridors in the Focus Area [City of Antioch General Plan, App. A, p.11]:

- Designate a portion of the lands in the Focus Area adjacent to EBRPD (shown on Figure 8 of the Framework) preserved lands as natural open space.
- Designate the Horse Creek watershed portion (shown on Figure 8 of the Framework) of the Focus Area as natural Open Space.
- Provide incentives to preserve linkages and corridors between EBRPD lands and existing open grasslands to the south of the Focus Area.

4.1.1 GRASSLAND COMMUNITIES AT THE VINEYARDS AT SAND CREEK PROJECT SITE

The Vineyards at Sand Creek project site has been actively farmed for more than 70 years, and does not represent a grassland community under the Framework. However, it has retained some ecological characteristics of a grassland community. Although the site has been disked routinely

since the 1940s greatly reducing the probability of western burrowing owl to occur, the margins of the farmed areas and the relatively small Shell/Aera parcel portion of the project site provides suitable habitat conditions, albeit marginal habitat, for this owl.

The site also provides potential migration habitat for San Joaquin kit fox, although the site does not provide suitable sized burrows for denning, based on surveys conducted by M&A biologists. The closest California Natural Diversity Database (CNDDDB) record for the San Joaquin kit fox is a 1995 observation that was located 3.5 miles to the northwest of the project site (Occurrence No. 21) in Contra Loma Regional Park. However, independently conducted surveys cited in *Relative Abundance of Endangered San Joaquin Kit Fox (Vulpes macrotis mutica) Based on Scat-Detection Dog Surveys* (Smith et. al. 2006) were unable to document presence of San Joaquin kit fox in Contra Costa County, suggesting that it is likely that San Joaquin kit fox is extirpated from Contra Costa County.

The closest record for California tiger salamander occurs 0.60 mile south of the project site (CNDDDB Occurrence No. 856). California tiger salamander larvae are recorded to occur in a pond at this location. There are eight additional California tiger salamander records known from within two miles of the project site. Regardless, the project site has been disked and farmed annually since the early 1940s. Ground squirrel control has been actively practiced on the project site for decades and accordingly, subterranean refugia available for California tiger salamander is rare, at best, in the vicinity of the project site. Due to an absence of suitable refugia on the farmed project site, it does not provide suitable over- summering upland habitat for California tiger salamander. While there are no ground squirrels on the actively farmed project site, the Shell/Aera site has a few California ground squirrel burrows of recent origin. However, this portion of the project site was subjected to a contaminant remediation project that removed all soils within two feet of the surface elevation thereby removing any potential that this area provides upland over summering habitat that could be used by the California tiger salamander. In addition, the project site supports no potential (aquatic) breeding habitat that could be used by this salamander. As such, no suitable California tiger salamander breeding or over-summering habitat will be affected by the proposed project.

The closest record for Alameda whipsnake is located 3.5 miles west of the project site (CNDDDB Occurrence No.68). The project site does not provide “core habitat” for the Alameda whipsnake (i.e., there are no chaparral and coastal scrub communities within the project site), and the closest core habitat is located approximately 3 miles from the project site. As such, no suitable Alameda whipsnake habitat will be affected by the proposed project.

The project site footprint is located in an area in the Lone Tree Valley between Deer Valley Road and Empire Mine Road. According to the Framework, areas in the Lone Tree Valley between Deer Valley Road and Empire Mine Road have intermediate strategic value (where adjoining land uses are urban on one side) (the Vineyards at Sand Creek project site is in this area).

As the Vineyards at Sand Creek project site is not adjacent to EBRPD lands or other preserved open space areas, most of the Resource Management Strategies listed above do not apply to the project site. However, the project will preserve linkages and wildlife corridors; Sand Creek,

located just south of the project site, provides a valuable wildlife corridor with suitable cover, foraging, water resources, and migration pathways that lead to other natural habitats. Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Sand Creek provides a local wildlife corridor for common mammals and birds such as raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), red-tailed hawk (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*) and Nuttall's woodpecker (*Picoides nuttallii*) among many others. Medium and large mammal movements along this creek will remain unaffected by the proposed project. Also, the diverse riparian woodland provides important avian habitat that is used seasonally by migrant species and year-round by resident birds. The project as currently proposed would not adversely impact wildlife movement corridors.

4.1.2 GRASSLAND COMMUNITIES AT THE MARSH CREEK MITIGATION SITE

The Marsh Creek mitigation site is located immediately north of and adjacent to the EBRPD's Round Valley Regional Preserve. The geographic location of the Marsh Creek mitigation site adjacent to Round Valley Regional Park makes it a valuable grassland preservation property that will add permanently preserved acreage to existing regionally significant preserved lands (Round Valley Regional Preserve). It is bordered to the north and northeast by non-native annual grassland, to the west and south by oak woodlands. Ruderal and non-native grasslands are the dominant plant communities of the Marsh Creek mitigation site, although blue oak (*Quercus douglasii*) woodland dominates the western/southwestern portion of the mitigation site. Figure 4 provides an aerial photograph showing the Marsh Creek mitigation site and is indicative of the rural setting of the property.

The Marsh Creek mitigation site is 272 acres that will be managed to benefit many wildlife species, but more specifically the San Joaquin kit fox and California red-legged frog. The mitigation site has a widespread grassland community that is scattered with California ground squirrels and their burrows, which provides a suitable food source and potential den locations for the San Joaquin kit fox. Marsh Creek also serves as a viable wildlife corridor that provides food, water, protection/cover, and migration routes. Thus, the Marsh Creek mitigation site has moderate value to the San Joaquin kit fox, as compared to the project site, an agricultural property that has marginal value to the kit fox as migration habitat.

In addition, the East Contra Costa County Conservancy in concert with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife, in the East Contra Costa County Habitat Conservation Plan (HCP) indicate that the Marsh Creek mitigation site is located in an area deemed to have high value for preservation. In the HCP, the property is mapped within an area designated as within the "Medium Level of Acquisition Effort" category in "Suitable Core Habitat" for the San Joaquin kit fox. The mitigation property is also mapped in the HCP as a "Potential Kit Fox Movement Route" indicating that the property has value to the San Joaquin

kit fox. The geographic location of the property adjacent to EBRPD Round Valley Regional Park further makes it a valuable mitigation property with significant regional importance as a preservation property, and achieves the Framework's goal of connecting grassland communities to the EBRPD's preserved grasslands.

4.2 Stream and Riparian Community

The Framework defines the stream and riparian community as areas where water flows in discrete paths, ranging from small swales to substantial streams. Within the Focus Area, this community comprises less than 2% of the landscape, but is widely distributed. [City of Antioch General Plan, App. A, p.7]. The stream and riparian community in the Focus Area flows from west to east, and drains to watersheds located outside of the Focus Area. Sand Creek is the primary stream community, and a portion of upper Horse Valley Creek is located in the southern extension of the Focus Area. The stream and riparian community within the Focus Area does not provide a key linkage and movement corridor for many species, but the California red-legged frog is identified as a species associated with the Focus Area's riparian community. [City of Antioch General Plan, App. A, pp.7-8].

The Resource Management Strategies for stream and riparian communities within the Framework recommends an open space corridor on both sides of Sand Creek, within which no grading or other development would occur [City of Antioch General Plan, App. A, p.14]. The Framework does not require complete avoidance of the creek or specify the size of the open space corridor, but it does suggest evaluating whether the General Plan's recommended 250 foot creek corridor (roughly 125 feet on either side of the creek centerline) is sufficient to buffer the creek from any adjoining golf and residential development.

4.2.1 STREAM AND RIPARIAN COMMUNITIES AT THE VINEYARDS AT SAND CREEK PROJECT SITE

Sand Creek flows west to east just south of the southern project site boundary. The creek receives urban runoff from developments to the northwest, and from a larger as yet undeveloped watershed further to the northwest. The average distance between ordinary high water marks (OHWM) in Sand Creek is 12 feet and it is approximately 70 to 150 feet wide between the top-of-banks. Sand Creek is incised approximately 20 feet down below the existing grade of the project site; it has steeply-sloped banks and a flood plain terrace near the top of banks on each side of the thalweg. Scattered riparian woodland is associated with Sand Creek. Tree species found in the riparian woodland along Sand Creek include valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*), bluegum eucalyptus (*Eucalyptus globulus*), arroyo willow (*Salix lasiolepis*), and big-leaf maple (*Acer macrophyllum*). The open non-canopied habitats within Sand Creek allow for localized occurrences of herbaceous and shrubby understories. California rose (*Rosa californica*) grows in dense thickets along portions of the creek, while sneezeweed (*Helenium puberulum*), California sagebrush (*Artemisia californica*), California mugwort (*Artemisia douglasiana*), and white sweetclover (*Melilotus albus*) are scattered along the creek banks and at the water line. Annual beardgrass (*Polypogon monspeliensis*), cattails (*Typha latifolia*), brown-headed rush (*Juncus phaeocephalus* ssp. *paniculatus*), Baltic rush (*Juncus balticus* ssp. *ater*) and water cress (*Nasturtium officinale*) grow in scattered locations in the creek channel as well.

The closest known CNDDDB record of California red-legged frog is 0.90 miles southwest of the project site within Sand Creek (CNDDDB Occurrence No. 933). In addition, there are three additional CNDDDB records of this frog within 2 miles of the project site. Consequently, Sand Creek is regarded as occupied, and the lands adjacent to the creek including the project site constitute potential upland dispersal habitat for this frog.

While a small portion of Sand Creek will be impacted during the construction of a stormwater outfall into the creek, the remaining project as proposed has a 125 foot setback from Sand Creek. The applicant will implement appropriate BMPs to prevent construction related impacts that could introduce di minimus fill or other pollutants into Sand Creek. These measures include the installation of wildlife friendly hay wattles and/or silt fence that will prevent unintended di minimus fill impact to Sand Creek while the stormwater outfall is constructed. In addition, orange silt fencing shall be installed at the top-of-bank of Sand Creek to prevent unintended human and equipment traffic in areas that are not relevant to the construction of the proposed project.

4.2.2 STREAM AND RIPARIAN COMMUNITIES AT THE MARSH CREEK MITIGATION SITE

The mitigation site has multiple ephemeral/intermittent drainages. Riparian vegetation grows along Marsh Creek which bisects the mitigation site flowing west to east. The average distance between top-of-banks of Marsh Creek is approximately 40 feet. The active flow channel is 5 to 20 feet wide. Marsh Creek supports a rocky/cobbly bottom, with water depths ranging from 6 inches to 3.5 feet deep in the late summer months. A wrack line of debris approximately 10 feet above the channel bottom indicates that this creek is subject to high volume, “flashy” winter flows that occasionally occur during large storm events. These high water events leave flooded pools that persist in the flood plain of this creek for many months each year.

The geographic location of the Marsh Creek mitigation site adjacent to EBRPD Round Valley Regional Park makes it a valuable preservation property that will add permanently add preserved acreage to existing regionally significant preserved lands (Round Valley Regional Preserve). There is a 1982 record for California red-legged frogs along Marsh Creek on the Marsh Creek mitigation site (CNDDDB Occurrence No. 546), and a total of 79 reported occurrences of California red-legged frogs within 5 miles of the property. Hence, the habitat to be preserved at this mitigation property supports grassland habitat that provides upland dispersal habitat and aquatic habitat for California red-legged frogs, and Marsh Creek provides potential breeding habitat for California red-legged frog. The combination of breeding habitat in proximity to suitable upland habitat is most important for the ongoing viability of the California red-legged frog populations.

While the proposed project will not likely impact the California tiger salamander, preservation of the Marsh Creek mitigation site would nonetheless provide benefits to this salamander. There is a 1982 record for California tiger salamander in a pond in annual grassland adjacent to Marsh Creek, located 0.24 mile upstream from the Marsh Creek mitigation site (CNDDDB Occurrence No. 170), and a total of 69 reported occurrences of California tiger salamanders within 5 miles of the Marsh Creek mitigation site. Owing to the abundance of known California tiger salamander records in the vicinity of the Marsh Creek mitigation site, and the presence of a robust California ground squirrel colony, which provide necessary refugia habitats for California tiger

salamanders, the Marsh Creek mitigation site would most likely be regarded by the U.S. Fish and Wildlife Service and the Department of Fish and Wildlife as supporting suitable upland over-summering habitat for this salamander. Therefore the proposed mitigation site will provide appropriate mitigation for impacts to 141 acres of long-term disced agricultural land that has been farmed annually since at least 1945.

4.3 Chaparral, Scrub and Rock Outcrop Community

According to the Framework, the chaparral, scrub and rock outcrop community occurs on thin-soiled areas that may contain chaparral, grasses, and broadleaved herbs, or may support minimal vegetation [City of Antioch General Plan, App. A, p.8]. The rock outcrop community is generally limited to ridgetops, and excludes grassland and oak woodland or savannah on deeper soils. Within the Focus Area, this community is found primarily in the western part of the Focus Area, and otherwise extends eastward only on the ridges on either side of Sand Creek. The Framework associates the Alameda whipsnake with this community, in the southwestern part of the Focus Area [City of Antioch General Plan, App. A, p.8].

4.3.1 CHAPARRAL, SCRUB AND ROCK OUTCROP COMMUNITIES AT THE VINEYARDS AT SAND CREEK PROJECT SITE

The project site does not support a chaparral, scrub or rock outcrop community.

4.3.2 CHAPARRAL, SCRUB AND ROCK OUTCROP COMMUNITIES AT THE MARSH CREEK MITIGATION SITE

The ridge tops on Marsh Creek mitigation site within the oak woodland are characterized by sporadically occurring rock outcrops. These outcrops typically occur in small grassland areas within the oak woodland. The rock outcrops have wildlife habitat value and add diversity to the oak woodland community. The Marsh Creek mitigation site does not support a chaparral or scrub plant community.

4.4 Oak Woodland and Savannah Community

The Framework defines the oak woodland and savannah community as typified by one or more species of oaks, and generally located on moist north-facing slopes [City of Antioch General Plan, App. A, p.9]. Non-native trees and vegetation, such as eucalyptus trees are excluded from the community by the Framework. No sensitive species are associated with the oak woodland and savannah community within the Focus Area.

4.4.1 OAK WOODLAND AND SAVANNAH COMMUNITIES AT THE VINEYARDS AT SAND CREEK PROJECT SITE

There are a number of eucalyptus and other non-native trees on the project site. There are no oaks on the site, and it does not support an oak woodland and savannah community.

Scattered riparian woodland is associated with Sand Creek, an intermittent creek that runs west to east south of the southern border of the project site. Tree species found in the riparian woodland along Sand Creek include valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*), bluegum eucalyptus (*Eucalyptus globulus*), arroyo willow (*Salix lasiolepis*), and big-leaf maple (*Acer macrophyllum*). The open non-canopied habitats within Sand Creek allow for localized occurrences of herbaceous and shrubby understories. California rose (*Rosa*

californica) grows in dense thickets along portions of the creek, while sneezeweed (*Helenium puberulum*), California sagebrush (*Artemisia californica*), California mugwort (*Artemisia douglasiana*), and white sweetclover (*Melilotus albus*) are scattered along the creek banks and at the water line. Annual beardgrass (*Polypogon monspeliensis*), cattails (*Typha latifolia*), brown-headed rush (*Juncus phaeocephalus* ssp. *paniculatus*), Baltic rush (*Juncus balticus* ssp. *ater*) and water cress (*Nasturtium officinale*) grow in scattered locations in the creek channel.

4.4.2 OAK WOODLAND AND SAVANNAH COMMUNITIES AT THE MARSH CREEK MITIGATION SITE

Blue oak (*Quercus douglasii*) woodland dominates the western/southwestern portion of the mitigation site. The oak woodland understory is dominated by native and non-native grasses that include Italian ryegrass (*Festuca perennis*), soft chess (*Bromus hordeaceus*), small quaking grass (*Briza minor*), and dogtail grass (*Cynosurus echinatus*). Forbs that were observed in the blue oak woodland understory included windmill-pink (*Silene gallica*), goose grass (*Gallium aparine*), common vetch (*Vicia sativa*), red maids (*Calandrinia ciliata*), blue dicks, subterranean clover (*Trifolium subterraneum*), California burclover (*Medicago polymorpha*), common chickweed (*Stellaria media*), broad-leaf filaree (*Erodium botrys*), white-stem filaree (*Erodium moschatum*), purple owl's clover (*Castilleja exserta*), and forktoothed ookow (*Dichelostemma congestum*).

Due to the relatively undisturbed conditions found within the oak/bay woodland on the mitigation site, this area contains predominantly native species. Hundreds of vertebrate species and thousands of invertebrate species are associated with California's oak habitats. Oak trees produce a variety of wildlife food opportunities. Oak acorns, leaves, wood, roots, pollen, and sap are sustenance for a myriad of insects, birds, and mammals. These trees form the basis of an elaborate food web, with herbivores eating the oak products and carnivores eating the herbivores.

5. MITIGATION FOR IMPACTS TO NATURAL COMMUNITIES

As described in the Framework, impacts to natural communities and their associated special status species from development within the Sand Creek Focus Area is unavoidable [City of Antioch General Plan, App. A, p.11]. However, the magnitude or intensity of the impact from development with the Focus Area is not uniform across the Focus Area. The Framework designates the land within the Focus Area into one of three "Impact Zones" (Zone 1, Zone 2, Zone 3) [City of Antioch General Plan, App. A, pp. 13, and shown on Figure 9 of the Framework].

The Framework recommends in-kind mitigation, with a minimum 1:1 mitigation ratio. By way of example, the Framework explains that mitigation for impacts to California tiger salamander breeding and estivation habitat "would be required to preserve grassland habitats that support conditions for the tiger salamander in an amount that is equal to or greater than the acreage of the impacted site. Conversely, if the tiger salamander was absent from that site, the preservation lands would not need to contain the specific habitat values for this species" [City of Antioch General Plan, App. A, p.3].

The Framework also recognizes the value of preserving higher quality habitat. Zone 3 lands will generally require the most mitigation, and similarly, the preservation of Zone 3 lands will be given additional mitigation credit, or value, and less mitigation may be required to encourage the preservation of Zone 3 habitats.

These mitigation goals are reflected in the Framework's Resource Management Strategies for Key Grassland Sensitive Resources in the Focus Area [City of Antioch General Plan, App. A, p.12] which encourage:

- Sufficient mitigation for impacts resulting from individual development proposals to adequately protect the habitat of key grassland sensitive resources.
- Carefully tailored mitigation to reflect the relative importance of the specific lands proposed for development.
- Incentives to encourage the purchase of mitigation lands in those areas deemed to be of greater strategic importance to maintaining the integrity of the grassland resources in the region.

The Resource Management Strategies for the Stream and Riparian Community encourage off-site compensatory mitigation for impacts to Sand Creek, particularly on lands designated for grassland community mitigation [City of Antioch General Plan, App. A, p.14].

The Vineyards at Sand Creek project site is designated as Impact Zone 1, which generally requires the least mitigation (1:1 in-kind mitigation). As described above, the proposed project will impact approximately 141 acres that provide marginal grassland community ecological characteristics, but nonetheless does provide suitable upland dispersal habitat for the California red-legged frog and potential migration habitat for the San Joaquin kit fox. The stormdrain outfall within Sand Creek would permanently impact approximately 350 square feet of Sand Creek, and construction would temporarily impact approximately 1000 square feet of Sand Creek, which provides California red-legged frog aquatic dispersal habitat. The remainder of the project will not impact any stream or riparian community.

Under the Framework, mitigation for the project's permanent impacts to grasslands and stream and riparian habitats should consist of 141 acres of grasslands, and less than an acre of stream and riparian habitat.

To mitigate for impacts to federally listed species, the applicant will dedicate and preserve 272 acres of the Marsh Creek property located in eastern Contra Costa County. The proposed mitigation site will be managed to benefit a complement of known locally occurring listed species, including California red-legged frogs, the California tiger salamander, and San Joaquin kit fox.

The 272 acre property that is proposed as mitigation far exceeds the 1:1 mitigation ratio for the loss of 141 acres of farmland that otherwise provides significantly lower habitat value to federally listed species.

The fact that the mitigation site 1) is within a recognized San Joaquin kit fox migration corridor; 2) has a California red-legged frog CNDDDB record within the mitigation site; 3) supports a suitable California tiger salamander upland over-summering habitat; and 4) is immediately

adjacent to EBRPD's Round Valley Regional Preserve, all support a conclusion that the preservation of the 272 acre mitigation site is a valuable conservation effort. Therefore, preservation of the 272 acres of the Marsh Creek mitigation site that will be managed to benefit San Joaquin kit fox, the California red-legged frog, and the California tiger salamander provides excellent mitigation compensation for the loss of 141 acres of farmland that otherwise provides significantly lower habitat value to federally listed species.

A perpetual conservation easement will be recorded over the Marsh Creek mitigation property within a year of breaking ground on the project site. The easement should be granted to a qualified conservation organization, and the EBRPD may become the underlying landowner.

6. MANAGEMENT OF PRESERVED LANDS

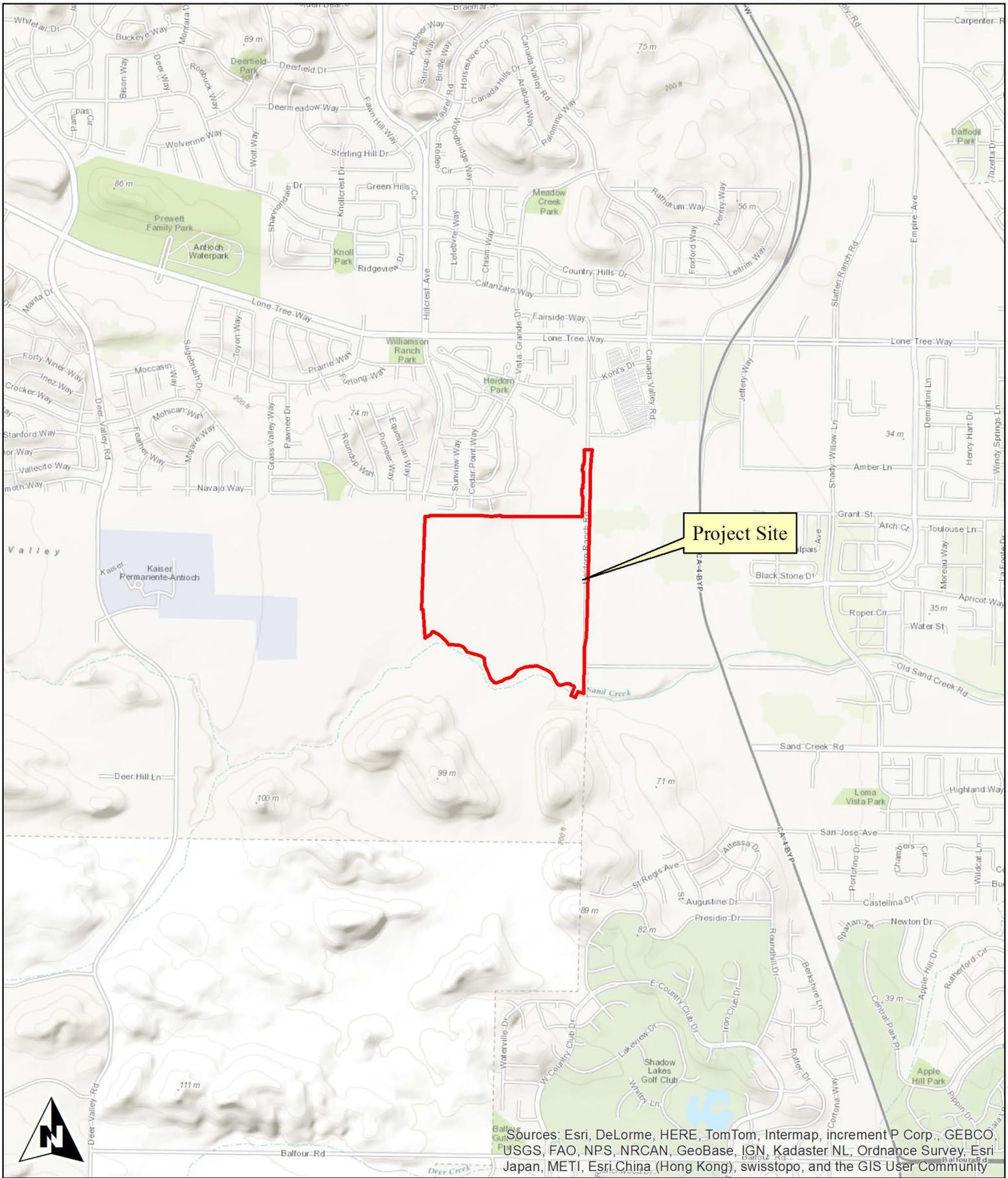
Once lands have been identified for preservation, the Framework recommends preparing a site-specific management plan that addresses the site's key sensitive species, permitted activities (e.g., cattle grazing, new trails in the future), grazing management (if applicable), activities that will not be permitted on the site (such as use of rodenticide, dicing, recreational activities that would require substantial alteration of the habitat, etc.), and the funding mechanism (such as an endowment) to pay for the site's long-term management.

Consistent with this recommendation, a resource management plan will be prepared for the Marsh Creek mitigation site that documents the mitigation site's existing conditions, including special status species, and addresses both short-term and long-term monitoring and management actions. Management and monitoring within the mitigation site is likely to include invasive species monitoring (only those species categorized as "high" invasiveness by CAL-IPC) and vegetation management to control such invasive species, grazing to manage vegetation height and abundance, trash removal, fencing maintenance, and special-status species surveys. The resource management plan will specify the habitat objectives the plan is intended to achieve, a monitoring schedule, the contents and frequency of any monitoring reports. Allowed and prohibited uses, such as when and where the application of pesticides is permitted and prohibited, areas where grazing is not permitted, and other site-specific actions will be addressed in the plan, and in the conservation easement. The conservation easement will also address prohibited activities, such as, commercial or industrial uses, construction and other ground disturbing activities, mining activities, subdivision of the site, removing vegetation other than for habitat management purposes, and most recreational or agricultural activities.

The plan will include sufficient information to determine the cost of implementing the short-term and long-term management and monitoring actions. The project proponent will establish an operational, non-wasting endowment that will provide the Grantee, or other approved land manager with sufficient funds for implementing the plan.

7. LITERATURE CITED

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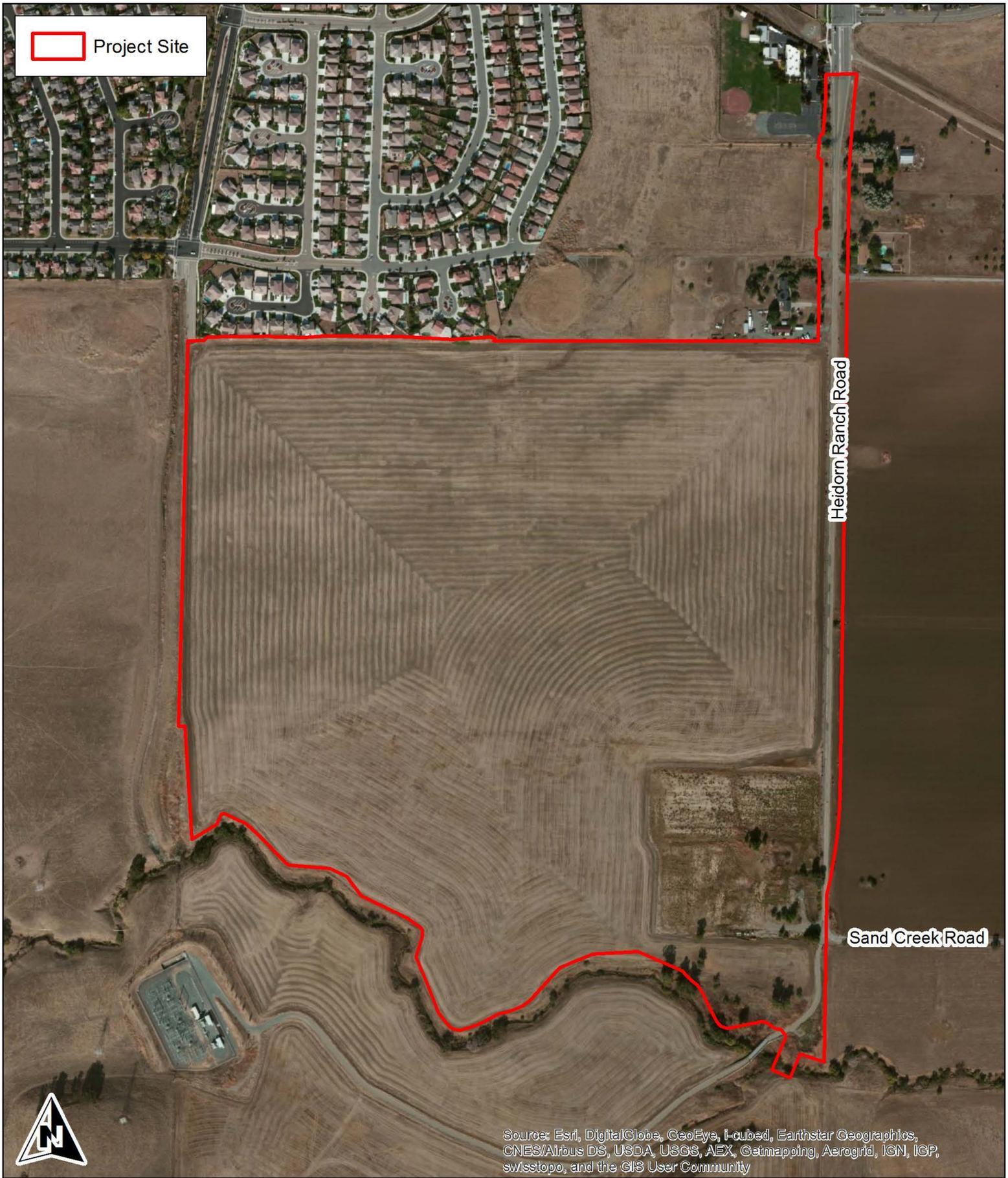


Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

Monk & Associates
 Environmental Consultants
 1136 Saranap Avenue, Suite Q
 Walnut Creek, California 94595
 (925) 947-4867

Figure 2. The Vineyards at Sand Creek
 Project Site Location
 Brentwood, California

Section: 9; T1N R2E
 7.5-Minute Antioch South quadrangle
 Topography Source: ESRI
 Map Preparation Date: December 8, 2014



Source: Esri, DigitalGlobe, GeoEye, I-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Figure 3. Aerial Photograph of
The Vineyards at Sand Creek Project Site
Brentwood, California

Aerial Photograph Source: ESRI
Map Preparation Date: September 12, 2014

 Marsh Creek Road Mitigation Property



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Figure 4. Aerial Photograph of the
Marsh Creek Road Mitigation Property

Map Preparation Date: November 24, 2014
Aerial Photograph Source: ESRI

APPENDIX G

STEWART'S TREE SERVICE, INC.
P.O. BOX 63
ANTIOCH, CA 94509
OFFICE (925) 252-0442 FAX (925) 219-8513

July 17, 2014

GBN Partner
3820 Blackhawk Road
Danville, CA 94506
Attn: Lisa Borba

Re: Tree Survey
Location: Sand Creek Ranch Project
Inspection date: July 17, 2014

Dear Lisa,

The intent of this inspection and this report is primarily to establish the trees' identification, and a brief description of the trees' condition, at the time of inspection. The trees that are on the bank side are outside of the property limit so these will not be identified. Only the trees located within the project boundary will be identified.

These tree have been measured at approximately 4 ½' above grade. These trees have been numbered 1 – 31.

The diameters of these trees are approximate.

* If you want to keep any of these trees, this would be the only one I would save. All the others are in pretty bad shape.

Please do not hesitate to call if I can be of further assistance in this matter.

Respectfully,



Patrick Stewart
Vice President
I.S.A. Certified Arborist W.C. #3322

PS/ps

STEWART'S TREE SERVICE, INC.
P.O. BOX 63
ANTIOCH, CA 94509
OFFICE (925) 252-0442 FAX (925) 219-8513

TREE SURVEY

PREPARED FOR
GBN PARTNER
3820 BLACKHAWK ROAD
DANVILLE, CA 94506

LOCATION
SAND CREEK RANCH SITE
ANTIOCH CA

BY

PATRICK STEWART
I.S.A. CERTIFIED ARBORIST
W.C. #3322-A

July 17, 2014

DEFENITIONS

- GOOD - Tree with good health and structural stability that has the potential for longevity at the site.
- FAIR - Tree with fair health and/or structural defects that can be abated with treatment; tree will require more intense management and monitoring and may have shorter life span than those in “good” category.
- POOR - Tree in poor health or with significant defects that cannot be mitigated; tree is expected to continue to decline regardless of treatment.

MULCHING

Mulch roots system with an organic compost to increase the nutrients, to prevent moisture loss and soil compaction. Spread the mulch evenly over the soil, as close to the drip line as possible, and taking care to keep it at least 6" away from the trunk. Mulch piled against the trunk will increase the chance of Crown rot.

BENEFITS OF MULCHING

Soil fertility is increased by nutrients wither by direct leaching or by decomposition. Soil moisture is conserved because mulching reduces evaporation from the soil surface. Soil compaction is reduced when a protective covering reduces rain and sprinkler impact in the soil surface and it disperses the weight of vehicles and people. Soil temperature is moderated so that the soil is cooler in the summer and warmer in the winter. This also helps support the growth of mycorrhizae.

PROTECTIVE FENCING

A sturdy protective fence shall be erected as close to the drip line as possible. Materials such as equipment, fuel, paints and other construction items should not be placed within the protected area.

BENEFITS OF PROTECTIVE FENCING

Protective fencing will prevent stockpiling of soil around the trunk which causes Crown/Root Rot fungus. Soil compaction is prevented by eliminating traffic within the protected area. It also prevents large equipment from physically hitting the tree.

UPLIFT & PRUNING TREES FOR EQUIPMENT

Trees that will be affected by construction should be pruned to make the construction site safe. Some trees will need to be uplifted to allow for the operation of equipment.

ROOT PRUNING

When it is necessary to cut roots, make cuts with a pruning saw. Cuts should be made cleanly, without any slant. They should be made 6"-12" closer to the tree than the construction limit. A callus will form about the cut and new roots will generate from the callus. A Certified Arborist or a Certified Tree Worker should do any roots that need to be pruned.

REFERENCES

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- Urban Forest Ecosystems Institute, **Selectree for California, A Tree Selection Guide**

TREE SURVEY

Address/Project Name: Sand Creek Ranch Project

These trees are measured at approximately 4 1/2' above grade.

Tree ID#	Tree Species	Tree Diameter	Notes: Condition * See Next Page
#1	Eucalyptus (<i>Eucalyptus citriodora</i>)	50" multi trunk	Poor
#2	Eucalyptus (<i>Eucalyptus citriodora</i>)	50" Multi trunk	Poor
#3	Black Walnut (<i>Juglandaceae nigra</i>)	20" Combined	Poor
#4	Black Walnut (<i>Juglandaceae nigra</i>)	18"	Poor
#5	Black Locust (<i>Robinia pseudoacacia</i>)	24"	Poor
#6	Black Locust (<i>Robinia pseudoacacia</i>)	32"	Fair
#7	Eucalyptus (<i>Eucalyptus citriodora</i>)	12"	Poor
#8	Eucalyptus (<i>Eucalyptus citriodora</i>)	38" Multi trunk	Poor
#9	Eucalyptus (<i>Eucalyptus citriodora</i>)	32"	Fair
#10	Eucalyptus (<i>Eucalyptus citriodora</i>)	18"	Fair
#11	Eucalyptus (<i>Eucalyptus citriodora</i>)	32" Multi trunk	Poor

Arborist Name/Lic. # :

Patrick Stewart I.S.A. Certified Arborist W.C. #3322

Date:

July 17, 2014

TREE SURVEY

Address/Project Name: Sand Creek Ranch Project

These trees are measured at approximately 4 1/2' above grade.

Tree ID#	Tree Species	Tree Diameter	Notes: Condition * See Next Page
#12	Eucalyptus (<i>Eucalyptus citriodora</i>)	18" Multi trunk	Poor
#13	Eucalyptus (<i>Eucalyptus citriodora</i>)	42" Multi trunk	Poor
#14	Black Walnut (<i>Juglandaceae nigra</i>)	22"	Poor
#15	* Eucalyptus (<i>Eucalyptus citriodora</i>)	22"	Good
#16	Ash (<i>Fraxinus uhdei</i>)	20"	Poor
#17	Ash (<i>Fraxinus uhdei</i>)	32" Multi trunk	Poor
#18	Ash (<i>Fraxinus uhdei</i>)	16"	Fair
#19	Redwood (<i>Sequoia sempervirens</i>)	12"	Fair
#20	Ash (<i>Fraxinus uhdei</i>)	20" Multi trunk	Poor
#21	Ash (<i>Fraxinus uhdei</i>)	36" Multi trunk	Poor
#22	Monterey Pine (<i>Pinus radiata</i>)	14"	Poor

Arborist Name/Lic. # :

Patrick Stewart I.S.A. Certified Arborist W.C. #3322

Date:

July 17, 2014

TREE SURVEY

Address/Project Name: Sand Creek Ranch Project

These trees are measured at approximately 4 1/2' above grade.

Tree ID#	Tree Species	Tree Diameter	Notes: Condition * See Next Page
#23	Eucalyptus (<i>Eucalyptus globulus</i>)	50" Multi trunk	Poor
#24	Eucalyptus (<i>Eucalyptus globulus</i>)	50" Multi trunk	Poor
#25	Eucalyptus (<i>Eucalyptus globulus</i>)	50"	Poor
#26a	Eucalyptus (<i>Eucalyptus globulus</i>)	42"	Poor
#26b	Eucalyptus (<i>Eucalyptus globulus</i>)	40"	Poor
#27	Eucalyptus (<i>Eucalyptus globulus</i>)	60" Multi trunk	Poor
#28	Eucalyptus (<i>Eucalyptus globulus</i>)	36" Multi trunk	Poor
#29	Aleppo Pine (<i>Pinus halepensis</i>)	14"	Fair
#30	Aleppo Pine (<i>Pinus halepensis</i>)	90" Multi trunk	Fair
#31	Redwood (<i>Sequoia sempervirens</i>)	16"	Poor

Arborist Name/Lic. # : Patrick Stewart I.S.A. Certified Arborist W.C. #3322

Date: July 17, 2014

APPENDIX H

Project No.
4894.000.000

May 16, 2014

Mr. Matthew Beinke
GBN Partners LLC
5006 Blackhawk Drive
Danville, CA 94506

Subject: Ginochio FUA1 Property
Heidorn Ranch Road
Antioch, California

PRELIMINARY GEOTECHNICAL SUMMARY

Dear Mr. Beinke:

As requested and authorized by you, we have completed a preliminary geotechnical summary of the Ginochio FUA1 property in Antioch, California. The purpose of this study is to describe the site conditions and development constraints from a geotechnical perspective.

SCOPE OF WORK

Our scope of services for this preliminary geotechnical summary included providing:

- Discussion of expected physical properties of the typical soils in the project area.
- Identification of potential geotechnical constraints such as shallow groundwater, faulting, expansive soils, compressible soils, lateral spreading, inundation and liquefiable soils, as necessary.
- Preliminary discussion for the treatment of geotechnical constraints.
- Preliminary recommendations for suitable foundation type(s) for development.
- Preliminary pavement recommendations.
- Conclusions regarding the suitability of the site for development and recommendations for further design-level study.

SITE DESCRIPTION

The subject property is relatively flat and consists of approximately 140 acres of agricultural land located northwest of the intersection of Heidorn Ranch Road and Old Sand Creek Road in Antioch, California as shown on Figures 1 and 2. Based on a review of available historic photos on Google Earth, the majority of the site appears to have been used for agricultural purposes since 1933. There are 10 acres located on the southeastern corner of the property identified as the Shell area that had several structures removed sometime between 2009 and 2010.

PROPOSED PROJECT

At this time, a preliminary site development plan is not available, but it is our understanding that the site will be developed for residential use. We expect that the proposed structures will be one and two stories in height and that the development will include infrastructure such as internal streets and utilities.

SITE CONDITIONS.

We made a visual site reconnaissance on May 8, 2014. A majority of the site had been recently disked. The southeastern corner of the property had several large trees and a gravel access road. The surface soils appear to be highly expansive soils that are consistent with soils on nearby projects for which we have performed geotechnical studies.

CONCLUSIONS AND RECOMMENDATIONS

Based on our review of the site conditions, aerial images and our experience on nearby projects, it is our opinion that your proposed residential development is feasible for the subject site. Based on our experience on nearby projects, we do not expect that shallow groundwater, faulting, compressible soils, lateral spreading or inundation will provide a significant impact on developing the site. We do expect that expansive soils and liquefiable soils may exist at the site. These geologic constraints should be evaluated as part of a design-level geotechnical report; however, a summary of the expected geologic constraints as well as some preliminary recommendations are summarized below.

Expansive Soils

The near-surface soils are expected to be highly expansive. Expansive soils shrink and swell as a result of moisture changes, which can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to moisture changes in expansive soils can be reduced by appropriate grading practices and using post-tensioned concrete mat foundations or similarly stiffened foundation systems that which are designed to resist the deflections associated with soil expansion. Specific recommendations to mitigate expansive soils will be provided in a design-level geotechnical report.

Liquefiable Soils

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. The site is mapped by the Association of Bay Area Governments (ABAG) as being in a moderate susceptibility zone for liquefaction. Based on our experience in the area, we expect that some minor lenses of potentially liquefiable material may exist at the subject site. Mitigating this condition can typically be performed by founding the proposed residences on post-tensioned concrete mat foundations. However, a liquefaction analysis and mitigation recommendations should be provided in a design-level geotechnical report.

Site Grading

We expect that the site grading will generally consist of removing the existing vegetation, trees, and bushes from the site. The upper 2 to 3 inches of material will then either be stripped and placed in landscaped areas or, depending on the volume of organics, it may be feasible for the surface vegetation to be mulched in place. We expect that the upper 12 to 24 inches of the site will need to be moisture conditioned and compacted as an engineered fill. As previously discussed, a few structures previously existed on the southeastern corner of the property. We expect that in this location, a minimum of 3 feet of material will need to be overexcavated and placed back as an engineered fill to remove existing structure foundations and nonengineered fill.

Foundations

Due to the anticipated highly expansive surface soils, we expect that the proposed residential structures will be founded on stiffened foundations such as post-tensioned concrete mat foundations. We expect that the foundations will be approximately 10 to 12 inches thick.

Pavement

Based on our experience in the area, we expect that the near-surface soils will have an R-value of approximately 5. Using estimated traffic indices for various pavement loading requirements, we developed the following recommended preliminary pavement sections using Procedure 608 of the Caltrans Highway Design Manual (including the asphalt factor of safety).

TABLE 1
Preliminary Asphalt Concrete Pavement Sections

Traffic Index	Section	
	Hot Mix Asphalt (inches)	Class 2 Aggregate Base (inches)
5	3	10
6	4	12
7	4	16

DESIGN-LEVEL GEOTECHNICAL REPORT

Prior to final project design, we recommend ENGEO be retained to perform a design-level geotechnical exploration at the site. We anticipate that a design-level exploration will include soil borings and/or cone penetration tests within the development areas and laboratory soil testing to provide data for preparation of specific recommendations regarding grading, foundations, and drainage for the proposed construction. The additional explorations will also allow for a detailed evaluation of the expansion and liquefaction potentials at the site, and afford the opportunity to provide techniques and procedures to be implemented during design and construction to mitigate the potential geotechnical hazards.

GBN Partners LLC
Ginochio FUA1 Property
PRELIMINARY GEOTECHNICAL SUMMARY

4894.000.000
May 16, 2014
Page 4

We are pleased to be of continued service to you on this project. If you have any questions, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated



Steve Harris, GE
sh/pcg/jf



Paul C. Guerin, GE

Attachments: Figure 1 – Vicinity Map
Figure 2 – Site Plan

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BASE MAP SOURCE: GOOGLE EARTH PRO

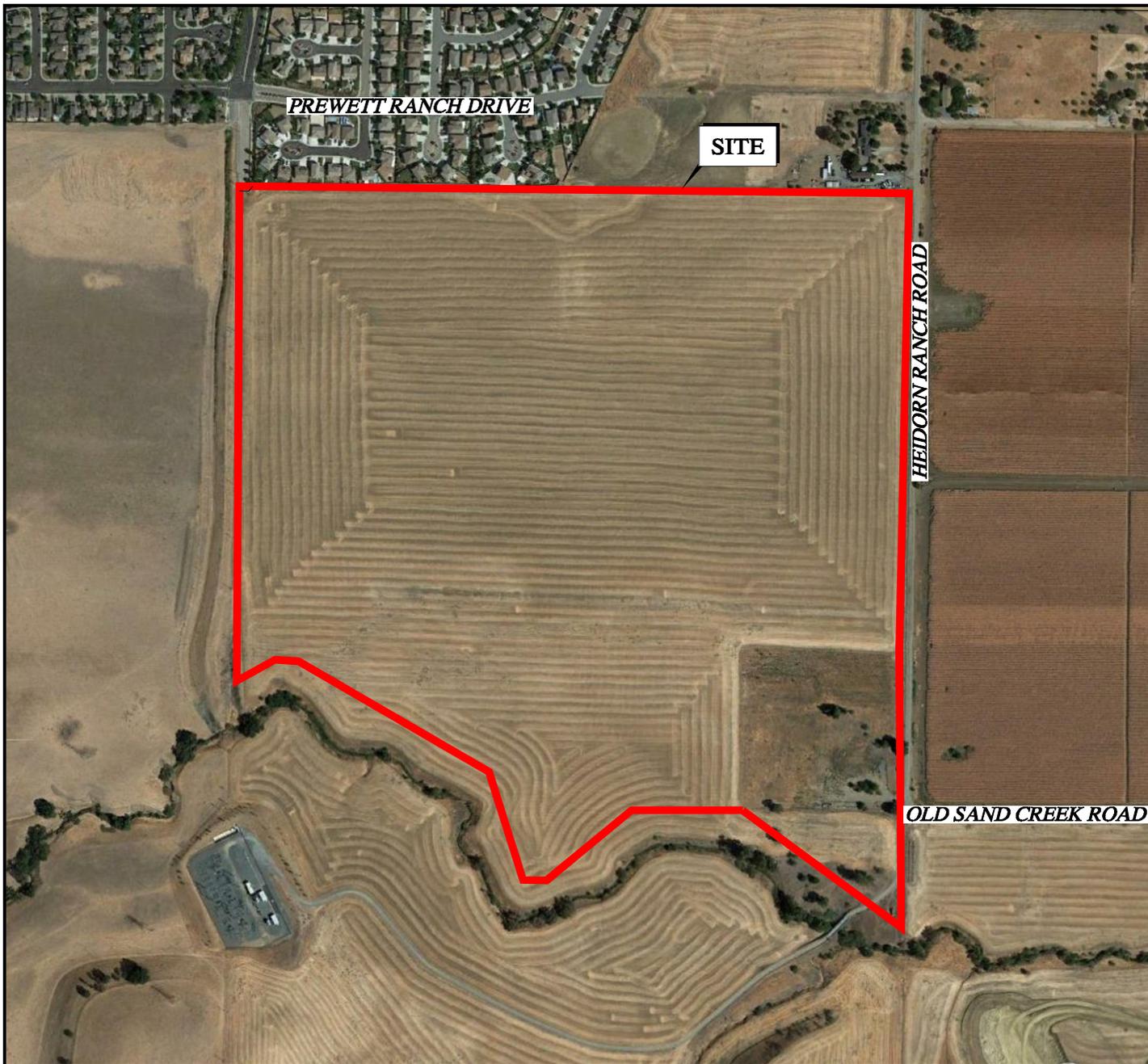


VICINITY MAP
 GINOCHIO PROPERTY - NORTHERN 140 ACRES
 ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000
 SCALE: AS SHOWN
 DRAWN BY: LL CHECKED BY: PG

FIGURE NO.
 1

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BASE MAP SOURCE: GOOGLE EARTH PRO



SITE PLAN
 GINOCHIO PROPERTY - NORTHERN 140 ACRES
 ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

DRAWN BY: LL

CHECKED BY: PG

FIGURE NO.

2

<input type="checkbox"/> 2010 Crow Canyon Place ▪ Suite 250 ▪ San Ramon, CA 94583	(925) 866-9000 ▪ Fax (888) 279-2698
<input type="checkbox"/> 2213 Plaza Drive ▪ Rocklin, CA 95765	(916) 786-8883 ▪ Fax (888) 279-2698
<input type="checkbox"/> 332 Pine Street ▪ Suite 300 ▪ San Francisco, CA 94104	(415) 284-9900 ▪ Fax (888) 279-2698
<input type="checkbox"/> 6399 San Ignacio Avenue ▪ Suite 150 ▪ San Jose, CA 95119	(408) 574-4900 ▪ Fax (888) 279-2698
<input checked="" type="checkbox"/> 580 N. Wilma Avenue ▪ Suite A ▪ Ripon, CA 95366	(209) 835-0610 ▪ Fax (888) 279-2698
<input type="checkbox"/> 17675 Sierra Highway ▪ Santa Clarita, CA 91351	(661) 257-4004 ▪ Fax (888) 279-2698
<input type="checkbox"/> 13211 Pusan Way ▪ Suite 16 ▪ Irvine, CA 92618	(949) 529-3479 ▪ Fax (888) 279-2698

MEMORANDUM

TO: Mr. Lisa Borba

PROJECT NO.: 4894.000.000

FROM: Mr. Steve Harris, GE, QSD
Mr. Shawn Munger, CHG

DATE: November 13, 2014

SUBJECT: Response To Geotechnical Peer Review
Promenade (Ginochio FUA1 Property)
Antioch, California

This memorandum is to clarify and respond to the Geotechnical Peer Review Letter prepared by Geocon dated August 26, 2014 as it relates to potentially liquefiable soils at the site.

The Geocon peer review letter indicates that our Preliminary Geotechnical Summary (PGS) report dated May 16, 2014 did not properly evaluate the liquefaction potential at the site. The purpose of our PGS was to identify and discuss potential geotechnical constraints. As discussed in our PGS, the site is mapped in an areas underlain by potentially liquefiable material and based on our experience on similar projects in the vicinity of this project, we expect that the liquefaction induced settlement can be mitigated using post-tensioned concrete mat foundations. We agree with Geocon's comment that the potentially liquefiable soil at the subject site will need to be further evaluated in a design level geotechnical report prior to final project design and construction as also discussed in our PGS.

Please contact us if you have any questions.

APPENDIX I



Project No. E8761-04-01
August 26, 2014

Raney Planning and Management, Inc.
1501 Sports Drive
Sacramento, California 95834

Attention: Mr. Nick Pappani

Subject: PROMENADE - PLANNED RESIDENTIAL DEVELOPMENT
HEIDORN RANCH ROAD
ANTIOCH, CALIFORNIA
GEOTECHNICAL PEER REVIEW

- References:
1. *Preliminary Geotechnical Summary, Ginochio FUA1 Property, Heidorn Ranch Road, Antioch, California*, prepared by Engeo Incorporated, dated May 16, 2014 (Engeo Project No. 4894.000.000).
 2. *Preliminary Geotechnical Exploration, Vineyards FUA1, Antioch, California*, prepared by Engeo Incorporated, dated January 3, 2002 (Engeo Project No. 4894.5.002.01).

Dear Mr. Pappani:

In accordance with your request and authorization, we have prepared this correspondence to present the results of our geotechnical peer review for the subject project. Our services included a site visit, a review of the referenced geotechnical reports prepared by Engeo Incorporated and background geologic references, and the preparation of this letter. Our peer review was performed to provide a professional opinion regarding the appropriateness and adequacy the reports with respect to project soil and geologic conditions, geotechnical feasibility of the project, and industry standard of practice. A focus of our review was the information presented in the 2014 geotechnical summary (Reference No. 1), which we understand was submitted to the City of Antioch with a preliminary site plan for the proposed development, and the relevant field and laboratory information from the 2002 study by Engeo.

SITE AND PROJECT DESCRIPTION

The project site is comprised of approximately 140 acres of generally vacant land (Contra Costa County APN 057-030-004 and portions of APN 057-050-017 and 057-030-003) on the north side of Sand Creek and west of Heidorn Ranch Road in Antioch, California. At the time of our recent site visit, areas of knee- to waist-high grasses and mature trees were present in the southeastern corner of the property, but the majority of the site had been tilled under as a seasonal fire prevention measure. Site topography is relatively flat but the Sand Creek drainage is incised approximately 10 to 15 feet below adjacent grade along the southern margin of the project. A relatively short slope ascends the northern margin of the site to the adjacent residential development. In our opinion, the site conditions described in the referenced reports are generally accurate.

Based on the preliminary site plan that you recent provided (prepared by Carlson, Barbee & Gibson, Inc. and dated July 29, 2014), we understand the planned project will include 641 residential lots that range in size from 4,200 to 5,160 square feet with two parks and areas along the southern margin of the site designated for water quality detention basins (see Attachment No. 1). Interior streets, parkways and underground utilities are also anticipated for the proposed residential development. At the southeastern corner of the site, Heidorn Ranch Road will be realigned to skew slightly westward and meet ne Sand Creek Road, which will be extended westward across the southern portion of the site.

Project grading plans were not available but based on the residential development in the vicinity and relatively flat site topography, we anticipate site grading will be relatively minor with cuts and fills on the order of 3 to 4 feet or less to attain finished pad grade for the residential logs. Deeper cuts will likely be required for the planned detention basins.

We have assumed the proposed residential structures will be one- to three-story residences with post-tensioned mat slabs for foundation support.

SOIL AND GEOLOGIC CONDITIONS

The 2002 study by Engeo (Reference No. 2) included three soil borings on the site, with an additional two borings just across Sand Creek to the south (see Attachments 2 through 7). The borings were advanced to depths ranging from 26 ½ feet to 38 ½ feet below grade. The boring along Sand Creek (Engeo Boring Nos. B-6 through B-8) encountered a layer of medium stiff to hard silty to sandy clays to depths of approximately 12 to 21 feet underlain by typically loose to medium dense sandy deposits with variable amounts of silt and clay to the maximum depth explored. Groundwater was encountered at depths of 25 and 29 feet in Borings B-7 and B-8, respectively.

The remaining two Engeo Borings B-9 and B-10 were performed near the northwest and northeast corners of the site, respectively, and encountered very stiff to hard clays and dense to very dense sandy deposits to the maximum depth explored – approximately 31 ½ feet below grade. Groundwater was not encountered in Borings B-9 and B-10.

The 2002 Engeo study maps the site as being underlain by Pleistocene to Holocene-age alluvial deposits. Laboratory testing on a selected sample of the near-surface clays indicated high expansion potential.

Readily-available geologic mapping by the United States Geological Survey (USGS) indicates the site is underlain by Holocene-age alluvial deposits described as “alluvial pebble gravel, sand and clay of valley areas.” Based on our experience in the area and the aforementioned mapping, the soil and geologic conditions characterized in the referenced reports are generally accurate.

The site is not located in a State of California Seismic Hazard Zone for liquefaction. However, the Association of Bay Area Governments (ABAG) maps the site as having a “moderate” susceptibility to liquefaction. The interactive mapping was the result of a cooperative project between the USGS and the California Geological Survey and is based on information presented in USGS Open File Report Nos. 2006-1037 and 00-444.

FINDINGS AND OPINIONS

Based on our review, the information presented in the referenced geotechnical summary and supporting data from the 2002 study appropriately identifies and evaluates potential geotechnical constraints to the project with one notable exception. In our opinion, Engeo does not properly evaluate liquefaction potential at the site. Based on our experience, the mitigation of potential liquefaction-induced effects can have significant impacts on site development costs and, in turn, the feasibility of a given project. As such, it is our opinion that liquefaction potential should be evaluated at the planning phase of each project, rather than during a design-level study as recommended by Engeo. Further, in their referenced 2014 summary, Engeo states that “based on our experience in the area, we expect that some minor lenses of potentially liquefiable material may exist at the subject site.” However, our review of Engeo’s logs for Borings B-7 and B-8 indicate 10 to 15 feet of potentially-liquefiable sands are present and neither boring extended through the loose to medium dense sandy deposits. As such, potentially-liquefiable soils may be present below the termination depth of each boring. We recommend that a proper evaluation of liquefaction potential be performed. The evaluation should include field explorations that extend through the potentially-liquefiable layers to the more competent materials below or to a depth of 50 feet below existing or proposed grades, whichever is lower. Further, the soil borings near the northwest and northeast corners of the site (Engeo Borings B-9 and B-10) are approximately 2,000 feet north of those performed along Sand Creek and consideration should be given to performing field explorations in other areas of the site. These additional explorations could help define portions of the site that are ultimately determined to be susceptible to liquefaction, if any. Liquefaction evaluation should incorporate design level ground motions based on current building code (2013 California Building Code), which are significantly higher than those allowed in past building code cycles.

LIMITATIONS AND CLOSURE

It should be understood that our review was limited to geotechnical aspects of project development based on our understanding of the proposed project and information presented in the referenced reports. Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

Should you have any questions regarding this peer review, or if we may be of further service, please contact the undersigned at your convenience.

Sincerely,

GEOCON CONSULTANTS, INC.

DRAFT

Shane Rodacker, GE
Senior Engineer

(1/e-mail) Addressee

Attachments: 1 – Preliminary Site Plan by Carlson, Barbee & Gibson
2 – Preliminary Geologic Map by Engeo (excerpt)
3 through 7 – Engeo Soil Boring Logs



LEGEND:

- 45' X 80' TYPICAL LOT SIZE
- 50' X 80' TYPICAL LOT SIZE
- 50' X 90' TYPICAL LOT SIZE

LOT SUMMARY			
TYP. LOT SIZE	LOT COUNT	LOT MIX	AVERAGE LOT SIZE
45' X 80'	202	31%	4,200 S.F.
50' X 80'	215	34%	4,830 S.F.
50' X 90'	224	35%	5,160 S.F.
TOTAL	641	100%	4,680 S.F.

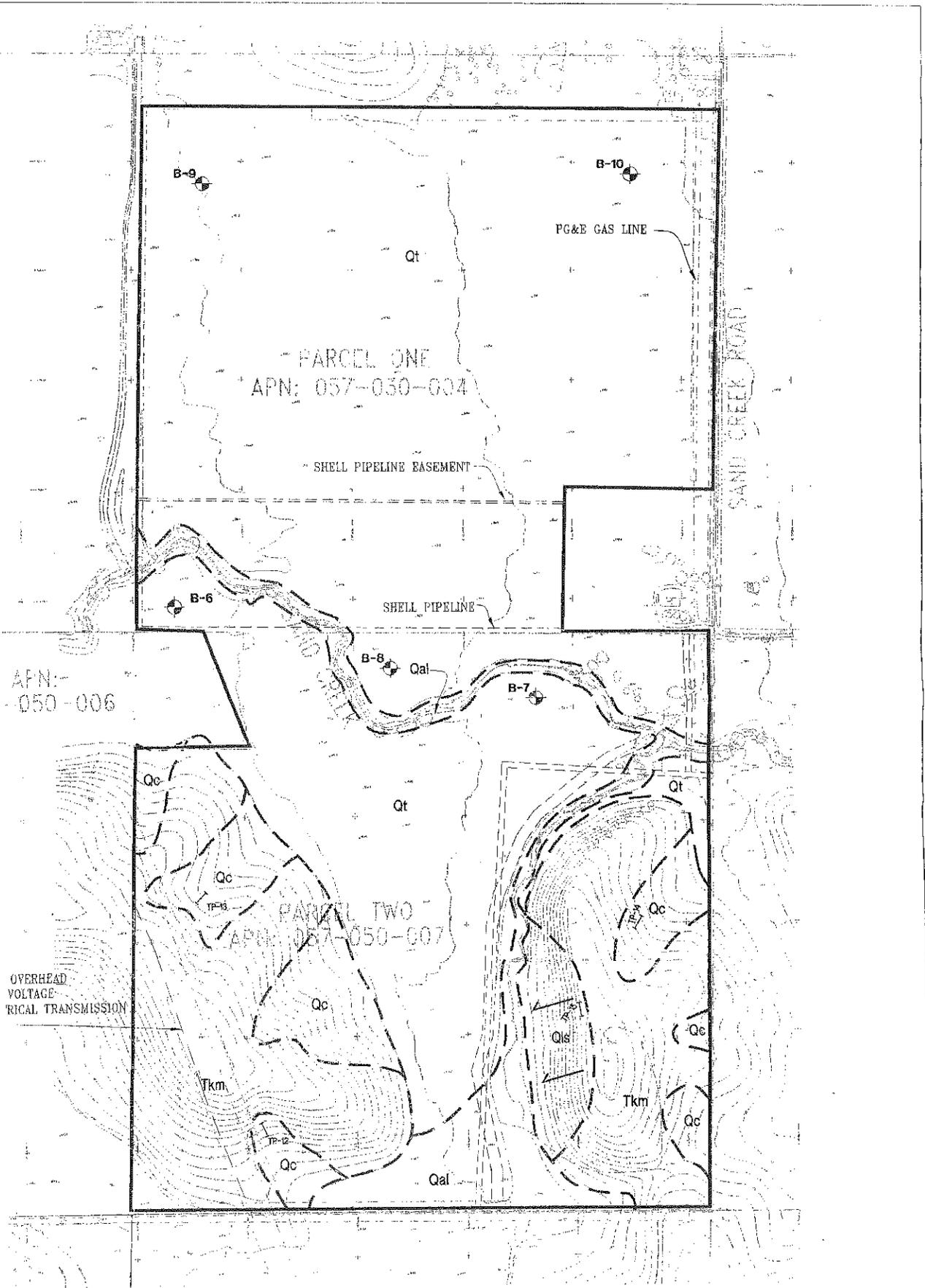
**PRELIMINARY SITE PLAN
PROMENADE**

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA



cbg Carlson, Barbee & Gibson, Inc.
 CIVIL ENGINEERS - SURVEYORS - PLANNERS
 2855 CAMINO RAMON, SUITE 300
 SAN RAMON, CALIFORNIA 94583
 (925) 994-0332
 DATE: JULY 29, 2014

\\net\hsc\cadd\2014\140729\140729_Prelim_Site_Plan_Promenade_1_02.dwg



APN: 050-006

OVERHEAD
VOLTAGE
TRANSMISSION

BASE MAP SOURCE: CARLSON, BARBEE AND GIBSON



PRELIMINARY GEOLOGIC MAP
VINYARDS FUAL
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.5.002.01
DATE: JANUARY 2002
DRAWN BY: SRP CHECKED BY: DRH

FIGURE NO.
2

4894-5002-01-2801010

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: October 24, 2001		BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE		
				SURFACE ELEVATION: Approx. 158 feet (48 meters)				DRY UNIT WEIGHT	MOIST. CONTENT	
DESCRIPTION				*FIELD PENET. APPROX.	(PCF)	% DRY WEIGHT				
0				1 foot disced. SANDY CLAY (CL), olive brown, hard, dry to moist.						
		7-1C				58	+5.0*			
-1		7-2C				34	+5.0*	91	9.6	
-5		7-3C		Same as above, with calcium carbonates.		48	+5.0*			
				SILTY CLAY (CL), light olive brown, very stiff to hard, moist.						
-10		7-4C				42				
				SILTY SAND (SM), reddish brown, medium dense, damp, very fine grained to fine grained.						
-15		7-5C				16				
		7-6C		Same as above, medium grained layer.		12				
-20		7-7C		Same as above, moist.		9				13.4
-25				▽						
		7-8C		Same as above, wet, medium-grained sand.		22				
		7-9C		Percent Passing #200 Sieve = 25.9		15				
-30				Bottom of boring at approximately 28 feet. Groundwater encountered at 25 feet during drilling.						
-10										

0541 4894A.GPJ 1/20/02

ENGEO
INCORPORATED
1971 - 2001 * 30 YEARS OF EXCELLENCE

VINEYARDS FUA1
ANTIOCH, CALIFORNIA

BORING NO.: B-7
LOGGED BY: C. Jensen
PROJ. NO.: 4894.5.002.01

CHECKED BY
DJH

FIGURE NO.
A-2

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: October 24, 2001		BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 163 feet (50 meters)				DRY UNIT WEIGHT (PCF)	MOIST. CONTENT % DRY WEIGHT
DESCRIPTION				*FIELD PENET. APPROX.					
0				1 foot surface, loose. SANDY CLAY (CL), dark brown, medium stiff, dry to moist, with rootlets in upper 3 feet.					
		8-1C				15		90	9.8
		8-2C		SILTY CLAY (CL), dark brown, hard, moist, with carbonate.		13			
		8-3C		SILTY CLAY (CL), reddish brown, hard, moist, with sand.		48			
		8-4C		CLAYEY SAND (SC), reddish brown, medium dense, moist.		55			
		8-5C		SILTY SAND (SM), reddish brown, medium dense, moist.		17			
		8-6C		CLAYEY SILT (ML), reddish brown, stiff, moist, with carbonate filaments.		24	1.5*		
		8-7C		SILTY SAND (SM), reddish brown, medium dense, moist, very fine grained.		13			
		8-8C		Same as above, reddish brown with olive gray zones, very fine grained to silt.		16			

0541 4894A.GPI 1/2/02

ENGEO
INCORPORATED
1971 - 2001 * 30 YEARS OF EXCELLENCE

VINEYARDS FUA1
ANTIOCH, CALIFORNIA

BORING NO.: B-8

LOGGED BY: C. Jensen

PROJ. NO.: 4894.5.002.01

CHECKED BY
DRH

FIGURE
NO.

A-3

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: October 24, 2001	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 163 feet (50 meters)			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT % DRY WEIGHT
DESCRIPTION								
35	11	8-9C		Same as above, reddish brown, medium-grained sand. Percent Passing #200 Sieve = 12.2	15			
		8-10C		Same as above, gravel caving in hole.				
40				Bottom of boring at approximately 38 1/2 feet. Groundwater encountered at 29 feet during drilling.				
45								
50								
55								
60								
65								

0541 4894A.GPJ 1/2/02

ENGEO
INCORPORATED
1971 - 2001 * 30 YEARS OF EXCELLENCE

VINEYARDS FUA1
ANTIOCH, CALIFORNIA

BORING NO.: B-8

LOGGED BY: C. Jensen

PROJ. NO.: 4894.5.002.01

CHECKED BY


FIGURE
NO.

A-3

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: October 23, 2001		BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 169 feet (52 meters)				DRY UNIT WEIGHT (PCF)	MOIST. CONTENT % DRY WEIGHT
DESCRIPTION				*FIELD PENET. APPROX.					
0				1 foot disced surface. CLAY (CH), dark olive brown, hard, dry to moist. P I = 39		50			
1		9-1C		SILTY CLAY (CL), olive brown, hard, dry, with carbonate.		65			
5		9-2C		SILTY CLAY with sand (CL), light olive brown, hard, moist.		54			
10		9-3C		SANDY CLAY (CL), reddish brown, very stiff, moist, with carbonates.		33			
15		9-4C		CLAYEY SAND (SC), olive brown, dense, moist.		33	106	16.8	
20		9-5C		SANDY CLAY (CL), olive brown, stiff, moist.		35			
25		9-6C		Bottom of boring at approximately 21 1/2 feet. Groundwater not encountered during drilling.					

APPENDIX J

PHASE I ENVIRONMENTAL
SITE ASSESSMENT

GINOCHIO FUA1 PROJECT
HEIDORN RANCH ROAD
ANTIOCH, CALIFORNIA

The logo for ENGEO is rendered in large, white, 3D block letters. The letters are set against a background of a green, rolling hillside under a blue sky. The 'E' and 'O' are particularly prominent. The logo is positioned in the center of the page, overlapping the top and middle sections of the background images.

Expect Excellence

Submitted to:
Mr. Matthew Beinke
GBN Partners LLC
5006 Blackhawk Drive
Danville, CA 94506

Prepared by:
ENGEO Incorporated

Date
June 5, 2014

Project No:
4894.000.000

Project No.
4894.000.000

June 5, 2014

Mr. Matthew Beinke
GBN Partners LLC
5006 Blackhawk Drive
Danville, CA 94506

Subject: Ginochio FUA1 Project
Heidorn Ranch Road
Antioch, California

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Dear Mr. Beinke:

ENGEO is pleased to present our phase I environmental site assessment of the subject property, (Property) located in Antioch, California. The attached report includes a description of the site assessment activities, along with ENGEO's findings, opinions, and conclusions regarding the Property.

ENGEO has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Property, and has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. We declare that, to the best of our professional knowledge and belief, the responsible charge for this study meets the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312 and ASTM 1527-13.

We are pleased to be of service to you on this project. If you have any questions concerning the contents of our report, please contact us.

Sincerely,

ENGEO Incorporated



Jennifer R. Botelho, CEG



Shawn Munger, CHG

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EXECUTIVE SUMMARY

ENGEO conducted a phase I environmental site assessment for the property west of Heidorn Ranch Road and north of the Sand Creek drainage course, in Antioch, California (Property). The Property is approximately 140 acres in area and is identified by Assessor's Parcel Number (APN) 057-030-004, 057-030-003, and a portion of APN 057-050-017.

The Property consists of vacant land. Parcel 057-030-003 (3052 Heidorn Ranch Road, Shell/Aera site) was previously operated by Shell Oil as an office and maintenance yard for petroleum pipeline operations. Soil impacts were identified at the site; the soil was excavated and treated on-site. The Shell/Aera site was granted Case Closure by the Regional Water Quality Control Board (RWQCB) in February 2011. All improvements have since been removed from the parcel. APN 057-030-004 previously has three oil/gas wells that have since been plugged and destroyed. Soil sampling was performed at the former Well #2-9, API 01300038 location in 1995; no remediation was necessary. No further action was granted by the RWQCB in January 1996.

The study included a review of local, state and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources. A reconnaissance of the Property to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials; and interview with persons knowledgeable about current and past site use.

The site reconnaissance and records review did find documentation or physical evidence of soil or groundwater impairments associated with the use or past use of the Property. The Shell/Aera site was remediated and closed under the oversight of the RWQCB. A review of regulatory databases maintained by county, state, tribal and federal agencies found documentation of hazardous materials violations or discharge on the Property and did not identify contaminated facilities within the appropriate American Society for Testing and Materials (ASTM) search distances that would reasonably be expected to impact the Property.

Based on the findings of this assessment, no Recognized Environmental Conditions (RECs), one historical REC (former Shell/Aera site), and no controlled RECs were identified for the Property.

Based on the review of regulatory databases and site reconnaissance, we present information on features of potential environmental concern that were either contained in the databases or observed on the Property. These features were not considered to be RECs. We briefly discuss each feature below.

- Previous oil/gas/water wells within the Property and abandoned Shell/Aera site oil pipeline associated pipelines.

ENGEO has performed a phase I environmental site assessment in general conformance with the scope and limitations of ASTM E1527 of, the Property. Any exceptions to, or deletions from, this practice are described in Section(s) 6.2 of this report.

ENGEO recommends that prior to mass grading a survey is performed to locate/determine the location of abandoned pipelines associated with the former wells. During mass grading activities, we also recommend that if stained soil, suspected impacted materials, or odors are observed during grading than an environmental professional evaluate the conditions. Please also note that DOGGR strongly encourages participation in the Well Review Program for the abandoned oil/gas/water wells. This program requires setbacks from former well sites.

1.0 INTRODUCTION

ENGEO conducted a phase I environmental site assessment for the property west of Heidorn Ranch Road and north of the Sand Creek drainage course, in Antioch, California (Figure 1). The Property is approximately 140 acres in area and is identified by Assessor's Parcel Number (APN) 057-030-004, 057-030-003, and a portion of APN 057-050-017 (Figure 2).

The Property consists of vacant land. Parcel 057-030-003 (3052 Heidorn Ranch Road) was previously operated by Shell Oil as an office and maintenance yard for petroleum pipeline operations. Soil impacts were identified at the site, which were excavated and treated on-site. The Shell/Aera site was granted Case Closure by the Regional Water Quality Control Board in February 2011. All improvements have since been removed from the parcel. APNs 057-030-004 previously had three oil/gas wells, which have since been plugged and destroyed.

1.1 SITE LOCATION

The Property is located west of Heidorn Ranch Road and north of the Sand Creek drainage course, in Antioch, California (Figure 1). The approximately 140-acre Property is identified as APN 057-030-004, 057-030-003, and a portion of APN 057-050-017 (Figure 2).

1.2 SITE AND VICINITY CHARACTERISTICS

According to published topographic maps, the Property ranges in elevation from approximately 150 feet above mean sea level (msl) in the southeast to approximately 180 feet above msl to the northwest (Figure 3). Review of the Dibblee 2006 Geologic Map found that the Property is underlain by Quaternary Alluvium (Qa) consisting of alluvial pebble gravel, sand, and clay of valley areas.

Geocheck – Physical Setting Source Summary of the Environmental Resources Data report (Appendix A) indicated no Federal United States Geological Survey (USGS) wells are located within 1 mile of the Property. The Physical Setting Source Summary also indicated that there is no hydrogeologic information for use as an indicator of groundwater flow direction in the immediate area.

We reviewed the Department of Water Resources On-line Water Data Library for depth to water in the vicinity of the site. The website did not identify any wells within 1 mile of the Property.

We reviewed EnviroStor, a website maintained by the State of California, Department of Toxic Substances Control, and GeoTracker, a website maintained by the State of California, Water Resources Control Board, for nearby facilities with records that include depth to groundwater measurements.

Site-specific depth to groundwater and direction of groundwater flow was determined by The Source Group, Inc. and is documented in the Closure Report/No Further Action Request, dated September 3, 2010. They determined that depth to groundwater is generally between 25.75 and

31.07 feet in depth and groundwater flows to the east-northeast and a hydraulic gradient documented at approximately 0.008 feet/foot. Fluctuations in groundwater levels may occur seasonally and over a period of years due to variations in precipitation, temperature, irrigation and other factors.

We reviewed the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) web site and map database to determine if any historic oil and/or gas wells were located within the Property. Three wells were present (now demolished) on APN 057-030-004, with 37 additional wells mapped within 1 mile of the Property, Additional information regarding the three onsite wells is provided in Section 3.4.

1.3 CURRENT USE OF PROPERTY/DESCRIPTION OF SITE IMPROVEMENTS

It appears that the majority of the site is used for dry farming and is currently disked. The Shell/Aera site appears not to have been utilized for farming activities, as the grass is uncut and unplowed. At the north property boundary of APN 057-050-017 there is a PG&E gas pipeline easement and associated pump station. There is also a gas pipeline, operated by Calpine Corporation (The Source Group, Inc., 2010), running the length of the east Property boundary adjacent to Heidorn Ranch Road. On APN 057-030-004, here may be an abandoned pipeline below grade associated with the former wells. It is unknown if the service pipeline was abandoned in-place below grade or removed. The Source Group, Inc. reports include a site map where it appears that the pipeline was a 4-inch oil pipeline extending from the west-northwest boundary of the Shell/Aera site into the APN 057-030-004 property trending northwest; we have included the map as Figure 5.

1.4 CURRENT USE OF ADJOINING PROPERTIES

The properties to the east, west, and south are open agricultural land. The properties to the north include a residential development from the northwest corner approximately ½ the distance across the north Property boundary. There is open agricultural land east of the residential development and a rural residence bounding the northeast corner of the site. Sand Creek bounds the Property to the south. There are utility poles running the length of the west Property boundary to a substation south of Sand Creek.

1.5 PURPOSE OF PHASE I ENVIRONMENTAL SITE ASSESSMENT

This assessment was performed at the request of GBN Partners LLC for the purpose of environmental due diligence during tentative map submission. The objective of this phase I environmental site assessment is to identify Recognized Environmental Conditions (RECs) associated with the Property. As defined in the ASTM Standard Practice E 1527-13, an REC is “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.”

1.6 DETAILED SCOPE OF SERVICES

The scope of services performed included the following:

- A review of publicly available and practically reviewable standard local, state, tribal, and federal environmental record sources.
- A review of publicly available and practically reviewable standard historical sources, aerial photographs, fire insurance maps and physical setting sources.
- A reconnaissance of the Property to review site use and current conditions. The reconnaissance was conducted to check for the storage, use, production or disposal of hazardous or potentially hazardous materials.
- Interviews with owners/occupants and public sector officials.
- Preparation of this report with our findings, opinions, and conclusions.

1.7 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

The professional staff at ENGEO strives to perform its services in a proper and professional manner with reasonable care and competence but is not infallible. The recommendations and conclusions presented in this report were based on the findings of our study, which were developed solely from the contracted services. The findings of the report are based in part on contracted database research, out-of-house reports and personal communications. The opinions formed by ENGEO are based on the assumed accuracy of the relied upon data in conjunction with our relevant professional experience related to such data interpretation. ENGEO assumes no liability for the validity of the materials relied upon in the preparation of this report.

This document must not be subject to unauthorized reuse; that is, reuse without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time. The findings from a phase I environmental site assessment are valid for one year after completion of the report. Updates of portions of the assessment may be necessary after a period of 180 days after completion.

This phase I environmental site assessment is not intended to represent a complete soil or groundwater characterization, nor define the depth or extent of soil or groundwater contamination. It is intended to provide an evaluation of potential environmental concerns associated with the use of the Property. A more extensive assessment that would include a subsurface exploration with laboratory testing of soil and groundwater samples could provide more definitive information concerning site-specific conditions. If additional assessment activities are considered for the Property and if other entities are retained to provide such services, ENGEO cannot be held responsible for any and all claims arising from or resulting from the performance of such services by other persons or entities. ENGEO can also not be held

responsible from any and all claims arising or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

1.8 SPECIAL TERMS AND CONDITIONS

ENGEO has prepared this report for the exclusive use of our client, GBN Partners LLC. It is recognized and agreed that ENGEO has assumed responsibility only for undertaking the study for the client. The responsibility for disclosures or reports to a third party and for remedial or mitigative action shall be solely that of the Client.

Laboratory testing of soil or groundwater samples was not within the scope of the contracted services. The assessment did not include an asbestos survey, an evaluation of lead-based paint, an inspection of light ballasts for polychlorinated biphenyls (PCBs), a radon evaluation, or a mold survey.

This report is based upon field and other conditions discovered at the time of preparation of ENGEO's assessment. Visual observations referenced in this report are intended only to represent conditions at the time of the reconnaissance. ENGEO would not be aware of site contamination, such as dumping and/or accidental spillage, that occurred subsequent to the reconnaissance conducted by ENGEO personnel.

2.0 USER-PROVIDED INFORMATION

2.1 PROPERTY RECORDS

2.1.1 Title Report/Ownership

The Title Report lists recorded land title detail, ownership fees, leases, land contracts, easements, liens, deficiencies, and other encumbrances attached to or recorded against a subject property. Laws and regulations pertaining to land trusts vary from state to state and the detail of information presented in a Title Report can vary greatly by jurisdiction. As a result, ENGEO utilizes a Title Report, when provided to us, as a supplement to other historical record sources.

Preliminary Title Reports for the Property, prepared by Old Republic Title Company and dated February 7, 2014 for APN 057-030-004 and 057-050-017 and March 26, 2014 for APN 057-030-003, were provided for our review. The APN 057-030-004 and 057-050-017 portion of the Property title is vested in:

As their interests appear of record, subject to the Tenancy-In-Common Agreement, recorded January 24, 2014 in Official Records, under Recorder's Series No. 2014-0012304:

Peter Eugene Ginochio as Trustees of the Peter Eugene Ginochio Revocable Living Trust (Separate Property) dated November 15, 2006; and

Joanne M. Baker, Trustee of the Joanne M. Baker Trust U/A/D 2/27/92; and

Peter Eugene Ginochio and Joanne Baker, as Co-Trustees of the James Ginochio Trust created under the declaration of 6/11/99; and

John R. Ginochio, III; and John R. Ginochio, IV, a single man; and

Ronald S. Ginochio, Trustee of the John R. Ginochio III Children's 1999 Irrevocable Trust dated 4/5/99; and

Angelina Ginochio, a married woman as her sole and separate property; and Stephen M. Ginochio, a single man; and

Antonette Ginochio, a single woman; and

Ronald S. Ginochio; and

Anna M. Ginochio, Edward Ginochio and Paul L. Ginochio, Co-Trustees of the Louis E. Ginochio Exemption Trust created 2/23/02; and

Edward M. Ginochio, Trustee of the Edward M. Ginochio Separate Property Trust U/A/D 5/25/04; and

Paul L. Ginochio and Patty Ginochio, Trustees of the Paul L. and Patty Ginochio trust, U/A/D 6/24/02, as a Schedule 1 Community Property Asset; and

Gina Ginochio-Robichaud, Trustee of the Gina L. Ginochio Separate Property Trust U/A/D 10/09/2012; and

James Martin Ginochio, AKA James M. Ginochio, Trustee of the James M. Ginochio Trust U/A/D 11/27/2012

The APN 057-030-003 portion of the Property title is vested in Shell Western E&P, Inc., a Delaware Corporation.

No references to environmental liens, deed restrictions or other potential environmental issues were noted. The reports are included in Appendix D.

2.1.2 Environmental Liens and Activity Use Limitations

Environmental Data Resources, Inc. (EDR) provided an Environmental Lien Search Report for the Property prepared by NETR Real Estate Research and Information. The report, which is included in Appendix B, listed no environmental liens associated with the Property APN. In addition, a questionnaire completed by the Client or authorized representative indicated that they are not aware of any environmental cleanup liens recorded against the Property.

2.2 USER KNOWLEDGE OF PROPERTY

Ms. Lisa M. Borba completed an environmental site assessment questionnaire pertaining to user-related applicable environmental information regarding the Property. In the questionnaire, Ms. Borba did not identify potential environmentally related issues with the Property. The questionnaire is presented in its entirety in Appendix I. A summary is provided below.

Ms. Lisa M. Borba is unaware of commonly known, reasonably ascertainable, or specialized knowledge indicative of releases or threatened releases that is material to the potential presence of Recognized Environmental Conditions.

Ms. Lisa M. Borba has indicated that the Property is owned by her clients the Ginochio Family and/or their trusts. According to Ms. Borba, the Property is not being sold.

3.0 RECORDS REVIEW

3.1 PREVIOUS ENVIRONMENTAL REPORTS

ENGEO previously conducted an ESA Phase 1 (2000) for the larger Ginochio Property of ±1,400 acres; the current study area of this ESA was included, with exception of the Shell/Aera site. At the time of our report, we indicated that additional research and a limited subsurface investigation at the former oil/gas wells and pipeline locations should be conducted.

The Shell/Aera site has undergone extensive investigation and remediation. The Closure Report/No Further Action Request, dated September 3, 2010 by The Source Group, Inc. summarizes the site activities. Below is a list of the site activities in chronological order:

- 1997 –Initial Site Assessment including a limited soil investigation by Flour Daniel GTI.
- 2001 –Phase II Environmental Assessment by Tetra Tech, Inc.
- 2003 – The Source Group, Inc. submitted a work plan to RWQCB for on-site bio-treatment of impacted soil.
- 2004 – The Source Group, Inc. conducted additional soil and groundwater sampling prior to remediation activities and identified impact to groundwater. Soil remediation activities started May 12, 2004.
- 2005 – The Source Group, Inc. conducted additional soil sampling with six borings converted into monitoring wells (SY-MW-03 through SY-MW-08). Continued excavation and bio-treatment of impacted soil.
- 2010 - The Source Group, Inc. filed a Closure Report/No Further Action Request dated September 3, 2010. A total of 77,800 CY of impacted soils from four areas had been bio-treated to below Site cleanup goals and 3,000 CY of debris was removed from the site. They discussed that impact to groundwater was minimal and limited to the immediate area of impacted soil and that removal of the source is an effective long-term solution.

- 2010 – The RWQCB issued a Conditional No Further Action Determination (dated December 13, 2010, requiring destruction of monitoring wells.
- 2011 – The Source Group, Inc. demolished the remaining monitoring wells as documented in a letter dated January 11, 2011. The RWQCB issued a No Further Action Determination, dated February 17, 2011.

A report by Groundwater Technology, Inc. was provided by you. The report indicates that soil sampling was performed at the former Well #2-9, API 01300038 location; no remediation was necessary. A copy of figure 3 from the 1995 Groundwater Technology, Inc. report is attached as Figure 6. No further action was granted by the RWQCB in January 1996. There was no documentation of soil sampling for Well #22-9, API 01320005. There was also no documentation of removal or sampling for the associated pipelines or Oil-water separators for any of the wells on the Property.

3.2 HISTORICAL RECORD SOURCES

The purpose of the historical record review is to develop a history of the previous uses or occupancies of the Property and surrounding area in order to identify those uses or occupancies that are likely to have led to recognized environmental conditions on the Property.

3.2.1 Historical Topographic Maps

Historical USGS topographic maps were reviewed to determine if discernible changes in topography or improvements pertaining to the Property had been recorded. The following maps were provided to us through an EDR Historical Topographic Map Report, presented in Appendix C.

TABLE 3.2.1-1
Historical Topographic Maps

Quad	Year	Series	Scale
Mount Diablo	1896	15	1:62500
Mt. Diablo	1912	15	1:62500
Lone Tree Valley	1916 (Preliminary)	7.5	1:31680
Mt. Diablo	1947	15	1:50000
Antioch South	1953	7.5	1:24000
Antioch South	1968	7.5	1:24000
Antioch South	1973	7.5	1:24000
Antioch South	1980	7.5	1:24000
Brentwood (adjoining)	1914	7.5	1:31680
Byron (adjoining)	1916	15	1:62500
Byron (adjoining)	1943	15	1:62500

Quad	Year	Series	Scale
Brentwood (adjoining)	1954	7.5	1:24000
Brentwood (adjoining)	1968	7.5	1:24000
Brentwood (adjoining)	1978	7.5	1:24000

1896 and 1912 Maps – These maps show the property as vacant land. No indications of agricultural use or structures are apparent on the maps. Adjacent properties also appear mostly undeveloped. There is a structure east of Heidorn Ranch Road adjacent to the northeast portion of the Property.

1916 Map – This map indicates a structure at the southeast corner of the Property, adjacent to Sand Creek. No indications of agricultural use or other developments are apparent on the map. Surrounding properties appear unchanged.

1947 Map – The Property appears unchanged from the 1916 Map. There is a pipeline shown trending southeast to northwest to the west immediately adjacent to the Property. Surrounding properties appear unchanged.

1953 Map – This map does not show the structure in the southeast corner of the Property. No indications of agricultural use or other developments are apparent on the map. There is an orchard shown to the north of the property, other surrounding properties appear unchanged.

1968 Map – This map shows a dirt road traversing the central portion of the site (east-west) and a structure at the west terminus of the road. By 1968, all three oil wells within the Property had been installed, the roadway appears to be an access road to Well #22-9, API 01320005. The property to the north is not shown as an orchard. There is a structure shown south of Sand Creek adjacent to the southeast portion of the Property, other surrounding properties appear unchanged.

1973 Map – There is a structure that appears in the southeast quadrant of the site, south of the roadway, within the Shell/Aera site. All other aspects of the Property remain unchanged from previous maps. The property to the north is shown as an orchard again; the other surrounding properties appear unchanged.

1980 Map – There are two additional structures near the additional structure in the 1973 Map and a dirt roadway encompassing the three structures in the Shell/Aera portion of the site. There is also a dirt roadway entering the site at the north boundary and turning south at approximately the center of the property, this is possibly an access roadway to well #2-9, API 01300038.

Adjoining Quad Maps:

1914, 1916 Maps - The adjoining properties to the east appear unchanged from the 1896 and 1912 maps.

1943, 1954, 1968, 1978 Maps – These maps indicate that the properties to the east are developed for agricultural purposes, including orchards.

3.2.2 Aerial Photographs

The following aerial photographs, provided by EDR, were reviewed for information regarding past conditions and land use at the Property and in the immediate vicinity. These photographs are presented in Appendix E.

TABLE 3.2.2-1
Aerial Photographs

Flyer	Year	Scale
Fairchild	1939	1:500
USGS	1949	1:500
Cartwright	1958	1:500
USGS	1968	1:500
USGS	1974	1:500
USGS	1981	1:500
EDR	1993	1:500
USGS	1998	1:500
EDR	2005	1:500
EDR	2006	1:500
EDR	2009	1:500
EDR	2010	1:500
EDR	2012	1:500

1939 Photograph – The property appears to be mostly undeveloped agricultural land, there appears to be a structure in the southeast corner of the Property, adjacent to Sand Creek, consistent with the 1916 and 1947 Maps. There are also gridded, roughly circular, light patches on the eastern portion of APN 057-050-017. The surrounding properties also appear to be developed as agricultural land.

1949, 1958 Photographs – The north parcel of the Property appears to be in process of being harvested (cut hay in rows). The structure on the southern portion of the property and circular light patches are not apparent in this Photograph. The surrounding properties appear to be unchanged.

1968 Photograph – It appears that all three oil/gas wells have been developed at the time of this Photograph. There is a roadway traversing the central portion of the site (east-west) ending just west of well #22-9, API 01320005. The road is very dark, possibly asphalt or gravel. The Shell/Aera site appears to have been fenced off and has some structures in place. The remainder of the northern parcel of the Property continues to be agricultural, again appearing to be in the process of being harvested. The southern parcel and adjacent properties appear to be unchanged.

1974 and 1981 Photographs – There appears to be additional construction at the Shell/Aera site and dirt roadways from the Shell/Aera site to the oil wells. The 1974 photograph is of poor quality, but there is a dark line traversing the lower portion of APN 057-030-004 south of the wells. This line is not apparent in the 1981 photograph. The surrounding properties continue to be agricultural; however, there is a residence on the property adjacent to the northeast corner of the Property on the west side of Heidorn Road.

1993, 1998, and 2005 Photographs – The wells are not apparent on the northern portion of the site, the roadways between the wells are faint. The well locations appear as lighter areas on the photographs. The Property with exception of the Shell/Aera site continues to be utilized as an agricultural field. The Shell/Aera site does not appear to have the same structures as the 1981 Photograph, there appears to be trailers or containers on the lower portion of the site. Surrounding properties appear unchanged.

2006, 2009, 2010 and 2012 Photographs – The north and south parcels appear unchanged from the previous photographs. The well locations and roadways are still faintly visible as lighter color areas. The Shell/Aera site appears to be stripped of vegetation in the 2006 Photograph and in the 2009 and 2010 photographs. The windrows of soil for remediation are apparent. In the 2012 photograph, the Shell/Aera site appears inactive.

3.2.3 Fire Insurance Maps

EDR prepared a Sanborn Fire insurance map search for the Property and surrounding properties. EDR reported that no maps were available for the Property and surrounding properties.

3.2.4 City Directory

City Directories, published since the 18th century for major towns and cities, lists the name of the resident or business associated with each address. The results of the Directory search found no listings for the Property. Nearby parcels included residences and the Heritage Baptist Academy and Church. A city directory search conducted by EDR is located in Appendix F.

3.3 ENVIRONMENTAL RECORD SOURCES

EDR performed a search of federal, tribal, state, and local databases regarding the Property and nearby properties. Details regarding the databases searched by EDR are provided in Appendix A. A list of the facilities documented by EDR within the approximate minimum search distance of the Property is provided below.

3.3.1 Standard and Additional Environmental Records

3.3.1.1 Subject Property

The Property is listed on the Standard Environmental Record sources. The listings include the Shell Yard also identified as Aera Energy, Occidental Petroleum (well owners), and Sand Creek

Stn. It appears that the Sand Creek Stn is also associated with the Shell/Aera site. The listings are shown within the following databases:

Aera Energy/Shell Yard - closed

3052 Heidorn Ranch Road

- HAZNET - Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.
- SLIC - The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges. The program is managed by the State Water Resources Control Board.
- CDL - A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work. Database maintained by DTSC.

Occidental Petroleum Corporation - abandoned

- UIC - A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Sand Creek Stn – Inactive (closed)

Heidorn Ranch & Sand Creek

- Contra Costa Site List- List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

3.3.1.2 Other Properties

The following database(s) include(s) facilities listed within the appropriate ASTM search distances of the Property on Standard Environmental Records sources.

- EDR US Historical Auto Stations

*D&H Auto Body Shop
K&G Auto Body Shop*

*5446 Benttree Way
5466 Benttree Way*

- EDR Historical Cleaners

America Carpet Cleaning

5200 Blue Sky Court

Information regarding the Shell/Aera site is provided in Section 3.1. Based on the distances to the identified database sites, regional topographic gradient, and the EDR findings, it is unlikely that the above-stated database sites pose an environmental risk to the Property. Properties that are on the “Orphan Summary” list appear to be located beyond the ASTM recommended radius search criteria.

3.4 REGULATORY AGENCY FILES AND RECORDS

The following agencies were contacted pertaining to possible past development and/or activity at the Property.

- City of Antioch Building and Planning Departments
- Contra Costa County Department of Environmental Health
- Contra Costa County Hazardous Materials Program
- Contra Costa County Fire Department
- Contra Costa County Assessor’s Office
- California Regional Water Quality Control Board, Central Valley Region (RWQCB)
- Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR)

City of Antioch Building and Planning Departments – We contacted the City of Antioch Building and Planning Department, but received no response by the time of report preparation.

Contra Costa County Department of Environmental Health- The Contra Costa County Department of Environmental Health was contacted for records pertaining to the Property. A representative informed us that they had no records for APN 057-030-004 or 057-050-017. They have two letters on file from the RWQCB for 3052 Heidorn Ranch Road, APN 057-030-003, Shell/Aera site:

- Rationale for Considering No Further Action Required for Former Shell Yard, 3052 Heidorn Ranch Road, Antioch, Contra Costa County, dated December 7, 2010
- Conditional No Further Action Determination, Former Shell Yard, 3052 Heidorn Ranch Road, Antioch, Contra Costa County, dated December 13, 2014.

The records for the Shell/Aera site also included monitoring well installation and borings permitted in 2005; monitoring well destruction permits filed in 2011; water well destruction permit filed in 2011; and a septic system demolition permit filed in 2009. Additional files for health and safety programs related to the borings and site work were also part of their records for the Shell/Aera site.

Contra Costa County Hazardous Materials Program – The Contra Costa County Hazardous Materials Program provided records of two incidents on the 3052 Heidorn Road address, Shell/Aera site. An incident was documented on 2/12/1997; a 55-gallon drum of waste oil was found on the site. It was reported that the drum was leaking; an officer was dispatched to the site and documented that the drum was not leaking but some product had been spilled. The second

incident was documented on 11/26/2000; it was described as abandoned drug lab chemicals in Brentwood (Dumped). The containers were removed by the Brentwood Police Department. The department also has same two letters from the RWQCB as the Environmental Health Department.

Contra Costa County Fire Department – The Contra Costa County Fire Department was contacted for records pertaining to the Property. They did not identify records for APN 057-030-004 and 057-050-017. They indicated that Shell Oil Company usually has their own fire service but that they would review their database for the 057-030-004 parcel. No response was received by the time of report preparation.

Contra Costa County Assessor's Office – The Contra Costa County Assessor's office website was accessed to confirm addresses and APN's for the parcels within the Property.

California Regional Water Quality Control Board, Central Valley Region (RWQCB) – The RWQCB was contacted to obtain the site closure documents for the Shell/Aera site. They provided the No Further Action letter dated February 17, 2011. Further information regarding the Shell/Aera site is provided in Section 3.1.

Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) – DOGGR we discussed the well abandonment procedures in practice at the approximate time the wells were abandoned within the Property. Further discussion is provided in Section 5.0.

We also reviewed GeoTracker, a website maintained by the State of California, Water Resources Control Board, and EnviroStor, a website maintained by the State of California, Department of Toxic Substances Control for information regarding the Property. The Property is listed on the GeoTracker website for the Shell/Aera site remediation.

4.0 SITE RECONNAISSANCE

4.1 METHODOLOGY

ENGEO conducted a reconnaissance of the Property on May 6, 2014. The reconnaissance was performed by Jennifer R. Botelho, Project Engineering Geologist of ENGEO. The Property was viewed for hazardous materials storage, superficial staining or discoloration, debris, stressed vegetation, or other conditions that may be indicative of potential sources of soil or groundwater contamination. The site was also checked for evidence of fill/ventilation pipes, ground subsidence, or other evidence of existing or preexisting underground storage tanks. Photographs taken during the site reconnaissance are presented in Figure 7.

4.2 GENERAL SITE SETTING

The Property was fenced along Heidorn Ranch Road, and along the north and west property boundaries. The Property was being utilized for agricultural purposes, with exception of the Shell/Aera site and a small area at the southeast corner of the Property adjacent to the creek

where there are several large trees. The Shell/Aera site contained seasonal grasses, several large trees and an above ground, fenced substation for the PG&E gas pipeline traversing the upper property boundary of APN 057-050-017. The surrounding properties include agricultural land to the south, east, west, and a portion of the north boundary. The north boundary from east to west includes a residence, agricultural land, and a residential development. The residential development is slightly elevated compared to the Property. There is a small drainage within the Property adjacent to the north Property boundary approximately in the center of that boundary; it is roughly semi-circular in shape.

4.3 EXTERIOR OBSERVATIONS

Structures. With the exception of the fenced PG&E substation, no structures were observed during the site reconnaissance.

Hazardous Substances and Petroleum Products in Connection with Identified Uses. No hazardous substances or petroleum products were observed within the Property during the site reconnaissance. There are two PG&E natural gas pipelines within the Property, one adjacent to Heidorn Ranch Road and a second at the north boundary of APN 057-050-017. We observed an approximately 2-inch pipe protruding from the ground within the APN 057-030-004 property south of the former well #22-9, API 01320005; the purpose for the pipe was unclear, it may have been a fence post, or part of a pipeline. On APN 057-030-004, there may be an abandoned pipeline below grade associated with the former wells. It is unknown if the service pipeline was abandoned in-place below grade or removed. The Source Group, Inc. reports include a site map where it appears that the pipeline was a 4-inch oil pipeline extending from the west-northwest boundary of the Shell/Aera site into the APN 057-030-004 property trending northwest; we have included the map as Figure 5.

Storage Tanks. No aboveground storage tanks or evidence of existing underground storage tanks was observed during the site reconnaissance.

Odors. There was a faint odor of natural gas near the PG&E gas pipeline substation. No other odors indicative of hazardous materials or petroleum material impacts were noted at the time of the reconnaissance.

Pools of Potentially Hazardous Liquid. No pools of potentially hazardous liquid were observed within the Property at the time of our reconnaissance.

Drums. No drums were observed on the Property at the time of the reconnaissance.

Hazardous Substance and Petroleum Product Containers. No hazardous substance or petroleum product containers were observed on the Property at the time of our reconnaissance.

Polychlorinated Biphenyls (PCBs). No PCB-containing materials, including transformers, were observed within the Property during our site reconnaissance.

Pits, Ponds and Lagoons. No pits, ponds or lagoons were observed within the Property at the time of our reconnaissance.

Stained Soil/Pavement. No stained soil or pavement was observed within the Property at the time of our reconnaissance.

Stressed Vegetation. No signs of stressed vegetation were observed on the Property at the time of our reconnaissance. The areas of less vegetation were noted near the former oil wells and roadways appear to be generally due to gravel present in those areas.

Solid Waste/Debris There was some metal and wood debris in the southeast corner of the property on APN 057-050-017. There were also metal and concrete materials at the Shell/Aera site.

Stockpiles/Fill Material No stockpiles or fill material was observed on the Property during the reconnaissance.

Wastewater. No wastewater conveyance systems were observed at the Property during the reconnaissance.

Wells. No existing wells were identified within the Property during our site reconnaissance. As previously discussed, three oil/gas wells, one water supply well and six monitoring wells were previously located on the Property. These wells have all since been destroyed. There was an approximate 2-inch vertical PVC pipe adjacent to an electrical panel at the Shell/Aera site (Figure 7).

Septic Systems. No septic systems were found within the Property during our site reconnaissance. It was documented in the Contra Costa County records that a septic system was demolished on the Shell/Aera site in 2009.

4.4 ASBESTOS-CONTAINING MATERIALS AND LEAD-BASED PAINT

An asbestos and lead-based paint survey was not conducted as part of this assessment. No structures are currently located on the Property.

4.5 INDOOR AIR QUALITY

An evaluation of indoor air quality, mold, or radon was not included as part of the contracted scope of services. The California Department of Health Services has conducted studies of radon risks throughout the state, sorted by zip code. Results of the studies indicate that two tests were conducted within the Property zip code, with no tests exceeding the current EPA action level of 4 picocuries per liter [pCi/L]¹).

¹ California Department of Health Services – Division of Drinking Water and Environmental Management – Radon (<http://www.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf>).

In accordance with ASTM E2600-10 (Tier 1) (*Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*); there are no current potential petroleum hydrocarbon sources for vapor intrusion within 1/10 mile of the Property; there are three listings for potential volatile organic compound (VOCs) sources within 1/3 mile of the Property. Given the distance to these locations and available information, we do not consider these facilities an environmental risk.

5.0 INTERVIEWS

Mr. Ron Nunn completed an environmental site assessment questionnaire pertaining to applicable past and present uses and physical characteristics of the Property and surrounding properties. In the questionnaire, Mr. Nunn did identify potential environmentally related issues with the Shell/Aera site related to pipelines and industrial use; he also noted that the Property, excluding the Shell/Aera site had been used for non-irrigated dry land grain farming. The questionnaire is presented in its entirety in Appendix I.

A phone interview was conducted with Mr. B.G. Tackett of DOGGR. We discussed the well abandonment procedures in practice at the approximate time the wells were abandoned within the Property. He indicated that the wells were disconnected from any distribution lines and that the lines, if below grade, were purged and most likely left open and in place, if the lines were above grade they would be completely removed from the site. He also indicated that the majority of the sites containing wells that were used for agricultural purposes had below grade distribution lines to not interfere with agriculture. He indicated that unless there was documentation of above grade lines or demolition of below grade lines to assume they are in-place below grade.

6.0 EVALUATION

6.1 FINDINGS

The reconnaissance and records research did find documentation or physical evidence of soil or groundwater impairments associated with the current or past use of the Property. The Shell/Aera site was remediated and closed under the oversight of the RWQCB. The oil/gas/water wells on the Property were abandoned with oversight from DOGGR. A review of regulatory databases maintained by county, state and federal agencies found documentation of two hazardous materials incidents, excluding the clean-up, on the Shell/Aera site; the incidents were minor and were prior to the Shell/Aera site clean-up. No documented soil or groundwater contamination associated with abutting properties was found from the records research.

Based on the findings of this assessment, no Recognized Environmental Conditions (RECs), one historical REC (Shell/Aera site), and no controlled RECs were identified for the Property.

Based on the review of regulatory databases and site reconnaissance, we present information on features of potential environmental concern that were either contained in the databases or observed on the Property. These features were not considered to be RECs. We briefly discuss each feature below.

- Previous oil/gas/water wells within the Property and abandoned Shell/Aera site oil pipeline associated pipelines.

6.2 OPINIONS AND DATA GAPS

It is our opinion that the findings of this study are based on a sufficient level of information obtained during our contracted scope of services to render a conclusion as to whether additional appropriate investigation is required to identify the presence or likely presence of a REC.

The data gaps identified during this process do not affect the conclusions as to the presence or lack of presence of RECs at the Property. The data gaps include:

- City of Antioch Building and Planning Departments – no response
- Contra Costa County Fire Department – no response for APN 057-050-017

ENGEO recommends that prior to mass grading a survey is performed to locate/determine the location of abandoned pipelines associated with the former wells. During mass grading activities, we also recommend that if stained soil, suspected impacted materials, or odors are observed during grading than an environmental professional evaluate the conditions. Please also note that DOGGR strongly encourages participation in the Well Review Program for the abandoned oil/gas/water wells. This program requires setbacks from former well sites.

6.3 CONCLUSIONS

The study included a review of local, state and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources. A reconnaissance of the Property to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials; and interview with persons knowledgeable about current and past site use.

The site reconnaissance and records review did find documentation or physical evidence of soil or groundwater impairments associated with the use or past use of the Property. The Shell/Aera site was remediated and closed under the oversight of the RWQCB. A review of regulatory databases maintained by county, state, tribal, and federal agencies found documentation of hazardous materials violations or discharge on the Property and did not identify contaminated facilities within the appropriate American Society for Testing and Materials (ASTM) search distances that would reasonably be expected to impact the Property.

Based on the findings of this assessment, no Recognized Environmental Conditions (RECs), one historical REC (former Shell/Aera site), and no controlled RECs were identified for the Property.

Based on the review of regulatory databases and site reconnaissance, we present information on features of potential environmental concern that were either contained in the databases or observed on the Property. These features were not considered to be RECs. We briefly discuss each feature below.

- Previous oil/gas/water wells within the Property and abandoned Shell/Aera site oil pipeline associated pipelines.

ENGEO has performed a phase I environmental site assessment in general conformance with the scope and limitations of ASTM E1527 of, the Property. Any exceptions to, or deletions from, this practice are described in Section(s) 6.2 of this report.

ENGEO recommends that prior to mass grading a survey is performed to locate/determine the location of abandoned pipelines associated with the former wells. During mass grading activities, we also recommend that if stained soil, suspected impacted materials, or odors are observed during grading than an environmental professional evaluate the conditions. Please also note that DOGGR strongly encourages participation in the Well Review Program for the abandoned oil/gas/water wells. This program requires setbacks from former well sites.

SELECTED REFERENCES

California Department of Water Resources (<http://www.water.ca.gov/waterdatalibrary/>)

California Department of Conservation (DOGGR) (<http://maps.conservation.ca.gov/doms/doms-app.html>)

California Department of Health Services – Division of Drinking Water and Environmental Management – Radon
(<http://ww2.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf>)

California Regional Water Quality Control Board, Central Valley Region; No Further Action determination, Effective Date, Former Shell Yard, 3052 Heidorn Ranch Road, Antioch, Contra Costa County; February 17, 2011.

Dibblee Jr, T.W.; 2006; Geologic Map of the Antioch South and Brentwood Quadrangles, Contra Costa, California; DF-193.

Google Maps (<http://maps.google.com>)

Groundwater Technology, Inc.; Request for Site Closure – Former Ginochio 2-9 Site, Brentwood Oil and Gas Field, Contra Costa County, California; June 26, 1995

Oxy USA, Inc.; Brentwood Oil Field Site Cleanup, Update, Various Sites; December 19, 1995.

The Source Group, Inc.; Semi Annual Groundwater Monitoring and Sampling Report – Third Quarter 2005, Former Shell/Aera site Yard 3052 Heidorn Ranch Road, Antioch, California; October 31, 2005; Project No. 01-OXY-023.

The Source Group, Inc.; Closure Report/No further Action Request, Former Shell/Aera site Yard Site, Former Oxy Oil and Gas Field, Antioch, California; September 3, 2010; Project No. 01-OXY-026

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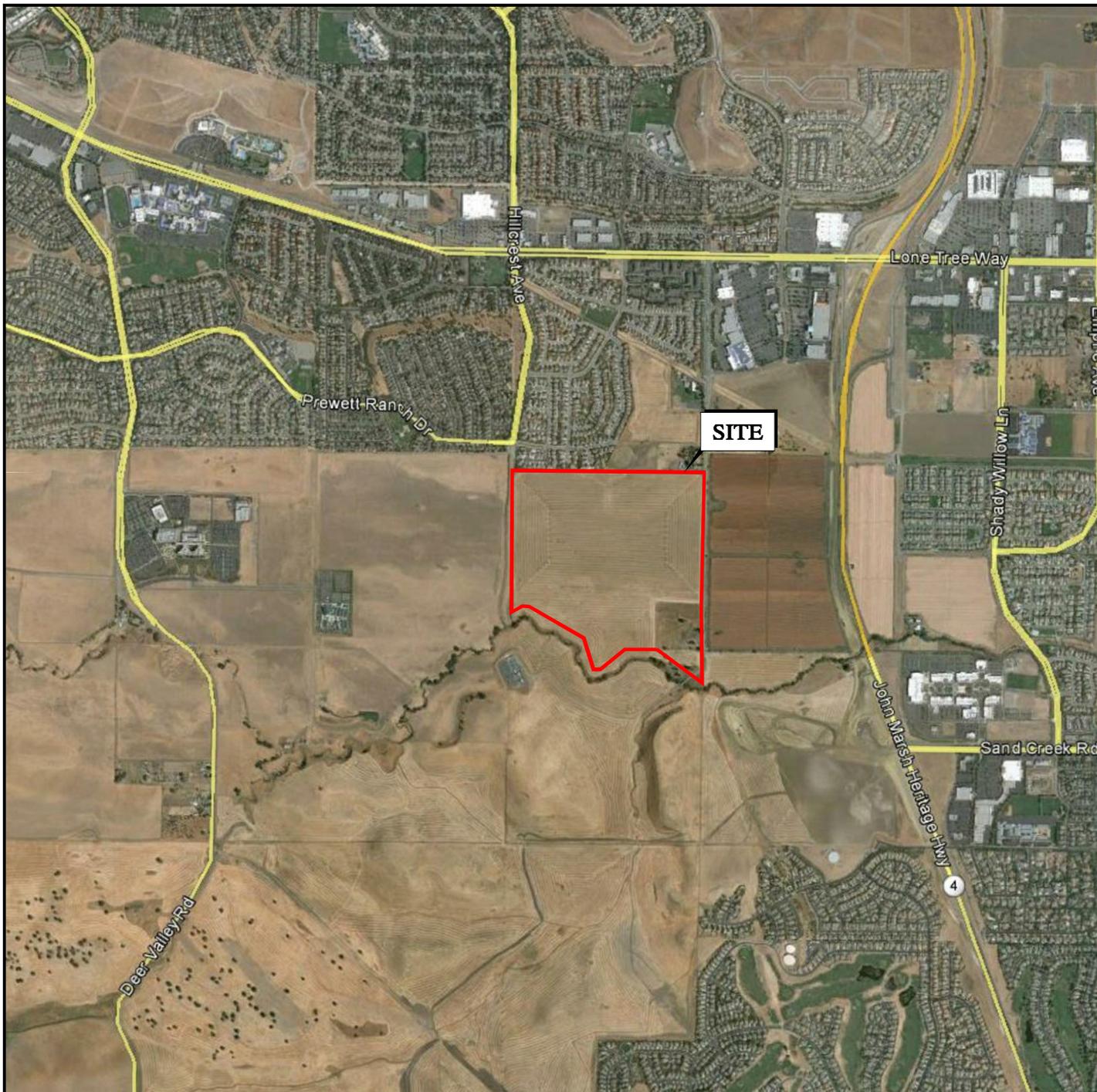
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BASE MAP SOURCE: GOOGLE EARTH PRO

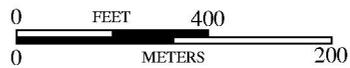
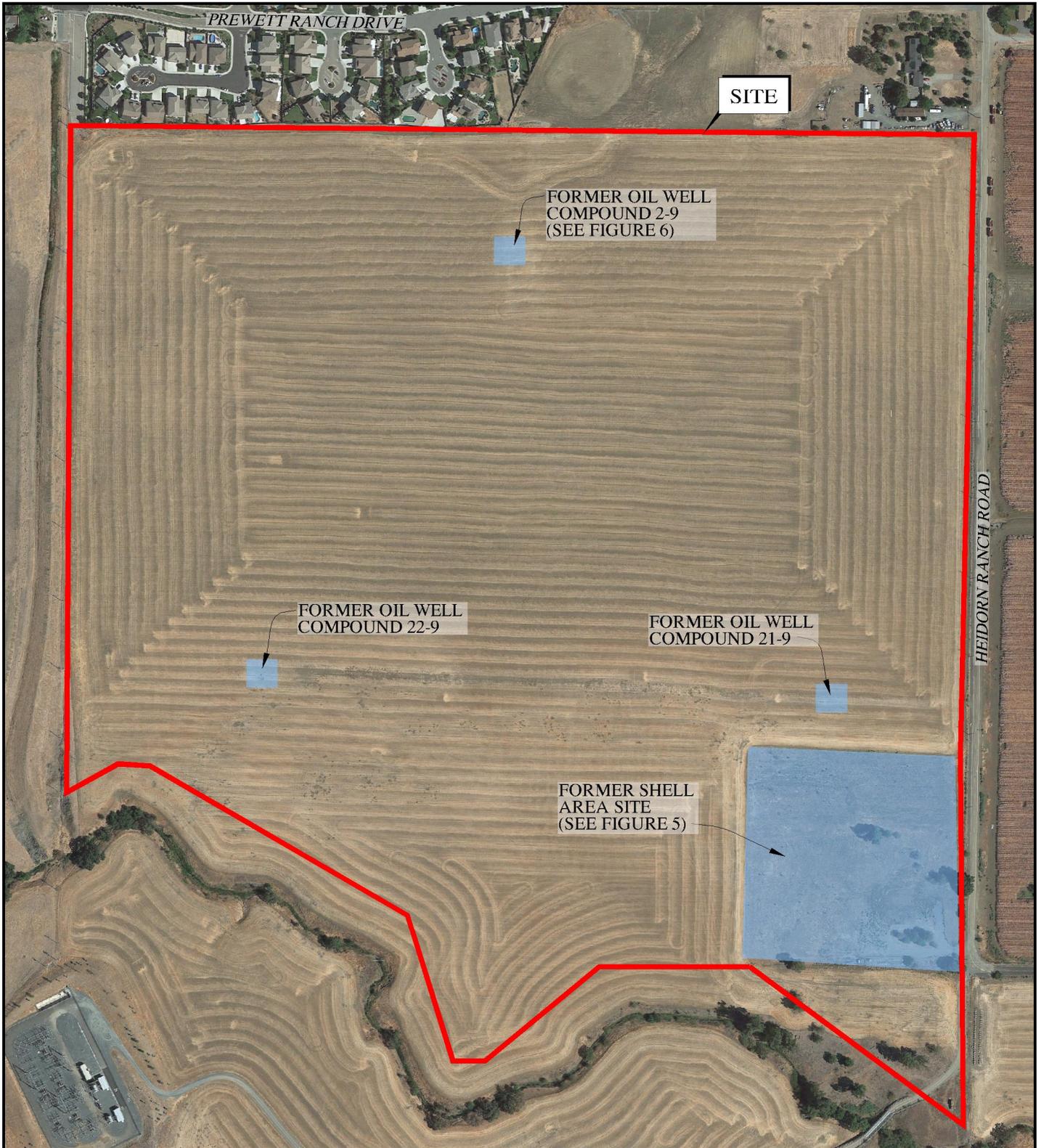


VICINITY MAP
 GINOCCHIO FUA1
 ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000	
SCALE: AS SHOWN	
DRAWN BY: LL	CHECKED BY: SM

FIGURE NO.
1

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BASE MAP SOURCE: GOOGLE EARTH PRO



SITE PLAN
 GINOCHIO FUAI
 ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

DRAWN BY: LL

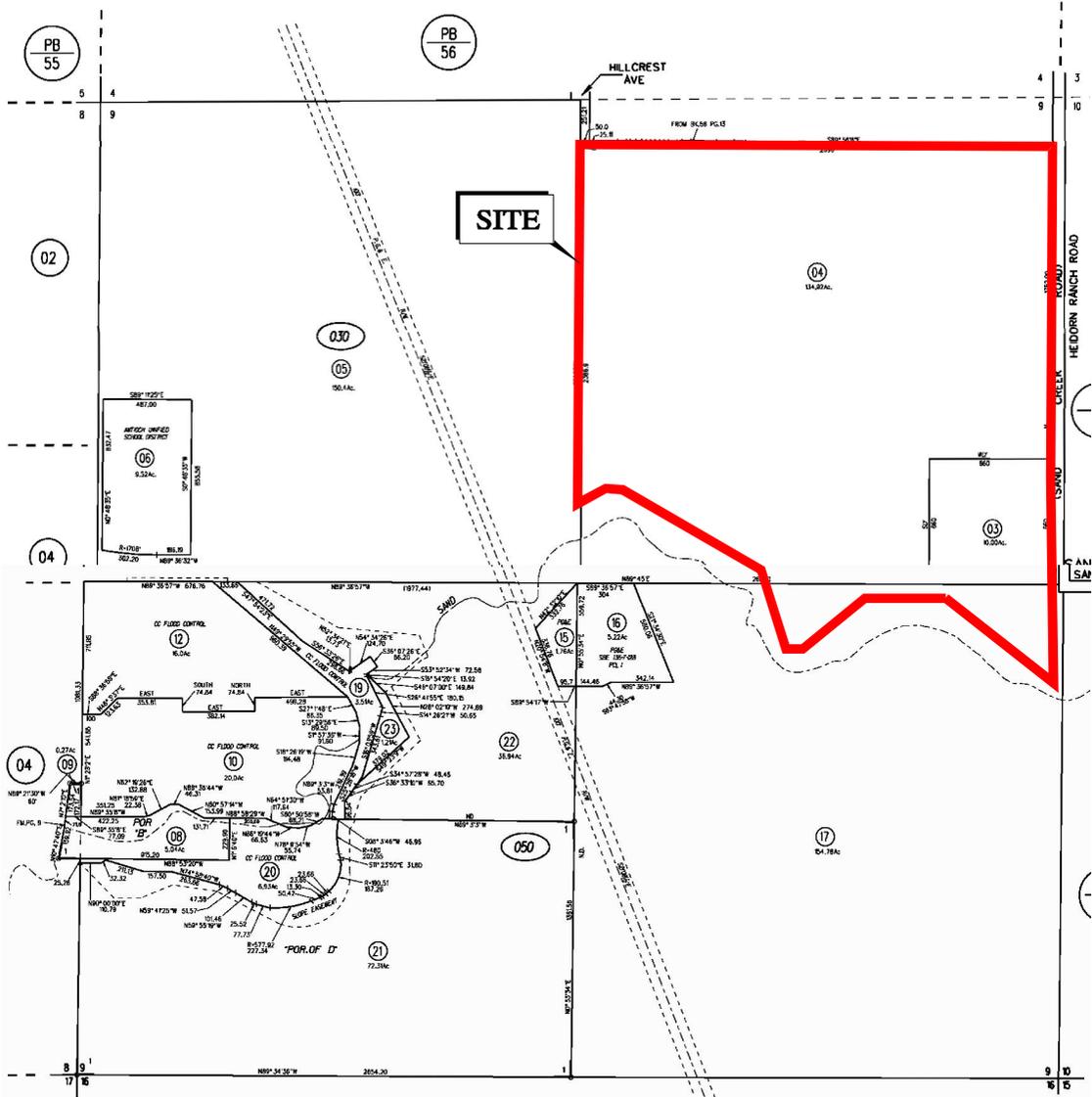
CHECKED BY: PG

FIGURE NO.

2

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N $\frac{1}{2}$ SEC. 9 T.1N. R.2E. M.D.B.M.



BASE MAP SOURCE: COUNTY ASSESSOR'S OFFICE



ASSESSOR'S PARCEL MAP
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

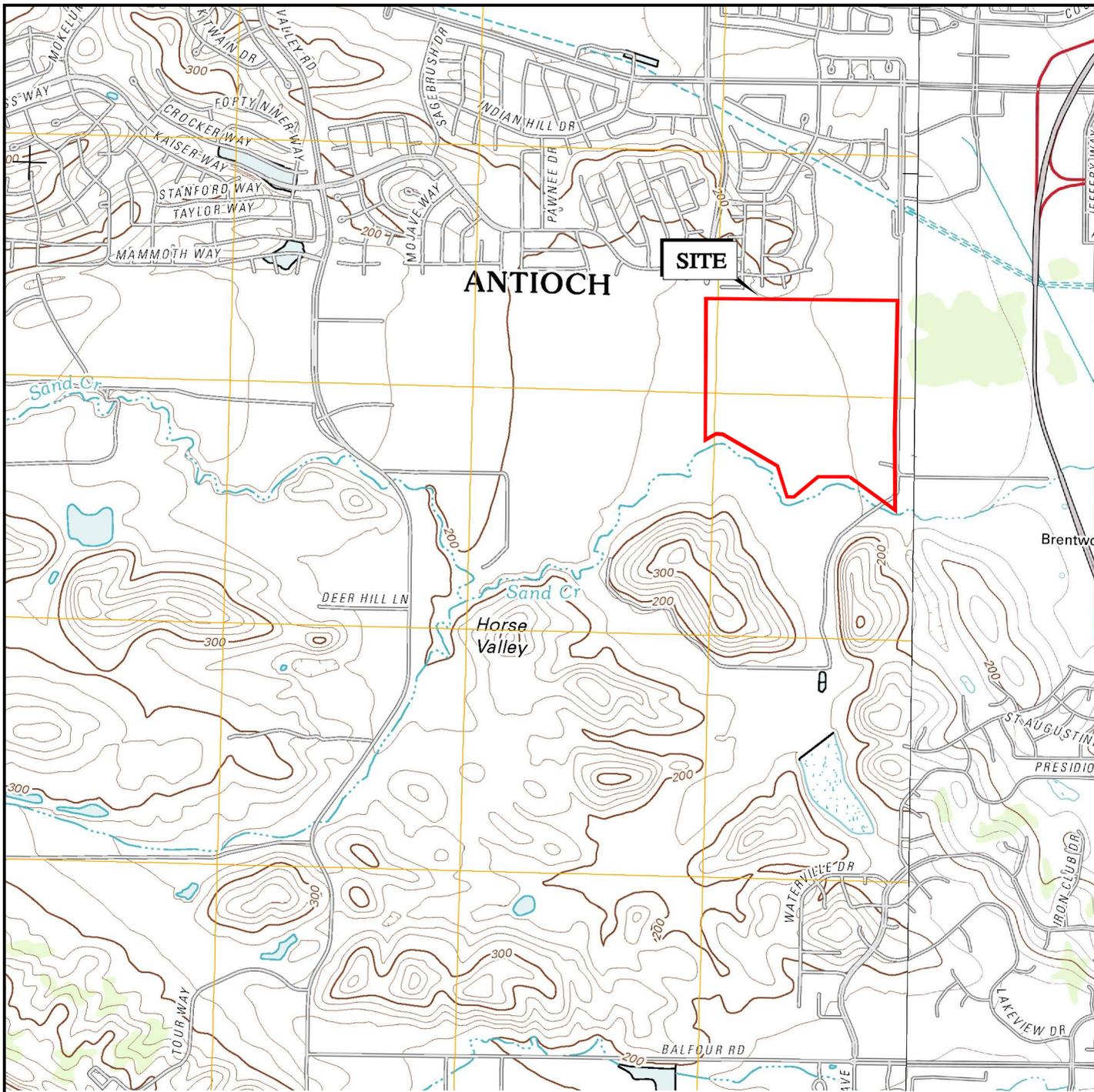
DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

3

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BASE MAP SOURCE: U.S.G.S., 2012



TOPOGRAPHIC MAP
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

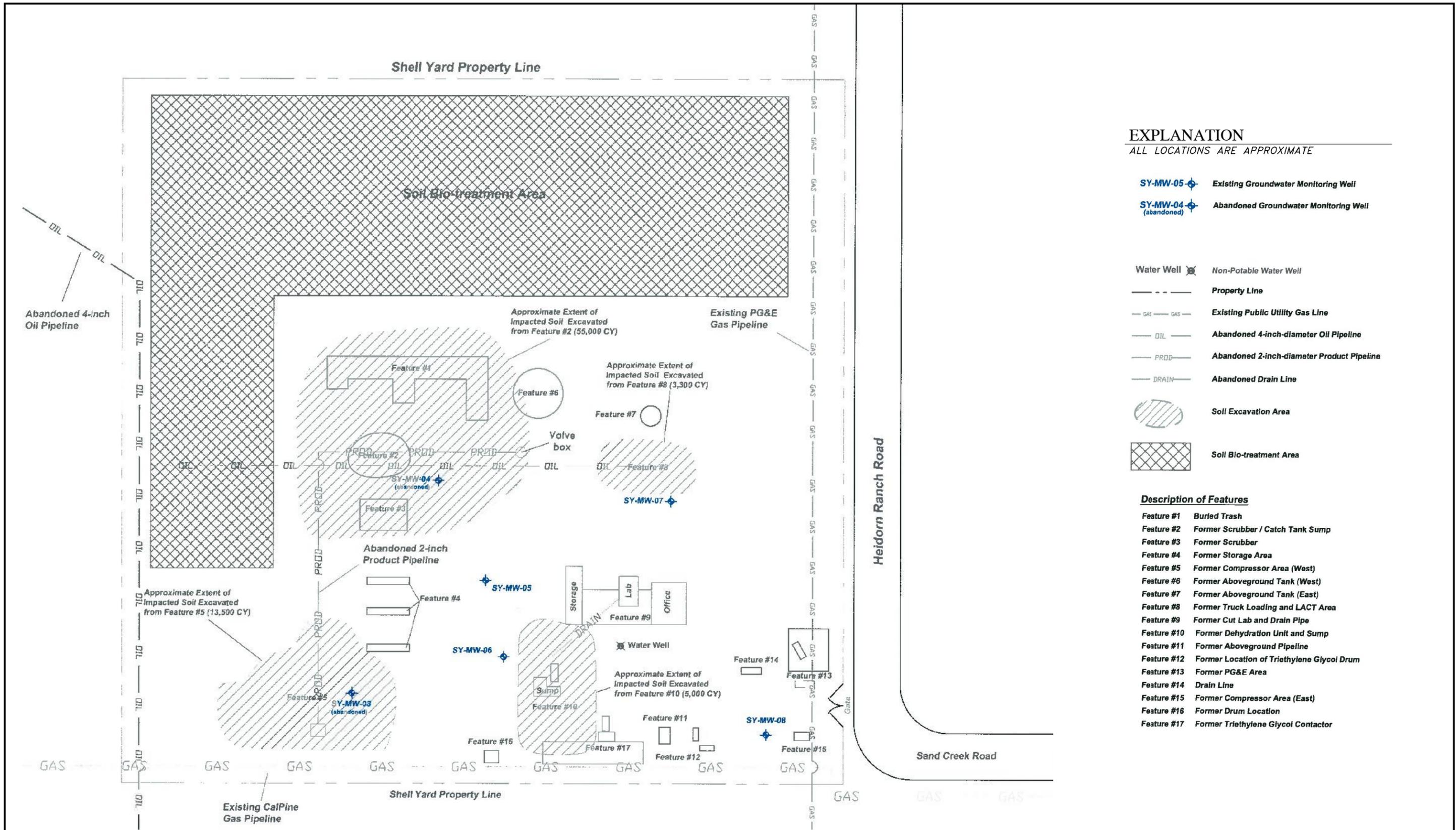
DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

4

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- Existing Groundwater Monitoring Well
- Abandoned Groundwater Monitoring Well
- Non-Potable Water Well
- Property Line
- Existing Public Utility Gas Line
- Abandoned 4-inch-diameter Oil Pipeline
- Abandoned 2-inch-diameter Product Pipeline
- Abandoned Drain Line
- Soil Excavation Area
- Soil Bio-treatment Area

Description of Features

- Feature #1 Buried Trash
- Feature #2 Former Scrubber / Catch Tank Sump
- Feature #3 Former Scrubber
- Feature #4 Former Storage Area
- Feature #5 Former Compressor Area (West)
- Feature #6 Former Aboveground Tank (West)
- Feature #7 Former Aboveground Tank (East)
- Feature #8 Former Truck Loading and LACT Area
- Feature #9 Former Cut Lab and Drain Pipe
- Feature #10 Former Dehydration Unit and Sump
- Feature #11 Former Aboveground Pipeline
- Feature #12 Former Location of Triethylene Glycol Drum
- Feature #13 Former PG&E Area
- Feature #14 Drain Line
- Feature #15 Former Compressor Area (East)
- Feature #16 Former Drum Location
- Feature #17 Former Triethylene Glycol Contactor



BASE MAP SOURCE: THE SOURCE GROUP, 2010

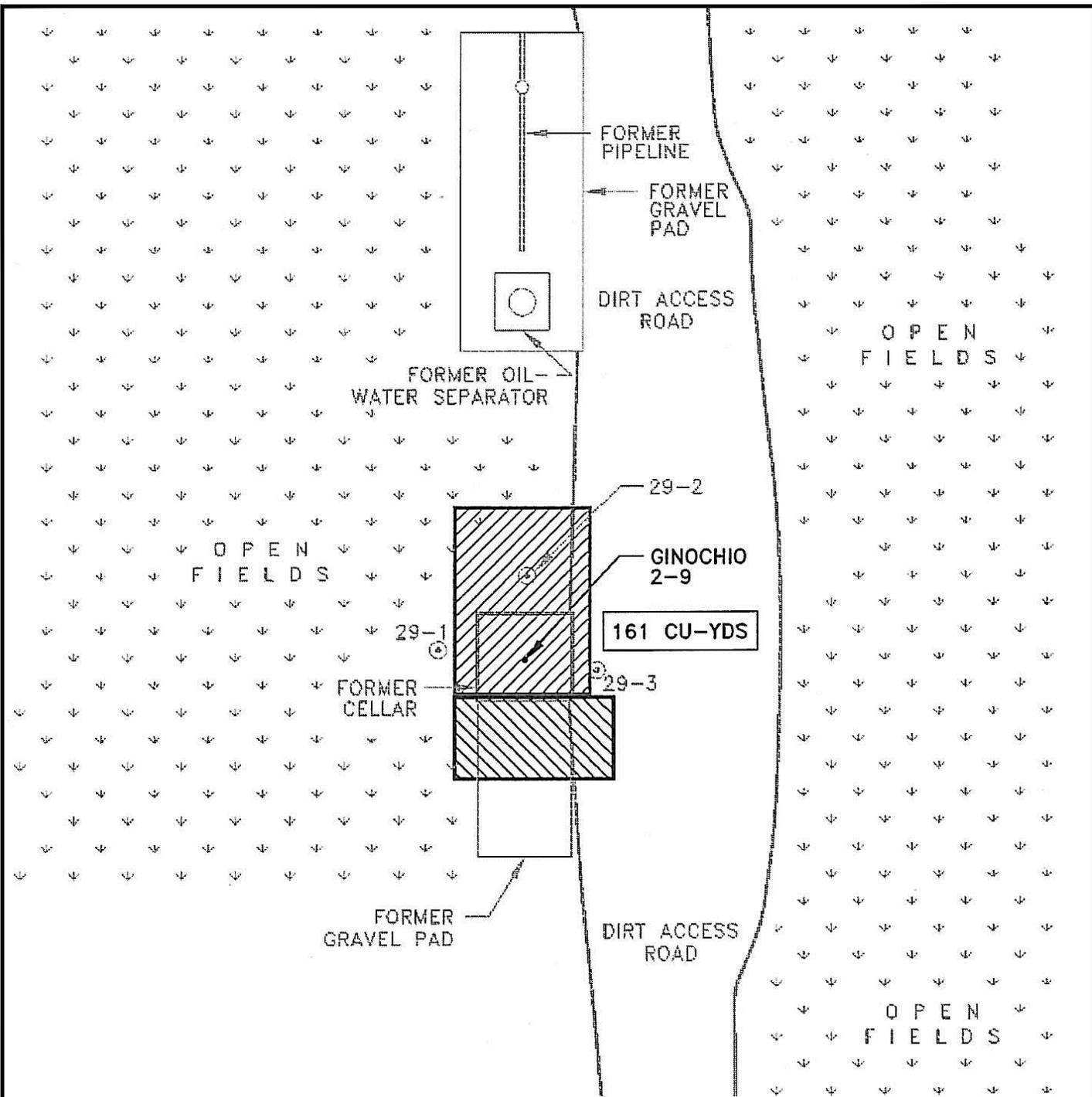


FORMER SHELL YARD SITE PLAN
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000
SCALE: AS SHOWN
DRAWN BY: LL CHECKED BY: SM

FIGURE NO.
5

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

-  RESNA SOIL BORING LOCATIONS (5/92)
-  5' DEEP EXCAVATION
-  10' DEEP EXCAVATION

BASE MAP SOURCE: GROUNDWATER TECHNOLOGY, 1995



FORMER OIL WELL COMPOUND 2-9
EXCAVATION SITE PLAN
GINOCHIO FUA1
CALIFORNIA

PROJECT NO: 4894.000.000

SCALE: NO SCALE

DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

6



PHOTO 1
2-INCH PVC PIPE AT THE ELECTRICAL PANEL



PHOTO 2
ELECTRICAL PANEL AT THE SHELL SITE



PHOTO 3
VIEW LOOKING NORTH ON SHELL SITE



PHOTO 4
METAL AND CONCRETE MATERIALS
AT THE SHELL SITE



SITE PHOTOGRAPHS
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: NO SCALE

DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

7A



PHOTO 5

EAST PROPERTY BOUNDARY LOOKING SOUTH
ALONG HEIDORN ROAD, PIPELINE
EASEMENT MARKER VISIBLE



PHOTO 6

METAL AND WOOD DEBRIS AT THE SOUTHEAST
CORNER OF APN 057-050-017



PHOTO 7

PG&E GAS PIPELINE STATION ON THE SHELL SITE



PHOTO 8

PIPE SOUTH OF FORMER WELL #22-9



PHOTO 9
PIPELINE MARKER ADJACENT TO SAND CREEK
AT THE NORTH BOUNDARY OF APN 057-050-017



PHOTO 10
VIEW EAST TO WEST ACROSS APN 057-030-004
ALONG THE ALIGNMENT OF THE FORMER ROADWAY



SITE PHOTOGRAPHS
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: NO SCALE

DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

7C

**A
P
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X

A**

APPENDIX A

ENVIRONMENTAL DATA RESOURCES, INC.

Radius Map Report

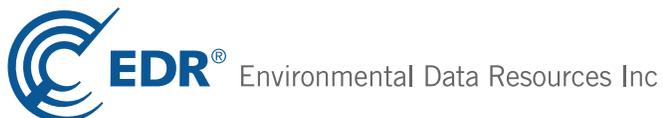


Ginochio Properties

3428 Heidorn Ranch Road
Antioch, CA 94531

Inquiry Number: 03932185.2r
May 02, 2014

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
 Please contact EDR at 1-800-352-0050
 with any questions or comments.

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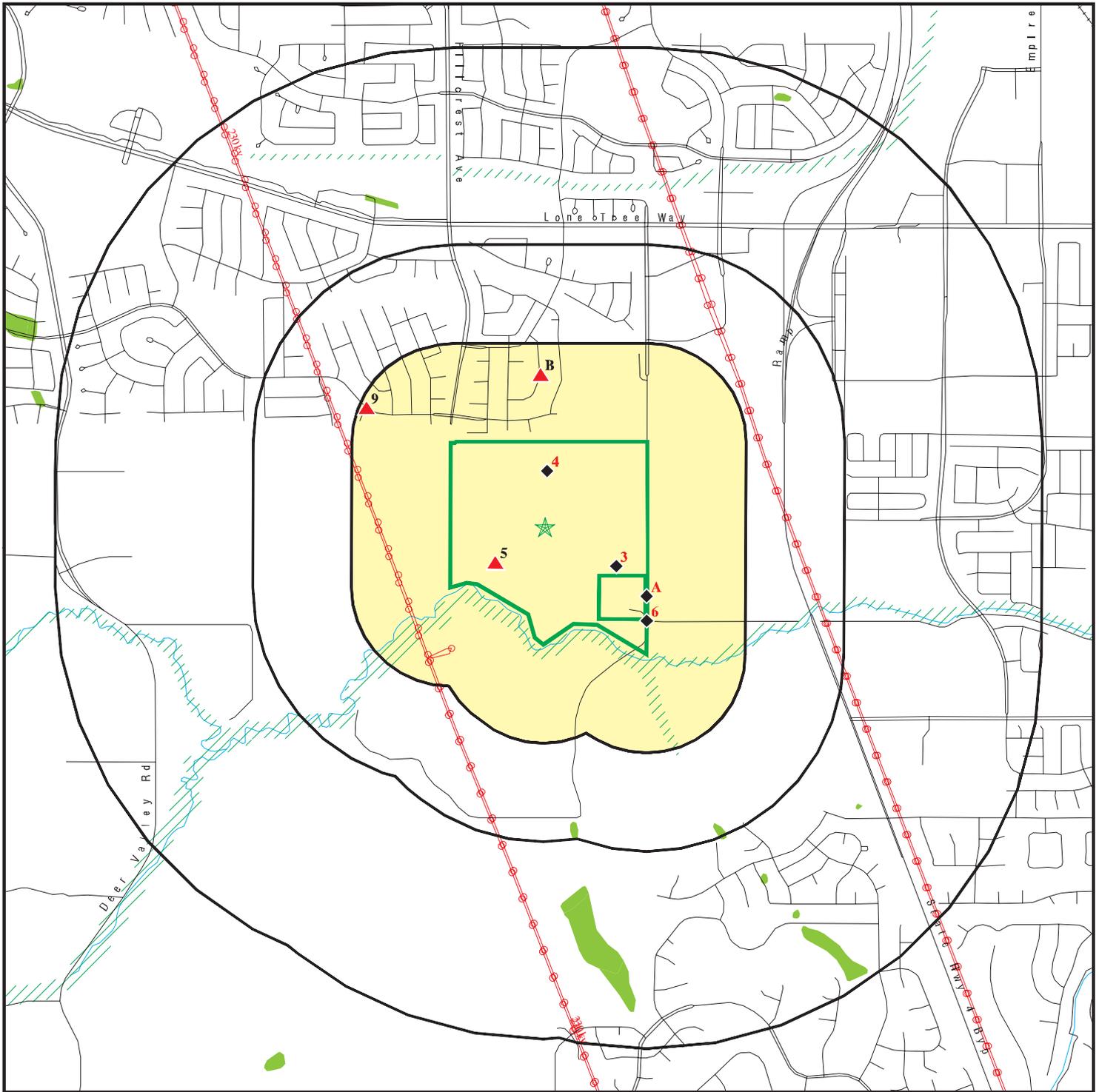
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EXECUTIVE SUMMARY

TARGET PROPERTY ADDRESS		STANDARD ENVIRONMENTAL RECORDS													ADDITIONAL ENVIRONMENTAL RECORDS																																																																																							
GINOCHIO PROPERTIES 3428 HEIDORN RANCH ROAD ANTIOCH, CA 94531 Elevation: 165 ft. EDR Inquiry Number: 03932185.2r																																																																																																						
SURROUNDING PROPERTY		Map ID																																																																																																				
SEARCH RESULTS		Direction																																																																																																				
		Distance ft.																																																																																																				
		Elevation ft.																																																																																																				
5200 BLUE SKY CT ANTIOCH, CA 94531 1015071455		9																																																																																																				
		NW																																																																																																				
		1/8-1/4																																																																																																				
		1216 ft.																																																																																																				
		192 ft. Higher																																																																																																				
			NPL	Proposed NPL	NPL LIENS	Delisted NPL	CERCLIS	FEDERAL FACILITY	CERC-NFRAP	CORRACTS	RCRA-TSDF	RCRA-LQG	RCRA-SQG	RCRA-CESQG	US ENG CONTROLS	US INST CONTROL	LUCIS	ERNS	RESPONSE	ENVIROSTOR	SWF/LF	LUST	SLIC	INDIAN LUST	UST	AST	INDIAN UST	FEMA UST	VCP	INDIAN VCP	US BROWNFIELDS	ODI	DEBRIS REGION 9	WMUDS/SWAT	SWRCY	HAULERS	INDIAN ODI	US CDL	HIST Cal-Sites	SCH	Toxic Pits	CDL	US HIST CDL	CA FID UST	HIST UST	SWEEPS UST	LIENS 2	LIENS	DEED	HMIRS	CHMIRS	LDS	MCS	SPILLS 90	RCRA NonGen / NLR	DOT OPS	DOD	FUDS	CONSENT	ROD	UMTRA	US MINES	TRIS	TSCA	FTTS	HIST FTTS	SSTS	ICIS	PADS	MLTS	RADINFO	FINDS	RAATS	RMP	CA BOND EXP. PLAN	UIC	NPDES	Cortese	HIST CORTESE	CUPA Listings	CONTRA COSTA CO. SITE	Notify 65	DRYCLEANERS	WIP	ENF	HAZNET	EMI	INDIAN RESERV	SCRD DRYCLEANERS	2020 COR ACTION	LEAD SMELTERS	US AIRS	WDS	PRP	MWMP	COAL ASH DOE	HWT	HWP	US FIN ASSUR	Financial Assurance	PCB TRANSFORMER	COAL ASH EPA

OVERVIEW MAP - 03932185.2r



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

Areas of Concern

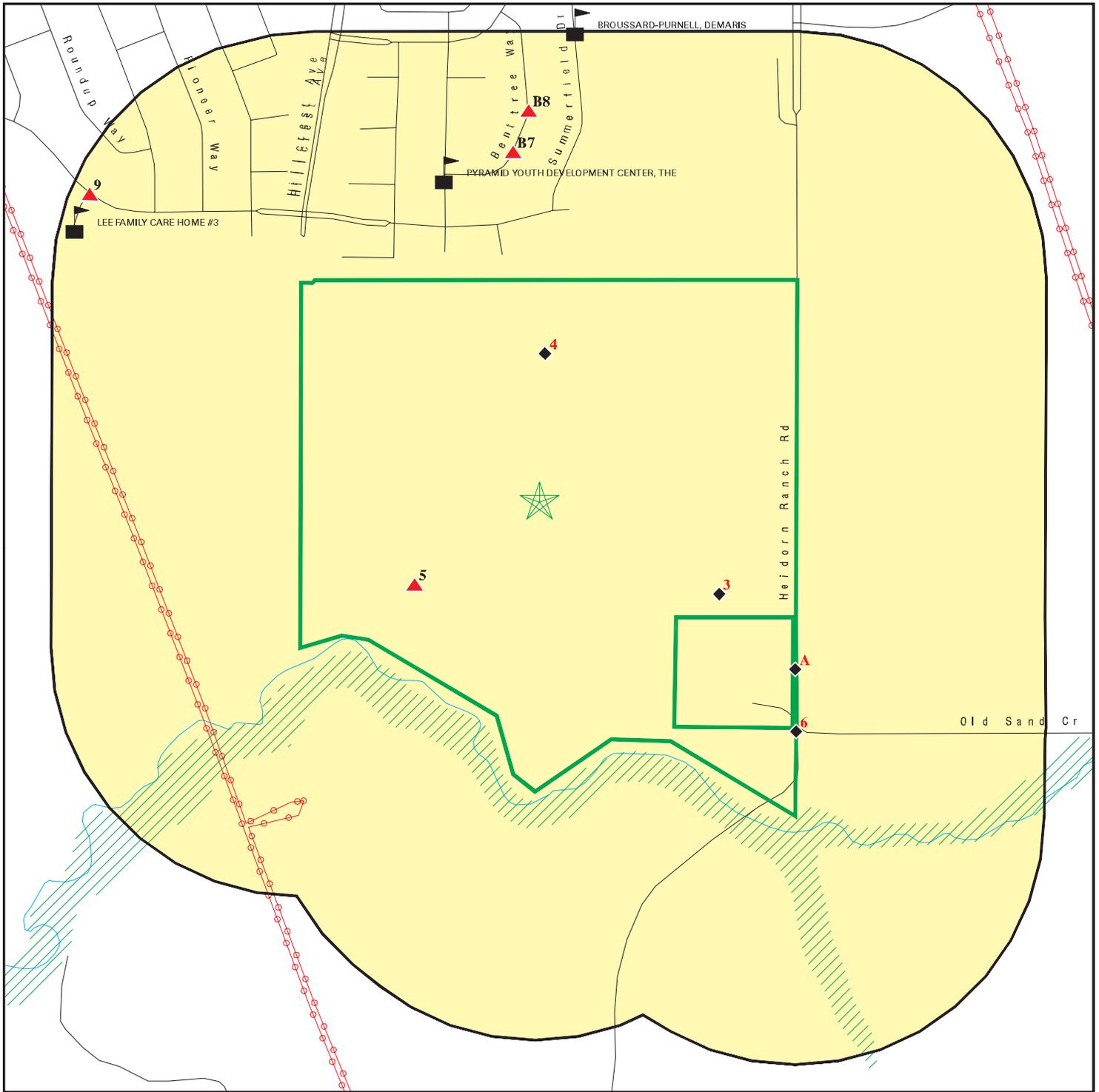


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Ginochio Properties
 ADDRESS: 3428 Heidorn Ranch Road
 Antioch CA 94531
 LAT/LONG: 37.9505 / 121.7555

CLIENT: Engeo Inc.
 CONTACT: Csilla Toth
 INQUIRY #: 03932185.2r
 DATE: May 02, 2014 7:01 pm

DETAIL MAP - 03932185.2r



-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites
-  Indian Reservations BIA
-  Power transmission lines
-  Oil & Gas pipelines from USGS
-  100-year flood zone
-  500-year flood zone
-  Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Ginochio Properties
 ADDRESS: 3428 Heidorn Ranch Road
 Antioch CA 94531
 LAT/LONG: 37.9505 / 121.7555

CLIENT: Engeo Inc.
 CONTACT: Csilla Toth
 INQUIRY #: 03932185.2r
 DATE: May 02, 2014 7:03 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site List</i>								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	0.001		0	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL RESPONSE</i>								
RESPONSE	1.000		0	0	0	0	NR	0
<i>State- and tribal - equivalent CERCLIS ENVIROSTOR</i>								
ENVIROSTOR	1.000		0	0	0	0	NR	0
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		1	0	0	NR	NR	1
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	0.001		1	NR	NR	NR	NR	1
US HIST CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
SWEEPS UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
LIENS	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
UIC	0.001		3	NR	NR	NR	NR	3
NPDES	0.001		0	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
CONTRA COSTA CO. SITE	0.250		1	0	NR	NR	NR	1
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		1	NR	NR	NR	NR	1
EMI	0.001		0	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	2	NR	NR	NR	2
EDR US Hist Cleaners	0.250		0	1	NR	NR	NR	1

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

SHELL YARD (Continued)

S106230276

Lead Agency: MES
Date Filed: / /
Report Date: / /
Date Added: Not reported
Date Closed: Not reported

CDL:

Facility ID: 200011134
Date: 11/26/2000
Lab Type: Abandoned Drug Lab Waste (A) - location away from an actual illegal drug lab where drug lab waste and/or equipment were abandoned.

3 OCCIDENTAL PETROLEUM CORPORATION

**UIC S111466453
N/A**

**< 1/8
1 ft. CONTRA COSTA (County), CA**

Relative: Lower
Actual: 157 ft.

UIC:
API Number: 01300039
Confidential Well: N
Well Number: 21-9
Direction: Unknown
Lease Name: Ginochio
Well Located On A BLW Lease: N
Field Name: Brentwood (ABD)
Area Name: Main
Section: 9
Township: 01N
Range: 02E
Base And Meridian; Part Of The PLSS: MD
Elevation: Not reported
Location Desc: Not reported
GIS Source Code: hud
Comments: Status Code 014
Latitude: 37.94912
Longitude: -121.7522

4 OCCIDENTAL PETROLEUM CORPORATION

**UIC S111466452
N/A**

**< 1/8
1 ft. CONTRA COSTA (County), CA**

Relative: Lower
Actual: 164 ft.

UIC:
API Number: 01300038
Confidential Well: N
Well Number: 2-9
Direction: Unknown
Lease Name: Ginochio
Well Located On A BLW Lease: N
Field Name: Brentwood (ABD)
Area Name: Any Area
Section: 9
Township: 01N
Range: 02E
Base And Meridian; Part Of The PLSS: MD
Elevation: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

OCCIDENTAL PETROLEUM CORPORATION (Continued)

S111466452

Location Desc: Not reported
GIS Source Code: hud
Comments: Status Code 024
Latitude: 37.95263
Longitude: -121.7554

5 OCCIDENTAL PETROLEUM CORPORATION

**UIC S111466724
N/A**

**< 1/8
1 ft. CONTRA COSTA (County), CA**

**Relative:
Higher**

**Actual:
168 ft.**

UIC:
API Number: 01320005
Confidential Well: N
Well Number: 22-9
Direction: Unknown
Lease Name: Ginochio
Well Located On A BLW Lease: N
Field Name: Brentwood (ABD)
Area Name: Any Area
Section: 9
Township: 01N
Range: 02E
Base And Meridian; Part Of The PLSS: MD
Elevation: Not reported
Location Desc: Not reported
GIS Source Code: hud
Comments: Status Code 024
Latitude: 37.94926
Longitude: -121.7578

**6 SAND CREEK STN
HEIDORN RANCH & SAND CREE
BRENTWOOD, CA 94513**

**CONTRA COSTA CO. SITE LIST S105850335
N/A**

**< 1/8
1 ft.**

**Relative:
Lower**

**Actual:
152 ft.**

CONTRA COSTA CO. SITE LIST:
Facility ID: 07000707518
Billing Status: INACTIVE, NON-BILLABLE
Program Status: CONTRA COSTA CO. SITE LIST
Program/Elements: HMBP GENERAL
Region: CONTRA COSTA

Facility ID: 07000707518
Billing Status: INACTIVE, NON-BILLABLE
Program Status: CONTRA COSTA CO. SITE LIST
Program/Elements: HWG GENERAL
Region: CONTRA COSTA

MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Site

Database(s)

EDR ID Number
 EPA ID Number

B7
 North
 1/8-1/4
 0.129 mi.
 681 ft.

**5466 BENTTREE WAY
 ANTIOCH, CA 94531**

Site 1 of 2 in cluster B

**EDR US Hist Auto Stat 1015548620
 N/A**

**Relative:
 Higher**

EDR Historical Auto Stations:
 Name: K & G AUTO BODY SHOP
 Year: 2006
 Address: 5466 BENTTREE WAY

**Actual:
 183 ft.**

B8
 North
 1/8-1/4
 0.170 mi.
 900 ft.

**5446 BENTTREE WAY
 ANTIOCH, CA 94531**

Site 2 of 2 in cluster B

**EDR US Hist Auto Stat 1015547991
 N/A**

**Relative:
 Higher**

EDR Historical Auto Stations:
 Name: D & H AUTO BODY SHOP
 Year: 2004
 Address: 5446 BENTTREE WAY

**Actual:
 185 ft.**

9
 NW
 1/8-1/4
 0.230 mi.
 1216 ft.

**5200 BLUE SKY CT
 ANTIOCH, CA 94531**

**EDR US Hist Cleaners 1015071455
 N/A**

**Relative:
 Higher**

EDR Historical Cleaners:
 Name: AMERICA CARPET CLEANING
 Year: 2007
 Address: 5200 BLUE SKY CT

**Actual:
 192 ft.**

Name: AMERICA CARPET CLEANING
 Year: 2009
 Address: 5200 BLUE SKY CT

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
ANTIOCH	S114643049	LAURITZEN YACHT HARBOR	0 RTE 1		RGALUST
ANTIOCH	S114643048	LAURITZEN YACHT HARBOR	RTE 1		RGALUST
ANTIOCH	S106666501	CHEVRON SS# 96946	BRIDGEHEAD RD & HWY 4	94531	CONTRA COSTA CO. SITE LIST
ANTIOCH	S109548490	PG&E LONE TREE SUBSTATION	HEIDORN RANCH RD	94531	CONTRA COSTA CO. SITE LIST
ANTIOCH	S113450530	STATE ROUTE 4 WIDENING SEGMENT 3B	STATE ROUTE 4 FROM WEST OF HIL	94531	NPDES
BRENTWOOD	S101580870	NORMAN'S BRENTWOOD NURSERY	RR 3 BOX 526 HWY 4	94513	CA FID UST, CONTRA COSTA CO. SITE LIST, SWEEPS UST
BRENTWOOD	U003784124	MANGINI BROS	HWY 4	94513	UST, CONTRA COSTA CO. SITE LIST
BRENTWOOD	U001596363	MANGINI BROS	HIGHWAY 4	94513	HIST UST, SWEEPS UST
BRENTWOOD	S113028263	BILL BRANDT FORD	1245 HWY 4	94513	HAZNET
BRENTWOOD	S113025155	BRENTWOOD TRANS	1142 HWY 4	94513	HAZNET
BRENTWOOD	S113000094	ACCURATE AUTO BODY & PAINT	1377 HIGHWAY 4	94513	HAZNET
BRENTWOOD	S112962157	CALTRANS DIST 4/CONSTR/EA04-272124	RTE 4 PM 50.0-65.6	94513	HAZNET
BRENTWOOD	S112884614	PG & E/BRENTWOOD SUBSTATION	HWY 4 AT SELLERS AVE	94513	HAZNET
BRENTWOOD	S110504138	VERIZON WIRELESS (WEST BRENTWO	HWY 4 BYPAS & SAN JOSE AVE	94513	EMI
BRENTWOOD	S108974760	VERIZON WIRELESS/BRENTWOOD WEST	HWY 4 & SAN JOSE AVE	94513	CONTRA COSTA CO. SITE LIST
BRENTWOOD	S106925285	DELTA FENCE CO., INC.	HIGHWAY 4	94513	SWEEPS UST
BRENTWOOD	S1068829129	CONOCO INC	HWY 4 & SUNSET	94513	EMI
BRENTWOOD	S101623515	BILL BRANDT FORD, INC.	1245 HIGHWAY 4	94513	CA FID UST, CONTRA COSTA CO. SITE LIST, SWEEPS UST
BRENTWOOD	S101580795	SAVERS GAS	2323 HIGHWAY 4	94513	CA FID UST, SWEEPS UST
BRENTWOOD	S109420875	AT&T MOBILITY/BRENTWOOD (45459)	BALFOUR RD & HWY 4 BYPASS	94513	CONTRA COSTA CO. SITE LIST
BRENTWOOD	S112872935	CITY OF BRENTWOOD	BELFOUR RD AND HWY 4	94513	HAZNET
BRENTWOOD	U003784169	LADD, L. JORDAN	BYRON HWY	94513	UST, CONTRA COSTA CO. SITE LIST
BRENTWOOD	U001596356	L. JORDAN LADD	BYRON HIGHWAY AT	94513	HIST UST
BRENTWOOD	S106928458	LADD, L. JORDAN	BYRON HIGHWAY AT	94513	SWEEPS UST
BRENTWOOD	S107591823	CITY OF BRENTWOOD PW PUMP STATION/	5531 HEIDORN RANCH RD	94513	CONTRA COSTA CO. SITE LIST
BRENTWOOD	S106920409	CITY OF BRENTWOOD	HEIDORN RANCH RD, 1400'SO OF L	94513	EMI
BRENTWOOD	S106837324	PERFECT BODY SHOP	380 SO HWY 4	94513	EMI
BRENTWOOD	S112142034	BRIDLE GATE	INTERSECTION OF HWY 4 BYPASS A	94513	NPDES
BRENTWOOD	S106842480	WESTERN CONTINENTAL OPERATING	KYSH#1, E HWY 4,N OF SUNSET	94513	EMI
BRENTWOOD	S112915032	EAST CONTRA COSTA EURIGATION DIST	1/4 MI N OF HWY 4 & E SELLERS	94513	HAZNET
BRENTWOOD	S116288493	VINTAGE PRODUCTION CALIFORNIA	W OF HWY 4 & SO OF LONE TREE W	94513	EMI
BRENTWOOD	S109282973	VENOCO, INC	W OF HWY 4 & SO OF LONE TREE W	94513	EMI
BRENTWOOD	S107621427	MARQUEZ ENERGY, LLC	W OF HWY 4 & SO OF LONE TREE W	94513	EMI
BRENTWOOD	1006825529	GOTLAND OIL INC	W OF HWY 4 & SO OF LONE TREE W		FINDS, EMI
BRENTWOOD	S113170816	STATE RTE 4 BYPASS AUTHORITY	OLD SAND CREEK RD AT RTE 4 BYP	94513	HAZNET
BRENTWOOD	S112962232	LOUIS ANDRADE	OLD SANDCREEK RD HWY 4 BY PASS	94513	HAZNET
BRENTWOOD	S109548463	VERIZON WIRELESS/BRENTWOOD WEST	SAN JOSE AVE & HWY 4 BYPA	94513	CONTRA COSTA CO. SITE LIST
BRENTWOOD	S112142554	STATE ROUTE 4 SAND CREEK INTERCHAN	STATE ROUTE 4 BETWEEN LAUREL R	94513	NPDES
UPPER LAKE	S112977392	SAFEWAY INC	HIGHWAY 20 MILE MARKER 2.97	94531	HAZNET

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 04/08/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 07/21/2014
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 04/08/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 07/21/2014
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 04/08/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 07/21/2014
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 02/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/09/2014
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/31/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/08/2013	Telephone: 703-603-8704
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 04/11/2014
Number of Days to Update: 151	Next Scheduled EDR Contact: 07/21/2014
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 02/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/09/2014
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/17/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/14/2014	Telephone: 703-603-0695
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 03/10/2014
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/23/2014
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/17/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/14/2014	Telephone: 703-603-0695
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 03/10/2014
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/23/2014
	Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/26/2014	Source: Department of the Navy
Date Data Arrived at EDR: 02/28/2014	Telephone: 843-820-7326
Date Made Active in Reports: 04/24/2014	Last EDR Contact: 02/14/2014
Number of Days to Update: 55	Next Scheduled EDR Contact: 06/02/2014
	Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 10/01/2013	Telephone: 202-267-2180
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 04/04/2014
Number of Days to Update: 66	Next Scheduled EDR Contact: 07/14/2014
	Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 03/12/2014	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 03/13/2014	Telephone: 916-323-3400
Date Made Active in Reports: 04/10/2014	Last EDR Contact: 03/13/2014
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/19/2014
	Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 03/12/2014	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 03/13/2014	Telephone: 916-323-3400
Date Made Active in Reports: 04/10/2014	Last EDR Contact: 03/13/2014
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/19/2014
	Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/14/2014	Source: Department of Resources Recycling and Recovery
Date Data Arrived at EDR: 02/18/2014	Telephone: 916-341-6320
Date Made Active in Reports: 03/18/2014	Last EDR Contact: 02/18/2014
Number of Days to Update: 28	Next Scheduled EDR Contact: 06/02/2014
	Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001	Source: California Regional Water Quality Control Board San Diego Region (9)
Date Data Arrived at EDR: 04/23/2001	Telephone: 858-637-5595
Date Made Active in Reports: 05/21/2001	Last EDR Contact: 09/26/2011
Number of Days to Update: 28	Next Scheduled EDR Contact: 01/09/2012
	Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005	Source: California Regional Water Quality Control Board Santa Ana Region (8)
Date Data Arrived at EDR: 02/15/2005	Telephone: 909-782-4496
Date Made Active in Reports: 03/28/2005	Last EDR Contact: 08/15/2011
Number of Days to Update: 41	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004	Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Date Data Arrived at EDR: 02/26/2004	Telephone: 760-776-8943
Date Made Active in Reports: 03/24/2004	Last EDR Contact: 08/01/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003	Source: California Regional Water Quality Control Board Lahontan Region (6)
Date Data Arrived at EDR: 09/10/2003	Telephone: 530-542-5572
Date Made Active in Reports: 10/07/2003	Last EDR Contact: 09/12/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008	Source: California Regional Water Quality Control Board Central Valley Region (5)
Date Data Arrived at EDR: 07/22/2008	Telephone: 916-464-4834
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 07/01/2011
Number of Days to Update: 9	Next Scheduled EDR Contact: 10/17/2011
	Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004	Source: California Regional Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 09/07/2004	Telephone: 213-576-6710
Date Made Active in Reports: 10/12/2004	Last EDR Contact: 09/06/2011
Number of Days to Update: 35	Next Scheduled EDR Contact: 12/19/2011
	Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/19/2003	Telephone: 805-542-4786
Date Made Active in Reports: 06/02/2003	Last EDR Contact: 07/18/2011
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/31/2011
	Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004	Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Date Data Arrived at EDR: 10/20/2004	Telephone: 510-622-2433
Date Made Active in Reports: 11/19/2004	Last EDR Contact: 09/19/2011
Number of Days to Update: 30	Next Scheduled EDR Contact: 01/02/2012
	Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/19/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 05/01/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/19/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/01/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/20/2014
Date Data Arrived at EDR: 02/21/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 62

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/13/2014	Source: EPA, Region 5
Date Data Arrived at EDR: 02/14/2014	Telephone: 312-886-7439
Date Made Active in Reports: 02/24/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 10	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/06/2013	Source: EPA Region 10
Date Data Arrived at EDR: 11/07/2013	Telephone: 206-553-2857
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 04/28/2014
Number of Days to Update: 29	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/17/2014	Source: SWRCB
Date Data Arrived at EDR: 03/19/2014	Telephone: 916-341-5851
Date Made Active in Reports: 04/25/2014	Last EDR Contact: 03/19/2014
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/30/2014
	Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2009	Telephone: 916-327-5092
Date Made Active in Reports: 10/01/2009	Last EDR Contact: 04/07/2014
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/21/2014
	Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013	Source: EPA, Region 1
Date Data Arrived at EDR: 05/01/2013	Telephone: 617-918-1313
Date Made Active in Reports: 01/27/2014	Last EDR Contact: 01/30/2014
Number of Days to Update: 271	Next Scheduled EDR Contact: 05/12/2014
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/21/2013	Source: EPA Region 4
Date Data Arrived at EDR: 11/26/2013	Telephone: 404-562-9424
Date Made Active in Reports: 02/24/2014	Last EDR Contact: 04/22/2014
Number of Days to Update: 90	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/13/2014	Source: EPA Region 5
Date Data Arrived at EDR: 02/14/2014	Telephone: 312-886-6136
Date Made Active in Reports: 02/24/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 10	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/29/2014	Source: EPA Region 6
Date Data Arrived at EDR: 01/29/2014	Telephone: 214-665-7591
Date Made Active in Reports: 03/12/2014	Last EDR Contact: 01/27/2014
Number of Days to Update: 42	Next Scheduled EDR Contact: 05/12/2014
	Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 02/20/2014	Source: EPA Region 7
Date Data Arrived at EDR: 02/21/2014	Telephone: 913-551-7003
Date Made Active in Reports: 04/24/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 62	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 07/29/2013	Source: EPA Region 8
Date Data Arrived at EDR: 08/01/2013	Telephone: 303-312-6137
Date Made Active in Reports: 11/01/2013	Last EDR Contact: 04/28/2014
Number of Days to Update: 92	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 07/29/2013	Source: EPA Region 9
Date Data Arrived at EDR: 07/30/2013	Telephone: 415-972-3368
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 04/28/2014
Number of Days to Update: 129	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 04/28/2014
Number of Days to Update: 65	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 04/15/2014
Number of Days to Update: 55	Next Scheduled EDR Contact: 07/28/2014
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/17/2013	Source: EPA, Region 1
Date Data Arrived at EDR: 10/01/2013	Telephone: 617-918-1102
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 04/01/2014
Number of Days to Update: 66	Next Scheduled EDR Contact: 07/14/2014
	Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 03/12/2014	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 03/13/2014	Telephone: 916-323-3400
Date Made Active in Reports: 04/10/2014	Last EDR Contact: 03/13/2014
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/19/2014
	Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/20/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/20/2014	Telephone: 202-566-2777
Date Made Active in Reports: 04/09/2014	Last EDR Contact: 03/20/2014
Number of Days to Update: 20	Next Scheduled EDR Contact: 07/07/2014
	Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2004
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009	Source: EPA, Region 9
Date Data Arrived at EDR: 05/07/2009	Telephone: 415-947-4219
Date Made Active in Reports: 09/21/2009	Last EDR Contact: 04/28/2014
Number of Days to Update: 137	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/10/2000	Telephone: 916-227-4448
Date Made Active in Reports: 05/10/2000	Last EDR Contact: 02/10/2014
Number of Days to Update: 30	Next Scheduled EDR Contact: 05/26/2014
	Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/17/2014	Source: Department of Conservation
Date Data Arrived at EDR: 03/18/2014	Telephone: 916-323-3836
Date Made Active in Reports: 04/24/2014	Last EDR Contact: 03/18/2014
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/30/2014
	Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 02/18/2014	Source: Integrated Waste Management Board
Date Data Arrived at EDR: 02/20/2014	Telephone: 916-341-6422
Date Made Active in Reports: 03/27/2014	Last EDR Contact: 02/14/2014
Number of Days to Update: 35	Next Scheduled EDR Contact: 06/02/2014
	Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/03/2007	Telephone: 703-308-8245
Date Made Active in Reports: 01/24/2008	Last EDR Contact: 11/04/2013
Number of Days to Update: 52	Next Scheduled EDR Contact: 02/17/2014
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/04/2013	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 12/10/2013	Telephone: 202-307-1000
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 03/04/2014
Number of Days to Update: 65	Next Scheduled EDR Contact: 06/16/2014
	Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/03/2006	Telephone: 916-323-3400
Date Made Active in Reports: 08/24/2006	Last EDR Contact: 02/23/2009
Number of Days to Update: 21	Next Scheduled EDR Contact: 05/25/2009
	Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 03/12/2014	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 03/13/2014	Telephone: 916-323-3400
Date Made Active in Reports: 04/10/2014	Last EDR Contact: 03/13/2014
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/19/2014
	Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/30/1995	Telephone: 916-227-4364
Date Made Active in Reports: 09/26/1995	Last EDR Contact: 01/26/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 04/27/2009
	Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2013	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 02/28/2014	Telephone: 916-255-6504
Date Made Active in Reports: 03/20/2014	Last EDR Contact: 04/10/2014
Number of Days to Update: 20	Next Scheduled EDR Contact: 07/28/2014
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 11/19/2008	Telephone: 202-307-1000
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 03/04/2014
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/16/2014
	Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/05/1995	Telephone: 916-341-5851
Date Made Active in Reports: 09/29/1995	Last EDR Contact: 12/28/1998
Number of Days to Update: 24	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009	Source: Department of Public Health
Date Data Arrived at EDR: 09/23/2009	Telephone: 707-463-4466
Date Made Active in Reports: 10/01/2009	Last EDR Contact: 03/03/2014
Number of Days to Update: 8	Next Scheduled EDR Contact: 06/16/2014
	Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/25/1991	Telephone: 916-341-5851
Date Made Active in Reports: 02/12/1991	Last EDR Contact: 07/26/2001
Number of Days to Update: 18	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/07/2005	Telephone: N/A
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/03/2005
Number of Days to Update: 35	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 01/17/2014
Date Data Arrived at EDR: 01/21/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/10/2014
Date Data Arrived at EDR: 03/11/2014
Date Made Active in Reports: 04/10/2014
Number of Days to Update: 30

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 52

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/01/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 10/14/2013
Date Data Arrived at EDR: 10/30/2013
Date Made Active in Reports: 12/03/2013
Number of Days to Update: 34

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/29/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/19/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 36

Source: State Water Quality Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/01/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 03/17/2014	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/19/2014	Telephone: 866-480-1028
Date Made Active in Reports: 04/25/2014	Last EDR Contact: 05/01/2014
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/30/2014
	Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/13/2014	Telephone: (415) 495-8895
Date Made Active in Reports: 04/09/2014	Last EDR Contact: 03/13/2014
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/14/2014
	Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/07/2012	Telephone: 202-366-4595
Date Made Active in Reports: 09/18/2012	Last EDR Contact: 02/06/2014
Number of Days to Update: 42	Next Scheduled EDR Contact: 05/19/2014
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/18/2014
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/28/2014
	Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 55

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/27/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 09/05/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 28

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/05/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/26/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/28/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/29/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/09/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/09/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/14/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/01/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/12/2013	Telephone: 202-564-8600
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 63	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011	Source: EPA/NTIS
Date Data Arrived at EDR: 02/26/2013	Telephone: 800-424-9346
Date Made Active in Reports: 04/19/2013	Last EDR Contact: 02/28/2014
Number of Days to Update: 52	Next Scheduled EDR Contact: 06/09/2014
	Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/17/2014	Source: State Water Resources Control Board
Date Data Arrived at EDR: 02/18/2014	Telephone: 916-445-9379
Date Made Active in Reports: 03/27/2014	Last EDR Contact: 02/18/2014
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/02/2014
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 01/15/2014	Source: Department of Conservation
Date Data Arrived at EDR: 03/18/2014	Telephone: 916-445-2408
Date Made Active in Reports: 04/24/2014	Last EDR Contact: 03/18/2014
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/30/2014
	Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/31/2014	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 04/02/2014	Telephone: 916-323-3400
Date Made Active in Reports: 04/29/2014	Last EDR Contact: 04/01/2014
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/14/2014
	Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CAL SITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/22/2009	Telephone: 916-323-3400
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 01/22/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993	Source: State Water Resources Control Board
Date Data Arrived at EDR: 11/01/1993	Telephone: 916-445-3846
Date Made Active in Reports: 11/19/1993	Last EDR Contact: 04/07/2014
Number of Days to Update: 18	Next Scheduled EDR Contact: 07/07/2014
	Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/10/2013	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 09/11/2013	Telephone: 916-327-4498
Date Made Active in Reports: 10/16/2013	Last EDR Contact: 03/10/2014
Number of Days to Update: 35	Next Scheduled EDR Contact: 06/23/2014
	Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009	Source: Los Angeles Water Quality Control Board
Date Data Arrived at EDR: 07/21/2009	Telephone: 213-576-6726
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 03/31/2014
Number of Days to Update: 13	Next Scheduled EDR Contact: 07/14/2014
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 02/25/2014	Source: State Water Resources Control Board
Date Data Arrived at EDR: 02/27/2014	Telephone: 916-445-9379
Date Made Active in Reports: 03/18/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 19	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2012	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/16/2013	Telephone: 916-255-1136
Date Made Active in Reports: 08/26/2013	Last EDR Contact: 04/18/2014
Number of Days to Update: 41	Next Scheduled EDR Contact: 07/28/2014
	Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2012	Source: California Air Resources Board
Date Data Arrived at EDR: 03/25/2014	Telephone: 916-322-2990
Date Made Active in Reports: 04/28/2014	Last EDR Contact: 03/25/2014
Number of Days to Update: 34	Next Scheduled EDR Contact: 07/07/2014
	Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 12/08/2006	Telephone: 202-208-3710
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/18/2014
Number of Days to Update: 34	Next Scheduled EDR Contact: 07/28/2014
	Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/09/2011	Telephone: 615-532-8599
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 04/21/2014
Number of Days to Update: 54	Next Scheduled EDR Contact: 08/04/2014
	Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: N/A

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/21/2014
Date Data Arrived at EDR: 03/12/2014
Date Made Active in Reports: 04/14/2014
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/14/2014
Date Data Arrived at EDR: 04/15/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 9

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/15/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/14/2014
Date Data Arrived at EDR: 02/18/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 28

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/28/2014
Date Data Arrived at EDR: 01/30/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 12

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/13/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 19

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 20

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/24/2014
Date Data Arrived at EDR: 03/24/2014
Date Made Active in Reports: 04/30/2014
Number of Days to Update: 37

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 04/10/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing

Cupa Facility Listing

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 04/03/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 26

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 12/05/2013
Date Data Arrived at EDR: 12/05/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 53

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/05/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa Facility list

Date of Government Version: 01/09/2013
Date Data Arrived at EDR: 01/10/2013
Date Made Active in Reports: 02/25/2013
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 02/20/2014
Date Data Arrived at EDR: 02/21/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 27

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/04/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 04/15/2014
Date Made Active in Reports: 05/01/2014
Number of Days to Update: 16

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 04/14/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/20/2014
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 38

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 14

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 21

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/25/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 12/06/2013	Source: Department of Public Works
Date Data Arrived at EDR: 01/28/2014	Telephone: 626-458-3517
Date Made Active in Reports: 03/17/2014	Last EDR Contact: 04/02/2014
Number of Days to Update: 48	Next Scheduled EDR Contact: 07/28/2014
	Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/20/2014	Source: La County Department of Public Works
Date Data Arrived at EDR: 01/21/2014	Telephone: 818-458-5185
Date Made Active in Reports: 02/11/2014	Last EDR Contact: 04/22/2014
Number of Days to Update: 21	Next Scheduled EDR Contact: 08/04/2014
	Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009	Source: Engineering & Construction Division
Date Data Arrived at EDR: 03/10/2009	Telephone: 213-473-7869
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 04/17/2014
Number of Days to Update: 29	Next Scheduled EDR Contact: 08/04/2014
	Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/07/2014	Source: Community Health Services
Date Data Arrived at EDR: 02/25/2014	Telephone: 323-890-7806
Date Made Active in Reports: 03/25/2014	Last EDR Contact: 04/17/2014
Number of Days to Update: 28	Next Scheduled EDR Contact: 08/04/2014
	Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 02/10/2014	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 02/12/2014	Telephone: 310-524-2236
Date Made Active in Reports: 03/17/2014	Last EDR Contact: 04/21/2014
Number of Days to Update: 33	Next Scheduled EDR Contact: 08/04/2014
	Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 02/25/2014	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 02/27/2014	Telephone: 562-570-2563
Date Made Active in Reports: 04/14/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 46	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/13/2014	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 03/27/2014	Telephone: 310-618-2973
Date Made Active in Reports: 04/28/2014	Last EDR Contact: 04/14/2014
Number of Days to Update: 32	Next Scheduled EDR Contact: 07/28/2014
	Data Release Frequency: Semi-Annually

MADERA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 03/26/2014
Date Data Arrived at EDR: 03/27/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 33

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 34

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 04/07/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/10/2014
Date Data Arrived at EDR: 03/11/2014
Date Made Active in Reports: 04/10/2014
Number of Days to Update: 30

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/04/2014
Date Made Active in Reports: 04/01/2014
Number of Days to Update: 28

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 03/18/2014
Date Data Arrived at EDR: 03/20/2014
Date Made Active in Reports: 04/25/2014
Number of Days to Update: 36

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

NAPA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/06/2014
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/04/2013
Number of Days to Update: 27

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 34

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/10/2014
Date Data Arrived at EDR: 03/11/2014
Date Made Active in Reports: 04/10/2014
Number of Days to Update: 30

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/15/2014
Date Data Arrived at EDR: 04/17/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 7

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/02/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/14/2014
Date Data Arrived at EDR: 01/15/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 28

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/06/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 21

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/06/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 21

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/18/2014
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 04/25/2014
Number of Days to Update: 35

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2013
Date Data Arrived at EDR: 11/19/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 42

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 04/10/2014
Date Data Arrived at EDR: 04/11/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 18

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 04/07/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/26/2014
Number of Days to Update: 28

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/03/2014
Date Data Arrived at EDR: 04/04/2014
Date Made Active in Reports: 05/01/2014
Number of Days to Update: 27

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/04/2014
Date Data Arrived at EDR: 03/06/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 14

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/07/2014
Date Data Arrived at EDR: 02/11/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 34

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 33

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SOLANO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 04/25/2014
Date Data Arrived at EDR: 04/01/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 27

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/19/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 20

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List

Cupa Facility list

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/02/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 40

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 04/03/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 35

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 03/24/2014
Date Data Arrived at EDR: 03/24/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 48

Source: Division of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

VENTURA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 01/28/2014	Source: Ventura County Environmental Health Division
Date Data Arrived at EDR: 02/25/2014	Telephone: 805-654-2813
Date Made Active in Reports: 03/20/2014	Last EDR Contact: 02/18/2014
Number of Days to Update: 23	Next Scheduled EDR Contact: 06/02/2014
	Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011	Source: Environmental Health Division
Date Data Arrived at EDR: 12/01/2011	Telephone: 805-654-2813
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 04/04/2014
Number of Days to Update: 49	Next Scheduled EDR Contact: 07/21/2014
	Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 06/24/2008	Telephone: 805-654-2813
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 02/17/2014
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/02/2014
	Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/06/2014	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 03/24/2014	Telephone: 805-654-2813
Date Made Active in Reports: 04/28/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 35	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/06/2014	Source: Environmental Health Division
Date Data Arrived at EDR: 03/21/2014	Telephone: 805-654-2813
Date Made Active in Reports: 04/28/2014	Last EDR Contact: 03/17/2014
Number of Days to Update: 38	Next Scheduled EDR Contact: 06/30/2014
	Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 12/18/2013	Source: Yolo County Department of Health
Date Data Arrived at EDR: 12/24/2013	Telephone: 530-666-8646
Date Made Active in Reports: 01/08/2014	Last EDR Contact: 03/24/2014
Number of Days to Update: 15	Next Scheduled EDR Contact: 07/07/2014
	Data Release Frequency: Annually

YUBA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 02/11/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 32

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 12/06/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 02/28/2014
Date Data Arrived at EDR: 03/12/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/12/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012

Date Data Arrived at EDR: 08/09/2013

Date Made Active in Reports: 09/27/2013

Number of Days to Update: 49

Source: Department of Natural Resources

Telephone: N/A

Last EDR Contact: 03/17/2014

Next Scheduled EDR Contact: 06/30/2014

Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: Rextag Strategies Corp.

Telephone: (281) 769-2247

U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

GINOCHIO PROPERTIES
3428 HEIDORN RANCH ROAD
ANTIOCH, CA 94531

TARGET PROPERTY COORDINATES

Latitude (North):	37.9505 - 37° 57' 1.80"
Longitude (West):	121.7555 - 121° 45' 19.80"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	609342.0
UTM Y (Meters):	4200847.5
Elevation:	165 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	37121-H7 ANTIOCH SOUTH, CA
Most Recent Revision:	1980
East Map:	37121-H6 BRENTWOOD, CA
Most Recent Revision:	1978

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

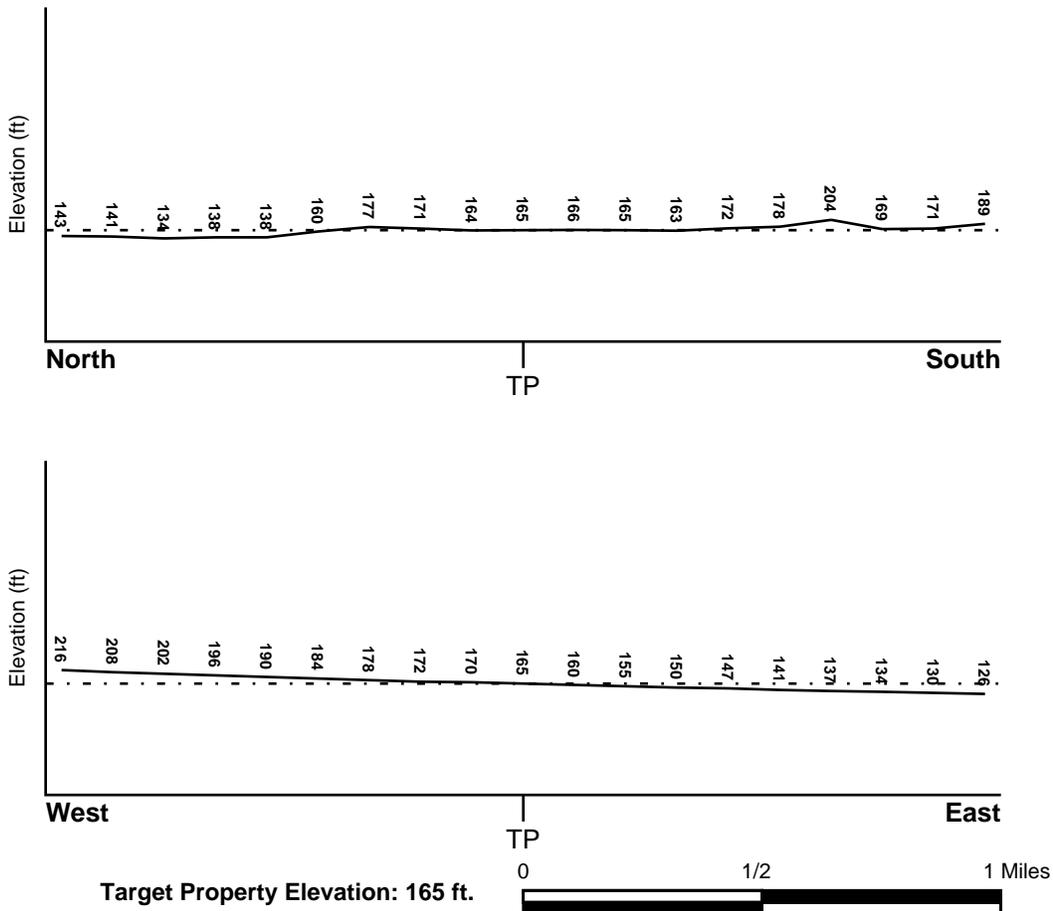
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Target Property County</u>	<u>FEMA Flood</u>
CONTRA COSTA, CA	<u>Electronic Data</u>
	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06013C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic</u>
ANTIOCH SOUTH	<u>Data Coverage</u>
	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION</u>	<u>GENERAL DIRECTION</u>
<u>FROM TP</u>	<u>GROUNDWATER FLOW</u>	
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

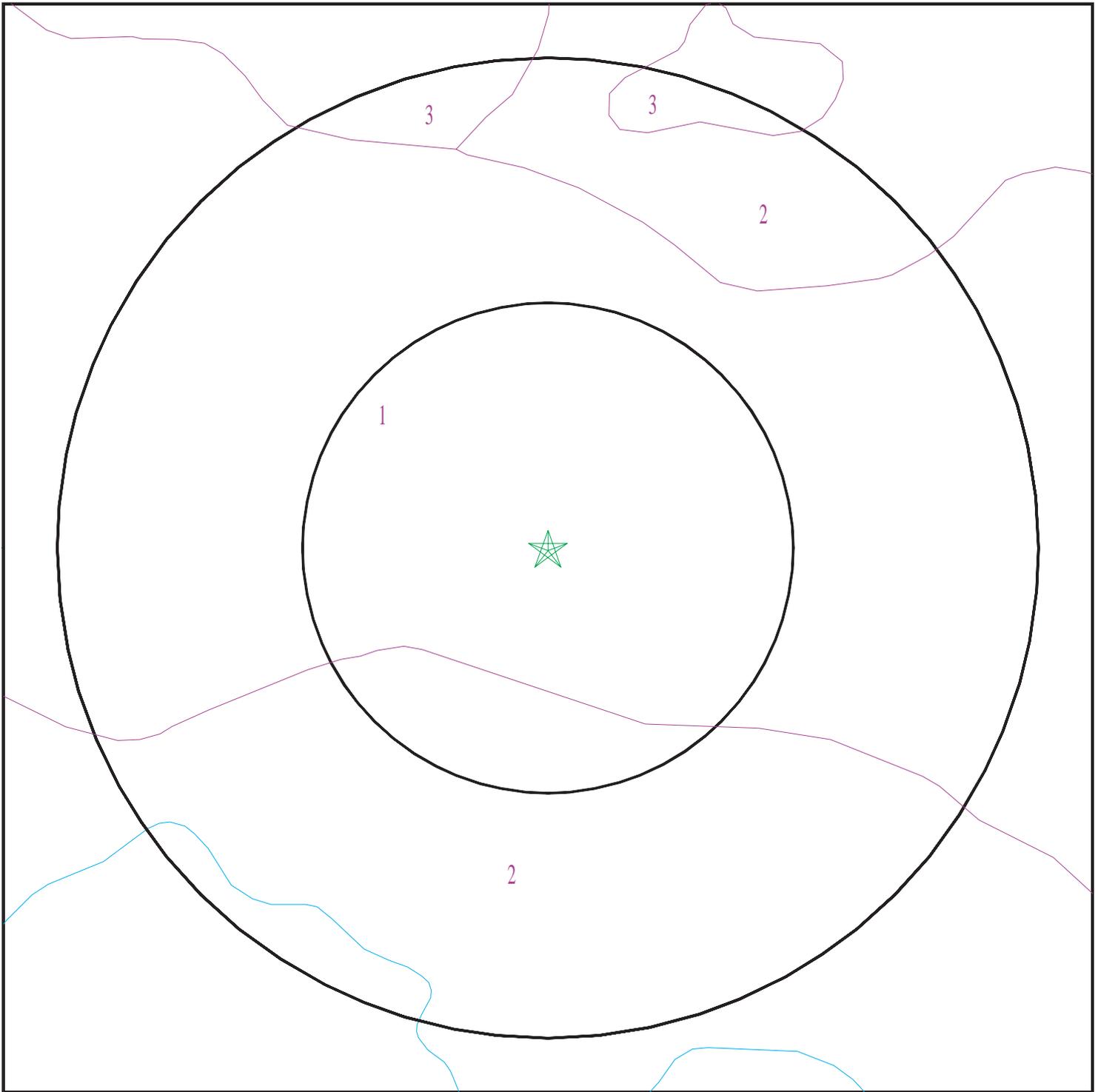
Era:	Cenozoic
System:	Tertiary
Series:	Eocene
Code:	Te <i>(decoded above as Era, System & Series)</i>

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 03932185.2r



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water

0 1/16 1/8 1/4 Miles



SITE NAME: Ginochio Properties
ADDRESS: 3428 Heidorn Ranch Road
Antioch CA 94531
LAT/LONG: 37.9505 / 121.7555

CLIENT: Engeo Inc.
CONTACT: Csilla Toth
INQUIRY #: 03932185.2r
DATE: May 02, 2014 7:04 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: CAPAY

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
2	35 inches	51 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	51 inches	72 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: RINCON

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.1
2	11 inches	29 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	29 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

Soil Map ID: 3

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	25 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
2	25 inches	48 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.4
3	48 inches	51 inches	weathered bedrock	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found	_____	_____

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

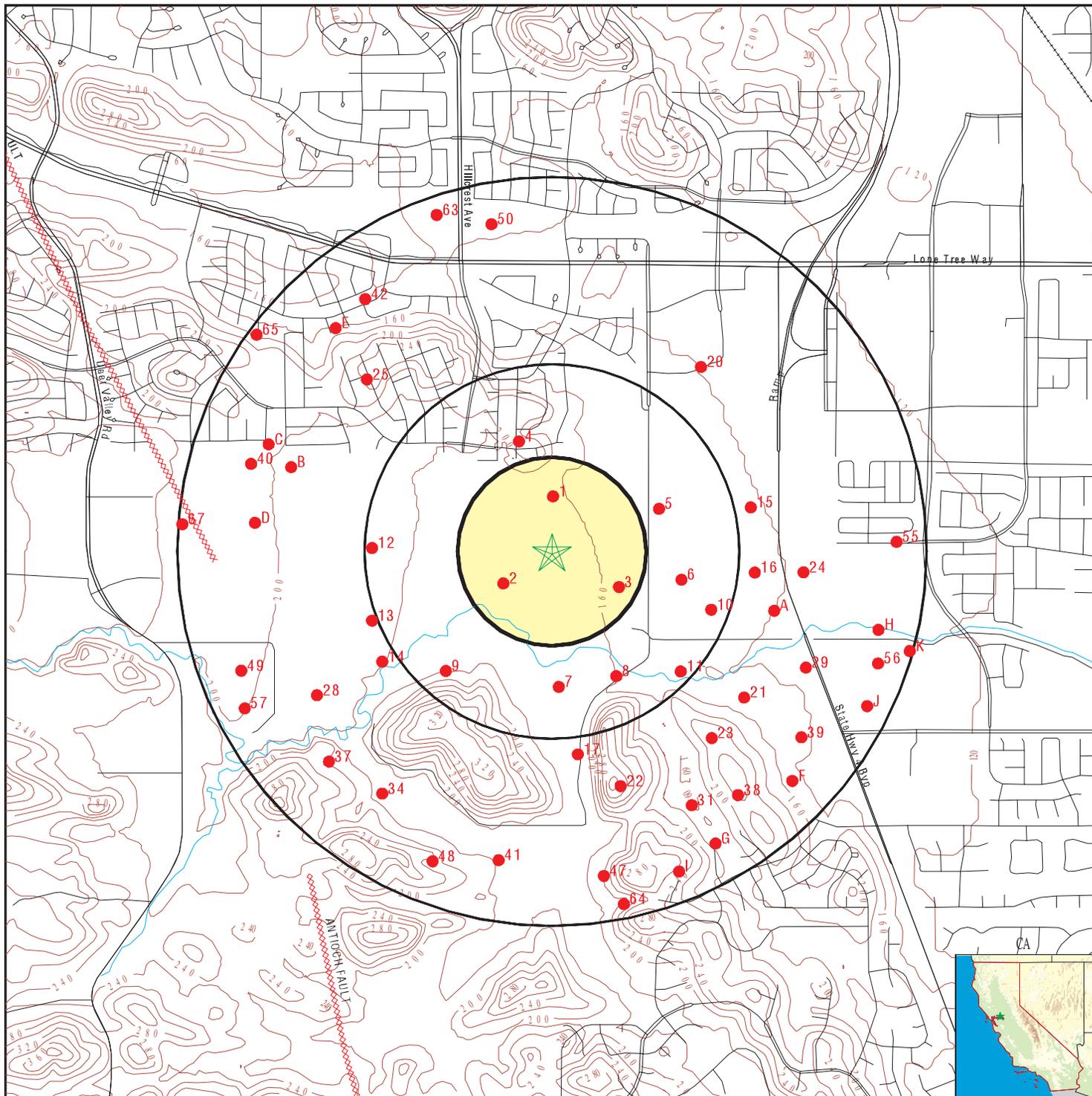
MAP ID	WELL ID	LOCATION FROM TP
1	CAOG9A000207812	1/8 - 1/4 Mile North
2	CAOG9A000207780	1/8 - 1/4 Mile WSW
3	CAOG9A000207778	1/8 - 1/4 Mile ESE
4	CAOG9A000207835	1/4 - 1/2 Mile NNW
5	CAOG9A000207804	1/4 - 1/2 Mile ENE
6	CAOG9A000207782	1/4 - 1/2 Mile ESE
7	CAOG9A000207737	1/4 - 1/2 Mile South
8	CAOG9A000207742	1/4 - 1/2 Mile SSE
9	CAOG9A000207747	1/4 - 1/2 Mile SW
10	CAOG9A000207775	1/4 - 1/2 Mile ESE
11	CAOG9A000207746	1/4 - 1/2 Mile SE
12	CAOG9A000207789	1/4 - 1/2 Mile West
13	CAOG9A000207771	1/2 - 1 Mile WSW
14	CAOG9A000207752	1/2 - 1 Mile WSW
15	CAOG9A000207805	1/2 - 1 Mile ENE
16	CAOG9A000207783	1/2 - 1 Mile East
17	CAOG9A000207711	1/2 - 1 Mile South
A18	CAOG9A000207776	1/2 - 1 Mile ESE
A19	CAOG9A000207774	1/2 - 1 Mile ESE
20	CAOG9A000207862	1/2 - 1 Mile NE
21	CAOG9A000207733	1/2 - 1 Mile SE
22	CAOG9A000207696	1/2 - 1 Mile SSE
23	CAOG9A000207714	1/2 - 1 Mile SE
24	CAOG9A000207784	1/2 - 1 Mile East
25	CAOG9A000207855	1/2 - 1 Mile NW
B26	CAOG9A000207818	1/2 - 1 Mile WNW
B27	CAOG9A000207829	1/2 - 1 Mile WNW
28	CAOG9A000207734	1/2 - 1 Mile WSW
29	CAOG9A000207750	1/2 - 1 Mile ESE
B30	CAOG9A000207828	1/2 - 1 Mile WNW
31	CAOG9A000207687	1/2 - 1 Mile SSE
C32	CAOG9A000207832	1/2 - 1 Mile WNW
D33	CAOG9A000207793	1/2 - 1 Mile West
34	CAOG9A000207691	1/2 - 1 Mile SW
D35	CAOG9A000207801	1/2 - 1 Mile West
E36	CAOG9A000207880	1/2 - 1 Mile NW
37	CAOG9A000207708	1/2 - 1 Mile SW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
38	CAOG9A000207690	1/2 - 1 Mile SE
39	CAOG9A000207715	1/2 - 1 Mile SE
40	CAOG9A000207826	1/2 - 1 Mile WNW
41	CAOG9A000207666	1/2 - 1 Mile South
42	CAOG9A000207891	1/2 - 1 Mile NW
C43	CAOG9A000207833	1/2 - 1 Mile WNW
E44	CAOG9A000207877	1/2 - 1 Mile NW
F45	CAOG9A000207706	1/2 - 1 Mile SE
G46	CAOG9A000207675	1/2 - 1 Mile SSE
47	CAOG9A000207655	1/2 - 1 Mile South
48	CAOG9A000207665	1/2 - 1 Mile SSW
49	CAOG9A000207748	1/2 - 1 Mile WSW
50	CAOG9A000207908	1/2 - 1 Mile North
H51	CAOG9A000207765	1/2 - 1 Mile ESE
I52	CAOG9A000207659	1/2 - 1 Mile SSE
H53	CAOG9A000207766	1/2 - 1 Mile ESE
F54	CAOG9A000207692	1/2 - 1 Mile SE
55	CAOG9A000207791	1/2 - 1 Mile East
56	CAOG9A000207751	1/2 - 1 Mile ESE
57	CAOG9A000207727	1/2 - 1 Mile WSW
G58	CAOG9A000207672	1/2 - 1 Mile SSE
J59	CAOG9A000207724	1/2 - 1 Mile ESE
J60	CAOG9A000207735	1/2 - 1 Mile ESE
I61	CAOG9A000207653	1/2 - 1 Mile SSE
J62	CAOG9A000207725	1/2 - 1 Mile ESE
63	CAOG9A000207913	1/2 - 1 Mile NNW
64	CAOG9A000207643	1/2 - 1 Mile SSE
65	CAOG9A000207876	1/2 - 1 Mile NW
K66	CAOG9A000207760	1/2 - 1 Mile ESE
67	CAOG9A000207794	1/2 - 1 Mile West
K68	CAOG9A000207759	1/2 - 1 Mile ESE

PHYSICAL SETTING SOURCE MAP - 03932185.2r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: Ginochio Properties
 ADDRESS: 3428 Heidorn Ranch Road
 Antioch CA 94531
 LAT/LONG: 37.9505 / 121.7555

CLIENT: Engeo Inc.
 CONTACT: Csilla Toth
 INQUIRY #: 03932185.2r
 DATE: May 02, 2014 7:04 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1

North
1/8 - 1/4 Mile

OIL_GAS

CAOG9A000207812

Districtnu:	6	Apinumber:	01300038
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.952633		
Glong:	-121.755445		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Ginochio	Wellnumber:	2-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207812

2

WSW
1/8 - 1/4 Mile

OIL_GAS

CAOG9A000207780

Districtnu:	6	Apinumber:	01320005
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.949263		
Glong:	-121.757875		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Ginochio	Wellnumber:	22-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207780

3

ESE
1/8 - 1/4 Mile

OIL_GAS

CAOG9A000207778

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300039
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.949123		
Glong:	-121.752225		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ginochio	Wellnumber:	21-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207778

**4
NNW
1/4 - 1/2 Mile**

OIL_GAS CAOG9A000207835

Districtnu:	6	Apinumber:	01300048
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.954764		
Glong:	-121.75711		
Gissourcec:	gps		
Comments:	GPS Date 04/02/2002, Status Code 024		
Leasename:	Heidorn	Wellnumber:	4-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207835

**5
ENE
1/4 - 1/2 Mile**

OIL_GAS CAOG9A000207804

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320340
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	EOG Resources, Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	164
Locationde:	Not Reported		
Glat:	37.952153		
Glong:	-121.750265		
Gissourcec:	hud		
Comments:	Status Code 025		
Leasename:	Sunset-Graham	Wellnumber:	1-10D
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207804

6
ESE
1/4 - 1/2 Mile

OIL_GAS CAOG9A000207782

Districtnu:	6	Apinumber:	01300036
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.949403		
Glong:	-121.749165		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Garaventa	Wellnumber:	14-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207782

7
South
1/4 - 1/2 Mile

OIL_GAS CAOG9A000207737

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300041
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.945253		
Glong:	-121.755165		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ginochio-Shellenberger	Wellnumber:	4-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207737

8
SSE
1/4 - 1/2 Mile

OIL_GAS CAOG9A000207742

Districtnu:	6	Apinumber:	01300045
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.945673		
Glong:	-121.752355		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ginochio-Shellenberger	Wellnumber:	43-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207742

9
SW
1/4 - 1/2 Mile

OIL_GAS CAOG9A000207747

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320053
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sinco Oil Corp.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.945873		
Glong:	-121.760685		
Gissourcec:	hud		
Comments:	Status Code 007		
Leasename:	Williamson	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207747

**10
ESE
1/4 - 1/2 Mile**

OIL_GAS CAOG9A000207775

Districtnu:	6	Apinumber:	01300035
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.948243		
Glong:	-121.747715		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Garaventa	Wellnumber:	12-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207775

**11
SE
1/4 - 1/2 Mile**

OIL_GAS CAOG9A000207746

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300071
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.945853		
Glong:	-121.749205		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ward	Wellnumber:	34-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207746

12
West
1/4 - 1/2 Mile

OIL_GAS CAOG9A000207789

Districtnu:	6	Apinumber:	01300067
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.950633		
Glong:	-121.764295		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Williamson	Wellnumber:	1-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207789

13
WSW
1/2 - 1 Mile

OIL_GAS CAOG9A000207771

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300068
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.947823		
Glong:	-121.764295		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Williamson	Wellnumber:	11-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207771

14
WSW
1/2 - 1 Mile

OIL_GAS CAOG9A000207752

Districtnu:	6	Apinumber:	01320212
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.946233		
Glong:	-121.763795		
Gissourcec:	hud		
Comments:	Status Code 007		
Leasename:	Williamson	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207752

15
ENE
1/2 - 1 Mile

OIL_GAS CAOG9A000207805

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300030
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Production Specialties Company		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.95221		
Glong:	-121.745781		
Gissourcec:	gps		
Comments:	GPS Date 04/02/2002, Status Code 024		
Leasename:	Continente	Wellnumber:	1-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207805

**16
East
1/2 - 1 Mile**

OIL_GAS CAOG9A000207783

Districtnu:	6	Apinumber:	01300053
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.949683		
Glong:	-121.745585		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Maggiara-Capital Co.	Wellnumber:	33X-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207783

**17
South
1/2 - 1 Mile**

OIL_GAS CAOG9A000207711

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300044
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.942643		
Glong:	-121.754235		
Gissourcec:	hud		
Comments:	Status Code 025		
Leasename:	Ginochio-Shellenberger	Wellnumber:	41-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207711

**A18
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207776

Districtnu:	6	Apinumber:	01300052
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.948323		
Glong:	-121.744825		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Maggiora-Capital Co.	Wellnumber:	13-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207776

**A19
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207774

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300051
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.948083		
Glong:	-121.744445		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Maggiora-Capital Co.	Wellnumber:	11-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207774

**20
NE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207862

Districtnu:	6	Apinumber:	01300032
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	3		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.957643		
Glong:	-121.748215		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Dempsey	Wellnumber:	3-3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207862

**21
SE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207733

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300066
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.944843		
Glong:	-121.746105		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Ward	Wellnumber:	3-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207733

22
SSE
1/2 - 1 Mile

OIL_GAS CAOG9A000207696

Districtnu:	6	Apinumber:	01300016
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.941413		
Glong:	-121.752145		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ginochio-Shellenberger	Wellnumber:	42-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207696

23
SE
1/2 - 1 Mile

OIL_GAS CAOG9A000207714

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300085
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.943273		
Glong:	-121.747685		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ward	Wellnumber:	38-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207714

**24
East
1/2 - 1 Mile**

OIL_GAS CAOG9A000207784

Districtnu:	6	Apinumber:	01300054
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.949693		
Glong:	-121.743205		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Maggiara-Capital Co.	Wellnumber:	43X-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207784

**25
NW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207855

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320004
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.957163		
Glong:	-121.764545		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Williamson	Wellnumber:	3-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207855

B26
WNW
1/2 - 1 Mile

OIL_GAS CAOG9A000207818

Districtnu:	6	Apinumber:	01320226
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.953263		
Glong:	-121.767865		
Gissourcec:	hud		
Comments:	Status Code 015		
Leasename:	Williamson	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207818

B27
WNW
1/2 - 1 Mile

OIL_GAS CAOG9A000207829

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320250
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.954083		
Glong:	-121.768075		
Gissourcec:	hud		
Comments:	Status Code 015		
Leasename:	Williamson	Wellnumber:	4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207829

28
WSW
1/2 - 1 Mile

OIL_GAS CAOG9A000207734

Districtnu:	6	Apinumber:	01300073
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	West		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.944933		
Glong:	-121.766985		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Williamson	Wellnumber:	3-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207734

29
ESE
1/2 - 1 Mile

OIL_GAS CAOG9A000207750

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300072
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.946003		
Glong:	-121.743085		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ward	Wellnumber:	35-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207750

**B30
WNW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207828

Districtnu:	6	Apinumber:	01320240
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.953953		
Glong:	-121.768795		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Williamson	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207828

**31
SSE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207687

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300070
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.940673		
Glong:	-121.748665		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ward	Wellnumber:	32-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207687

**C32
WNW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207832

Districtnu:	6	Apinumber:	01320252
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.954593		
Glong:	-121.768795		
Gissourcec:	hud		
Comments:	Status Code 015		
Leasename:	Williamson	Wellnumber:	34-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207832

**D33
West
1/2 - 1 Mile**

OIL_GAS CAOG9A000207793

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320269
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	West		
Section:	8		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.951353		
Glong:	-121.769825		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Capital-Enea	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207793

**34
SW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207691

Districtnu:	6	Apinumber:	01300064
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.941123		
Glong:	-121.763795		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Sullenger	Wellnumber:	33-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207691

**D35
West
1/2 - 1 Mile**

OIL_GAS CAOG9A000207801

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320265
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	West		
Section:	8		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.951863		
Glong:	-121.770205		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Enea	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207801

**E36
NW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207880

Districtnu:	6	Apinumber:	01320068
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.959263		
Glong:	-121.765515		
Gissourcec:	hud		
Comments:	Status Code 015		
Leasename:	Williamson	Wellnumber:	33-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207880

**37
SW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207708

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300062
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	9		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.942363		
Glong:	-121.766395		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Sullenger	Wellnumber:	31-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207708

38
SE
1/2 - 1 Mile

OIL_GAS CAOG9A000207690

Districtnu:	6	Apinumber:	01300086
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.941063		
Glong:	-121.746405		
Gissourcec:	hud		
Comments:	Status Code 015		
Leasename:	Ward	Wellnumber:	36-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207690

39
SE
1/2 - 1 Mile

OIL_GAS CAOG9A000207715

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300018
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.943303		
Glong:	-121.743305		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Ward	Wellnumber:	37-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207715

**40
WNW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207826

Districtnu:	6	Apinumber:	01320264
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	8		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.953893		
Glong:	-121.770206		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Enea	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207826

**41
South
1/2 - 1 Mile**

OIL_GAS CAOG9A000207666

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300042
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	16		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.938543		
Glong:	-121.758105		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Ginochio-Shellenberger	Wellnumber:	21-16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207666

**42
NW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207891

Districtnu:	6	Apinumber:	01320029
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.960273		
Glong:	-121.764625		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Williamson	Wellnumber:	31-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207891

**C43
WNW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207833

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320235
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venada National		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	5		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.954703		
Glong:	-121.769905		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Prewett	Wellnumber:	5-6
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207833

**E44
NW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207877

Districtnu:	6	Apinumber:	01320042
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.959033		
Glong:	-121.766625		
Gissourcec:	hud		
Comments:	Status Code 015		
Leasename:	Williamson	Wellnumber:	32-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207877

**F45
SE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207706

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320100
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.941983		
Glong:	-121.744025		
Gissourcec:	hud		
Comments:	Status Code 007		
Leasename:	Dow-Termo Ward	Wellnumber:	39
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207706

G46
SSE
1/2 - 1 Mile

OIL_GAS CAOG9A000207675

Districtnu:	6	Apinumber:	01320021
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	15		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.939448		
Glong:	-121.748053		
Gissourcec:	gps		
Comments:	GPS Date 06/11/1997, Status Code 014		
Leasename:	Ginochio	Wellnumber:	14
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207675

47
South
1/2 - 1 Mile

OIL_GAS CAOG9A000207655

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300040
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	16		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.937933		
Glong:	-121.752965		
Gissourcec:	hud		
Comments:	Status Code 116		
Leasename:	Ginochio-Shellenberger	Wellnumber:	2-16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PWD	Site id:	CAOG9A000207655

48
SSW
1/2 - 1 Mile

OIL_GAS CAOG9A000207665

Districtnu:	6	Apinumber:	01300037
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	West		
Section:	16		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.938503		
Glong:	-121.761335		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Ginochio	Wellnumber:	1-16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207665

49
WSW
1/2 - 1 Mile

OIL_GAS CAOG9A000207748

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320051
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	West		
Section:	8		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.945883		
Glong:	-121.770685		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Sullenger	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207748

**50
North
1/2 - 1 Mile**

OIL_GAS CAOG9A000207908

Districtnu:	6	Apinumber:	01300047
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.963173		
Glong:	-121.758455		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Heidorn	Wellnumber:	2-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207908

**H51
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207765

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Allied Energy Corp.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	139
Locationde:	Not Reported		
Glat:	37.947457		
Glong:	-121.739664		
Gissourcec:	gps		
Comments:	GPS Date 06/11/1997, Status Code 014		
Leasename:	Transamerica-Maggiora	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207765

**I52
SSE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207659

Districtnu:	6	Apinumber:	01300081
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	15		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.938345		
Glong:	-121.749698		
Gissourcec:	gps		
Comments:	GPS Date 06/11/1997, Status Code 016		
Leasename:	Ginochio	Wellnumber:	8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207659

**H53
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207766

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Allied Energy Corp.	Fieldname:	Brentwood (ABD)
Countyname:	Contra Costa	Range:	02E
Areaname:	Main	Elevation:	139
Section:	10		
Township:	01N		
Basemeridi:	MD		
Locationde:	Not Reported		
Glat:	37.947472		
Glong:	-121.739419		
Gissourcec:	gps		
Comments:	GPS Date 06/11/1997, Status Code 014		
Leasename:	Transamerica-Maggiora	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207766

**F54
SE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207692

Districtnu:	6	Apinumber:	01300069
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Fieldname:	Brentwood (ABD)
Countyname:	Contra Costa	Range:	02E
Areaname:	Main	Elevation:	Not Reported
Section:	10		
Township:	01N		
Basemeridi:	MD		
Locationde:	Not Reported		
Glat:	37.941243		
Glong:	-121.743475		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ward	Wellnumber:	31-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207692

**55
East
1/2 - 1 Mile**

OIL_GAS CAOG9A000207791

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320339
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	EOG Resources, Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	144
Locationde:	Not Reported		
Glat:	37.950873		
Glong:	-121.738655		
Gissourcec:	hud		
Comments:	Status Code 007		
Leasename:	Sunset-Nunn	Wellnumber:	1-10D
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207791

**56
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207751

Districtnu:	6	Apinumber:	01300027
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sunset Exploration Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.946162		
Glong:	-121.739559		
Gissourcec:	gps		
Comments:	GPS Date 05/23/2007, Status Code 014		
Leasename:	Arata	Wellnumber:	44-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207751

**57
WSW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207727

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300061
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	West		
Section:	8		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.944423		
Glong:	-121.770515		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Sullenger	Wellnumber:	4-8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207727

**G58
SSE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207672

Districtnu:	6	Apinumber:	01300077
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	15		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.938932		
Glong:	-121.746955		
Gissourcec:	gps		
Comments:	GPS Date 06/11/1997, Status Code 016		
Leasename:	Ginochio	Wellnumber:	4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207672

**J59
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207724

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320124
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Maria L. Andrade		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.944255		
Glong:	-121.74047		
Gissourcec:	gps		
Comments:	GPS Date 05/21/2007, Status Code 014		
Leasename:	Andrade	Wellnumber:	5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207724

**J60
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207735

Districtnu:	6	Apinumber:	01300026
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sunset Exploration Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.945017		
Glong:	-121.739725		
Gissourcec:	gps		
Comments:	GPS Date 05/21/2007, Status Code 014		
Leasename:	Arata	Wellnumber:	42-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207735

**I61
SSE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207653

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	15		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.937863		
Glong:	-121.748875		
Gissourcec:	hud		
Comments:	Status Code 014		
Leasename:	Ginochio	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207653

**J62
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207725

Districtnu:	6	Apinumber:	01320013
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sinco Oil Corp.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.944257		
Glong:	-121.740083		
Gissourcec:	gps		
Comments:	GPS Date 05/21/2007, Status Code 014		
Leasename:	Andrade	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207725

**63
NNW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207913

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320065
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Sinco Oil Corp.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	4		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.963533		
Glong:	-121.761135		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Williamson	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDH	Site id:	CAOG9A000207913

**64
SSE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207643

Districtnu:	6	Apinumber:	01300043
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	16		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.936843		
Glong:	-121.751985		
Gissourcec:	hud		
Comments:	Status Code 116		
Leasename:	Ginochio-Shellenberger	Wellnumber:	22-16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PWD	Site id:	CAOG9A000207643

**65
NW
1/2 - 1 Mile**

OIL_GAS CAOG9A000207876

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01320197
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venada National		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	5		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.958893		
Glong:	-121.769936		
Gissourcec:	hud		
Comments:	Status Code 015		
Leasename:	Prewett	Wellnumber:	5-5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207876

**K66
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207760

Districtnu:	6	Apinumber:	01300601
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Unknown Operator		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.946656		
Glong:	-121.738055		
Gissourcec:	gps		
Comments:	GPS Date 05/21/2007, Status Code 076		
Leasename:	Unknown Conductor	Wellnumber:	2007-1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207760

**67
West
1/2 - 1 Mile**

OIL_GAS CAOG9A000207794

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Districtnu:	6	Apinumber:	01300034
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area		
Section:	8		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.951553		
Glong:	-121.773566		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Enea-Capital	Wellnumber:	2-8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	PDG	Site id:	CAOG9A000207794

**K68
ESE
1/2 - 1 Mile**

OIL_GAS CAOG9A000207759

Districtnu:	6	Apinumber:	01320012
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Maria L. Andrade		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main		
Section:	10		
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	37.946633		
Glong:	-121.737965		
Gissourcec:	gps		
Comments:	GPS Date 05/21/2007, Status Code 014		
Leasename:	Andrade	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	//	Completion:	//
Gissymbol:	POG	Site id:	CAOG9A000207759

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94531	2	0

Federal EPA Radon Zone for CONTRA COSTA County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for CONTRA COSTA COUNTY, CA

Number of sites tested: 55

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.760 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.300 pCi/L	100%	0%	0%
Basement	0.525 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

California Drinking Water Quality Database

Source: Department of Public Health

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

RADON

State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX B

ENVIRONMENTAL DATA RESOURCES, INC.

Sanborn Map Report





Ginochio Properties

3428 Heidorn Ranch Road
Antioch, CA 94531

Inquiry Number: 3932185.3
May 02, 2014

Certified Sanborn® Map Report



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

5/02/14

Site Name:

Ginochio Properties
3428 Heidorn Ranch Road
Antioch, CA 94531

Client Name:

Engeo Inc.
2010 Crow Canyon Place
San Ramon, CA 94583



EDR Inquiry # 3932185.3

Contact: Csilla Toth

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Engeo Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name: Ginochio Properties
Address: 3428 Heidorn Ranch Road
City, State, Zip: Antioch, CA 94531
Cross Street:
P.O. # 4894.000.000
Project: Ginochio FUA1 Project
Certification # A8A2-432D-B11C



Sanborn® Library search results
Certification # A8A2-432D-B11C

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

The Sanborn Library LLC Since 1866™

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APPENDIX C

ENVIRONMENTAL DATA RESOURCES, INC.

Historical Topographic Map Report





Ginochio Properties

3428 Heidorn Ranch Road
Antioch, CA 94531

Inquiry Number: 3932185.4
May 05, 2014

EDR Historical Topographic Map Report



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

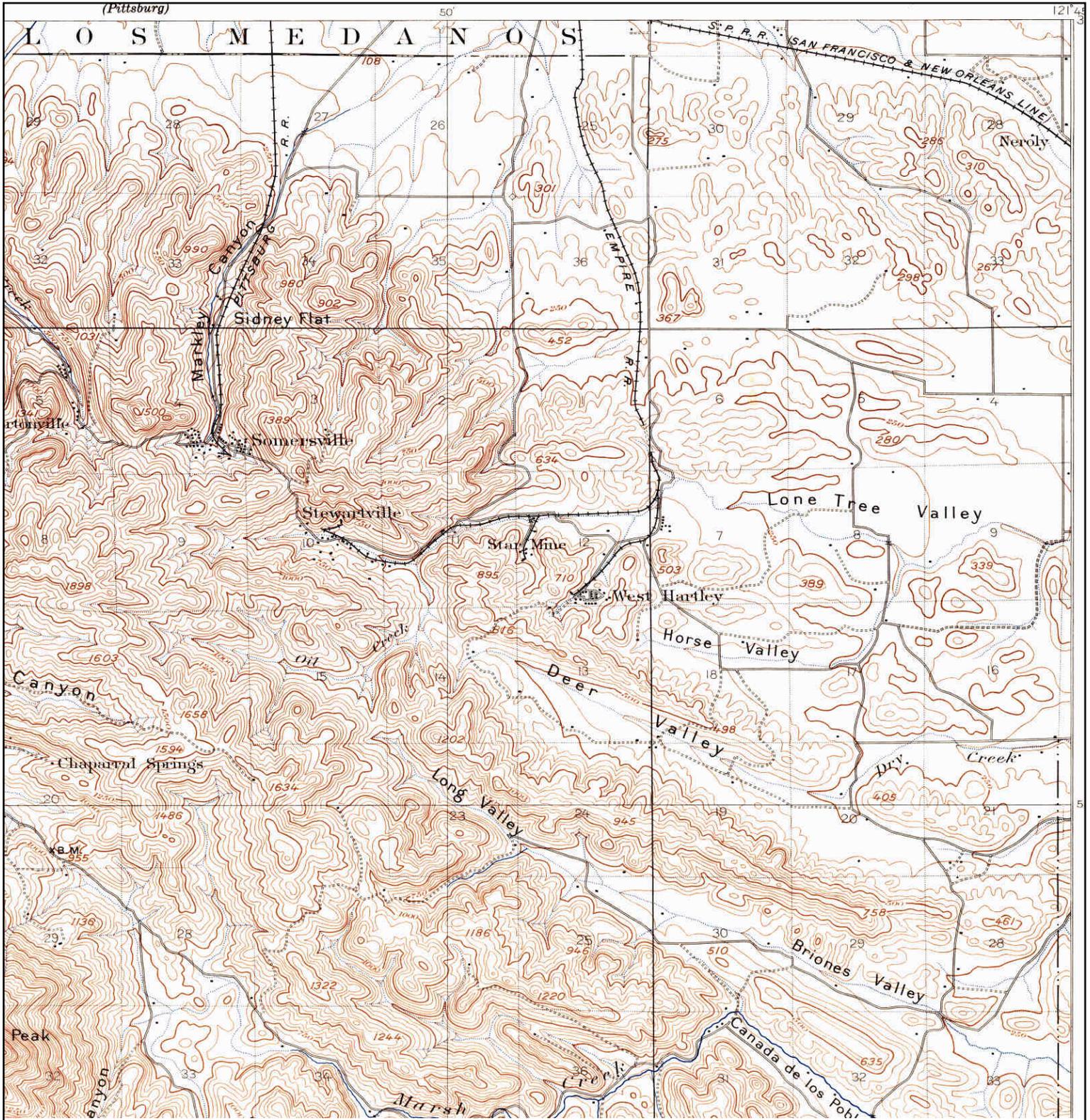
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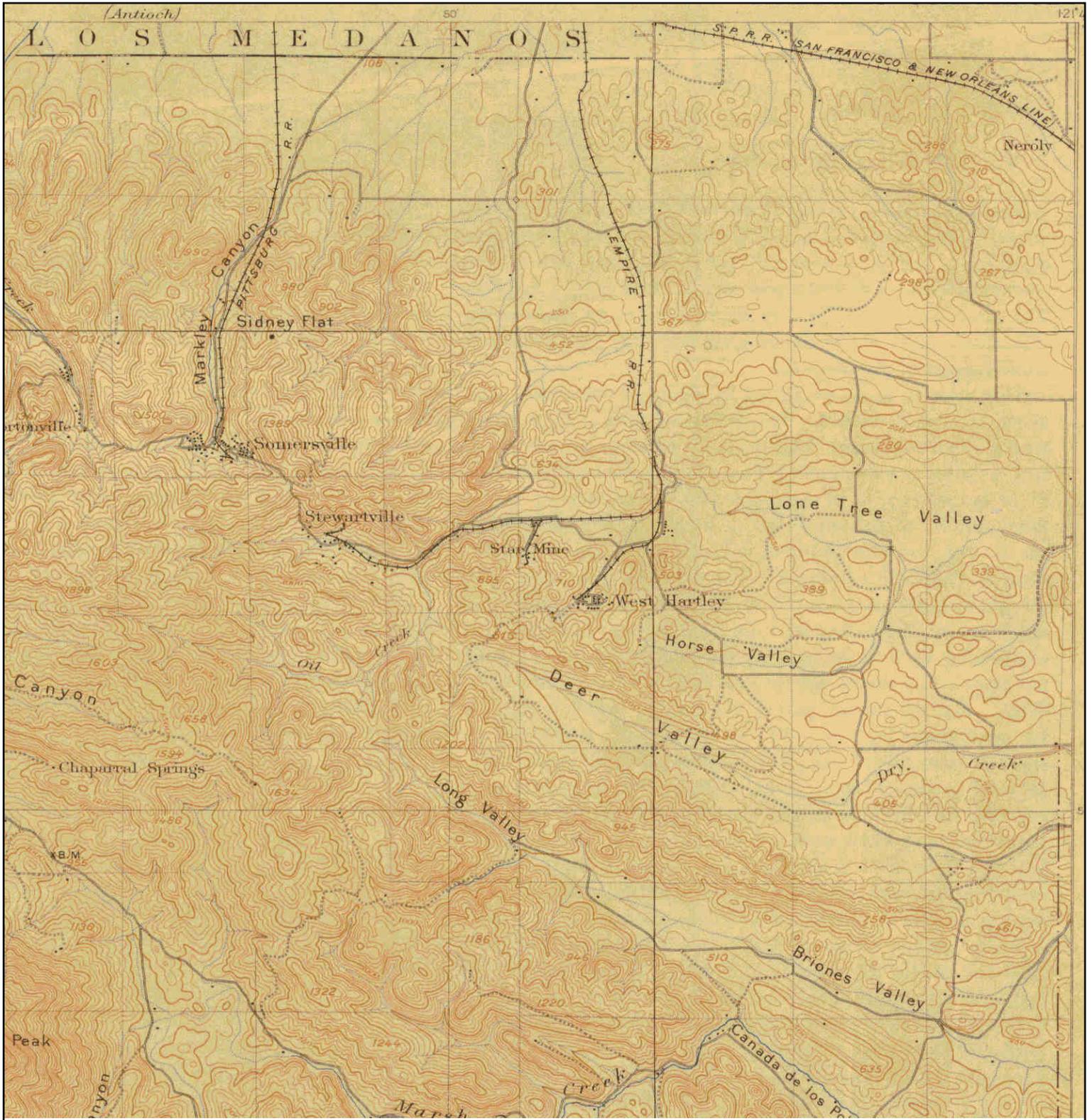
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Historical Topographic Map



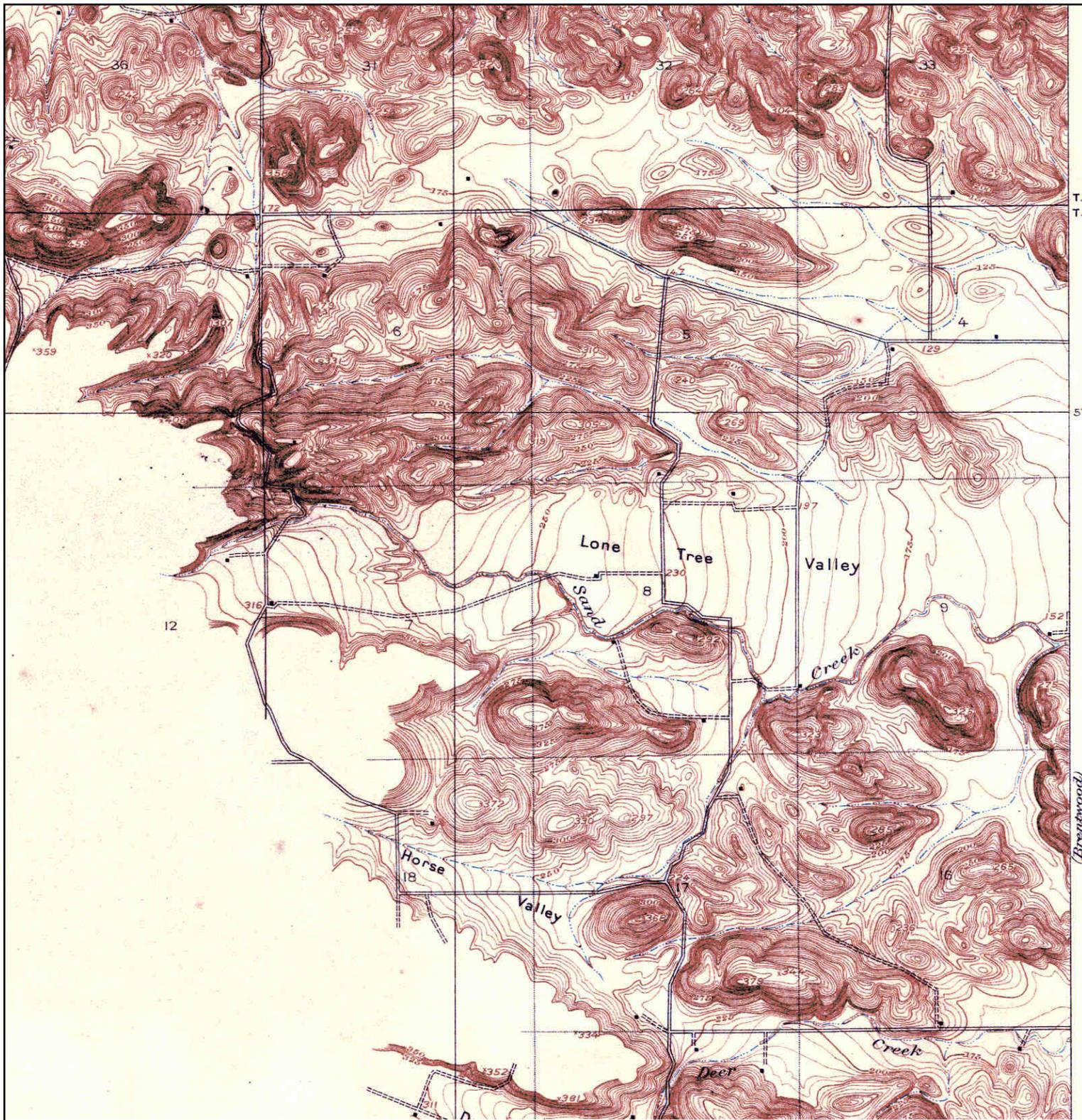
<p>N</p> 	TARGET QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: MOUNT DIABLO	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1896	Antioch, CA 94531	INQUIRY#: 3932185.4
	SERIES: 15	LAT/LONG: 37.9505 / -121.7555	RESEARCH DATE: 05/05/2014
	SCALE: 1:62500		

Historical Topographic Map



	TARGET QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: MT. DIABLO	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1912	LAT/LONG: 37.9505 / -121.7555	INQUIRY#: 3932185.4
	SERIES: 15		RESEARCH DATE: 05/05/2014
	SCALE: 1:62500		

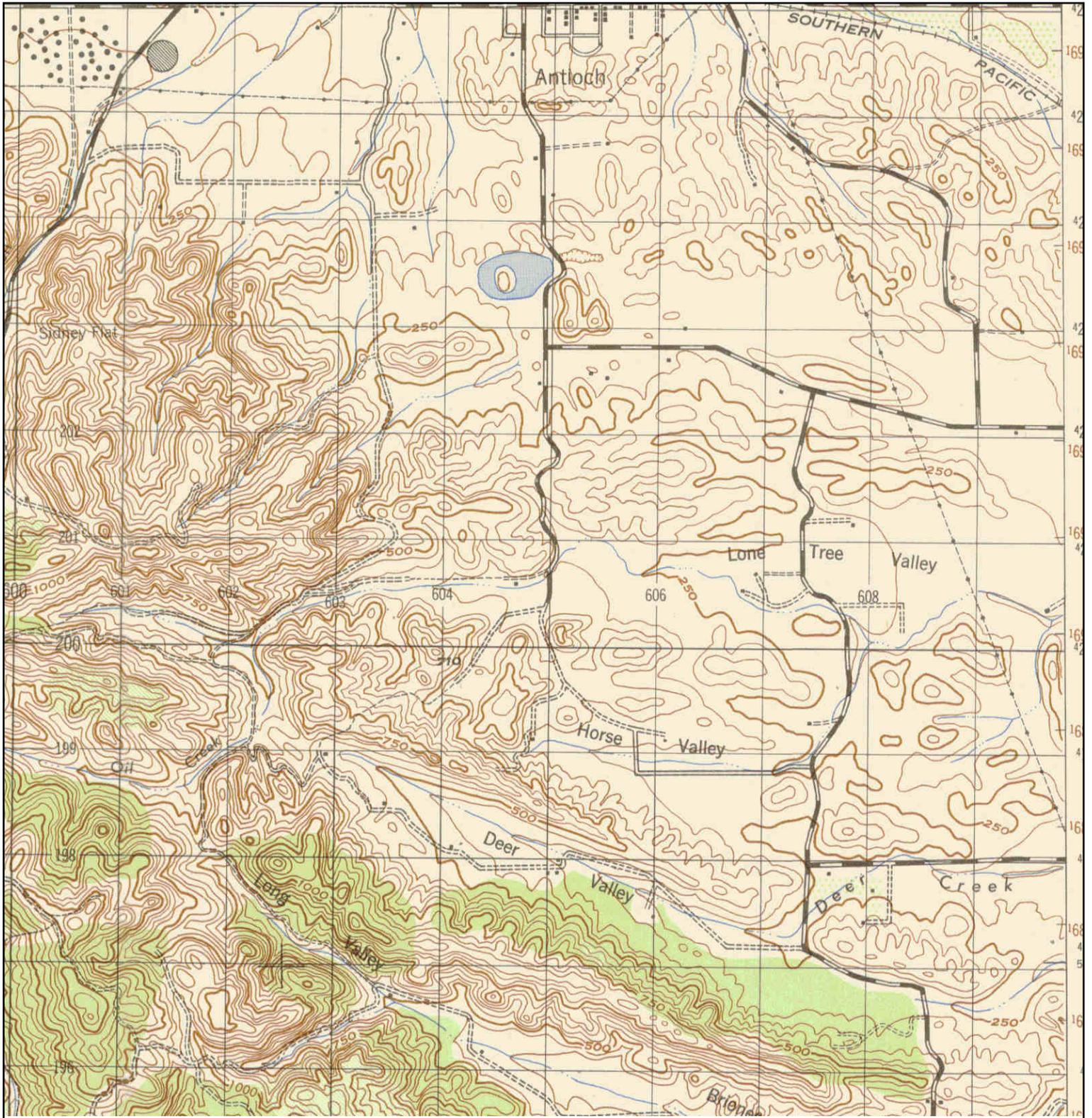
Historical Topographic Map



Unsurveyed Area on the Topographic Map

<p>N</p>	TARGET QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: LONE TREE VALLEY	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1916	Antioch, CA 94531	INQUIRY#: 3932185.4
	PRELIMINARY	LAT/LONG: 37.9505 / -121.7555	RESEARCH DATE: 05/05/2014
	SERIES: 7.5		
	SCALE: 1:31680		

Historical Topographic Map



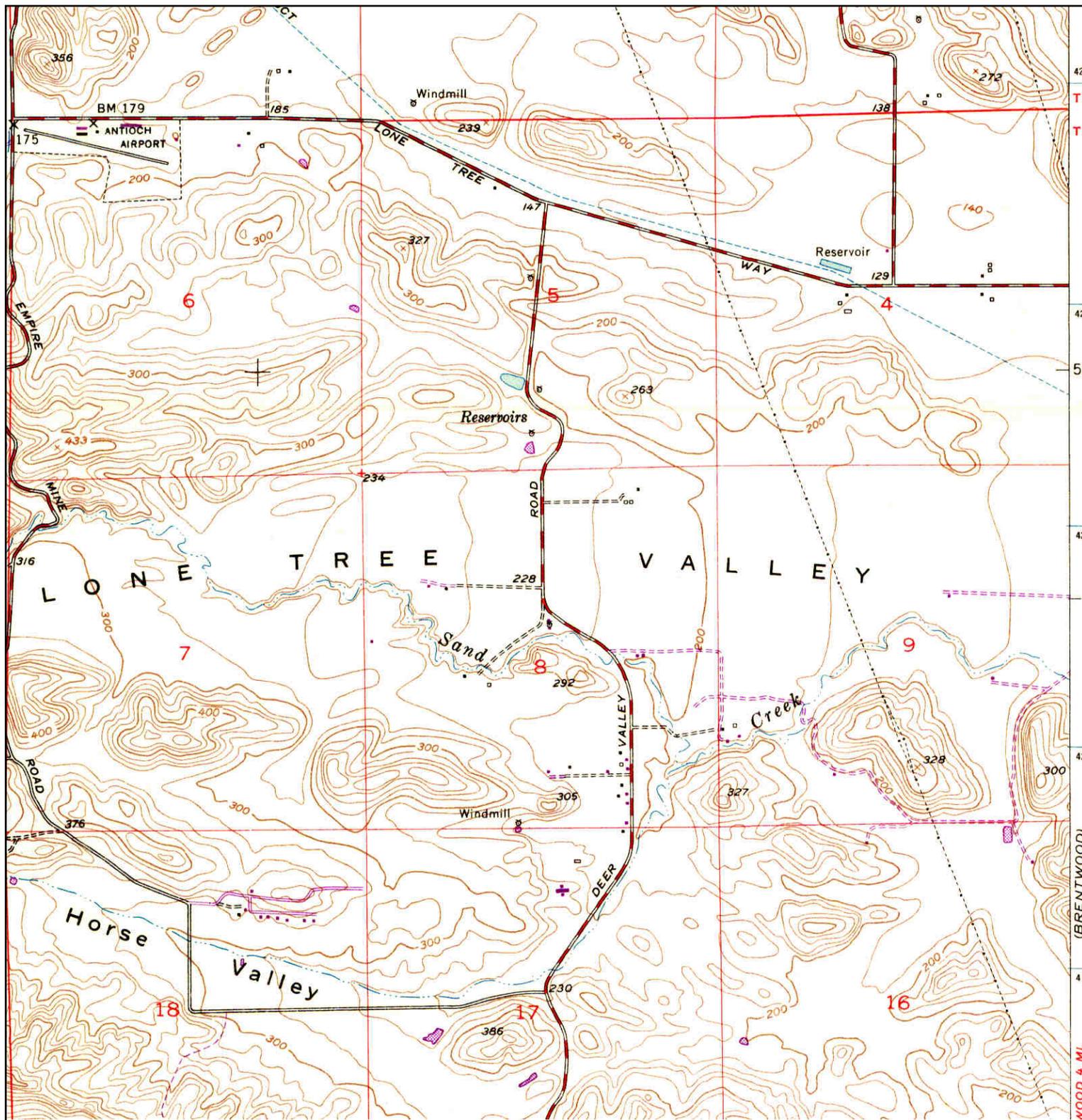
	TARGET QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: MT. DIABLO	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1947	LAT/LONG: 37.9505 / -121.7555	INQUIRY#: 3932185.4
	SERIES: 15		RESEARCH DATE: 05/05/2014
	SCALE: 1:50000		

Historical Topographic Map



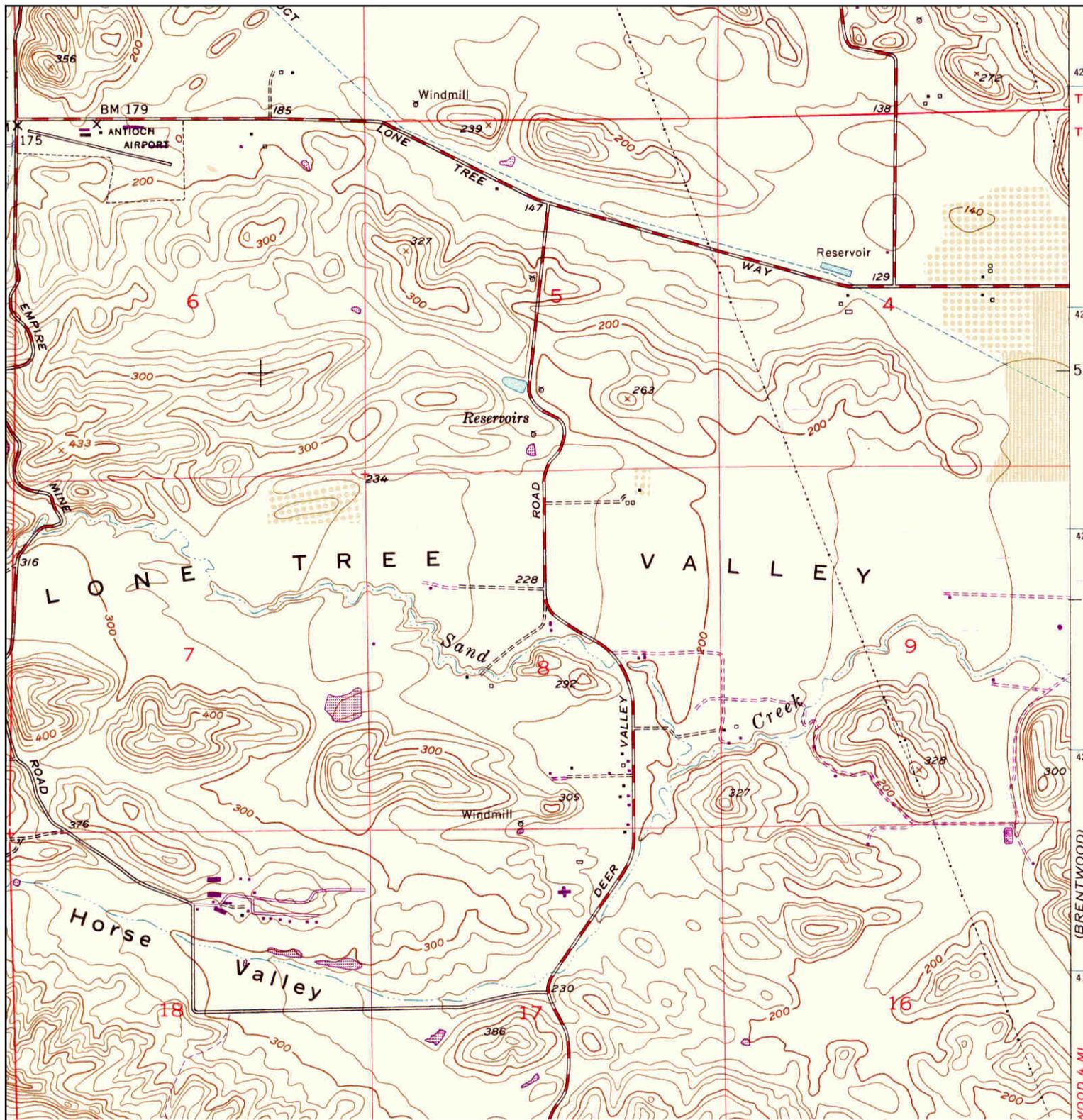
<p>N ↑</p>	<p>TARGET QUAD NAME: ANTIOCH SOUTH MAP YEAR: 1953</p>	<p>SITE NAME: Ginochio Properties ADDRESS: 3428 Heidorn Ranch Road Antioch, CA 94531 LAT/LONG: 37.9505 / -121.7555</p>	<p>CLIENT: Engeo Inc. CONTACT: Csilla Toth INQUIRY#: 3932185.4 RESEARCH DATE: 05/05/2014</p>
	<p>SERIES: 7.5 SCALE: 1:24000</p>		

Historical Topographic Map



	TARGET QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: ANTIOCH SOUTH	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1968	Antioch, CA 94531	INQUIRY#: 3932185.4
	PHOTOREVISED FROM :1953	LAT/LONG: 37.9505 / -121.7555	RESEARCH DATE: 05/05/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



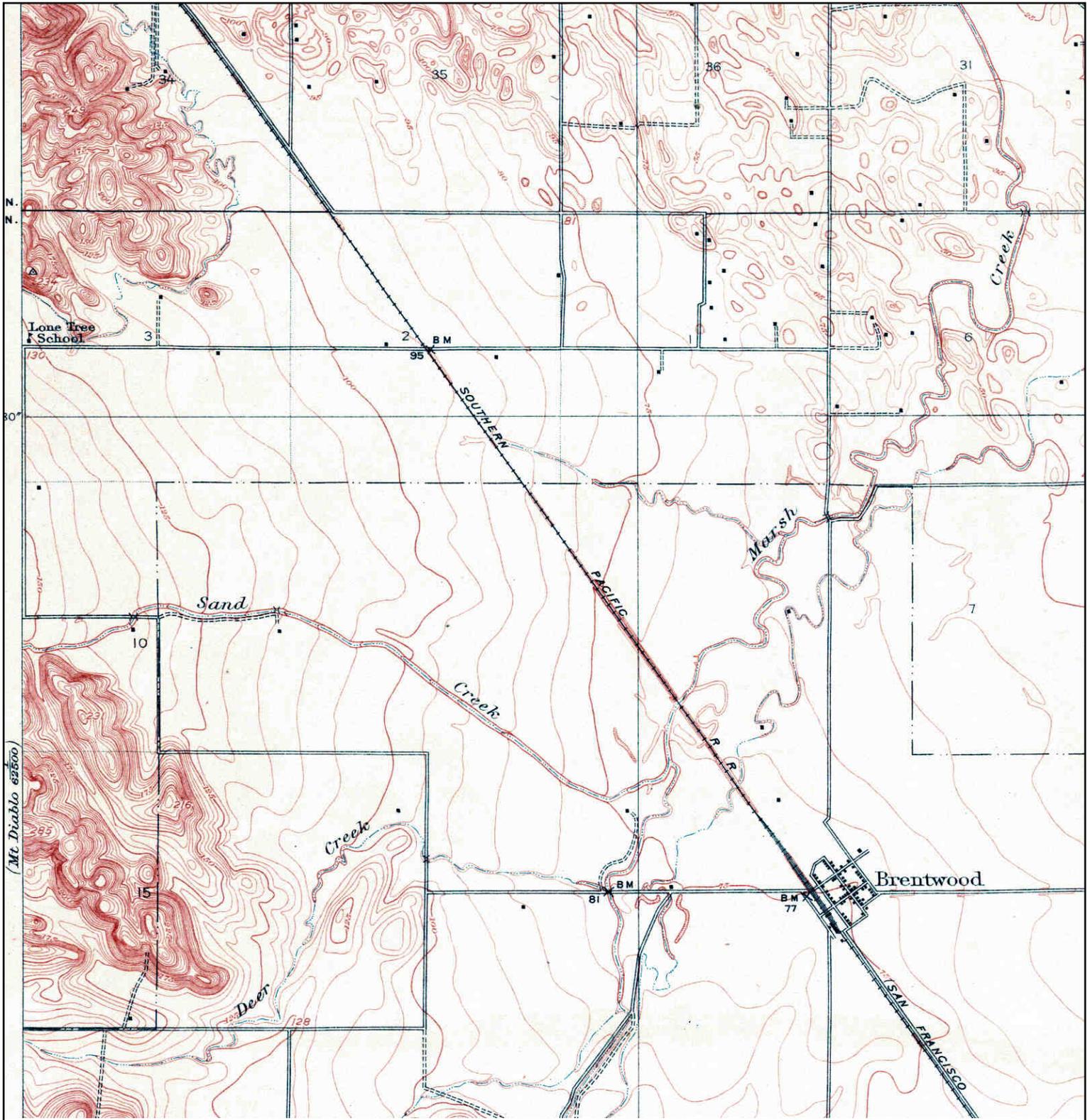
<p>N</p> 	TARGET QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: ANTIOCH SOUTH	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1973	Antioch, CA 94531	INQUIRY#: 3932185.4
	PHOTOREVISED FROM :1953	LAT/LONG: 37.9505 / -121.7555	RESEARCH DATE: 05/05/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



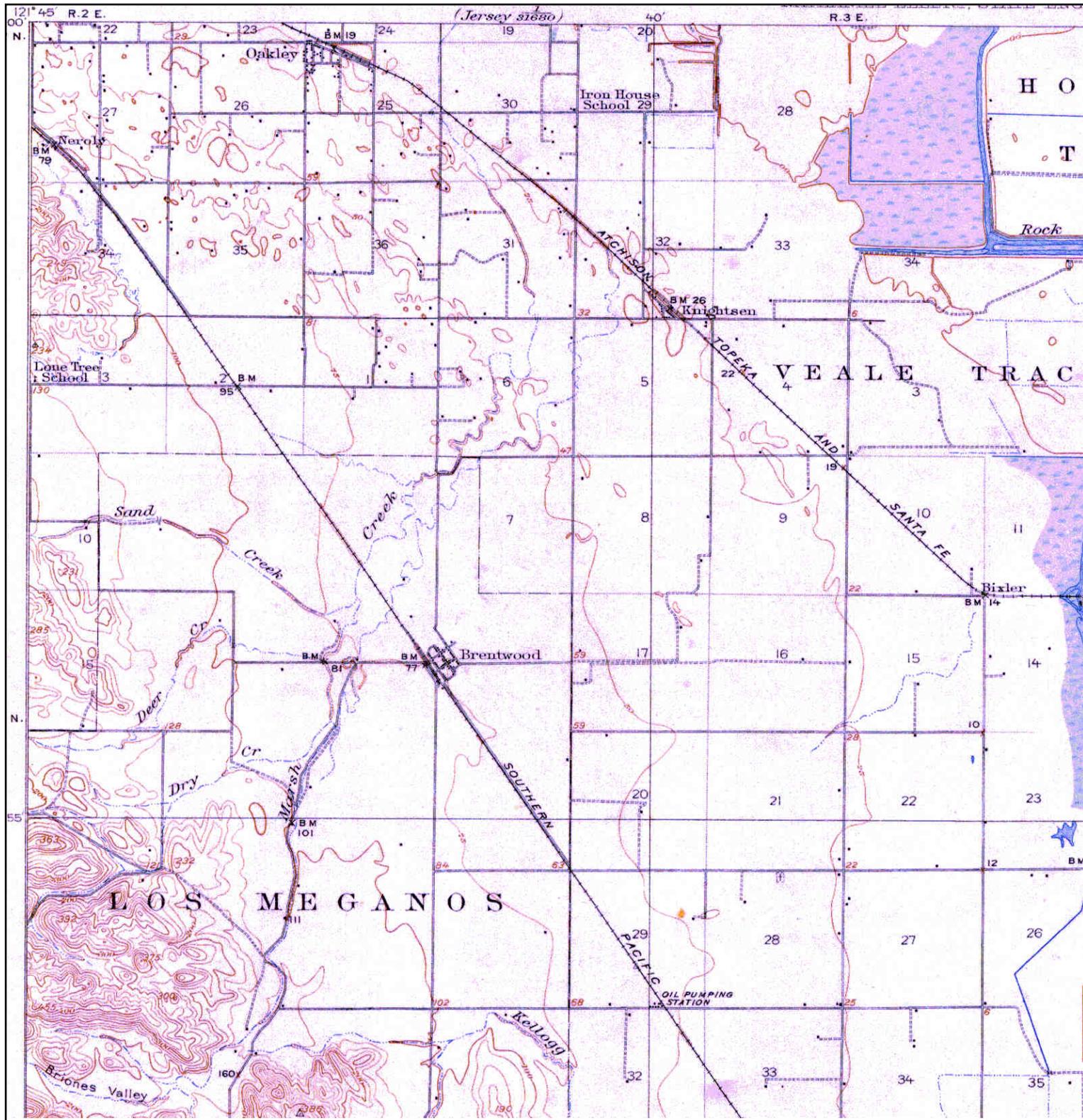
<p>N ↑</p>	TARGET QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: ANTIOCH SOUTH	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1980	Antioch, CA 94531	INQUIRY#: 3932185.4
	PHOTOREVISED FROM :1953	LAT/LONG: 37.9505 / -121.7555	RESEARCH DATE: 05/05/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



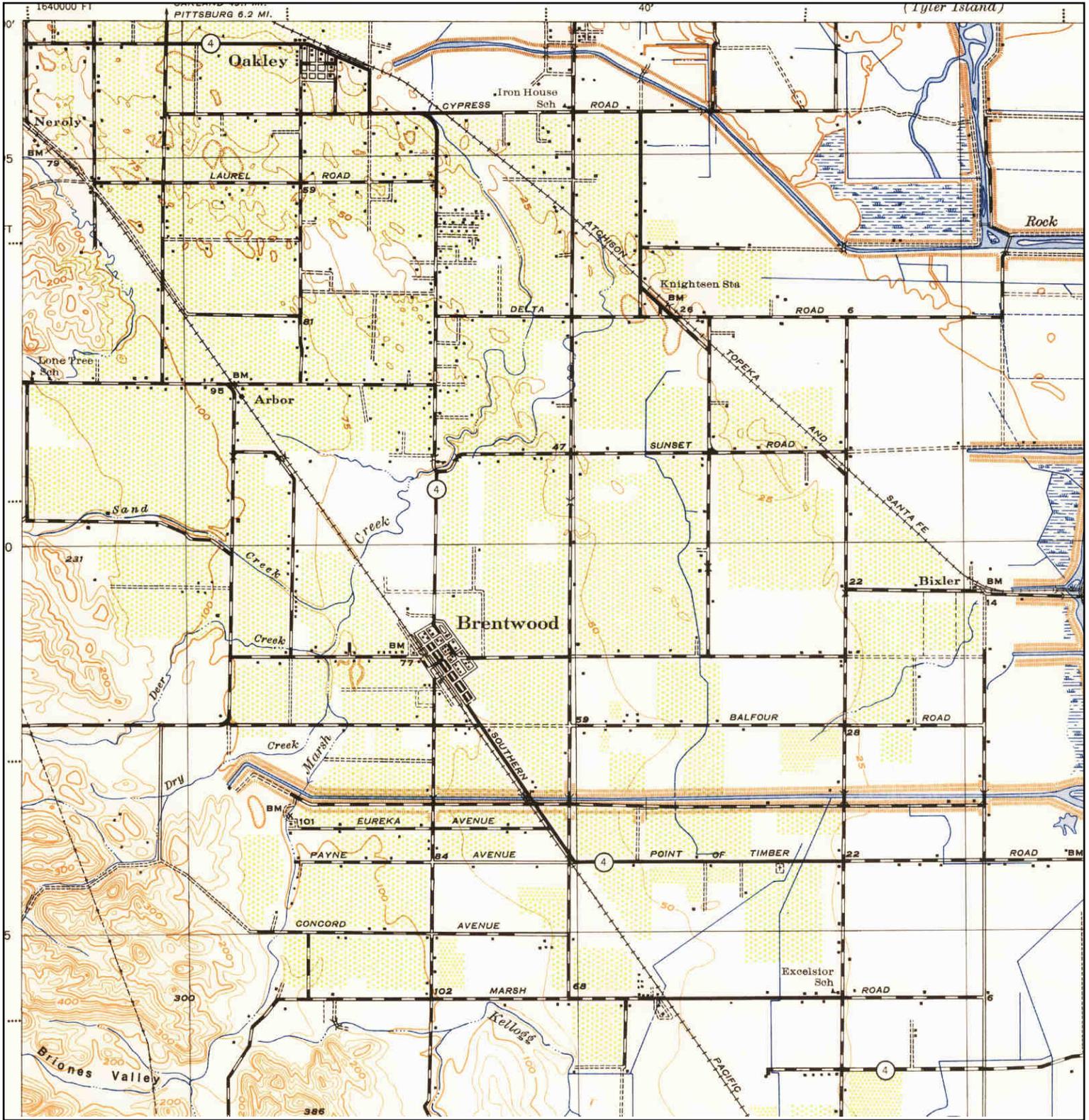
	ADJOINING QUAD		
	NAME:	BRENTWOOD	SITE NAME: Ginochio Properties
	MAP YEAR:	1914	ADDRESS: 3428 Heidorn Ranch Road Antioch, CA 94531
	SERIES:	7.5	LAT/LONG: 37.9505 / -121.7555
	SCALE:	1:31680	CLIENT: Engeo Inc. CONTACT: Csilla Toth INQUIRY#: 3932185.4 RESEARCH DATE: 05/05/2014

Historical Topographic Map



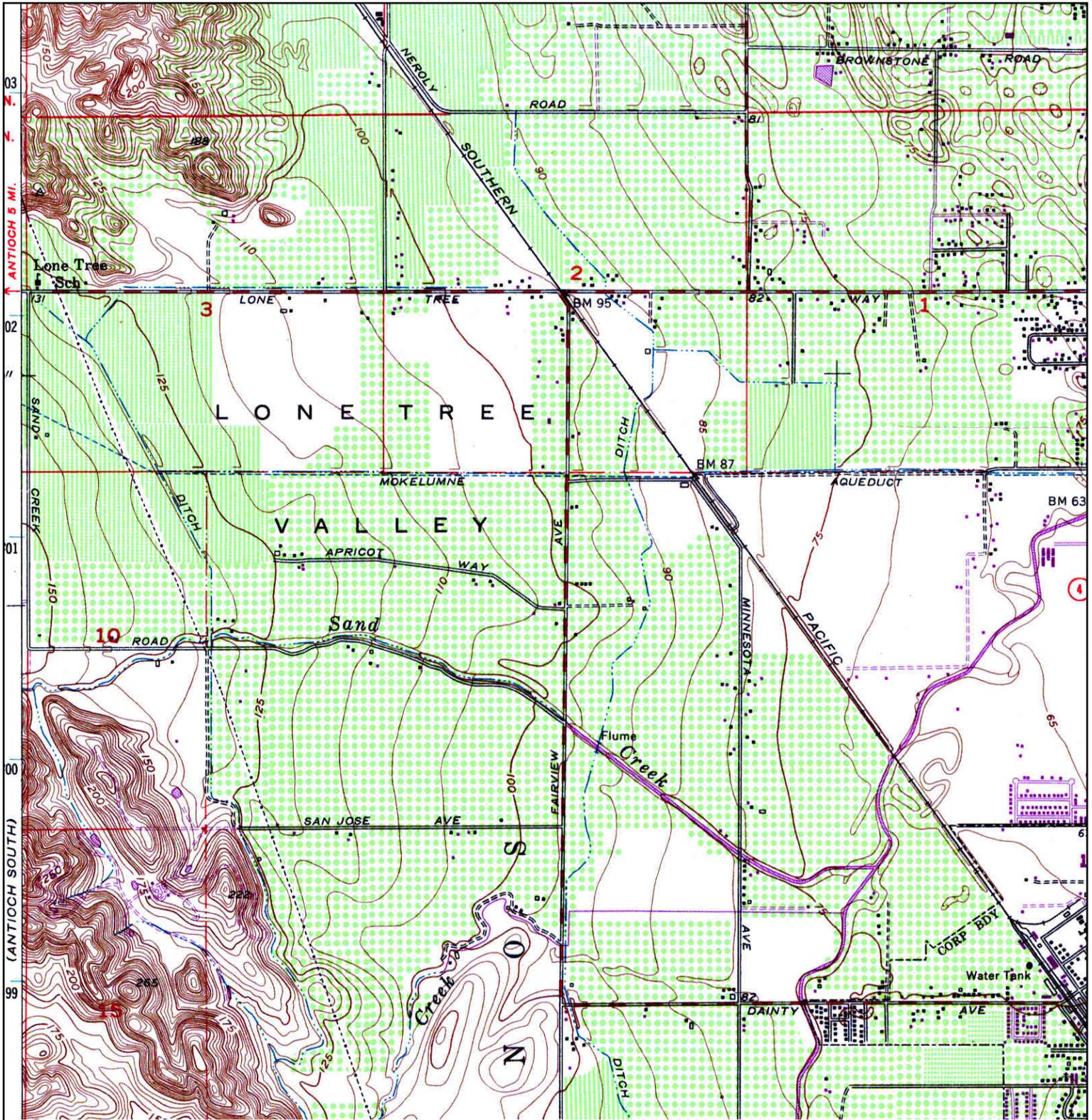
 N	ADJOINING QUAD	SITE NAME:	CLIENT:
	NAME: BYRON	Ginochio Properties	Engeo Inc.
	MAP YEAR: 1916	ADDRESS: 3428 Heidorn Ranch Road Antioch, CA 94531	CONTACT: Csilla Toth
	SERIES: 15	LAT/LONG: 37.9505 / -121.7555	INQUIRY#: 3932185.4
SCALE: 1:62500		RESEARCH DATE: 05/05/2014	

Historical Topographic Map



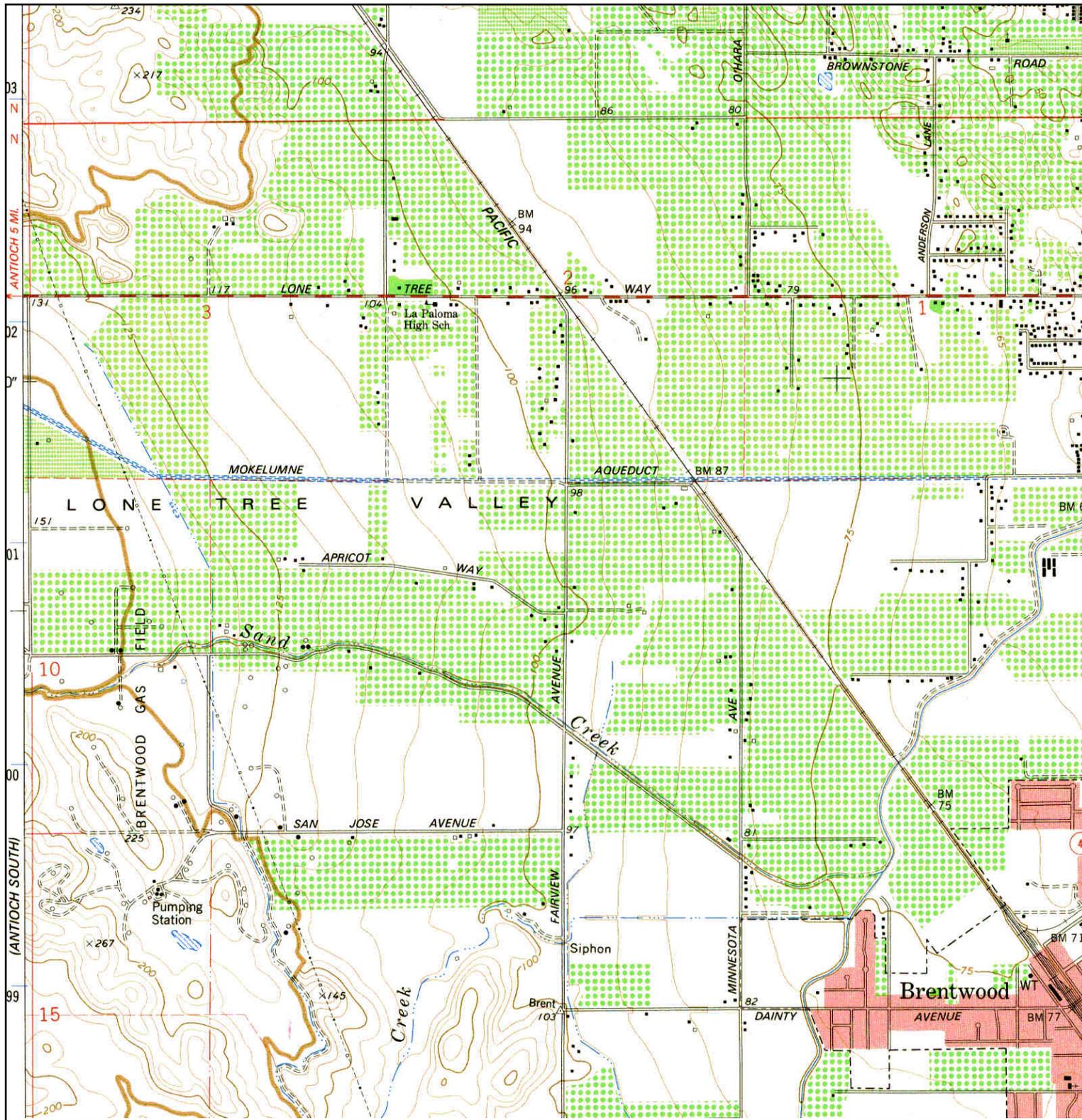
	ADJOINING QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: BYRON	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1943	Antioch, CA 94531	INQUIRY#: 3932185.4
	SERIES: 15	LAT/LONG: 37.9505 / -121.7555	RESEARCH DATE: 05/05/2014
	SCALE: 1:62500		

Historical Topographic Map



	ADJOINING QUAD	SITE NAME: Ginochio Properties	CLIENT: Engeo Inc.
	NAME: BRENTWOOD	ADDRESS: 3428 Heidorn Ranch Road	CONTACT: Csilla Toth
	MAP YEAR: 1968	Antioch, CA 94531	INQUIRY#: 3932185.4
	PHOTOREVISED FROM :1954	LAT/LONG: 37.9505 / -121.7555	RESEARCH DATE: 05/05/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



	ADJOINING QUAD						
	NAME:	BRENTWOOD		SITE NAME:	Ginochio Properties	CLIENT:	Engeo Inc.
	MAP YEAR:	1978		ADDRESS:	3428 Heidorn Ranch Road Antioch, CA 94531	CONTACT:	Csilla Toth
	SERIES:	7.5		LAT/LONG:	37.9505 / -121.7555	INQUIRY#:	3932185.4
	SCALE:	1:24000		RESEARCH DATE:	05/05/2014		

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APPENDIX D

OLD REPUBLIC TITLE COMPANY

Preliminary Title Reports (2)





OLD REPUBLIC
TITLE COMPANY

1000 Burnett Ave, Suite 400
Concord, CA 94520
(925) 687-7880 Fax: (925) 687-4836

PRELIMINARY REPORT

Our Order Number 0147014226-JQ

BLACKHAWK
3820 BLACKHAWK ROAD
DANVILLE, CA 94506

Attention: LISA BORBA

When Replying Please Contact:

Jennifer Quigley
JQuigley@ortc.com
(925) 687-7880

Property Address:

3052 Heidorn Ranch Road, Antioch, CA 94509

In response to the above referenced application for a policy of title insurance, OLD REPUBLIC TITLE COMPANY hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said Policy or Policies are set forth in Exhibit A attached. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the Homeowner's Policy of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the Policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of March 26, 2014, at 7:30 AM

OLD REPUBLIC TITLE COMPANY
For Exceptions Shown or Referred to, See Attached

OLD REPUBLIC TITLE COMPANY
ORDER NO. 0147014226-JQ

The form of policy of title insurance contemplated by this report is:

CLTA Standard Coverage Policy -1990. A specific request should be made if another form or additional coverage is desired.

The estate or interest in the land hereinafter described or referred or covered by this Report is:

Fee

Title to said estate or interest at the date hereof is vested in:

Shell Western E&P, Inc., a Delaware corporation

The land referred to in this Report is situated in the County of Contra Costa, City of Antioch, State of California, and is described as follows:

A Portion of the Northeast 1/4 of Section 9, Township 1 North, Range 2 East, Mount Diablo Base and Meridian, described as follows:

Beginning at the point of intersection of the East/West centerline of Section 9 Township 1 North, Range 2 East, Mount Diablo Base & Meridian, with the Westerly line of San Creek Road (50 feet in width); thence Northerly along said Westerly line of said Sand Creek Road 660 feet; thence West 660 feet; thence South 660 feet to the East/West centerline of said Section 9; thence East along said centerline 660 feet to the point of beginning.

EXCEPTING THEREFROM:

"All oil, gas, casinghead gas, asphaltum and other hydrocarbons and chemical gas now or hereafter found, situated or located in all or any portion of the lands above described lying more than five hundred (500) feet below the surface thereof, together with the right to slant drill for and remove all or any of said oil, gas, casinghead gas or other hydrocarbons and chemical gas lying below a depth of more than five hundred (500) feet below the surface thereof, and the right to grant leases for all or any of said purposes, but without any right whatsoever to enter upon the surface of said lands or any portion thereof within five hundred (500) feet vertical distance below the surface thereof", as reserved in the deed from Peter Ginochio, et al, recorded April 15, 1963, in [Book 4344 Official Records, Page 290](#).

APN 057-030-003

At the date hereof exceptions to coverage in addition to the Exceptions and Exclusions in said policy form would be as follows:

1. Taxes and assessments, general and special, for the fiscal year 2014 - 2015, a lien, but not yet due or payable.

OLD REPUBLIC TITLE COMPANY
ORDER NO. 0147014226-JQ

2. Taxes and assessments, general and special, for the fiscal year 2013 - 2014, as follows:

Assessor's Parcel No	:	057-030-003	
Bill No.	:	056233	
Code No.	:	01-111	
1st Installment	:	\$1,795.65	Marked Paid
2nd Installment	:	\$1,795.65	NOT Marked Paid
Land Value	:	\$19,867.00	

3. The lien of supplemental taxes, if any, assessed pursuant to the provisions of Section 75, et seq., of the Revenue and Taxation Code of the State of California.

4. Rights of the public, County and/or City, in and to that portion of said land lying within the lines of Sand Creek Road.

5. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument	:	Grant Deed
Reserved by	:	Kate Heidorn Trembath
For	:	Road Purposes
Recorded	:	August 18th, 1927 in Book 108 of Official Records, Page 40
Affects	:	The East 25 feet

6. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument	:	Deed
Granted to	:	Pacific Gas and Electric Company
For	:	Gas Pipe Lines
Recorded	:	April 11th, 1947 in Book 1117 of Official Records, Page 269
Affects	:	A portion, 10 feet in width

OLD REPUBLIC TITLE COMPANY
ORDER NO. 0147014226-JQ

7. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Shell Oil Company
For : Pipe Line Purposes
Recorded : April 4th, 1963 in [Book 4337 of Official Records, Page 210](#)
Affects : A Portion

NOTE : A "Description of Center Line of Right of Way" was recorded June 19, 1964, in [Book 4642 Official Records, Page 190](#).

8. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Final Order of Condemnation
Condemned to : Pacific Gas and Electric Company
For : Gas Transmission Pipelines
Recorded : September 11th, 1963 in [Book 4447 of Official Records, Page 789, under Recorder's Serial Number 80654](#)
Affects : Portions

9. The Effect of the Quitclaim Deed from Shell Western E & P, Inc., to Cal Resources LLC, a California Limited Liability Company, recorded August 21, 1995, Recorder's Series No. [95-137870](#).

10. Satisfactory evidence furnished to this Company as to the due formation and continued existence of Shell Western E&P Inc. as a legal entity under the laws of Delaware; and documents from its board of directors authorizing this transaction and specifying the officers who shall to execute on behalf of the corporation.

11. Facts which would be disclosed by a comprehensive survey of the premises herein described.

12. The requirement that this Company be provided with an opportunity to inspect the land. The Company reserves the right to make additional exceptions and/or requirements upon completion of its inspection.

- 13. Any unrecorded and subsisting leases.
- 14. Rights and claims of parties in possession.

----- Informational Notes -----

- A. The applicable rate(s) for the policy(s) being offered by this report or commitment appears to be section(s) 1.1 & 2.1.
- B. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Quitclaim Deed
By/From : Shell Oil Company, a Delaware corporation
To : Shell Western E&P, Inc., a Delaware corporation
Recorded : [September 12, 1995 in Official Records under Recorder's Serial Number 95-152338](#)

**CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY - 1990
EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.-

(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
 - (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
 - (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;.
 - (c) resulting in no loss or damage to the insured claimant;
 - (d) attaching or created subsequent to Date of Policy; or
 - (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments Which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims Which are not shown by the public records but which could be ascertained by an inspection of the land which may be asserted by persons in possession thereof,
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

OLD REPUBLIC TITLE COMPANY

Privacy Policy Notice

PURPOSE OF THIS NOTICE

Title V of the Gramm-Leach-Bliley Act (GLBA) generally prohibits any financial institution, directly or through its affiliates, from sharing nonpublic personal information about you with a nonaffiliated third party unless the institution provides you with a notice of its privacy policies and practices, such as the type of information that it collects about you and the categories of persons or entities to whom it may be disclosed. In compliance with the GLBA, we are providing you with this document, which notifies you of the privacy policies and practices of OLD REPUBLIC TITLE COMPANY

We may collect nonpublic personal information about you from the following sources:

- Information we receive from you such as on applications or other forms.
- Information about your transactions we secure from our files, or from [our affiliates or] others.
- Information we receive from a consumer reporting agency.
- Information that we receive from others involved in your transaction, such as the real estate agent or lender.

Unless it is specifically stated otherwise in an amended Privacy Policy Notice, no additional nonpublic personal information will be collected about you.

We may disclose any of the above information that we collect about our customers or former customers to our affiliates or to nonaffiliated third parties as permitted by law.

We also may disclose this information about our customers or former customers to the following types of nonaffiliated companies that perform marketing services on our behalf or with whom we have joint marketing agreements:

- Financial service providers such as companies engaged in banking, consumer finance, securities and insurance.
- Non-financial companies such as envelope stuffers and other fulfillment service providers.

WE DO NOT DISCLOSE ANY NONPUBLIC PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT SPECIFICALLY PERMITTED BY LAW.

We restrict access to nonpublic personal information about you to those employees who need to know that information in order to provide products or services to you. We maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Disclosure to Consumer of Available Discounts

Section 2355.3 in Title 10 of the California Code of Regulation necessitates that Old Republic Title Company provide a disclosure of each discount available under the rates that it, or its underwriter Old Republic National Title Insurance Company, have filed with the California Department of Insurance that are applicable to transactions involving property improved with a one to four family residential dwelling.

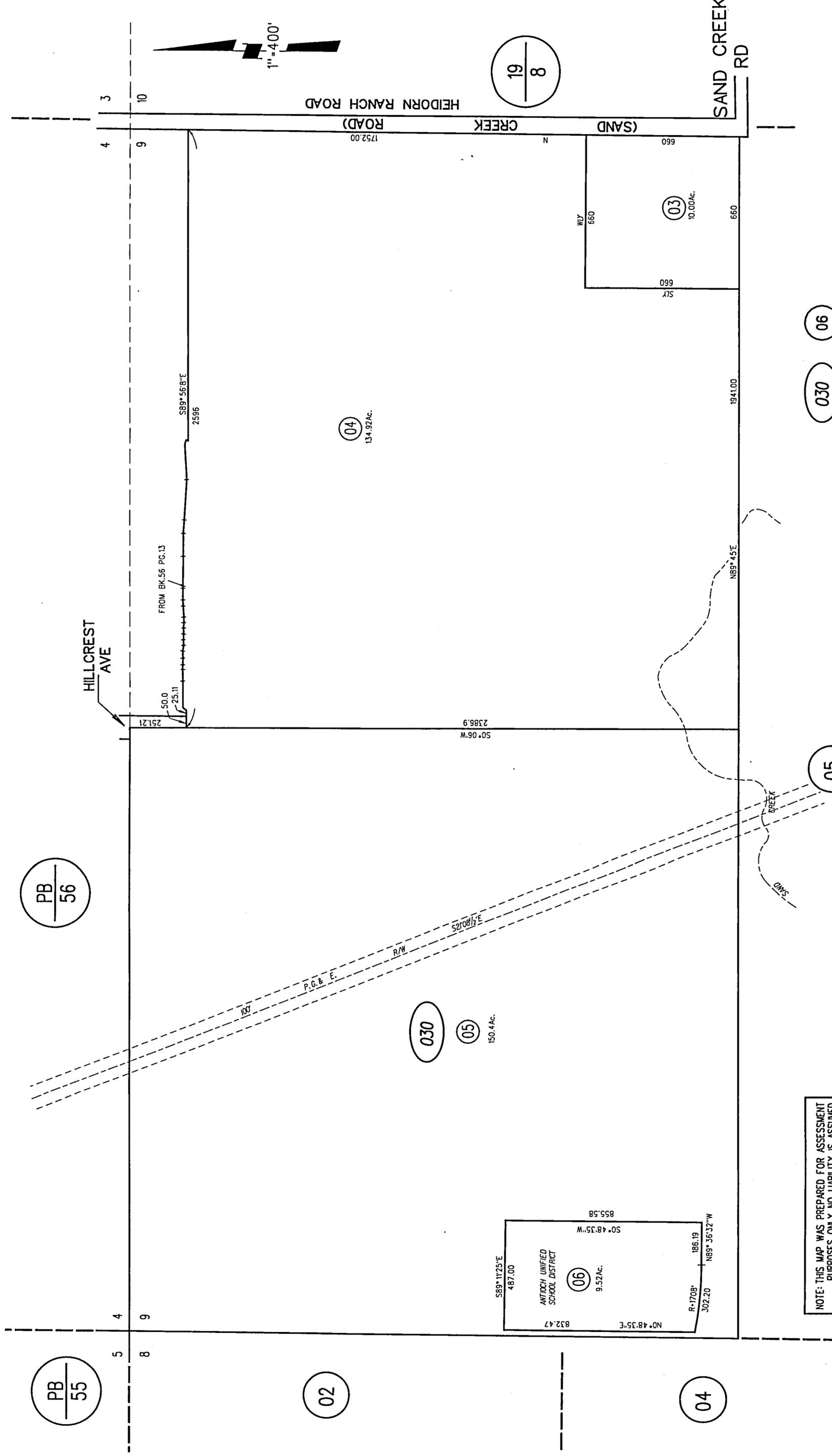
You may be entitled to a discount under Old Republic Title Company's escrow charges if you are an employee or retired employee of Old Republic Title Company including its subsidiary or affiliated companies or you are a member in the California Public Employees Retirement System "CalPERS" or the California State Teachers Retirement System "CalSTRS" and you are selling or purchasing your principal residence.

If you are an employee or retired employee of Old Republic National Title Insurance Company, or its subsidiary or affiliated companies, you may be entitled to a discounted title policy premium.

Please ask your escrow or title officer for the terms and conditions that apply to these discounts.

A complete copy of the Schedule of Escrow Fees and Service Fees for Old Republic Title Company and the Schedule of Fees and Charges for Old Republic National Title Insurance Company are available for your inspection at any Old Republic Title Company office.

N $\frac{1}{2}$ SEC. 9 T.1N. R.2E. M.D.B.M.



PB 56

PB 55

02

030

05
150.4Ac.

S89°11'25"E 487.00'
 ANTOCH UNIFIED SCHOOL DISTRICT
 9.52Ac.
 N0°48'35"E 832.47'
 R=1708' 302.20'
 N89°36'32"W 186.19'
 S0°48'35"W 855.58'

04
134.92Ac.

03
10.00Ac.

030

06
4/5/07

05

04

NOTE: THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE INFORMATION DELINEATED HEREON. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL LOT SPLIT OR BUILDING SITE ORDINANCES.

FM 54-6 9-9-94
 1960 ROLL
 ASSESSOR'S MAP

BOOK 57 PAGE 3

CONTRA COSTA COUNTY, CALIF.



OLD REPUBLIC
TITLE COMPANY

1000 Burnett Ave, Suite 400
Concord, CA 94520
(925) 687-7880 Fax: (925) 687-4836

PRELIMINARY REPORT

3RD AMEND

BLACKHAWK SERVICES
3820 Blackhawk Road
Danville, CA 94506

Our Order Number 0147013194-JQ

Attention: Matt Beinke

When Replying Please Contact:

Jennifer Quigley
JQuigley@ortc.com
(925) 687-7880

Property Address:

APN's 057-030-004, 057-050-017, 057-060-008 & 019-120-002, 007 & 008, Antioch, CA

In response to the above referenced application for a policy of title insurance, OLD REPUBLIC TITLE COMPANY hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said Policy or Policies are set forth in Exhibit A attached. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the Homeowner's Policy of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the Policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of February 7, 2014, at 7:30 AM

OLD REPUBLIC TITLE COMPANY
For Exceptions Shown or Referred to, See Attached

Page 1 of 24 Pages

OLD REPUBLIC TITLE COMPANY
ORDER NO. 0147013194-JQ
3RD AMEND

The form of policy of title insurance contemplated by this report is:

CLTA Standard Coverage Policy -1990. A specific request should be made if another form or additional coverage is desired.

The estate or interest in the land hereinafter described or referred or covered by this Report is:

Fee

Title to said estate or interest at the date hereof is vested in:

As their interests appear of record, subject to the Tenancy-In-Common Agreement, recorded January 24, 2014 in Official Records, under Recorder's Series No. 2014-0012304:

Peter Eugene Ginochio as Trustees of the Peter Eugene Ginochio Revocable Living Trust (Separate Property) dated November 15, 2006; and

Joanne M. Baker, Trustee of the Joanne M. Baker Trust U/A/D 2/27/92; and

Peter Eugene Ginochio and Joanne Baker, as Co-Trustees of the James Ginochio Trust created under the declaration of 6/11/99; and

John R. Ginochio, III; and

John R. Ginochio, IV, a single man; and

Ronald S. Ginochio, Trustee of the John R. Ginochio III Children's 1999 Irrevocable Trust dated 4/5/99; and

Angelina Ginochio, a married woman as her sole and separate property; and

Stephen M. Ginochio, a single man; and

Antonette Ginochio, a single woman; and

Ronald S. Ginochio; and

Anna M. Ginochio, Edward Ginochio and Paul L. Ginochio, Co-Trustees of the Louis E. Ginochio Exemption Trust created 2/23/02; and

Edward M. Ginochio, Trustee of the Edward M. Ginochio Separate Property Trust U/A/D 5/25/04; and

Paul L. Ginochio and Patty Ginochio, Trustees of the Paul L. and Patty Ginochio trust, U/A/D 6/24/02, as a Schedule 1 Community Property Asset; and

Gina Ginochio-Robichaud, Trustee of the Gina L. Ginochio Separate Property Trust U/A/D 10/09/2012; and

OLD REPUBLIC TITLE COMPANY
ORDER NO. 0147013194-JQ
3RD AMEND

James Martin Ginochio, AKA James M. Ginochio, Trustee of the James M. Ginochio Trust U/A/D
11/27/2012

The land referred to in this Report is situated in the County of Contra Costa, City of Antioch, State of California, and is described as follows:

City of Antioch

PARCEL ONE:

Portion of the Northeast 1/4 of Section 9, Township 1 North, Range 2 East, Mount Diablo Base and Meridian, described as follows:

Beginning at a point in the center of a county road which point is at the Southeast corner of the Northeast 1/4 of Section 9 of said Township and Range; thence from said point of beginning along the section line and center line of County Road, in a direction assumed for the purpose of this description to be due North, a distance of 2412 feet to the South line of the parcel of land described in the deed to Frederick H. Heidorn, recorded June 17, 1926, Book 33, Official Records, Page 396; thence South 89° 11' West along the South line of said Heidorn Tract, 33 OR 396, 2596 feet to a point in the quarter section line; thence along the quarter section line South 0° 06' West, 2386.9 feet to the mid point of the said Section 9; thence along the quarter section line North 89° 45' East, 2601.5 feet to the point of beginning.

EXCEPTING FROM PARCEL ONE:

(A) That parcel of land described in the deed to Shell Oil Company, recorded April 15, 1963, Book 4344, Official Records, Page 290.

(B) All oil, gas, casinghead gas and other hydrocarbons and minerals, as granted in the deeds to Louis E. Ginochio, et al in the deeds recorded December 24, 1964, Book 4770, Pages 803, 806, 812, 827, 830 and 833, Official Records.

APN 057-030-004

PARCEL TWO:

The Southeast 1/4 of Section 9, Township 1 North Range 2 East, Mount Diablo Base and Meridian.

EXCEPTING FROM PARCEL TWO:

(A) That parcel of land described in the deed to Pacific Gas and Electric Company, recorded December 12, 1991 in Book 17077 OR 436.

(B) That parcel of land described in the deed to Pacific Gas and Electric Company, recorded January 9, 2009 in instrument No. [2009-3639](#), Official Records.

OLD REPUBLIC TITLE COMPANY
ORDER NO. 0147013194-JQ
3RD AMEND

(C) An undivided one-half (1/2) right, title and interest and estate in and to all oil, gas and other hydrocarbons and minerals, as reserved in the deed from Louis D. Heidron, et al, recorded March 12, 1946, Book 889, Page 43, Official Records.

(D) All oil, gas, casinghead gas and other hydrocarbons and minerals, as granted in the deeds to Louis E. Ginochio, et al in the deeds recorded December 24, 1964, Book 4770, Pages 803, 806, 809, 812, 827, 830 and 833, Official Records.

APN 057-050-017

Unincorporated

PARCEL THREE:

Section 16, the North 1/2 of Section 17 and the Southeast 1/4 of Section 17, Township 1 North, Range 2 East, Mount Diablo Base and Meridian.

EXCEPTING FROM PARCEL THREE:

(A) As to the West 1/2 of the Southeast 1/4 of Section 16; the interest conveyed to Contra Costa County by deed recorded July 20, 1891 in Book 60 of Deeds, Page 219.

(B) As to the Southeast 1/4 of Section 17; the interest conveyed to Contra Costa County by deed recorded March 11, 1892 in Book 61 of Deeds, Page 216.

(C) As to the Southeast 1/4 of Section 17; The 9.10 acre parcel of land described in the deed to Andrew Smith, recorded July 6, 1893, Book 66, Deeds, Page 467.

(D) As to the North 1/2 of Section 17; The 5.10 acre parcel of land described in the deed to Andrew Smith, recorded April 30, 1894, Book 68 Deeds, Page 346.

(E) As to the East 1/2 of Section 17; the interest conveyed to Contra Costa County by deed recorded October 15, 1935 in Book 389 OR 423.

(F) The East 1/2 of the Southeast 1/4 of Section 16, Township 1 North, Range 2 East, Mount Diablo Base and Meridian.

(G) That portion thereof lying within Parcel 1 as described in the deed to Contra Costa County Flood Control and Water Conservation District, recorded June 8, 1965 in Book 4884 OR 425.

(H) An undivided one-half (1/2) right, title and interest and estate in and to all oil, gas and other hydrocarbons and minerals, as reserved in the deed from Louis D. Heidorn Shellenberger, et al, recorded March 12, 1946, Book 889, Page 43, Official Records.

(I) All oil, gas, casinghead gas and other hydrocarbons and minerals, as granted in the deeds to Louis E. Ginochio, et al in the deeds recorded December 24, 1964, Book 4770, Pages 815, 818, 821, 824, 836, 839 and 842, Official Records.

APN's 019-120-002; 019-120-007; 019-120-008; and 057-060-008

OLD REPUBLIC TITLE COMPANY
ORDER NO. 0147013194-JQ
3RD AMEND

At the date hereof exceptions to coverage in addition to the Exceptions and Exclusions in said policy form would be as follows:

1. Taxes and assessments, general and special, for the fiscal year 2014 - 2015, a lien, but not yet due or payable.

2. Taxes and assessments, general and special, for the fiscal year 2013 - 2014, as follows:

Assessor's Parcel No	:	057-030-004	
Bill No.	:	056234	
Code No.	:	01-111	
1st Installment	:	\$1,893.62	Marked Paid
2nd Installment	:	\$1,893.62	NOT Marked Paid
Land	:	\$330,445.00	

Said matters affect Parcel One

3. Taxes and assessments, general and special, for the fiscal year 2013 - 2014, as follows:

Assessor's Parcel No	:	057-050-017	
Bill No.	:	056258	
Code No.	:	01-111	
1st Installment	:	\$705.71	Marked Paid
2nd Installment	:	\$705.71	NOT Marked Paid
Land	:	\$120,102.00	

Said matters affect Parcel Two

4. Taxes and assessments, general and special, for the fiscal year 2013 - 2014, as follows:

Assessor's Parcel No	:	019-120-002	
Bill No.	:	024046	
Code No.	:	58-029	
1st Installment	:	\$717.18	Marked Paid
2nd Installment	:	\$717.18	NOT Marked Paid
Land	:	\$118,670.00	

Said matters affect Portion of Parcel Three

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5. Taxes and assessments, general and special, for the fiscal year 2013 - 2014, as follows:

Assessor's Parcel No	:	019-120-007	
Bill No.	:	024047	
Code No.	:	58-029	
1st Installment	:	\$410.00	Marked Paid
2nd Installment	:	\$410.00	NOT Marked Paid
Land	:	\$64,278.00	

Said matters affect Portion of Parcel Three

6. Taxes and assessments, general and special, for the fiscal year 2013 - 2014, as follows:

Assessor's Parcel No	:	019-120-008	
Bill No.	:	024048	
Code No.	:	56-030	
1st Installment	:	\$1,394.70	Marked Paid
2nd Installment	:	\$1,394.70	NOT Marked Paid
Land	:	\$238,637.00	

Said matters affect Portion of Parcel Three

7. Taxes and assessments, general and special, for the fiscal year 2013 - 2014, as follows:

Assessor's Parcel No	:	057-060-008	
Bill No.	:	056262	
Code No.	:	58-030	
1st Installment	:	\$2,098.91	Marked Paid
2nd Installment	:	\$2,098.91	NOT Marked Paid
Land	:	\$365,685.00	
Imp. Value	:	\$1,115.00	

Said matters affect Portion of Parcel Three

8. The lien of supplemental taxes, if any, assessed pursuant to the provisions of Section 75, et seq., of the Revenue and Taxation Code of the State of California.

9. Rights of the public, County and/or City, in and to that portion of said land lying within the lines of Sand Creek Road, Deer Valley Road, Balfour Road and Empire Mine Road.

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10. Any easement for water course over that portion of said land lying within the banks of Sand Creek and Deer Creek.

11. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Deed
Granted To : Pacific Telephone and Telegraph Company
For : Pole Line Purposes
Recorded : [February 13, 1913 in Book 190 of Official Records, Page 494](#)
Affects : The North 10 feet of a portion of Parcel Three

12. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Deed
Granted to : Pacific Telephone and Telegraph Company
For : Pole line purposes, 10 feet in width
Recorded : June 7th, 1913 in [Book 202 of Deeds, Page 315](#)
Affects : A portion of Parcel Two

13. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Deed
Granted to : Pacific Telephone and Telegraph Company
For : Pole line purposes
Recorded : August 6th, 1925 in [Book 1 of Official Records, Page 175](#)
Affects : A portion of Parcel Two

14. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Pacific Gas and Electric Company
For : Tower line purposes
Recorded : September 30th, 1925 in [Book 7 of Official Records, Page 278](#)
Affects : A portion of Parcel Two

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15. Rights of way reserved in the deed to Albert Picard, recorded August 18, 1927, [Book 108, Official Records, Page 40](#), as follows:

A- "A right of way for road over a strip of land 25 feet wide along the entire Eastern boundary, which lies within the County Road, containing 1.39 acres, more or less."

B- "A right of way for the use and maintenance of a ditch that serves for the control of storm water, a strip of land 25 feet wide and 2050 feet along whose Western boundary extends from the Northwest corner of the tract first above described, 2050 feet Southerly along the West boundary line of the said tract, containing 1.18 acres, more or less."

(Affects Parcel One)

16. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Great Western Power Company of California
For : Pole line purposes
Recorded : March 30th, 1929 in [Book 167 of Official Records, Page 408](#)
Affects : A portion of Parcel Three

17. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement
Granted to : Federal Engineering Company
For : Pipe line and pole line purposes
Recorded : January 24th, 1930 in [Book 226 of Official Records, Page 26](#)
Affects : A portion of Parcel Three

NOTE: The location of the pole line was amended by Agreement by and between Peter Ginochio, et al, and Standard Pacific Gas Line Incorporated, recorded October 17, 1962 in Book 4224 OR 469.

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18. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement
Granted to : Federal Engineering Company
For : Pipe line and pole line purposes
Recorded : February 28th, 1930 in Book 237 of Official Records, Page 6
Affects : A portion of Parcel Three

NOTE: An amendment thereto was recorded April 17, 1930 in Book 228 OR 161 and re-recorded January 21, 1931 in Book 245 OR 279.

NOTE : The location of the pole line was amended by Agreement by and between Peter Ginochio, et al, and Standard Pacific Gas Line Incorporated, recorded October 17, 1962 in Book 4224 OR 469.

19. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Great Western Power Company of California
For : Pole line purposes
Recorded : January 20th, 1933 in [Book 332 of Official Records, Page 142](#)
Affects : A portion of Parcel Three

20. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement
Granted to : Standard Oil Company of California
For : Pipe line purposes and pole line purposes
Recorded : September 26th, 1945 in [Book 827 of Official Records, Page 94](#)
Affects : A portion of Parcel Three

NOTE: Said easement was assigned to Chevron Pipe Line Company, by instrument recorded March 24, 1994, Recorder's Series No. 94-82879.

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21. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement
Granted to : Standard Oil Company of California
For : Pipe line purposes and pole line purposes
Recorded : October 5th, 1945 in [Book 822 of Official Records, Page 486](#)
Affects : A portion of Parcel Three

NOTE: Said easement was assigned to Chevron Pipe Line Company, by instrument recorded March 24, 1994, Recorder's Series No. 94-82879.

22. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant Deed
Reserved by : Louisa E. Shellenberger
For : All easements and rights necessary for the production, storage, transportation, exploration, testing, with the right to drill or mine, all oil, gas, and other hydrocarbons and minerals therein
Recorded : March 12th, 1946 in Book 889 of Official Records, Page 43
Affects : A portion of Parcels Two and Three

23. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement
Granted to : Pacific Gas and Electric Company
For : Gas pipe lines
Recorded : August 11th, 1947 in [Book 1117 of Official Records, Page 267](#)
Affects : Parcel Two

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24. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement
Granted to : Pacific Gas and Electric Company
For : Gas pipe lines
Recorded : August 11th, 1947 in [Book 1117 of Official Records, Page 269](#)
Affects : A portion of Parcel One

25. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Right of Way
Granted to : Southern Pacific Pipe Lines, Inc.
For : Pipe line purposes, 16.5 feet in width
Recorded : December 6th, 1956 in [Book 2892 of Official Records, Page 575](#)
Affects : A portion of Parcel three - the location thereof is not defined of record

26. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Shell Oil Company
For : Pipe line purposes
Recorded : April 4th, 1963 in [Book 4337 of Official Records, Page 210](#)
Affects : A portion of Parcel One, 25 feet in width

NOTE: A" description of center line of right of way" pertaining thereto, was recorded June 19, 1964 in Book 4642, OR 190.

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27. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following
- Instrument : Final Order of Condemnation
Condemned to : Pacific Gas and Electric Company
For : Gas Transmission pipelines
Recorded : September 11th, 1963 in Book 4447 of Official Records, Page 789,
under Recorder's Serial Number 80654
Affects : Portions of Parcels One and Two

28. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following
- Instrument : Grant of Right of Way
Granted to : Shell Oil Company
For : Pipe line purposes
Recorded : December 2nd, 1963 in [Book 4502 of Official Records, Page 289](#)
Affects : A portion of Parcels Two and Three

Said Easement was Quitclaimed by Deed dated November 30, 1999, Recorded December 7, 1999, under Recorder's Serial Number 1999-0316799

29. Rights granted in the deeds from Louis Ginochio and Eda Ginochio, to various individuals, recorded December 24, 1964 in [Book 4770 OR, Pages 803, 806, 809, 812, 827, 830 and 833](#), respectively.

Said rights are "the right of ingress and egress at all times for the purpose of mining, drilling, exploring, operating and developing said lands for oil, gas and other minerals, and storing, handling, transporting and marketing the same therefrom".

(Affects Parcels One and Two)

30. Rights granted in the deed from Louis Ginochio and Eda Ginochio, to various individuals, recorded December 24, 1964 in [Book 4770 OR, Pages 815, 818, 821, 824, 836, 839 and 842](#), respectively.

Said rights are "the right of ingress and egress at all times for the purposes of mining, drilling, exploring, operating and developing said lands for oil, gas and other minerals, and storing, handling, transporting and marketing the same therefrom".

(Affects Parcel Three)

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31. Easement for temporary detention of waters, sediment or debris and for flowage of run off waters and appurtenances thereto granted to Contra Costa County Flood Control and Water Conservation District recorded June 8, 1965, [Book 4884, Official Records, Page 425](#).

(Affects a portion of Parcel Three)

32. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Shell Oil Company
For : Pipe line purposes
Recorded : July 21st, 1965 in [Book 5166 of Official Records, Page 428](#)
Affects : A portion of Parcels One and Two

33. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Shell Oil Company
For : Roadway and pipe line purposes
Recorded : July 21st, 1966 in [Book 5166 of Official Records, Page 432](#)
Affects : A portion of Parcels One and Two

34. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement
Granted to : Pacific Gas and Electric Company
For : Tower line purposes
Recorded : November 7th, 1966 in [Book 5240 of Official Records, Page 451](#)
Affects : A portion of Parcel Two

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35. Williamson Act - Land Conservation Contract as follows:

City/County : Contra Costa
Landowner : John Ginochio, Jr., a married man, dealing with his separate property, Louis Ginochio and Eda Ginochio, his wife and Peter Ginochio, and Edith Ginochio, his wife
Recorded : February 27th, 1969 in Book 5821 of Official Records, Page 451
Contract/File No. : 15/1318-RZ

NOTE: The effect of the Notice of Nonrenewal affecting Parcels One, Two and Three herein, by the City of Antioch, recorded September 27, 1993, Book 18982, OR 863. and Recorded December 11, 2000, under Recorder's Serial Number 2000-0277604

36. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Right of Way
Granted to : Shell Oil Company
For : Pipe line purposes
Recorded : July 6th, 1973 in [Book 6989 of Official Records, Page 850](#)
Affects : A portion of Parcel One, 10 feet in width

NOTE: A "Description of center line of right of way" pertaining thereto, was recorded June 18, 1974 in Book 7252 OR 886.

37. Waste Water Disposal Lease dated September 16, 1978, recorded March 29, 1979 in Book 9283 OR 158, as amended by Addendums dated October 17, 1983, and March 19, 1986, executed by John Ginochio, Jr., et al, and Emma Le'Moin, et al, lessors, and Shell Oil Company, a corporation, as lessee, for term of 20 years for disposal of waste waters from Brentwood Oil and Gas Field by means of injection into the subsurface below 4500 feet of the surface into abandoned Oil and Gas Wells Nos. 2-16 and 22-16 situate in Northeast 1/4 of Section 16, T. 1 N., R. 2 E., Mount Diablo Base and Meridian, together with the rights to use the surface for pipelines, roads for ingress and egress and ponding areas as described therein, and supplemented by agreement between members of the Ginochio family and OXY USA Inc. dated July 8, 1982.

(Affects Parcel Two and a portion of Parcel Three)

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38. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Right of Way
Granted to : Southern Pacific Pipe Lines, Inc.
For : Pipe line purposes
Recorded : September 2nd, 1983 in [Book 11418 of Official Records, Page 105](#)
Affects : A portion of Parcel Three, 10 feet in width

39. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant Deed
Granted to : Pacific Gas and Electric Company
For : Ingress and egress
Recorded : December 12th, 1991 in [Book 17077 of Official Records, Page 436](#)
Affects : A portion of Parcel Two - The locations thereof are not defined of record

40. Agreement for : Limited surface access
Executed By : Angelina Ginochio et al
and Between : Peter Eugene Ginochio et al

On the terms, covenants and conditions contained therein,

Dated : December 15, 1999
Recorded : January 18, 2000 in Official Records under Recorder's Serial Number 2000-10657

Affects this and other property.

41. Terms and conditions contained in the John R. Ginochio, III Children's 1999 Irrevocable Trust dated 4/5/99 as disclosed by Gift Deed

Recorded : April 6, 1999 in Official Records under Recorder's Serial Number 99-93573

NOTE: The requirement that:
A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

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42. Terms and conditions contained in the James Ginochio Trust created under Declaration of 6/11/99 as disclosed by Trustee's Grant Deed

Recorded : October 5, 1999 in Official Records under Recorder's Serial Number 99-264660

NOTE: The requirement that:
A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

43. Terms and conditions contained in the Joanne Baker Trust U/A/D 2-27/92 as disclosed by Trust Transfer Deed

Recorded : May 22, 2001 in Official Records under Recorder's Serial Number 2001-133433

NOTE: The requirement that:
A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

44. Terms and conditions contained in the Paul L. and Patty Ginochio Trust U/A/D 6/24/02, as a Schedule 1 Community Property Asset as disclosed by Trust Transfer Deed

Recorded : July 26, 2002 in Official Records under Recorder's Serial Number 2002-261701

NOTE: The requirement that:
A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

45. Terms and conditions contained in the Edward M. Ginochio Separate Property Trust U/A/D 5/25/04 as disclosed by Trust Transfer Deed

Recorded : May 26, 2004 in Official Records under Recorder's Serial Number 2004-199652

NOTE: The requirement that:
A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

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46. Terms and conditions contained in the Peter Eugene Ginochio Revocable Living Trust (Separate Property) dated November 15, 2006 as disclosed by Quitclaim Deed

Dated : August 3, 2007
Recorded : [August 6, 2007 in Official Records under Recorder's Serial Number 2007-0225954-00](#)

NOTE: The requirement that:

A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

47. Agreement for : Easement Agreement
Executed By : John R. Ginochio, III etal
and Between : Pacific Gas and Electric Company

On the terms, covenants and conditions contained therein,

Recorded : [January 9, 2009 in Official Records under Recorder's Serial Number 2009-3638](#)

Said matters affect Parcel Two

48. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant Deed and Easement
Granted To : Pacific Gas and Electric Company
Recorded : January 9, 2009 in Official Records under Recorder's Serial Number 2009-3639
Affects : A portion of Parcel Two

49. Terms and conditions contained in the Gina L. Ginochio Separate Property Trust as disclosed by Trust Transfer Deed

Recorded : [October 10, 2012 in Official Records under Recorder's Serial Number 2012-250139](#)

NOTE: The requirement that:

A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

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50. Terms and conditions contained in the James M. Ginochio Trust as disclosed by Trust Transfer Deed

Recorded : [November 28, 2012 in Official Records under Recorder's Serial Number 2012-302911](#)

NOTE: The requirement that:

A Certification of Trust be furnished in accordance with Probate Code Section 18100.5
The Company reserves the right to make additional exceptions and/or requirements.

51. Agreement for : Tenancy in Common
Executed By : Peter Eugene Ginochio et al
and Between : Joanne Baker et al

On the terms, covenants and conditions contained therein,

Recorded : [December 15, 2013 in Official Records under Recorder's Serial Number 2013-0012304](#)

52. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Cathodic Protection Facility Easement
Granted To : Chevron Pipe Line Company, a Delaware corporation
For : Cathodic pipe protection system
Recorded : [January 24, 2014 in Official Records under Recorder's Serial Number 2014-0012506](#)
Affects : A portion

Upon the terms and provisions contained therein

53. Any unrecorded and subsisting leases.

54. Rights and claims of parties in possession.

55. Facts which would be disclosed by a comprehensive survey of the premises herein described.

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56. The requirement that this company be provided with a suitable Owner's Affidavit from the Seller (form ORT 174). The Company reserves the right to make additional exceptions and/or requirements upon review of the Owner's Affidavit.
57. Note: It appears that Old Republic National Title Insurance may be asked to insure against the rights of Mechanics Lien claimants. The Company may require the following:
- A. Signed indemnities by all parties.
 - B. A copy of the construction cost breakdown.
 - C. Appropriate financial statements from all Indemnitors.
58. The requirement that this Company be provided with an opportunity to inspect the land (the Company reserves the right to make additional exceptions and/or requirements upon completion of its inspection).
59. The effect of instruments, proceedings, liens, decrees or other matters which do not specifically describe said land but which, if any do exist, may affect the title or impose liens or encumbrances thereon. The name search necessary to ascertain the existence of such matters has not been completed and, in order to do so, we require a signed Statement of Identity from or on behalf of Joanne M. Baker.
60. The effect of instruments, proceedings, liens, decrees or other matters which do not specifically describe said land but which, if any do exist, may affect the title or impose liens or encumbrances thereon. The name search necessary to ascertain the existence of such matters has not been completed and, in order to do so, we require a signed Statement of Identity from or on behalf of Louis E. Ginochio.

----- **Informational Notes** -----

- A. The applicable rate(s) for the policy(s) being offered by this report or commitment appears to be section(s) 1.2 and 2.1.

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B. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Gift Deed
By/From : John R. Ginochio, III
To : Ronald S. Ginochio, Trustee of the John R. Ginochio, III Children's
1999 Irrevocable Trust Dated 4/5/99 (2%) interest
Recorded : [April 6, 1999 in Official Records under Recorder's Serial Number 99-93573](#)

Affects a partial interest

C. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Trustee's Grant Deed
By/From : Peter Eugene Ginochio and Joanne Baker, as Co-Trustees U/D/A for
Edith Ginochio dated June 11, 1991
To : Peter Eugene Ginochio, a married man as his sole and separate
property; Joanne Baker, a single woman; and Peter Eugene Ginochio
and Joanne Baker, as Co-Trustees of the James Ginochio Trust
created under Declaration of 6/11/99
Recorded : [October 5, 1999 in Official Records under Recorder's Serial Number 1999-264660](#)

Affects a partial interest

D. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Trust Transfer Deed
By/From : Joanne Baker
To : Joanne M. Baker, Trustee of the Joanne M. Baker Trust U/A/D
2/27/92
Recorded : [May 22, 2001 in Official Records under Recorder's Serial Number 2001-138433](#)

Affects a partial interest

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E. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Trust Transfer Deed
By/From : Paul L. Ginochio and Patty Ginochio, Trustees of the Paul L. and Patty Ginochio Trust U/A/D 6/24/02, as a schedule 2 asset
To : Paul L. Ginochio and Patty Ginochio, Trustees of the Paul L. and Patty Ginochio Trust U/A/D 6/24/02, as a schedule 2 asset
Recorded : [July 26, 2002 in Official Records under Recorder's Serial Number 2002-261701](#)

Affects a partial interest

F. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Trust Transfer Deed
By/From : Anna M. Ginochio, Surviving Trustee
To : One-half (an undivided 4.665% interest) to Anna M. Ginochio, Trustee of the Anna M. Ginochio Survivor's Trust created 2/23/02; and one-half (an undivided 4.665% interest) to Anna M. Ginochio, Edward M. Ginochio and Paul L. Ginochio, Co-Trustees of the Louis E. Ginochio Exemption Trust created 2/23/02
Recorded : [December 2, 2002 in Official Records under Recorder's Serial Number 2002-455632](#)

Affects a partial interest

G. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Trust Transfer Deed
By/From : Edward M. Ginochio
To : Edward M. Ginochio, Trustee of the Edward M. Ginochio Separate Property Trust U/A/D 5/25/04
Recorded : [May 26, 2004 in Official Records under Recorder's Serial Number 2004-199652](#)

Affects a partial interest

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H. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Quitclaim Deed
By/From : Peter Eugene Ginochio
To : Peter Eugene Ginochio, as Trustee of the Peter Eugene Ginochio Revocable Living Trust (separate property) dated November 16, 2006
Recorded : [August 6, 2007 in Official Records under Recorder's Serial Number 2007-225954](#)

Affects a partial interest

I. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Trustee's Deed
By/From : Ronald S. Ginochio, as Trustee of the John R. Ginochio, III Children's 1999 Irrevocable Trust dated April 4, 1999
To : John R. Ginochio, IV, a single man (1.0%) interest
Recorded : [December 23, 2009 in Official Records under Recorder's Serial Number 2009-300681](#)

Affects a partial interest

J. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument
Entitled : Trustee's Deed
By/From : Ronald S. Ginochio, as Trustee of the John R. Ginochio, III 1999 Irrevocable Trust Agreement for Settlor's Siblings and Barbara A. Ginochio dated April 5, 1999
To : Angelina Ginochio, a married woman as her sole and separate property, Stephen M. Ginochio, a single man and Antonette Ginochio, a single woman (5.0%) interest
Recorded : [December 23, 2009 in Official Records under Recorder's Serial Number 2009-300682](#)

Affects a partial interest

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K. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument

Entitled : Gift Deed
By/From : Anna M. Ginochio, James M. Ginochio Edward M. Ginochio and Paul L. Ginochio, as Co-Trustees of the Anna M. Ginochio Survivor's Trust created 2/23/02
To : Edward M. Ginochio, Trustee of the Edward M. Ginochio Separate Property Trust U/A/D 5/25/2004, an undivided 1.16625% interest, and Paul L. Ginochio and Patty Ginochio, Trustees of the Paul L. and Patty Ginochio Trust U/A/D 6/24/2002, as a Schedule 2 Asset (separate property asset), an undivided 1.16625% interest, and James Martin Ginochio, an unmarried man, an undivided 1.16625% interest, and Gina Ginochio-Robichaud, a married woman as her sole and separate property, an undivided 1.16625% interest
Recorded : [October 5, 2011 in Official Records under Recorder's Serial Number 2011-206665](#)

Affects a partial interest

L. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument

Entitled : Trust Transfer Deed
By/From : Paul L. Ginochio and Patty Ginochio, Trustees of the Paul L. and Patty Ginochio Trust U/A/D 6/24/02, as a schedule 2 asset
To : Paul L. Ginochio and Patty Ginochio, Trustees of the Paul L. and Patty Ginochio Trust U/A/D 6/24/02, as a schedule 1 community property asset (1.16625%) interest
Recorded : [April 17, 2012 in Official Records under Recorder's Serial Number 2012-88251](#)

Affects a partial interest

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M. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument

Entitled : Trust Transfer Deed
By/From : Gina Ginochio-Robichaud (who formerly took title as Gina L. Ginochio)
To : Gina Ginochio-Robichaud, Trustee of the Gina L. Ginochio separate Property Trust U/A/D 10/09/2012
Recorded : [October 10, 2012 in Official Records under Recorder's Serial Number 2012-250139](#)

Affects a partial interest

N. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument

Entitled : Trust Transfer Deed
By/From : James M. Ginochio
To : James M. Ginochio, Trustee of the James M. Ginochio Trust U/A/D 11/27/2012
Recorded : [November 28, 2012 in Official Records under Recorder's Serial Number 2012-302911](#)

Affects a partial interest

O. Effective January 15th, 2013, recording service fees for the types of transactions listed below are as follows:

Finance transactions - \$105.00 to record all documents necessary to close and issue the required title insurance policy(ies).

Sale transactions - \$130.00 to record all documents necessary to close and issue the required title insurance policy(ies).

Commercial transactions - \$20.00 recording service fee plus all actual charges required by the County Recorder.

**CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY - 1990
EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.-

(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
 - (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
 - (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;.
 - (c) resulting in no loss or damage to the insured claimant;
 - (d) attaching or created subsequent to Date of Policy; or
 - (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments Which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims Which are not shown by the public records but which could be ascertained by an inspection of the land which may be asserted by persons in possession thereof,
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

OLD REPUBLIC TITLE COMPANY

Privacy Policy Notice

PURPOSE OF THIS NOTICE

Title V of the Gramm-Leach-Bliley Act (GLBA) generally prohibits any financial institution, directly or through its affiliates, from sharing nonpublic personal information about you with a nonaffiliated third party unless the institution provides you with a notice of its privacy policies and practices, such as the type of information that it collects about you and the categories of persons or entities to whom it may be disclosed. In compliance with the GLBA, we are providing you with this document, which notifies you of the privacy policies and practices of OLD REPUBLIC TITLE COMPANY

We may collect nonpublic personal information about you from the following sources:

- Information we receive from you such as on applications or other forms.

- Information about your transactions we secure from our files, or from [our affiliates or] others.

- Information we receive from a consumer reporting agency.

- Information that we receive from others involved in your transaction, such as the real estate agent or lender.

Unless it is specifically stated otherwise in an amended Privacy Policy Notice, no additional nonpublic personal information will be collected about you.

We may disclose any of the above information that we collect about our customers or former customers to our affiliates or to nonaffiliated third parties as permitted by law.

We also may disclose this information about our customers or former customers to the following types of nonaffiliated companies that perform marketing services on our behalf or with whom we have joint marketing agreements:

- Financial service providers such as companies engaged in banking, consumer finance, securities and insurance.

- Non-financial companies such as envelope stuffers and other fulfillment service providers.

WE DO NOT DISCLOSE ANY NONPUBLIC PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT SPECIFICALLY PERMITTED BY LAW.

We restrict access to nonpublic personal information about you to those employees who need to know that information in order to provide products or services to you. We maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Disclosure to Consumer of Available Discounts

Section 2355.3 in Title 10 of the California Code of Regulation necessitates that Old Republic Title Company provide a disclosure of each discount available under the rates that it, or its underwriter Old Republic National Title Insurance Company, have filed with the California Department of Insurance that are applicable to transactions involving property improved with a one to four family residential dwelling.

You may be entitled to a discount under Old Republic Title Company's escrow charges if you are an employee or retired employee of Old Republic Title Company including its subsidiary or affiliated companies or you are a member in the California Public Employees Retirement System "CalPERS" or the California State Teachers Retirement System "CalSTRS" and you are selling or purchasing your principal residence.

If you are an employee or retired employee of Old Republic National Title Insurance Company, or its subsidiary or affiliated companies, you may be entitled to a discounted title policy premium.

Please ask your escrow or title officer for the terms and conditions that apply to these discounts.

A complete copy of the Schedule of Escrow Fees and Service Fees for Old Republic Title Company and the Schedule of Fees and Charges for Old Republic National Title Insurance Company are available for your inspection at any Old Republic Title Company office.

N/2 SEC. 9 T. 1 N. R. 2 E. M. D. B. M.

PB
55

PB
56

HILLCREST
AVE

251.21
50.0
FROM BK 56 PG 13
25.0
25.96

589' 36.83"

25.96

02

030

01

NO. DAC.

50° 08' W
2386.9

Parcel one

04

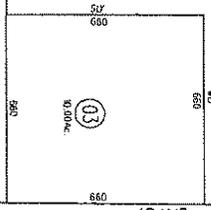
NO. DAC.

05

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030

B/3003



(SAND CREEK ROAD)

HEIDORN RANCH ROAD

SAND CREEK
RD

19
8

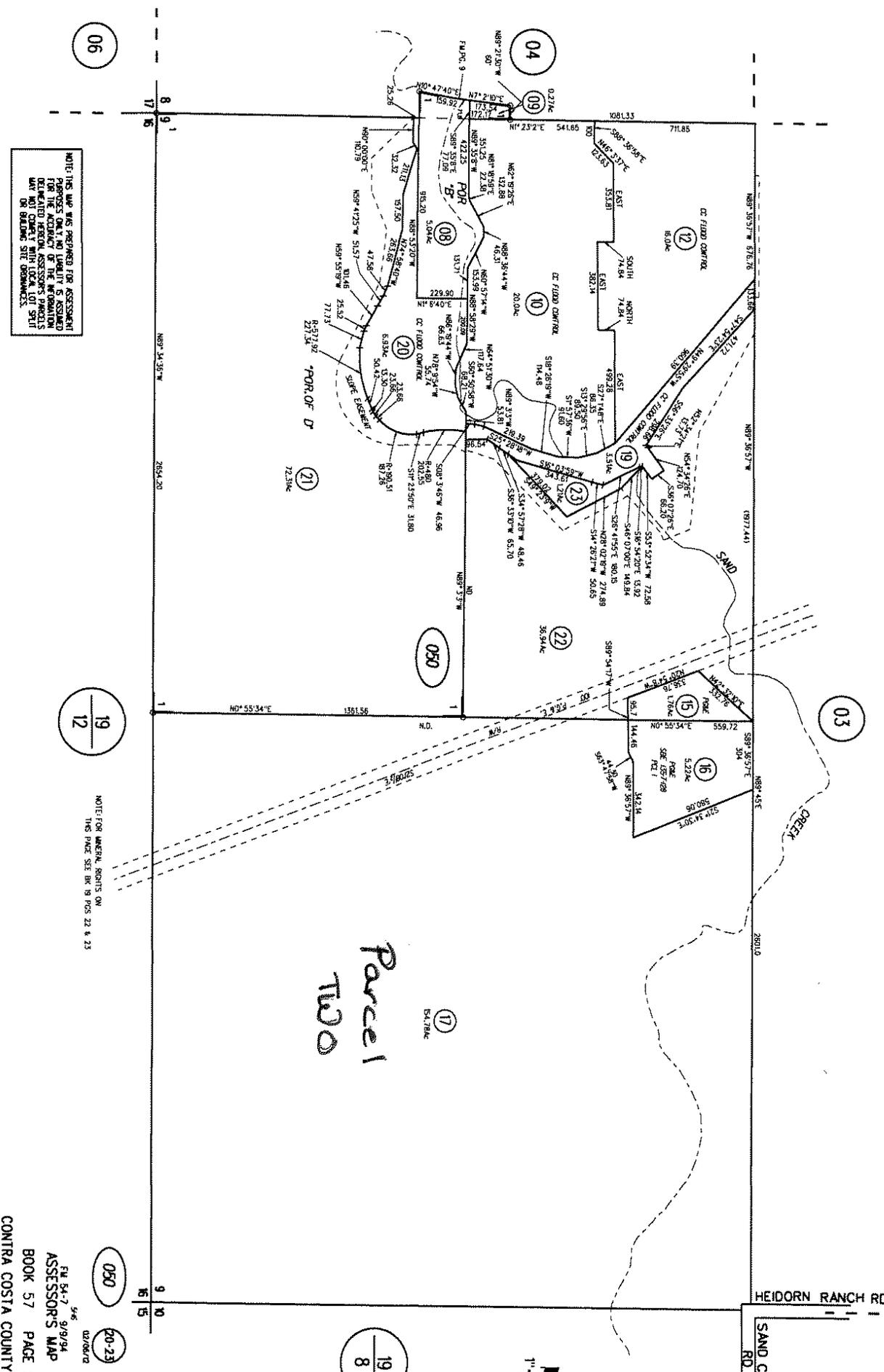


NOTE: THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSIGNED FOR THE ACCURACY OF THE INFORMATION DELIVERED HEREON. ASSESSOR'S OFFICES MAY BE CONTACTED FOR CLARIFICATION OR FIELDING SITE ORDINANCES.

FM 54-6 9-9-94
9960 ROLL 3/5
ASSESSOR'S MAP
BOOK 57 PAGE 3
CONTRA COSTA COUNTY, CALIF.

AUG 21 2003

S 1/2 SEC 9 T1N R2E MDBM
 1-POR 166PM1-3 5-14-85



NOTE: THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY AND LIABILITY IS ASSIGNED TO THE DELINEATED PERSON. ASSESSOR'S PARCELS ARE NOT BEING SHOWN. SEE DOCUMENT 5711

NOTE FOR MARINE RIGHTS ON THIS PACE SEE BK 18 PGS 22 & 23

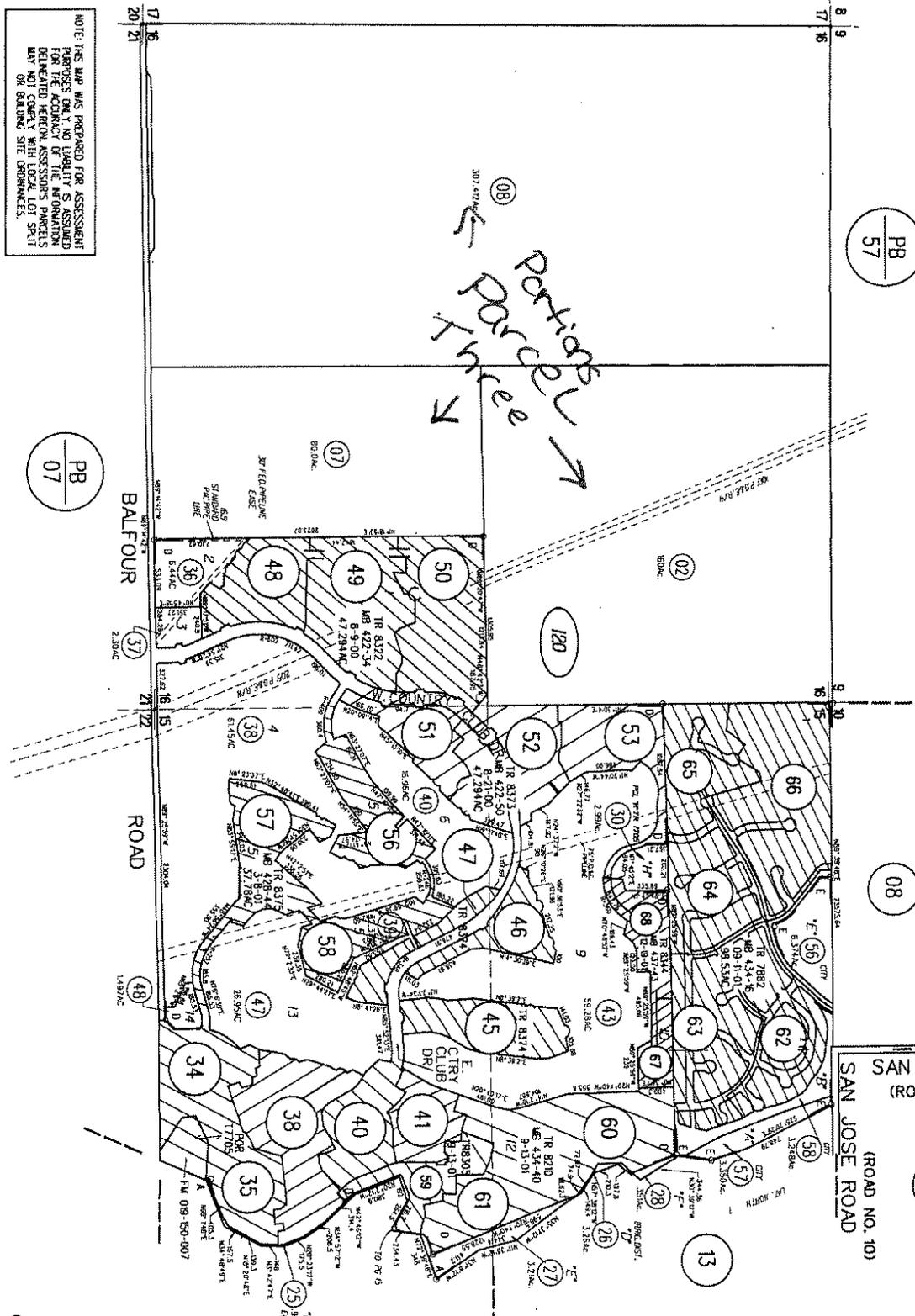
19/8
 19/12
 050/20-23
 PL 84-7 9/9/94
 ASSESSOR'S MAP
 BOOK 57 PAGE 5
 CONTRA COSTA COUNTY, CALIF.

W 1/2 & POR. E 1/2 SEC. 15 - SEC. 16 T.1N. R.2E. M.D.B.M.
 73L.S.M.10 9-7-83

4-1897 POR TR7705 M&S-18 GREENWOOD LAKE UNIT 1
 B-999 POR TR8063 M.B.401-43 GREENWOOD LAKE UNIT 2
 C-2000 POR TR8209 M.B.410-4 GREENWOOD LAKE UNIT 3
 D-2001 TR8323 M&A21-1
 E-2002 POR TR7882 M&A34 GREENWOOD HILLS

L-24

NOTE: THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY AND NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE INFORMATION OBTAINED HEREON. ASSESSORS' OFFICES MAY BE HELD RESPONSIBLE FOR ERRORS OR OMISSIONS ON BEHALF OF THE COUNTY.



FM 24-13
 ASSASSOR'S MAP
 BOOK 19 PAGE 12
 CONTRA COSTA COUNTY, CALIF.

MAR 17 2005

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APPENDIX E

ENVIRONMENTAL DATA RESOURCES, INC.

Aerial Photo Decade Package





Ginochio Properties

3428 Heidorn Ranch Road
Antioch, CA 94531

Inquiry Number: 3932185.12
May 05, 2014

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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Date EDR Searched Historical Sources:

Aerial Photography May 05, 2014

Target Property:

3428 Heidorn Ranch Road

Antioch, CA 94531

<u><i>Year</i></u>	<u><i>Scale</i></u>	<u><i>Details</i></u>	<u><i>Source</i></u>
1939	Aerial Photograph. Scale: 1"=500'	Flight Year: 1939 Best Copy Available from original source	Fairchild
1949	Aerial Photograph. Scale: 1"=500'	Flight Year: 1949	USGS
1958	Aerial Photograph. Scale: 1"=500'	Flight Year: 1958	Cartwright
1968	Aerial Photograph. Scale: 1"=500'	Flight Year: 1968	USGS
1974	Aerial Photograph. Scale: 1"=500'	Flight Year: 1974 Best Copy Available from original source	USGS
1981	Aerial Photograph. Scale: 1"=500'	Flight Year: 1981	USGS
1993	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1993	EDR
1998	Aerial Photograph. Scale: 1"=500'	Flight Year: 1998 Best Copy Available from original source	USGS
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	EDR
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	EDR

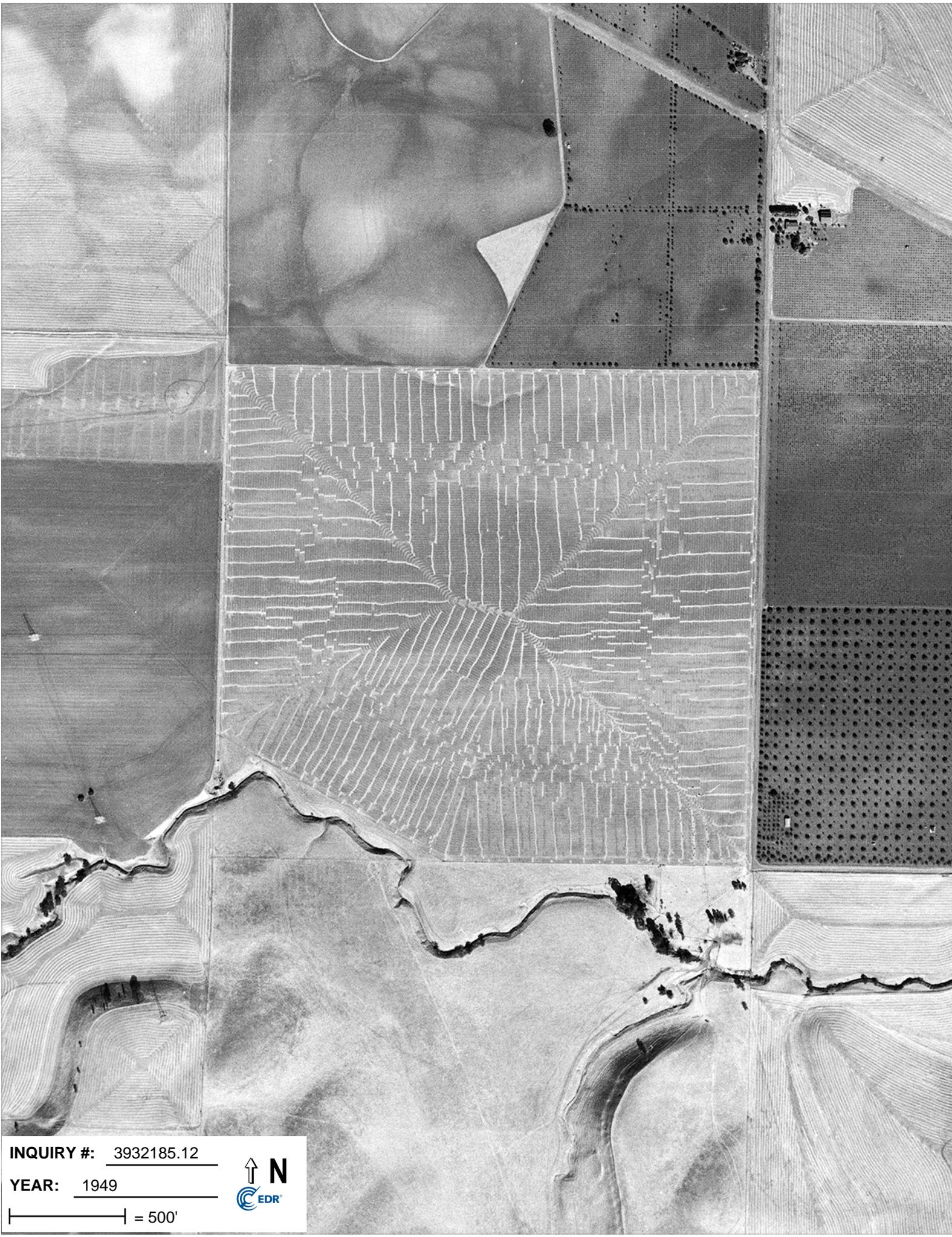


INQUIRY #: 3932185.12

YEAR: 1939

| = 500'





INQUIRY #: 3932185.12

YEAR: 1949

| = 500'





INQUIRY #: 3932185.12

YEAR: 1958

| = 500'



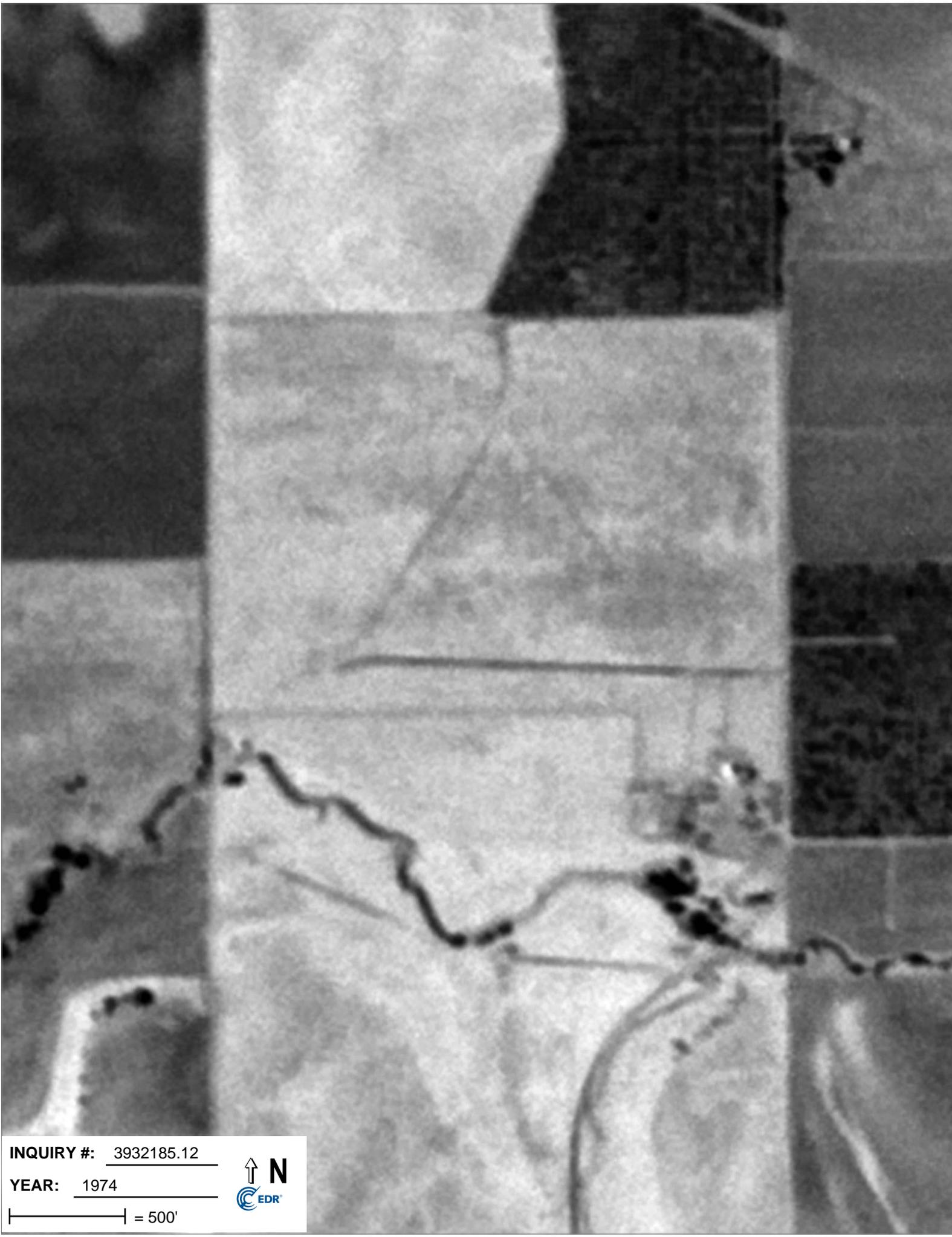


INQUIRY #: 3932185.12

YEAR: 1968

| = 500'





INQUIRY #: 3932185.12

YEAR: 1974

| = 500'





INQUIRY #: 3932185.12

YEAR: 1981

| = 500'





INQUIRY #: 3932185.12

YEAR: 1993

| = 500'





INQUIRY #: 3932185.12

YEAR: 1998

| = 500'





INQUIRY #: 3932185.12

YEAR: 2005

| = 500'



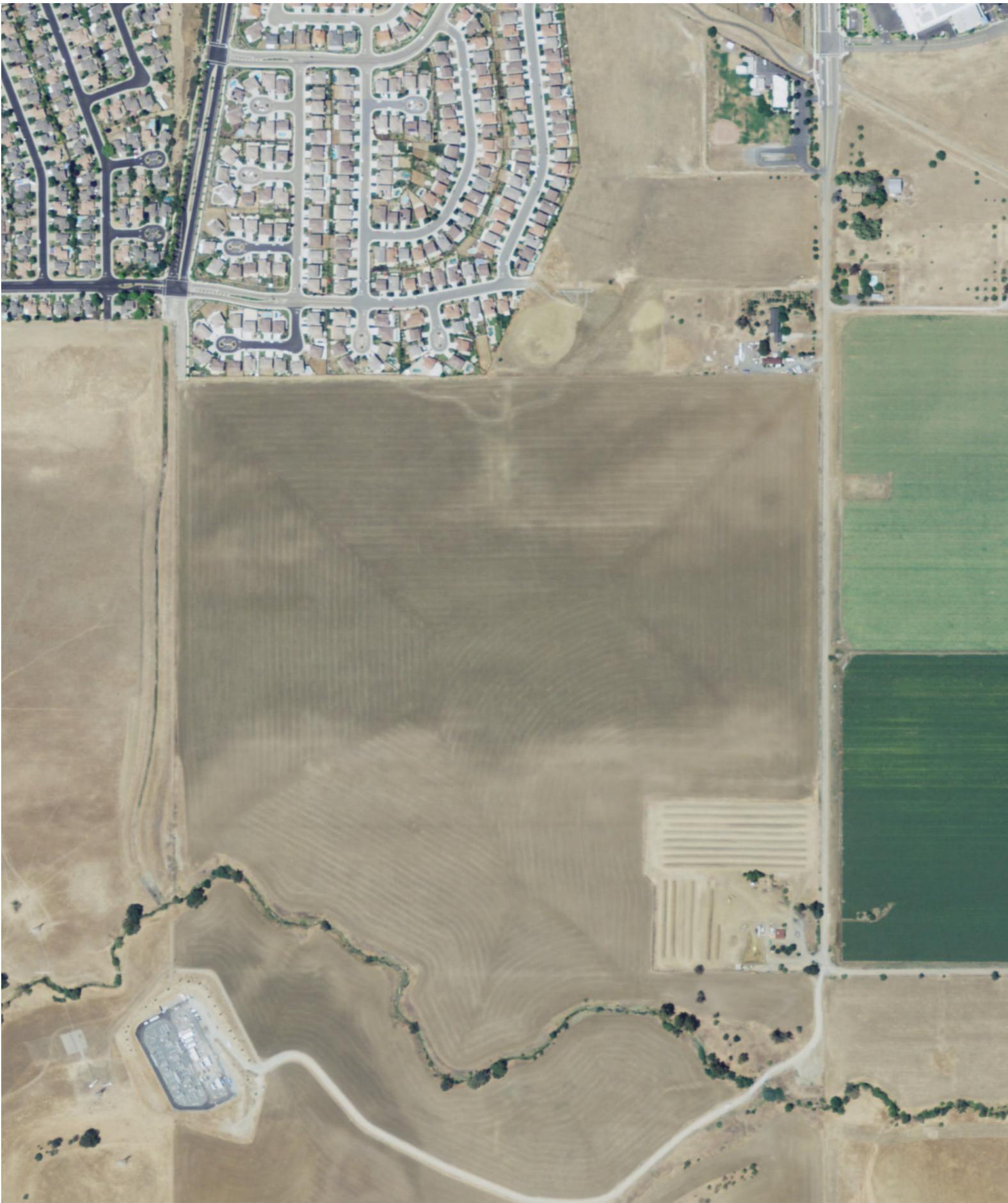


INQUIRY #: 3932185.12

YEAR: 2006

| = 500'



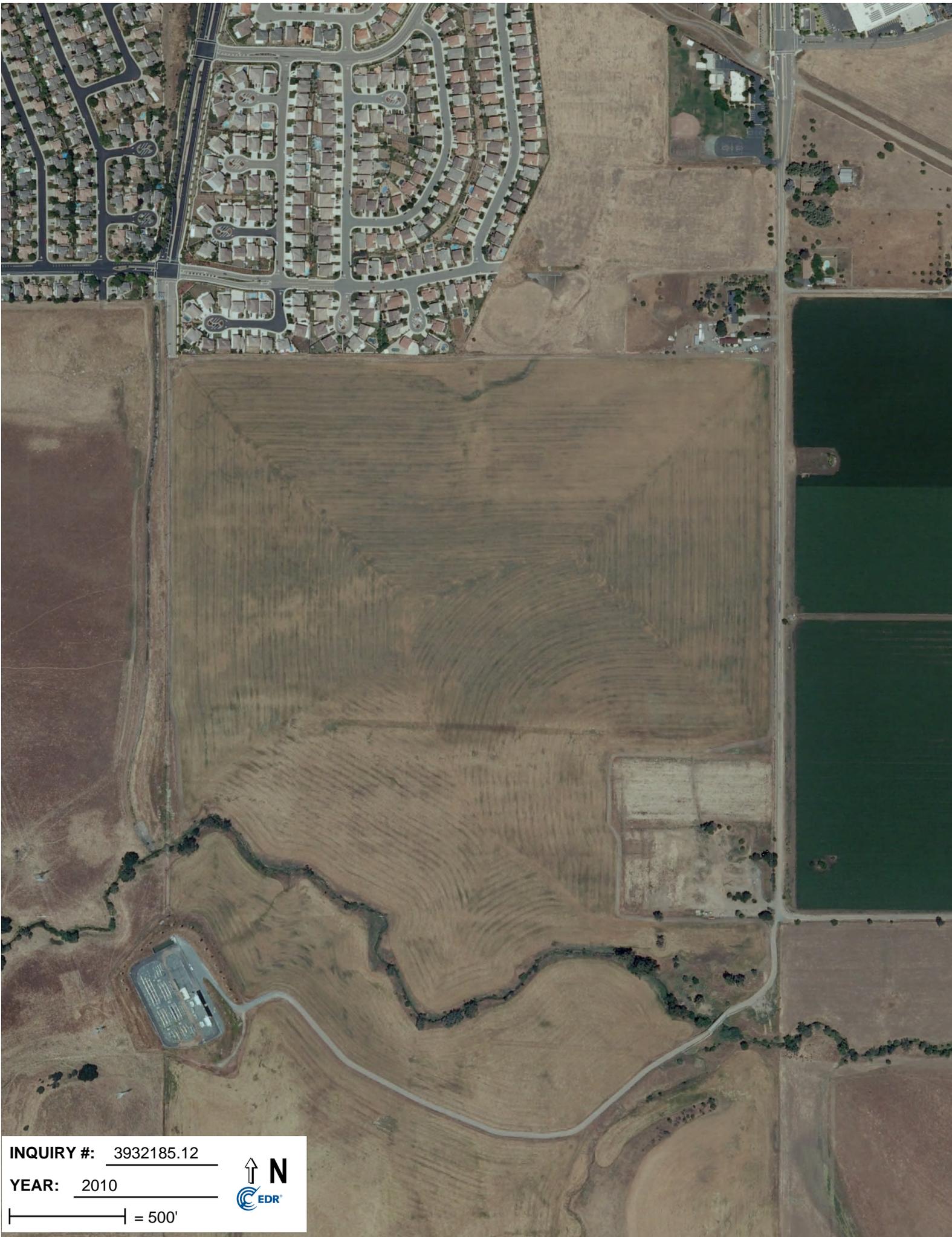


INQUIRY #: 3932185.12

YEAR: 2009

| = 500'





INQUIRY #: 3932185.12

YEAR: 2010

| = 500'





INQUIRY #: 3932185.12

YEAR: 2012

| = 500'



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APPENDIX F

ENVIRONMENTAL DATA RESOURCES, INC.

City Directory



Ginochio Properties

3428 Heidorn Ranch Road
Antioch, CA 94531

Inquiry Number: 3932185.5
May 07, 2014

The EDR-City Directory Image Report

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1994	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1989	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1985	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1974	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1970	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory

RECORD SOURCES

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FINDINGS

TARGET PROPERTY STREET

3428 Heidorn Ranch Road
Antioch, CA 94531

Year

CD Image

Source

HEIDORN RANCH RD

2013	pg A1	Cole Information Services	
2008	pg A2	Cole Information Services	
2003	pg A3	Cole Information Services	
1999	pg A4	Cole Information Services	
1994	-	Haines Criss-Cross Directory	Street not listed in Source
1989	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1974	-	Haines Criss-Cross Directory	Street not listed in Source
1970	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

HEIDORN RANCH RD 2013

5030 LUCIA JOBE
5200 HERITAGE BAPTIST ACADEMY
HERITAGE BAPTIST CHURCH
5320 RICHARD JOHNSON

HEIDORN RANCH RD 2008

5030 LUCIA JOBE
5200 HERITAGE BAPTIST ACADEMY
5320 RICHARD JOHNSON

HEIDORN RANCH RD 2003

5020 OCCUPANT UNKNOWN
5030 LUCIA JOBE
5200 HERITAGE BAPTIST ACADEMY
HERITAGE BAPTIST CHURCH
OCCUPANT UNKNOWN
5320 RICHARD JOHNSON



-

HEIDORN RANCH RD 1999

5030 LUCIA JOBE
5320 RICHARD JOHNSON

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APPENDIX G

Environmental Data Resources, Inc., Environmental Lien Search Report



Ginochio Properties

3428 Heidorn Ranch Road
Antioch, CA 94531

Inquiry Number: 3932185.7
May 06, 2014

EDR Environmental Lien and AUL Search

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.

Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

3428 Heidorn Ranch Road
Ginochio Properties
Antioch, CA 94531

RESEARCH SOURCE

Source 1:

Contra Costa Recorder
Contra Costa, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed: deed
Title is vested in: Gina L Ginochi Robichaud Trustee
Title received from: Gina L Ginochi Robichaud
Deed Dated: 10/9/2012
Deed Recorded: 10/10/2012
Book: NA
Page: na
Volume: na
Instrument: na
Docket: NA
Land Record Comments:
Miscellaneous Comments:

Legal Description: See Exhibit

Legal Current Owner: Gina L Ginochi Robichaud Trustee

Parcel # / Property Identifier: 057-030-004

Comments: See Exhibit

ENVIRONMENTAL LIEN

Environmental Lien: Found Not Found

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found Not Found

Deed Exhibit 1

RECORDING REQUESTED BY

DEBORAH MORITZ-FARR

AND WHEN RECORDED MAIL TO:

GINA GINOCHIO-ROBICHAUD, TRUSTEE
4877 CHEROKEE DRIVE
CONCORD, CA 94521



CONTRA COSTA Co Recorder Office
STEPHEN L. WEIR, Clerk-Recorder
DOC- 2012-0250139-00

Check Number

Wednesday, OCT 10, 2012 11:44:20

SUR \$10.00:MOD \$3.00:REC \$13.00

FTC \$2.00:RED \$1.00:ERD \$1.00

Ttl Pd \$30.00

Rcpt # 0001428304

rrc/R9/1-3

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Trust Transfer Deed

Grant Deed (Excluded from Reappraisal Under Proposition 13 i.e., Calif. Const. Art 13A § 1 et. seq.)

The undersigned Grantor declares under penalty of perjury that the following is true and correct:
THERE IS NO CONSIDERATION FOR THIS TRANSFER WHICH IS NOT PURSUANT TO A SALE.

Documentary transfer tax is \$ -0-

- Computed on full value of property conveyed, or Computed on full value less value of liens and encumbrances remaining at time of sale or transfer.
- There is no Documentary transfer tax due. (Revenue and Taxation Code §11930)
- Unincorporated area: City of _____ and _____
This is a Trust Transfer under §62 of the Revenue and Taxation Code and Grantor has checked the applicable exclusion:
- Transfer to a revocable trust;
- Transfer to a short-term trust not exceeding 12 years with trustor holding the reversion;
- Transfer to a trust where the trustor or the trustor's spouse is the sole beneficiary;
- Change of trustee holding title-
- Transfer from trust to trustor or trustor's spouse where prior transfer to trust was excluded from reappraisal and for a valuable consideration, receipt of which is acknowledged.
- Other:

GRANTOR: GINA GINOCHIO-ROBICHAUD (who formerly took title and is also legally known as GINA L. GINOCHIO), a married woman as to her separate property

hereby **GRANTS** to GINA GINOCHIO-ROBICHAUD, TRUSTEE OF THE GINA L. GINOCHIO SEPARATE PROPERTY TRUST U/A/D 10/09/2012

all of her undivided 7.17% interest in and to the following described real property in the unincorporated area of the County of Contra Costa, State of California:

SEE EXHIBIT "A" FOR LEGAL DESCRIPTION WHICH BY THIS REFERENCE IS INCORPORATED HEREIN.

APNs: 057-030-004, 057-050-017, 057-060-008, 019-120-002, 019-120-007 and, 019-120-008

Commonly referred to as the "Brentwood Ranch."
Dated: October 9, 2012

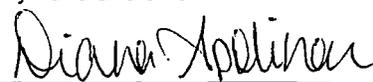

GINA GINOCHIO-ROBICHAUD, FORMERLY
LEGALLY KNOWN AS GINA L. GINOCHIO
Grantor - Transferor

State of California
County of Contra Costa

On October 9, 2012, before me, Diana Apolinar, a Notary Public, personally appeared GINA GINOCHIO-ROBICHAUD, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her authorized capacity, and that by her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature 



MAIL TAX STATEMENTS TO: NO CHANGES

EXHIBIT "A"

(a) Portion of the Northeast 1/4 of Section 9, Township 1 North, Range 2 East, Mount Diablo Base and Meridian, containing a net area of 134.54 acres, more or less, described as follows:

Beginning at a point in the center of a county road which point is at the southeast corner of the Northeast 1/4 of Section 9 of said Township and Range; thence from said point of beginning along the section line and center line of County road, in a direction assumed for the purpose of this description to be due north, a distance of 2412 feet to the south line of the parcel of land described in the deed to Frederick H. Heidorn, recorded June 17, 1926, Book 33, Official Records, page 396; thence south 89° 11' west along the south line of said Heidorn Tract, 33 OR 396, 2596 feet to a point in the quarter section line; thence along the quarter section line south 0° 6' west, 2386.9 feet to the mid point of the said Section 9; thence along the quarter section line north 89° 45' east, 2601.5 feet to the point of beginning.

EXCEPTING FROM PARCEL (a): That parcel of land described in the deed to Shell Oil Company, recorded April 15, 1963, Book 4344, Official Records, page 290.

/ Assessor's Parcel No. 057-030-004 (formerly 054-060-004)

(b) The Southeast 1/4 of Section 9, Township 1 North, Range 2 East, Mount Diablo Base and Meridian, less some 5.14 acres (A.P.N. 054-070-006) conveyed to Pacific Gas and Electric Company by Grant Deed recorded December 12, 1991, in Book 17077 at Page 436, Contra Costa County Records, said net parcel containing 154.86 acres.

EXCEPTING FROM PARCEL (b): "An undivided one-half (1/2) right, title, interest and estate in and to all oil, gas and other hydrocarbons and minerals therein and thereunder", as reserved in the deed from Louisa D. Heidorn Shellenberger to John Ginochio, et al, recorded March 12, 1946, Book 889, Official Records, page 43.

Assessor's Parcel No. 057-050-017 (formerly 057-050-007, which was formerly 054-070-007)

(c) Section 16, the North 1/2 of Section 17 and the Southeast 1/4 of Section 17, Township 1 North, Range 2 East, Mount Diablo Base and Meridian.

Assessor's Parcels No. 057-060-008 (formerly 054-120-008), containing 456± acres; and No. 019-120-002, -007 and 008 (formerly 054-130-002, -007 and -008), containing 547.41 acres - total acreage, 1003.41.

EXCEPTING FROM PARCEL (c):

(i) As to the Southeast 1/4 of Section 17: The interest conveyed to Contra Costa County by deed recorded March 11, 1892, Book 61, Deeds, page 216, "for road purposes".

(ii) As to the Southeast 1/4 of Section 17: The 9.10 acre parcel of land described in the deed to Andrew Smith, recorded July 6, 1893, Book 66, Deeds, page 467.

(iii) As to the North 1/2 of Section 17: The 5.10 acre parcel of land described in the deed to Andrew Smith, recorded April 30, 1894, Book 68 Deeds, page 346.

(iv) The interest conveyed to Contra Costa County by deed recorded October 15, 1935, Book 389, Official Records, page 423, "for use as a public highway".

(v) The East 1/2 of the Southeast 1/4 of Section 16, Township 1 North, Range 2 East, Mount Diablo Base and Meridian.

TOTAL ACREAGE: 1283± acres

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APPENDIX H

Regional Water Quality Control Board No Further Action Declaration (2)



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

3443 Roubier Road, Suite A
Sacramento, CA 95827-3098
PHONE: (916) 255-3000
FAX: (916) 255-3015s



17 July 1995

Mr. Dennis Newman
Oxy USA, Inc.
P. O. Box 300
Tulsa, OK 74102-0300

**REQUEST FOR SITE CLOSURE- FORMER SULLENGER 4-8, SULLENGER 42-8,
GINOCHIO SHELLENBERGER 22-16, GINOCHIO SHELLENBERGER 42-9, AND
GINOCHIO 2-9 SITES, BRENTWOOD OIL AND GAS FIELD, OXY USA INC., CONTRA
COSTA COUNTY**

Staff has reviewed the 12 June 1995 and 26 June 1995 above-referenced closure requests, prepared by your consultant Groundwater Technology Inc. (GCI). The Department of Toxic Substances Control (DTSC) has been providing consultative services in risk assessment for the Brentwood Oil and Gas Field Sites. On 14 March 1995 Mr. Ned Butler, staff toxicologist with DTSC approved the December 1994 Human Health Based Soil Remediation Target Concentration Report, submitted by Oxy USA Inc. Crude oil contaminated soil at the above sites was excavated down to 10 feet following the methodology approved by Board Staff and DTSC. Confirmation soil samples were obtained from excavation sidewalls at depths of 2 feet, 5 feet, and 10 feet below ground surface (bgs) and from the bottom of each excavation. Each soil sample was analyzed for BTEX, PAHs, and TPH using EPA Methods 8020, 8310, and 8015 respectively. Hydrocarbon contaminated soil was transported to the biotreatment facility for treatment.

Analytical results were below detection limits for all but three of the confirmation soil samples. The three contaminated soil samples had detectable levels below the approved risk assessment clean up goals. The ground water is uncontaminated. Ground water sampling beneath these sites has shown all compounds tested for below detection limits.

Based on the information provided, Board staff has determined that appropriate response actions have been completed, that acceptable remedial practices were implemented, and that, at this time, no further investigation, remedial or removal action, or monitoring is required at the former Sullenger 4-8, Sullenger 42-8, Ginochio Shellenberger 22-16, Ginochio Shellenberger 42-9, and Ginochio 2-9 Sites, Brentwood Oil and Gas Field, Contra Costa County.

Nothing in this determination shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past, current, or future operations at this location. Nothing in this determination is intended or shall be construed to limit the rights of any parties with respect to claims arising out of or relating to deposit or disposal at any other location of substances

removed from the site. Nothing in this determination is intended or shall be construed to limit or preclude the Board or any other agency from taking any further enforcement actions.

This letter does not relieve the owner of any responsibilities mandated under the California Health and Safety Code and California Water Code if existing, additional, or previously unidentified contamination at the site caused or threatens to cause pollution or nuisance or is found to pose a threat to public health or water quality. Changes in land use may require further assessment and mitigation.

If you have any questions, you may contact David Jenkins at (916) 255-3054.



THOMAS PINKOS
Supervising Engineer

DEJ

Enclosure

cc: Mr. Brunczewski, Contra Costa County Environmental Health Department , Martinez
Mr. Michael Blundell, Groundwater Technology Inc., Ventura



California Regional Water Quality Control Board Central Valley Region

Katherine Hart, Chair



KAS

Linda S. Adams
Acting Secretary for
Environmental Protection

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

Edmund G. Brown Jr.
Governor

17 February 2011

Mr. Doc Heath
Glenn Springs Holding, Inc.
5005 LBJ Freeway, Suite 1350
Dallas, Texas 75244-6119

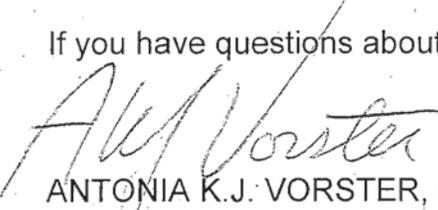
NO FURTHER ACTION DETERMINATION, EFFECTIVE DATE, FORMER SHELL YARD, 3052 HEIDORN RANCH ROAD, ANTIOCH, CONTRA COSTA COUNTY

In a 13 December 2010 letter, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) Executive Officer issued a Conditional No Further Action Determination to you in regards to the petroleum release at 3052 Heidorn Ranch Road in Antioch (Site). The Conditional No Further Action Determination stated that the effective date of this Determination will be issued to you after Central Valley Water Board staff receives documentation that the monitoring wells were destroyed with Contra Costa County Environmental Health Division (County) approval and oversight.

In a letter dated 2 February 2011, you provided documentation demonstrating that the monitoring wells were destroyed between 28 and 31 January 2011 with County oversight. Therefore, the No Further Action Determination for this Site is effective as of the date of this letter.

Issuance of a No Further Action Determination does not preclude future action by the Central Valley Water Board if subsequent monitoring, testing, or analysis at the Site indicates that the remedial action standards and objectives were not achieved; a new or previously undiscovered release occurs at the Site; or new information indicates that further site investigation and remedial action are required to prevent a significant risk to human health and safety, the environment, or water quality.

If you have questions about this letter, you may call Kristi Shelton at (916) 464-4819.


ANTONIA K.J. VORSTER, P.E.
Site and Groundwater Cleanup Program Manager

cc: Contra Costa County Environmental Health Services, Martinez
Mr. David Provance, The Source Group, Pleasant Hill

California Environmental Protection Agency

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APPENDIX I

Environmental Site Assessment Questionnaires (2)



<input type="checkbox"/> 2010 Crow Canyon Place ▪ Suite 250 ▪ San Ramon, CA 94583	(925) 866-9000 ▪ Fax (888) 279-2698
<input type="checkbox"/> 2213 Plaza Drive ▪ Rocklin, CA 95765	(916) 786-8883 ▪ Fax (888) 279-2698
<input type="checkbox"/> 332 Pine Street ▪ Suite 300 ▪ San Francisco, CA 94104	(415) 284-9900 ▪ Fax (888) 279-2698
<input type="checkbox"/> 6399 San Ignacio Avenue ▪ Suite 150 ▪ San Jose, CA 95119	(408) 574-4900 ▪ Fax (888) 279-2698
<input checked="" type="checkbox"/> 580 N. Wilma Avenue ▪ Suite A ▪ Ripon, CA 95366	(209) 835-0610 ▪ Fax (888) 279-2698
<input type="checkbox"/> 17675 Sierra Highway ▪ Santa Clarita, CA 91351	(661) 257-4004 ▪ Fax (888) 279-2698
<input type="checkbox"/> 13211 Pusan Way ▪ Suite 16 ▪ Irvine, CA 92618	(949) 529-3479 ▪ Fax (888) 279-2698

**ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE
FOR CLIENT**

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be completed by the user of the phase one environmental site assessment, or their authorized representative.

PART I

1. Property address and Assessor's Parcel Number (APN):

Heidorn Ranch Road, Antioch CA
APN 057-030-004, -003 and a portion of 057-050-017

2. Current property owner (name, address, voice/fax number):

15 separate Ginochio Family members or their trusts. Please see title report.

3. Date current property owner assumed title of property:

unknown - but family has owned for a long time/original owners

4. Current property development/improvements:

grazing and dry farming, Shell site has above ground equipment.

5. Past property use, development/improvements:

same

6. Neighboring property uses:

single family subdivisions to north, dry farming on entitled land to west, irrigated farming on commercially-zoned property to the east, Sand Creek to the south.

PART II

1. Are you aware of any environmental cleanup liens against the *property* that are filed under federal, tribal, local or state law? Yes No

2. Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state or local law? Yes No

3. Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example are you involved in the same line of business as the current or former occupants of the *property* or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? Yes No

4. If a property transaction is occurring in conjunction with this environmental assessment, does the purchase price of this *property* reasonably reflect the fair market value of the *property*? N/A Yes No

5. If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*? N/A Yes No N/A

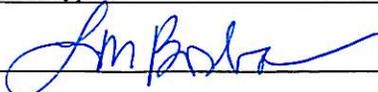
6. Are you aware of any commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, Yes No
 - (a) do you know of specific chemicals that are present or once were present at the *property*?
 - (b) do you know of spills or other chemical releases that have taken place at the *property*?
 - (c) do you know of any environmental cleanups that have taken place at the *property*?

7. Based on your knowledge and experience related to the *property* are there any obvious indicators that point to the presence or likely presence of contamination at the *property*? Yes No

If a "Yes" response was provided to any of the above questions, please provide details below:

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Lisa M. Borba

Signature: 

Date: 5/5/14

<input type="checkbox"/> 2010 Crow Canyon Place ▪ Suite 250 ▪ San Ramon, CA 94583	(925) 866-9000 ▪ Fax (888) 279-2698
<input type="checkbox"/> 2213 Plaza Drive ▪ Rocklin, CA 95765	(916) 786-8883 ▪ Fax (888) 279-2698
<input type="checkbox"/> 332 Pine Street ▪ Suite 300 ▪ San Francisco, CA 94104	(415) 284-9900 ▪ Fax (888) 279-2698
<input type="checkbox"/> 6399 San Ignacio Avenue ▪ Suite 150 ▪ San Jose, CA 95119	(408) 574-4900 ▪ Fax (888) 279-2698
<input checked="" type="checkbox"/> 580 N. Wilma Avenue ▪ Suite A ▪ Ripon, CA 95366	(209) 835-0610 ▪ Fax (888) 279-2698
<input type="checkbox"/> 17675 Sierra Highway ▪ Santa Clarita, CA 91351	(661) 257-4004 ▪ Fax (888) 279-2698
<input type="checkbox"/> 13211 Pusan Way ▪ Suite 16 ▪ Irvine, CA 92618	(949) 529-3479 ▪ Fax (888) 279-2698

**ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE
FOR “KEY SITE MANAGER”**

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be preferably completed by the current property owner, or owner representative, leasing agent, or other person having good knowledge of the uses and physical characteristics of the property (Key Site Manager).

PART I

1. Property Address/Location and Assessor’s Parcel Number (APN):

Heidorn Ranch Road, Antioch, CA

APN 057-030-004, -003 and portion of 057-050-017

*Shell is 3052 Heidorn
Ranch Road, Antioch Ca*

2. Current property owner (name, address, voice/fax number):

15 separate Ginochio Family Members
+ Shell Western E+P Inc.

3. Date current property owner assumed title of property:

unknown

4. Current property development/improvements:

*Ginochio: dryland farming non-irrigated
Natural gas transfer station on Shell*

5. Past property use, development/improvements:

*dryland farming on Ginochio
office & maintenance yard for petroleum pipeline operations*

6. Neighboring property uses:

*dryland and irrigated farming within City limits on West & East.
Existing subdivisions on the north + Sand Creek to the south.*

PART II - The following questions should be answered to the best of your knowledge.

- | | | | |
|---|---|--|--------------------|
| 1. Is/has the <i>property</i> or any adjoining property used/been used for industrial purposes? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <i>Shell only</i> |
| 2. Has the <i>property</i> or any adjoining property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 3. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal in volume or 50 gal in the aggregate, stored on or used at the <i>property</i> or at the facility? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 4. Has undocumented soil been brought onto the property at any time? If yes, estimated quantity is _____ cubic yards. | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 5. Has soil been brought onto the property that originated from a contaminated site or that is of an unknown origin? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 6. Are there currently, or have there been previously, any pits, ponds, or lagoons located on the <i>property</i> in connection with waste treatment or waste disposal? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 7. Is there currently, or has there been previously, any stained soil on the <i>property</i> ? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 8. Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the <i>property</i> ? <i>might have been on Shell...</i> | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <i>ON Ginochid</i> |
| 9. Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the <i>property</i> or adjacent to any structure located on the <i>property</i> ? <i>only on shell site ... & along Heidorn Ranch Rd.</i> | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 10. Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 11. Are there any domestic, irrigation or monitoring wells on the property? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 12. If the <i>property</i> is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 13. Have you been informed of the past or current existence of <i>hazardous substances</i> or <i>petroleum products</i> or environmental violations with respect to the <i>property</i> or any facility located on the <i>property</i> ? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 14. Have there been any <i>environmental site assessments</i> of the <i>property</i> or facility that indicated the presence of <i>hazardous substances</i> or <i>petroleum products</i> on, or contamination of, the <i>property</i> or recommended further assessment of the <i>property</i> ? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 15. Have there been any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any <i>hazardous substance</i> or <i>petroleum products</i> involving the <i>property</i> ? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 16. Has there been any past agricultural use of the <i>property</i> , such as orchards or seed crop cultivation? <i>dry land grain farming - non-irrigated.</i> | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 17. Have any <i>hazardous substances</i> or <i>petroleum products</i> , unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the <i>property</i> ? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 18. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |

If a "Yes" response was provided to any of the above questions, please provide details below:

See notes next to questions.

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Ron Nunn

Signature: JmB for Ron Nunn

Date: 5/5/14

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APPENDIX J

Qualifications of Environmental Professional



SHAWN MUNGER, CHG PRINCIPAL GEOLOGIST

EDUCATION

BS, Geology, U.C. Davis, 1985

EXPERIENCE

Years with ENGEO: 25
Years with Other Firms: 0

REGISTRATIONS & CERTIFICATIONS

Certified Hydrogeologist, CA, 413
40 Hour HAZWOPER Training, CA
Certified Environmental Manager,
NV, 1332
Registered Environmental Assessor
II, CA, 20201
Professional Geologist, CA, 5810

SPECIALIZATIONS

- Environmental Assessments and Remediation
- Environmental Restoration
- Water Quality Studies
- Water Wells/Hydrogeology

Since joining ENGEO in 1985, Mr. Munger has been managing groundwater supply evaluations, hydrogeologic studies, chemical assessments, phase I and II site assessment projects, UST site investigations, risk based corrective action (RBCA), VOC remediation, and agricultural impact evaluations. He serves as Principal-in-Charge or Project Manager for environmental and hazardous materials projects involving groundwater hydrology, contaminant fate and transport, and remediation. He is Principal-in-Charge of our on-call contract with DTSC and the environmental components of our on-call contracts with the City of Sacramento and the County of Sacramento.

Selected Project Experience

Seacliff Estates—Richmond, CA

Principal in Charge. Mr. Munger provided oversight, review, and consultation during preparation of phase I and II site assessments and soil remediation. The 12-acre site was formerly part of Kaiser Shipyard No. 3 and was used for ship repair and maintenance along with scrap metal and salvage yards. The property was developed as a single-family residential subdivision.

Renaissance Square—Concord, CA

Project Manager. Mr. Munger provided consultation, data analysis, and field observation. This former automotive dealership was redeveloped as a five-story multi-family residential structure supported on slab-on-grade foundations, with two levels of below-grade parking. Petroleum hydrocarbon-impacted soil was encountered during excavation of the parking structure, which required characterization and remediation. Soil impacts were attributed to former sumps, USTs and hydraulic lifts.

Pleasant Hill BART Station—Walnut Creek, CA

Principal in Charge. Mr. Munger provided oversight, data analysis and consultation during the preparation of a phase II environmental site assessment. The property is an existing BART station that encompasses 20 acres, including the platform/station area, electrical facilities, a parking garage and additional paved parking areas.

Mills Ranch—King City, CA

Principal in Charge. Mr. Munger provided principal oversight of phase I and II environmental site assessments and risk evaluations. The approximate 80-acre property is used for agricultural cultivation and commercial uses. The proposed mixed-use development includes over 400 single-family residential lots.

Select Foods Site/Cross Creek—Hayward, CA

Principal in Charge. Mr. Munger provided principal oversight, consultation, and data analysis. The property was a former processed food facility, a drum recycling business, battery manufacturing operation and a bus assembly plant. Following completion of soil remediation under RWQCB oversight, the property was developed into a single-family residential subdivision.

Southchase Property—West Sacramento, CA

Project Manager. Mr. Munger provided environmental consultation regarding soil contamination and site characterization work. The property is a former farm headquarters with storage structures and orchards.

Westshore—Richmond, CA

Project Manager. Mr. Munger conducted phase I and II site assessments, risk evaluations and prepared a soil management plan. The property was a former automotive manufacturing plant proposed for a multi-unit condominium development, including a 6-story podium structure to include five residential floors with 269 units and one parking floor.

Union Pacific Railroad Corridor—San Jose, CA.

Project Manager. Mr. Munger prepared a phase I and II environmental assessment. Work included a site reconnaissance, historical records research and recovery of soil samples with laboratory analysis. Lead impacted soil was identified which required risk evaluation. This former 1800 lineal foot section of the former Union Pacific Railroad Corridor was proposed for mixed-use development.

Sparklizing Cleaners and Laundry—Fremont, CA

Principal in Charge. Mr. Munger provided principal review and data analysis for this former dry cleaning facility which had released tetrachloroethylene (PCE) to site soil and groundwater. The project site consists of a drycleaning facility located within a commercial/retail center. Drycleaning operations have been conducted at the facility since 1974 and have resulted in chlorinated solvent impacts to soil and groundwater beneath the site. As a result, the CRWQCB opened a Spills, Leaks, Investigations, and Cleanups (SLIC) case and the site was referred to the Alameda County Water District (ACWD) for lead agency oversight. A series of soil and groundwater investigations identified a source area beneath the drycleaner suite and an adjoining retail suite. A CAP submitted to ACWD in 2009 involves using in-situ chemical oxidation (ISCO) to remediate groundwater and vadose zone soil impacts within the source area.

Mare Island, 3rd and Connelly Utility Corridor—Vallejo, CA

Principal in Charge. Mr. Munger provided principal oversight during demolition and soil excavation activities. The project consisted of utility demolition and soil excavation activities

required to prepare for construction of a 300 – foot water and sewer utility corridor along Connelly Street between 3rd Street and Azuar Drive.

Ivy Glen (Former Tredegar)—Fremont, CA

Principal in Charge. Mr. Munger provided oversight of site characterizations, risk evaluations and groundwater monitoring for this former industrial facility. The property was a former industrial facility with documented soil and groundwater contamination. Risk assessments allowed redevelopment of the site as a single-family residential subdivision. Groundwater monitoring continues to date as a result of residual docs beneath the property.

County Crossings Property—Antioch, CA

Principal in Charge. Mr. Munger provided environmental consultation and data review with regard to soil and groundwater contamination. Constituents of concern include petroleum hydrocarbons, nitrates and manganese. The approximately 264 acre site includes several former industrial facilities and petroleum pipelines. Soil and groundwater at the site has been impacted with petroleum hydrocarbons, nitrates and manganese. Planned uses include commercial, residential, retail, and a BART-oriented transit village. The center, which is currently in the entitlement phase, is estimated to break ground in 2011.

Arroyo Crossing—Livermore, CA

Principal in Charge. Mr. Munger provided oversight, data analysis and regulatory consultation while ENGEO provided geotechnical and environmental engineering services for this 34-acre site. This former corporation yard and quarry site was developed into a single-family residential subdivision.

620 North Ninth Street—San Jose, CA

Principal in Charge. Mr. Munger provided oversight of soil, groundwater and soil gas characterizations, risk evaluations and remedial action plan preparation. Mr. Munger also closely interacted with RWQCB staff to achieve approval for residential development. The property is a former fruit packing plant and food preparation facility. The proposed development consists of a single-family residential subdivision.

Former SFPP Alignment—Concord, CA

Project Manager. Mr. Munger prepared a Phase I and II environmental assessment for a ± 6,500-foot corridor formerly occupied by the Southern Pacific Railroad (SPRR). Kinder Morgan petroleum pipelines existed within an easement along the property. Work included the recovery of soil and groundwater samples along the SP right of way. The site was a former ± 6,500-foot corridor formerly occupied by the Southern Pacific Railroad. Kinder Morgan petroleum pipelines existed within an easement along the property. The southern portion of the site was crossed by East Bay Municipal Utilities District water distribution lines and a multi-lane highway overpass. The corridor was developed as a self-storage facility.

Gale Ranch Middle School—San Ramon, CA

Principal in Charge. Mr. Munger provided review and supervision of a Preliminary Endangerment Assessment prepared for this school site under the oversight of DTSC. This former site was developed into a public middle school.

Highlands Ranch—Antioch, CA

Principal in Charge. Mr. Munger provided oversight, data analysis, and collaboration with RWQCB personnel. The project site consists of a 140-acre portion of the former Chevron Los Medanos Tank Farm located in Pittsburg, California. The site was historically occupied by 24 crude oil tanks and four wax ponds. Remediation of the crude oil tank and wax pond locations was conducted according to a remedial action plan (RAP) and oversight was provided by the CRWQCB. Remediation was performed over a period of four months and consisted of excavating approximately 110,000 cubic yards of impacted soil and placing the material in windrows for ex-situ bioremediation.

Hercules Property—Hercules, CA

Project Manager. Mr. Munger provided oversight of a phase I environmental site assessment, site asbestos survey, site characterization, and demolition observation/contaminant assessment. The project area consists of ± 167 acres located near and along the southeastern shore of San Pablo Bay in Hercules. The property was once a portion of a 1300-acre manufacturing facility that was operated by DuPont from 1879 to 1913 and Hercules Incorporated from 1913 to 1979. The planned development includes single/multi family residential development with some commercial components.

Gold Rush Ranch and Golf Resort—Sutter creek, CA

Principal in Charge. Mr. Munger provided principal oversight during the preparation of a preliminary endangerment report, including soil, groundwater and surface water sampling. The project site consists of 945 acres of undeveloped land located near the City of Sutter Creek, California. The proposed development plan for the site involves the Gold Rush Ranch and Golf Resort, which includes an 18-hole championship golf course, 1,334 new homes, a commercial center, and open space. The client has entered into a VCA with the Department of Toxic Substances Control (DTSC) to address historic mine tailings at the site. A PEA was prepared to evaluate human health risks associated with elevated arsenic in tailings, soil, and surface water at the site. The PEA was approved by DTSC in 2009. Based on the findings of the PEA, a removal action workplan (RAW) will be prepared to address the human health risks associated with the arsenic impacts.

1000 Howe Road—Martinez, CA

Principal in Charge. Mr. Munger provided oversight and analysis for this soil remediation project. Mr. Munger worked closely with RWQCB personnel to develop a cost effective and timely closure for site closure and approval for residential development. The site is occupied by a general engineering contractor and was a former bus leasing company. Improvements at the property included an office/warehouse structure and an equipment yard. The proposed development consists of a single-family residential subdivision.

APPENDIX K



Project No. E8761-04-01
August 25, 2014

VIA ELECTRONIC MAIL

Nick Pappani
Raney Planning and Management
1501 Sports Drive
Sacramento, CA 95834

Subject: PHASE I ESA REPORT PEER REVIEW
PROMENADE PROJECT
ANTIOCH, CONTRA COSTA COUNTY, CALIFORNIA

Reference: *Phase I Environmental Site Assessment, Ginochio FUA1 Project, Heidorn Ranch Road, Antioch, California*, ENGEO Incorporated, June 5, 2014.

Dear Mr. Pappani:

In accordance with your request, we have peer reviewed the referenced Phase I Environmental Site Assessment (ESA) prepared by ENGEO for the proposed Ginochio FUA1 Project (Promenade Project, Project Site) in the City of Antioch.

Proposed development of the Project Site includes up to 641 residential lots averaging 4,680 square feet in size along with associated roadways and utility infrastructure. Project development would include community amenities including parks and a portion of the Sand Creek Trail. Associated improvements include roadway construction, onsite storm water detention, and offsite outfall into nearby Sand Creek. The Project Site boundaries are depicted on the attached *Preliminary Site Plan Promenade*.

PURPOSE AND SCOPE

The purpose of this peer review is to provide our professional opinion on the appropriateness and adequacy of the referenced ESA report for use in preparing the project CEQA document with respect to project conditions, regulatory requirements, and industry standards of practice i.e. American Society for Testing and Materials (ASTM) 1527-13.

Our services included the following:

- Review of the referenced ESA report with respect to content and general conformance with ASTM 1527-13. Our review comments are not intended to address grammatical presentation nor did our review confirm the technical accuracy of the summarized research information.
- Review of the 2002 ENGEO Preliminary Geotechnical Exploration report to determine if any field indicators of potential contamination were identified and documented during previous site investigation activities.
- A reconnaissance to familiarize ourselves with current site conditions.
- The preparation of this correspondence to present the results of our peer review.

ENGEO PHASE I ESA SUMMARY

The referenced ENGEO Phase I ESA report was prepared for approximately 140 acres of vacant land comprising the Project Site including Contra Costa County Assessor Parcel Numbers [APN] 057-030-004, a portion of APN 057-050-017 (north of Sand Creek), and APN 057-030-003 (Shell Parcel).

Project Site

The Project Site was described as vacant grazing land that previously contained three oil/gas wells that were reportedly abandoned by plugging. The former oil/gas well compounds are identified as 2-9, 21-9 and 22-9 at locations depicted on the attached ENGEO Figure 2. Well abandonment documentation was not included in the referenced Phase I ESA.

ENGEO Figure 6 depicts two soil boring locations, soil excavation boundaries extending 5 and 10 feet deep (“161 CU-YDS”), and former oil-water separator and pipeline locations at former onsite oil/gas well 2-9. A California Central Valley Regional Water Quality Control Board (CVRWQCB) regulatory closure letter dated July 17, 1995 regarding onsite abandoned oil/gas well 2-9, and four offsite oil/gas wells is further appended to the referenced ENGEO Phase I ESA. The CVRWQCB letter indicates that petroleum hydrocarbon impacted soil was excavated to a depth of 10 feet and transported to an unspecified bio-treatment facility. Soil analytical data from the well locations were either below laboratory reporting limits or below approved risk assessment cleanup goals. Groundwater samples did not contain detectable levels for the compounds tested. No environmental site assessment data was referenced for onsite oil/gas wells 21-9 and 22-9.

The ENGEO Phase I ESA further identified an abandoned 4-inch diameter oil pipeline that extends into the Project Site from the Shell Parcel (see ENGEO Figure 5), and CalPine and Pacific Gas & Electric (PG&E) natural gas lines.

Shell Parcel

The Shell Parcel was described as vacant idle land that previously contained an office and maintenance yard operated by Shell Oil for petroleum pipeline operations. Environmental site assessment and remedial soil excavation activities occurred at the Shell Parcel between 1997 and 2011. Up to 77,800 cubic yards of excavated contaminated soil were placed in an onsite bio-treatment area. Six groundwater monitoring wells were installed in 2005 that identified “minimal” groundwater impacts. A CVRWQCB closure letter dated February 17, 2011 for the Shell Parcel indicating regulatory “no further action” status is appended to the ENGEO Phase I ESA report. The onsite groundwater monitoring wells, domestic well and septic system were reportedly properly abandoned under regulatory permit requirements. Abandoned 2-inch and 4-inch-diameter oil pipelines are depicted within the Shell Parcel on ENGEO Figure 5.

ENGEO concluded that no Recognized Environmental Conditions (RECs) as defined by ASTM 1527-13 were identified at the Project Site. The Shell Parcel was identified by ENGEO as a historical REC based on completed environmental assessment and remediation under CVRWQCB regulatory closure status. ENGEO recommended that the abandoned oil/gas wells and associated oil pipelines be located and any associated soil impacts be evaluated. They also noted that the abandoned oil/gas wells may require setbacks from planned structures.

ADDITIONAL SITE ASSESSMENT REVIEW

The following sections provide a summary of our additional site assessment review activities.

California Division of Oil, Gas and Geothermal Resources (DOGGR)

We obtained the attached Report of Well Abandonment forms for the three onsite oil/gas wells from the DOGGR website (<http://www.conservation.ca.gov/DOG/Pages/Index.aspx>). Well 21-9 was abandoned in 1981 and wells 2-9 and 22-9 were abandoned in 1991. The wells were originally completed to depths between 4,000 and 5,000 feet.

The DOGGR encourages property owners and local government agencies to follow their Construction Site Review Program where abandoned oil/gas wells exist within planned development areas. This process includes guidelines for not constructing inhabited structures directly over abandoned oil/gas wells, provides recommended setbacks and requires implementation of mitigation measures including venting systems. A copy of the DOGGR Well Review Program is attached.

ENGEO 2002 Preliminary Geotechnical Exploration Report

We reviewed the ENGEO 2002 Preliminary Geotechnical Exploration report with respect to potential field indicators of contamination documented on boring logs. The study area included the Project Site and adjacent property to the south. The Shell Parcel was not included in the geotechnical study.

ENGEO completed three geotechnical borings (B-8, B-9 and B-10) within the Project Site to depths between 21.5 to 38.5 feet. No field indicators of potential contamination i.e. staining, odors, debris fill, etc. were noted on the boring logs nor was groundwater encountered. The attached Figure 2 of the geotechnical report includes east-west trending "Shell Pipeline Easement" and "Shell Pipeline."

Site Reconnaissance

A Geocon representative performed a site reconnaissance on July 24, 2014. The conditions observed were consistent with those described in the referenced ENGEO Phase I ESA report.

ENGEO PHASE I ESA PEER REVIEW FINDINGS

In our opinion, the referenced ENGEO Phase I ESA report was prepared in general conformance with ASTM 1527-13. The Phase I ESA adequately identified potential environmental conditions associated with three abandoned oil/gas wells on the Project Site and completed assessment/remediation of soil and groundwater impacts on the Shell Parcel subject to CVRWQCB review and 2011 regulatory closure status.

We recommend the following be incorporated into the project CEQA document mitigation measures with respect to the identified environmental concerns and planned residential development at the Project Site:

- The abandoned oil/gas wells should be located and surveyed for compliance with Contra Costa County/DOGGR Construction Site Review.
- ENGEO included a regulatory closure letter confirming that petroleum hydrocarbon contaminated soil and groundwater assessment/remediation was completed at abandoned oil/gas well 2-9. No assessment/remediation data or regulatory status was documented for abandoned oil/gas wells 21-9 and 22-9. Any apparent soil contamination (i.e. soil staining, odors, debris fill material, etc.) identified at these well locations should be properly evaluated and mitigated where necessary as defined hereinafter.

- ENGEO provided documentation of abandoned oil pipelines and pipeline easements on the Project Site. All abandoned oil pipelines within planned development areas should be removed and any associated apparent soil contamination ((i.e. soil staining, odors, debris fill material, etc.) should be properly evaluated and mitigated where necessary as defined hereinafter.

We recommend the following mitigation measure be included in the project CEQA document with respect to potential apparent soil contamination encountered at the Project Site during subsequent environmental assessment or development.

If indicators of apparent soil contamination (soil staining, odors, debris fill material, etc.) are encountered at the Project Site, specifically in the vicinity of abandoned oil/gas wells or during removal of abandoned oil pipelines, the impacted area should be isolated from surrounding, non-impacted areas. The project environmental professional shall obtain samples of the potentially impacted soil for analysis of the contaminants of concern and comparison with applicable regulatory residential screening levels (i.e., Environmental Screening Levels, California Human Health Screening Levels, Regional Screening Levels, etc.). Where the soil contaminant concentrations exceed the applicable regulatory residential screening levels, the impacted soil shall be excavated and disposed of offsite at a licensed landfill facility to the satisfaction of the Contra Costa Environmental Health Department.

We appreciate the opportunity to provide geo-environmental services on this project. Please contact us if you have any questions concerning the contents of this document or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

DRAFT

Shane Rodacker, PE, GE
Senior Engineer

DRAFT

John E. Juhrend, PE, CEG
Senior Engineer

Attachments: Preliminary Site Plan Promenade
ENGEO Phase I ESA Figures 1 through 6
Report of Well Abandonment – 2-9, 21-9 and 22-9
DOGGR Well Review Program
ENGEO Geotechnical Report Figure 2



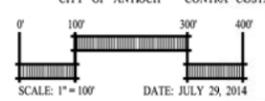
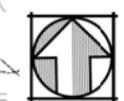
LEGEND:

- 45' X 80' TYPICAL LOT SIZE
- 50' X 80' TYPICAL LOT SIZE
- 50' X 90' TYPICAL LOT SIZE

LOT SUMMARY			
TYP. LOT SIZE	LOT COUNT	LOT MIX	AVERAGE LOT SIZE
45' X 80'	202	31%	4,200 S.F.
50' X 80'	215	34%	4,830 S.F.
50' X 90'	224	35%	5,160 S.F.
TOTAL	641	100%	4,680 S.F.

**PRELIMINARY SITE PLAN
PROMENADE**

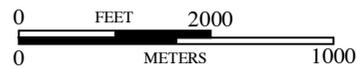
CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA



cbg Carlson, Barbee & Gibson, Inc.
CIVIL ENGINEERS - SURVEYORS - PLANNERS
2825 CAMINO RAMON, SUITE 200
SAN RAMON, CALIFORNIA 94583
(925) 884-0332

\\net\hsc\cadd\2014\140720\140720_Prelim_Site_Plan_Promenade_1_2014.dwg

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BASE MAP SOURCE: GOOGLE EARTH PRO



VICINITY MAP
 GINOCHIO FUA1
 ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

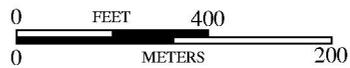
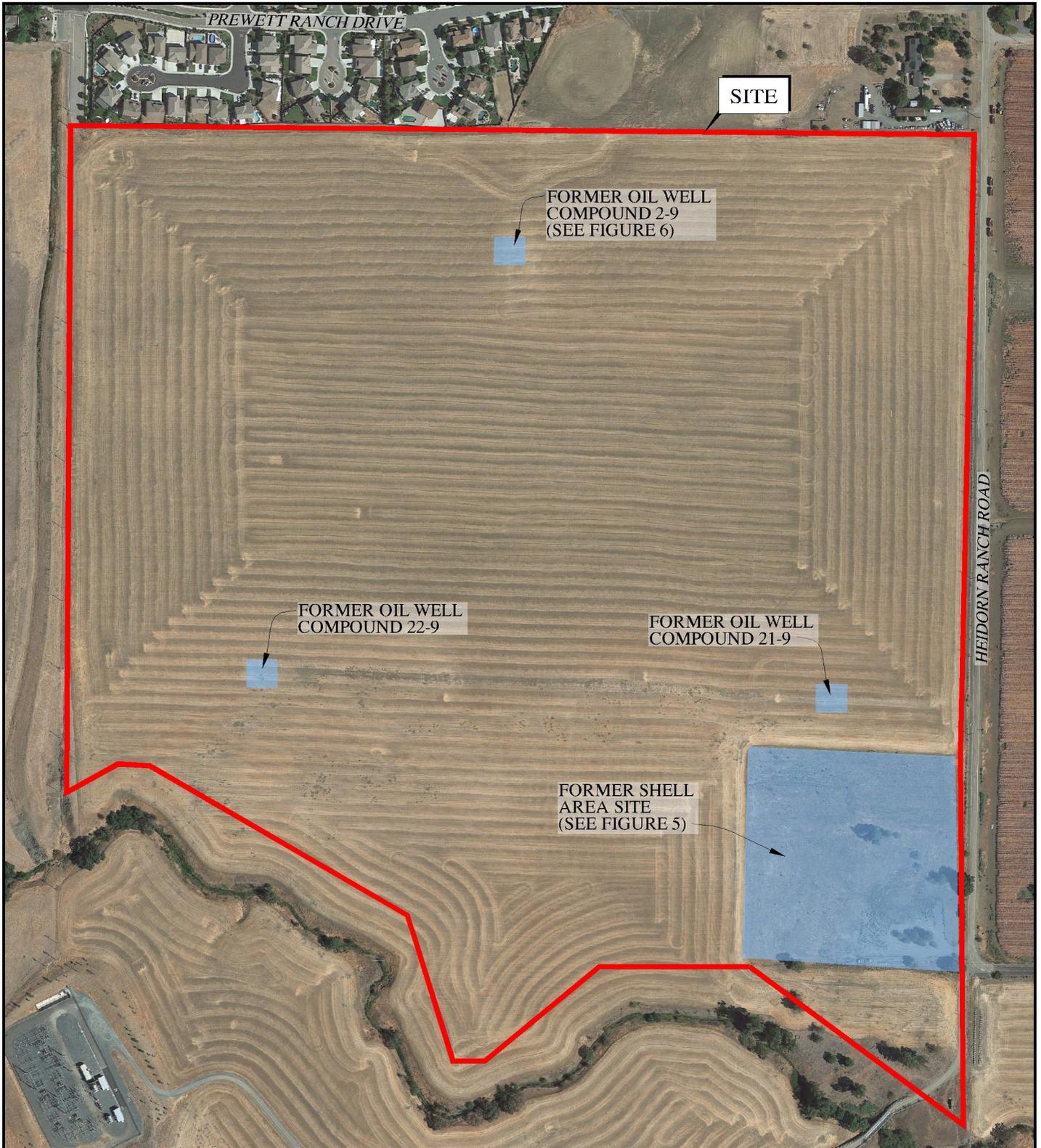
DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

1

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BASE MAP SOURCE: GOOGLE EARTH PRO



SITE PLAN
GINOCHIO FUAL
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

DRAWN BY: LL

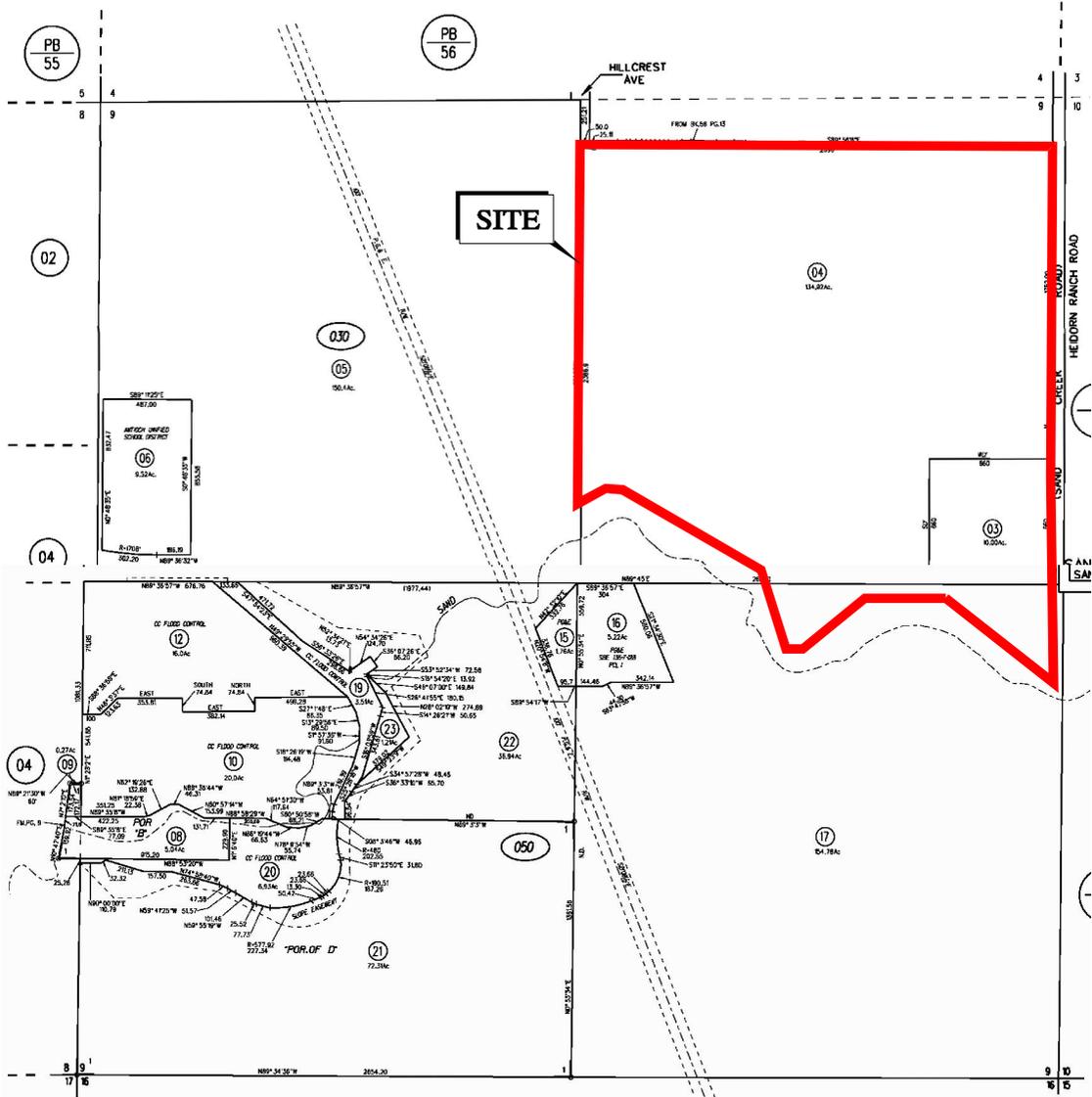
CHECKED BY: PG

FIGURE NO.

2

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N $\frac{1}{2}$ SEC. 9 T.1N. R.2E. M.D.B.M.



BASE MAP SOURCE: COUNTY ASSESSOR'S OFFICE



ASSESSOR'S PARCEL MAP
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

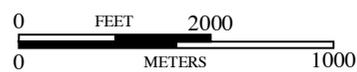
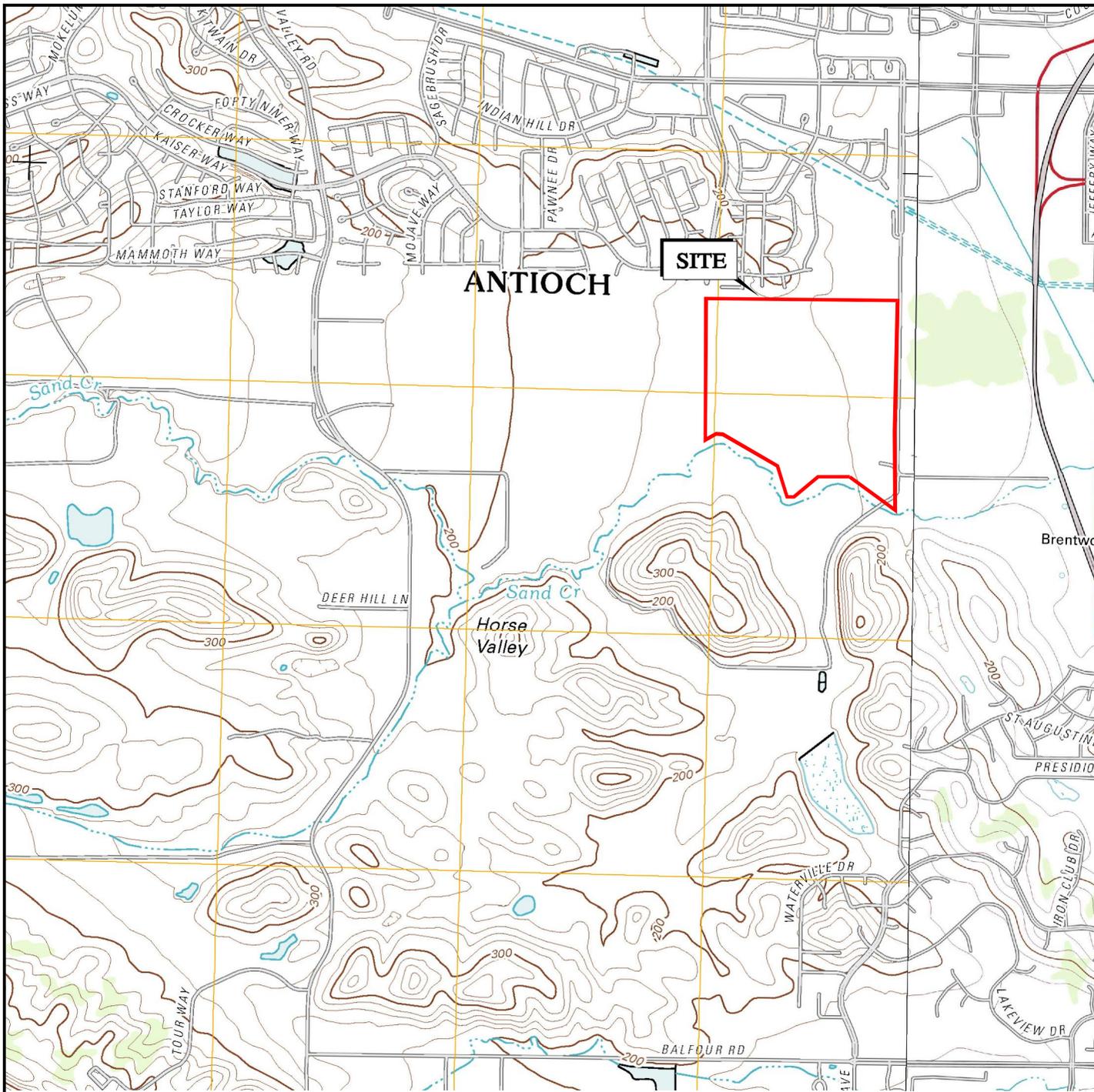
SCALE: AS SHOWN

DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.
3

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BASE MAP SOURCE: U.S.G.S., 2012



TOPOGRAPHIC MAP
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

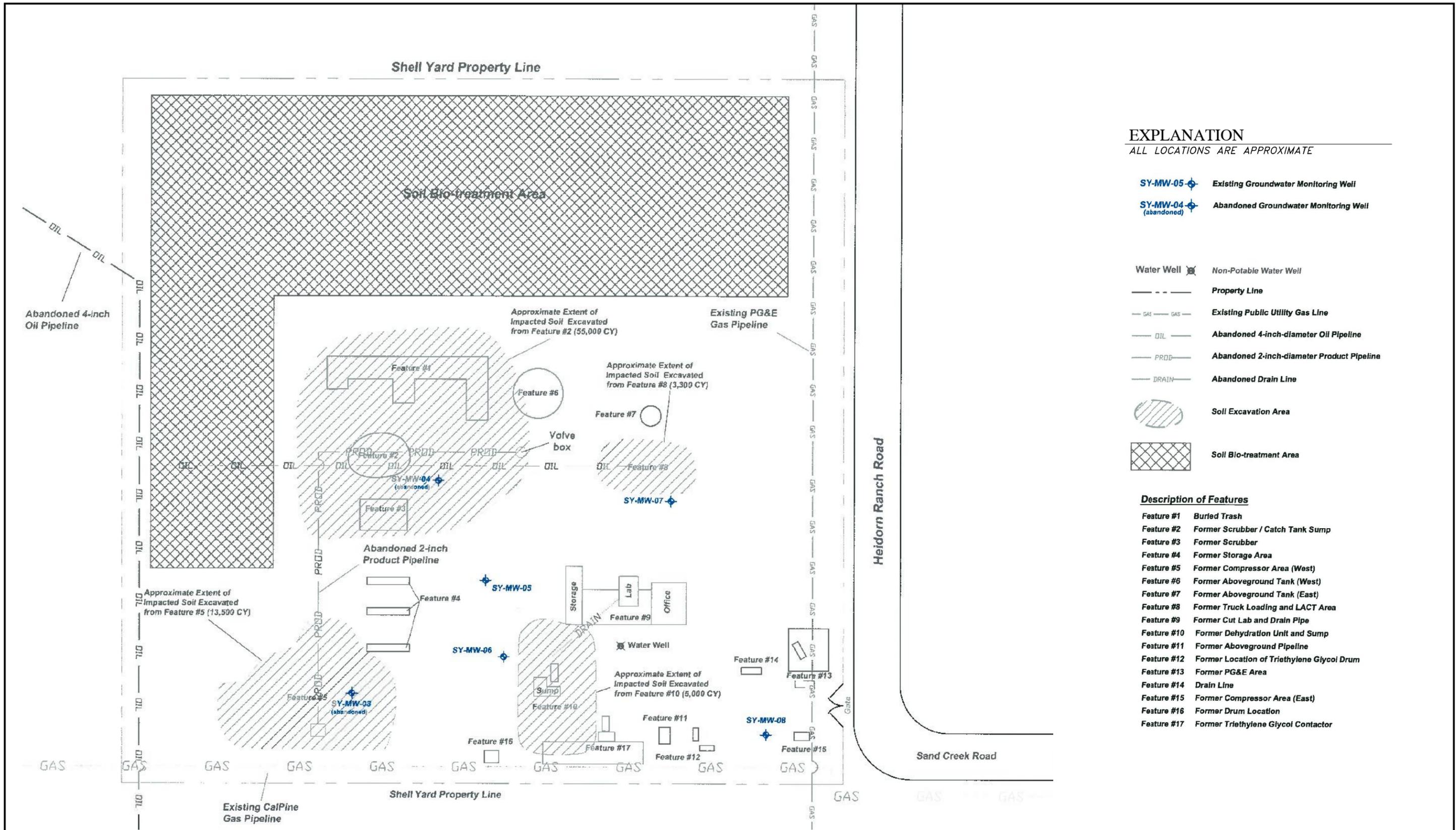
DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

4

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- Existing Groundwater Monitoring Well
- Abandoned Groundwater Monitoring Well
- Non-Potable Water Well
- Property Line
- Existing Public Utility Gas Line
- Abandoned 4-inch-diameter Oil Pipeline
- Abandoned 2-inch-diameter Product Pipeline
- Abandoned Drain Line
- Soil Excavation Area
- Soil Bio-treatment Area

Description of Features

- Feature #1 Buried Trash
- Feature #2 Former Scrubber / Catch Tank Sump
- Feature #3 Former Scrubber
- Feature #4 Former Storage Area
- Feature #5 Former Compressor Area (West)
- Feature #6 Former Aboveground Tank (West)
- Feature #7 Former Aboveground Tank (East)
- Feature #8 Former Truck Loading and LACT Area
- Feature #9 Former Cut Lab and Drain Pipe
- Feature #10 Former Dehydration Unit and Sump
- Feature #11 Former Aboveground Pipeline
- Feature #12 Former Location of Triethylene Glycol Drum
- Feature #13 Former PG&E Area
- Feature #14 Drain Line
- Feature #15 Former Compressor Area (East)
- Feature #16 Former Drum Location
- Feature #17 Former Triethylene Glycol Contactor

BASE MAP SOURCE: THE SOURCE GROUP, 2010



FORMER SHELL YARD SITE PLAN
GINOCHIO FUA1
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.000.000

SCALE: AS SHOWN

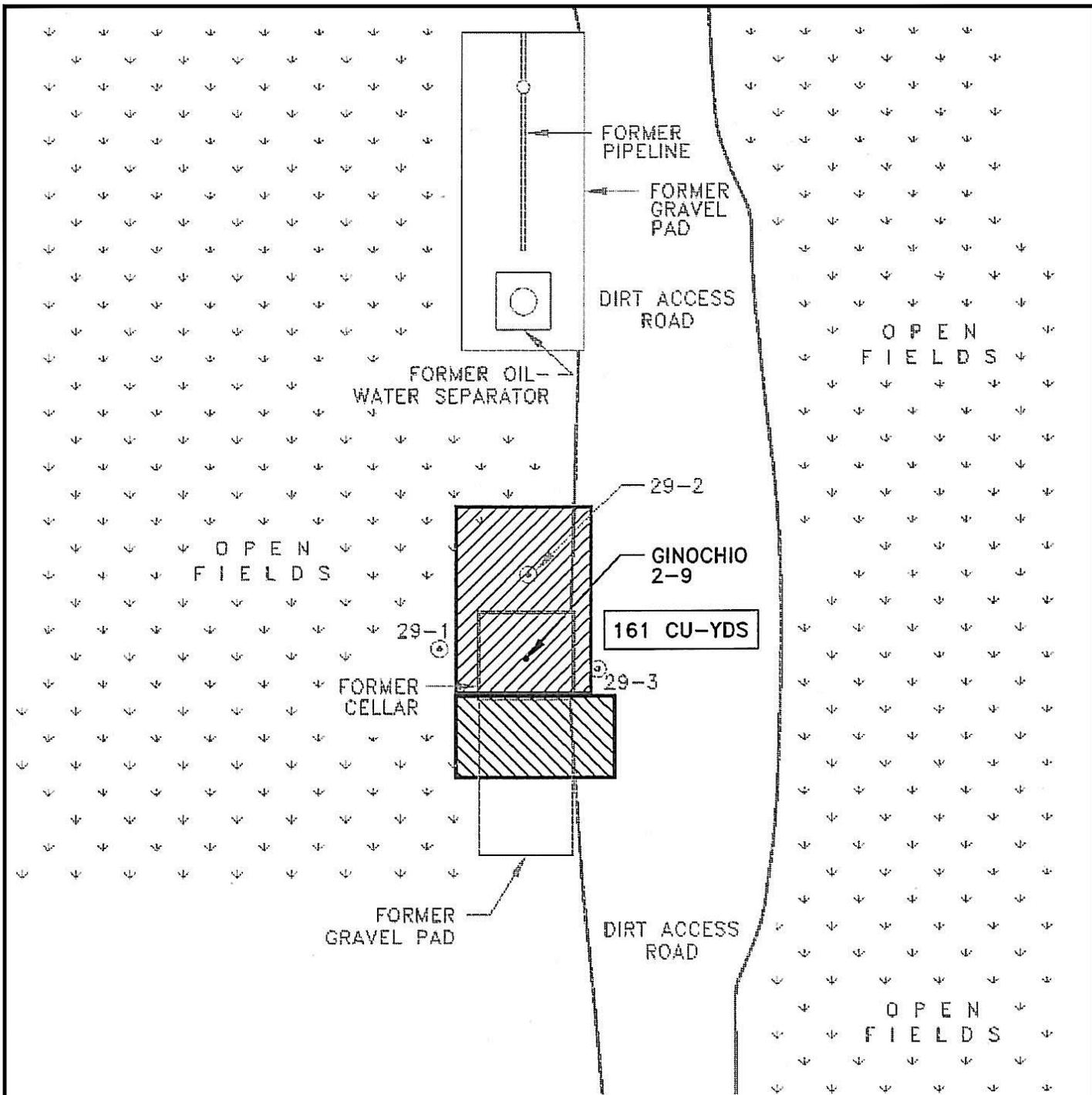
DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

5

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

-  RESNA SOIL BORING LOCATIONS (5/92)
-  5' DEEP EXCAVATION
-  10' DEEP EXCAVATION

BASE MAP SOURCE: GROUNDWATER TECHNOLOGY, 1995



FORMER OIL WELL COMPOUND 2-9
EXCAVATION SITE PLAN
GINOCHIO FUA1
CALIFORNIA

PROJECT NO: 4894.000.000

SCALE: NO SCALE

DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

6

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Woodland, California

January 17, 1992

R. L. Webb, Agent
OCCIDENTAL PETROLEUM CORP.
P O Box 12011
1200 Discovery Way
Bakersfield, CA 93389-2011

Your report of abandonment of well "Ginocchio" 2-9
(Name and number)

A.P.I. No. 013-00038, Section 9, T. 1N, R. 2E, M.D. B. & M.

Brentwood Gas field, Contra Costa County,

dated December 4, 1991 received December 6, 1991, has been

examined in conjunction with records filed in this office, and we have determined that all of the requirements of this Division have been fulfilled.

Environmental inspection made and approved November 26, 1991.

Blanket Bond
KL/km

K. P. HENDERSON
Acting State Oil and Gas Supervisor

By Robert A. Reid
Deputy Supervisor

ROBERT A. REID

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Woodland, California

Dec. 18, 1981

B. Nevill, Agent
SHELL OIL CO.
196 South Fir Street
Ventura, CA 93001

Your report of abandonment of well "Ginochio" 21-9
(Name and number)

A.P.I. No. 013-00039 Section 9 T. 1N R. 2E M.D. B. & M.,

Brentwood field, Contra Costa County,

dated received 8/28/81, has been

examined in conjunction with records filed in this office, and we have determined that all of the requirements of this Division have been fulfilled.

Environmental inspection made and approved 12/17/81.

Blanket Bond
cc:N. George

M.G. JEFFERSON
State Oil and Gas Supervisor
By *John C. Sullivan*
Deputy Supervisor
JOHN C. SULLIVAN

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Woodland, California

January 17, 1992

R. L. Webb, Agent
OCCIDENTAL PETROLEUM CORP.
P O Box 12011
1200 Discovery way
Bakersfield, CA 93389-2011

Your report of abandonment of well "Ginochio" 22-9
(Name and number)
A.P.I. No. 013-20005, Section 9, T. 1N, R. 2E, M.D. B. & M.,
Brentwood Gas field, Contra Costa County,
dated December 4, 1991 received December 6, 1991, has been
examined in conjunction with records filed in this office, and we have determined that all of
the requirements of this Division have been fulfilled.

Environmental inspection made and approved November 26, 1991.

Blanket Bond
KL/km

K. P. HENDERSON
Acting State Oil and Gas Supervisor
By Robert A. Reid
Deputy Supervisor
ROBERT A. REID

Well Review Program

Introduction and Application

Resources Agency of California
Department of Conservation
Division of Oil, Gas, and Geothermal Resources



Revised: December 14, 2007

WELL REVIEW PROGRAM INTRODUCTION

The Division of Oil, Gas, and Geothermal Resources (Division) offers the Well Review Program to address significant and potentially dangerous issues associated with development near oil or gas wells. The program provides important information on the current status of all known wells located on a development site property, and it provides other important information when development occurs near oil or gas wells. The Division provides this information in an advisory role, so that responsible decisions can be made by the property owner, developer, and local permitting agency when development occurs near oil or gas wells.

The Division strongly encourages participating in the Well Review Program. According to Section 3208.1 of the Public Resources Code, if any property owner, developer, or local permitting agency either fails to obtain an opinion from the Division, or fails to follow the advice of the Division when development occurs near an oil or gas well, then the owner of the property on which the well is located may be responsible for reabandonment costs should a future problem arise with the well. Reabandonment costs for oil and gas wells can be significant.

This introduction to the Division's Well Review Program is divided into two parts. The first part discusses significant and potentially dangerous issues associated with development near oil or gas wells. The second part gives a detailed step-by-step overview of the Well Review Program.

PART I: Significant and Potentially Dangerous Issues

The property owner, developer, and local permitting agency should be aware of, and fully understand, the following significant and potentially dangerous issues associated with development near oil or gas wells:

1. The property owner is always responsible for providing access to any well located on the property, if reabandonment becomes necessary. This means the property owner is responsible for removing any structure or obstacle that prevents or impedes access to a well. This includes, but is not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, and decking. The Division is also not responsible for the rebuilding or replacing of any structure or obstacle that needs to be removed to gain access to a well. According to Section 3255 of the Public Resources Code, the Division may order the reabandonment of any well that poses a danger to life, health, or natural resources.
2. The Division makes no guarantees that wells properly abandoned to current standards will not start leaking oil, gas, and/or water after abandonment. It always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thorough the well was plugged and abandoned. The Division acknowledges wells that are abandoned to current standards have a

Resources Agency of California
Department of Conservation
Division of Oil, Gas, and Geothermal Resources

lower probability of leaking oil, gas, and/or water after abandonment, but makes no guarantees about the abandonment.

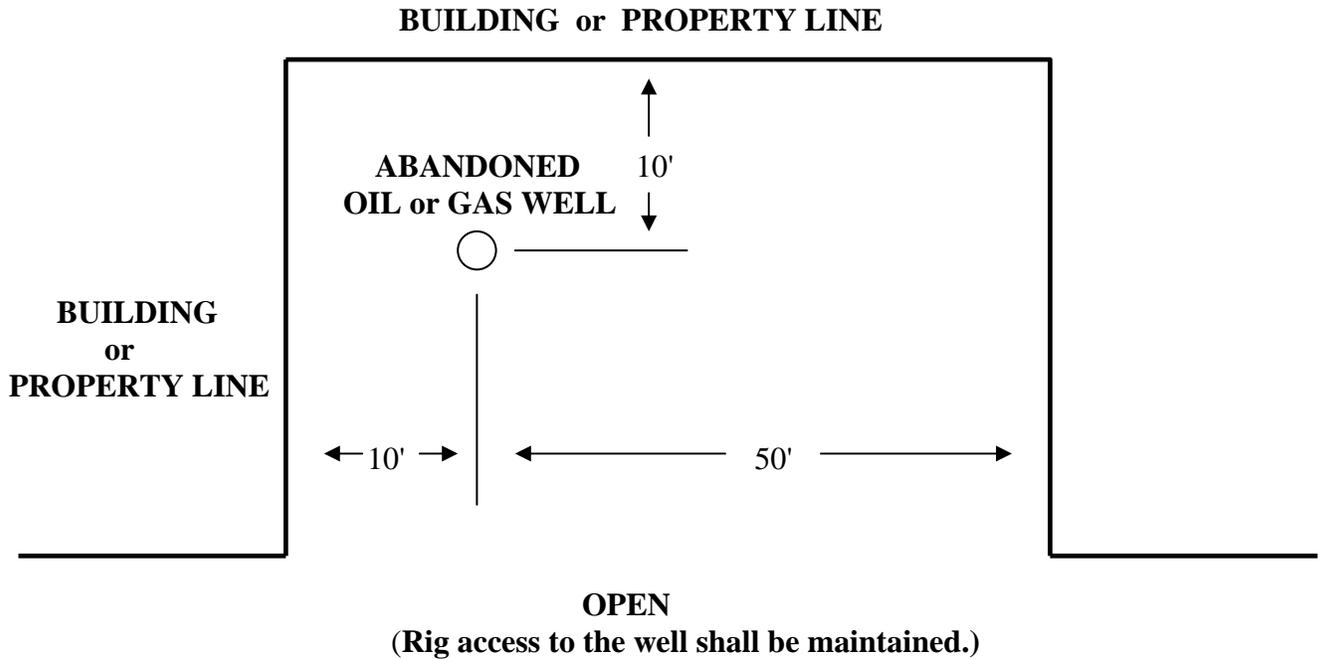
3. Due to the reasons stated in comments **1** and **2** above, the Division recommends the following:
 - a. **The Division recommends maintaining access to all oil and gas wells.**
 - b. **The Division recommends abandoning all oil and gas wells to current standards.**

The Division recommends following both **a & b** for each well located on the development site property. However, if recommendation **a** is not followed for each well located on the development site property, then the owner of the property on which the well is located shall be held responsible for reabandonment costs should a future problem arise with the well (see comment **4** below).

4. The Division advises not to undertake construction or development that will prevent access to any oil or gas well. If such construction or development is undertaken against the advice of the Division, then, according to Section 3208.1 of the Public Resources Code, the owner of the property on which the well is located shall be held responsible for reabandonment costs should a future problem arise with the well. Again, Section 3255 of the Public Resources Code gives the Division the authority to order the reabandonment of any well that poses a danger to life, health, or natural resources.
5. Maintaining access to an oil or gas well shall be defined as 1) maintaining rig access to the well, and 2) not building over, or in close proximity to the well.

1) Rig access shall be defined as a route from a public street or road to the well, solely over the property on which the well is located. An abandonment rig, and any necessary equipment, shall be able to pass along and over the route, from a public street or road to the well.

2) Close proximity shall be defined as being within ten feet from the property line and/or structure. The distance shall be measured from the center of the well extending out to the side of the property line and/or structure. To be considered outside of close proximity, two adjacent sides shall be no less than ten feet, with the third side no less than 50 feet. The third side needs to be no less than 50 feet to allow room for the 30 to 40 foot lengths of tubing required for reabandonment operations. Other building configurations that can accommodate the rig and the tubing lengths may also be acceptable. The fourth side shall remain open to the well for potential reabandonment operations, and rig access to the well shall be maintained (see figure below).



6. The Division recommends the use of surface mitigation measures, where appropriate. Examples of surface mitigation measures include venting systems for wells, venting systems for parking lots, patios, and other hardscape, methane barriers for building foundations, methane detection systems, and collection cellars for well fluids. The Division does not regulate the design, installation, or operation of such measures because they are outside of the Division's expertise. The Division only recommends that such surface mitigation measures are designed, installed, and operated by qualified engineers. The permitting of surface mitigation measures falls under the authority of local government.
7. During the course of development, if any unknown wells are discovered, the Division must be notified immediately, so the unknown well(s) can be incorporated into the Well Review Project. In addition, the Division recommends any soil containing significant amounts of hydrocarbons to be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.
8. No well work shall be performed on any oil or gas well without written approval from the Division. This includes, but is not limited to, mitigating leaking fluids or gas from abandoned wells, and lowering or raising well casings for development purposes. The Division regulates the depth of the well below final grade. Section 1723.5 of the California Code of Regulations states that all well casings shall be cut off at least 5 feet but no more than 10 feet below the surface of the ground. If any of the wells need to be lowered or raised (i.e. casing cut down or casing riser added) to accomplish this, then the applicant needs a permit from the Division for those wells before work can start.

9. Well Review Projects expire two years after their review date. This is to assure the public of a relatively recent review and evaluation effort by the Division before development starts. If a Well Review Project has expired, and development hasn't started, then the Division strongly encourages the property owner, developer, or local permitting agency to once more participate in the Well Review Program before the development starts.
10. The Division recommends attaching Well Review Projects to the title of the development site property. This is to ensure that present and future property owners are aware of 1) the wells located on the property, and 2) significant and potentially dangerous issues associated with development near oil or gas wells.

Again, the property owner, developer, and local permitting agency should be aware of, and fully understand, the above comments which discuss significant and potentially dangerous issues associated with development near oil or gas wells. The Division provides this information in an advisory role, so that responsible decisions can be made by the property owner, developer, and local permitting agency when development occurs near oil or gas wells.

PART II: Step-by-Step Overview

The following is a detailed step-by-step overview of the Well Review Program:

Step 1 - Application. The applicant (developer / property owner) needs to submit a fully completed Well Review Program Introduction and Application to the Division. All pages in the Well Review Program Introduction need to be initialed by the applicant or a representative of the applicant. The Well Review Program Application needs to be completed and signed by the applicant or a representative of the applicant. Failure to accurately complete all required information on the Well Review Program Application may cause delay in the processing of the Well Review Project.

Step 2 - Locate Wells. The applicant needs to locate all known wells located on the development site property. All well excavations need to follow Cal/OSHA guidelines for grading and/or shoring. If necessary, the Division can assist in locating the wells.

Step 3 - Submit Plan. The applicant needs to submit a preliminary copy of the development site plan to the Division for review. The plan needs to show, at a minimum, the boundary of the development site property with all known wells plotted on the property, final grade of the development site property, and a visual bar scale. The preferable form of plan submittal is *Adobe PDF*, emailed to the Division.

Resources Agency of California
Department of Conservation
Division of Oil, Gas, and Geothermal Resources

Step 4 - GPS Wells. The Division needs to GPS all known wells located on the development site property with equipment that has a margin of error of less than one meter. The latitude and longitude of each well shall be in the NAD 83 coordinate system.

Step 5 - Review Wells. The Division needs to review all known wells located on the development site property. The review process consists of determining the abandonment status of the wells by examining past plugging operations, and then comparing the abandonment status with current abandonment standards.

Step 6 - Evaluate Wells. The Division needs to evaluate all known wells located on the development site property. The evaluation process consists of 1) verifying the wells have a competent surface plug, and 2) verifying the wells are not leaking any fluids or gas. Any metal plates attached to the top of casings must be removed prior to the evaluation of a well. Methane gas can build up pressure underneath metal plates. The applicant is responsible for the safe removal of all metal plates. After all known wells located on the development site property have passed the evaluation process, a metal ID plate needs to be attached to the top of the well casing. The metal plate should be skip welded only, not welded with a full bead. This is to allow any potential gas leakage to vent out of the casing and prevent pressure from building up in the wellhead. For identification purposes, the metal ID plate needs to show the well's name and API number.

NOTE: Safety is always the first priority when evaluating wells. The two main safety concerns are adequate ventilation and proper grading and/or shoring of the well excavation. The well excavation needs to follow Cal/OSHA guidelines. Division staff will not evaluate a well if it is unsafe to do so.

Step 7 - Restore Well Sites. After the wells have been evaluated, the Division is also responsible for ensuring proper well site restoration for public safety. Proper well site restoration includes the removal of all associated well equipment, junk, and debris. The well excavation needs to be filled with earth, compacted properly to prevent settling, and graded over. Pursuant to Section 1776 of the California Code of Regulations, well site restoration must be completed within 60 days following the evaluation of a well. The well site restoration inspection can be waived if the developer signs the Well Site Restoration Waiver Form. Please contact the Division for a copy of the form.

Step 8 - Well Review Letter. After the Division has conducted a review and evaluation of all known wells located on the development site property, and the well sites have been restored, the Division will issue a Well Review Letter to the applicant and the local permitting agency. The Well Review Letter will list the current status of all known wells located on the development site property, and it will provide other important information associated with development near oil or gas wells. A well is considered abandoned to current standards when it has passed both the review process (**Step 5**) and the evaluation process (**Step 6**).

WELL REVIEW PROGRAM APPLICATION

APPLICANT INFORMATION
Developer: (Company Name)
Contact Person: (Mr./Ms. Name, Title)
Mailing Address: (Street Address City, State Zip)
Telephone #:
Email:
Development Project Title:
Development Site Address: (Street Address City, State Zip)

PERMITTING AGENCY INFORMATION
Permitting Office:
Plan Checker: (Mr./Ms. Name, Title)
Mailing Address: (Street Address City, State Zip)
Telephone #:
Email:

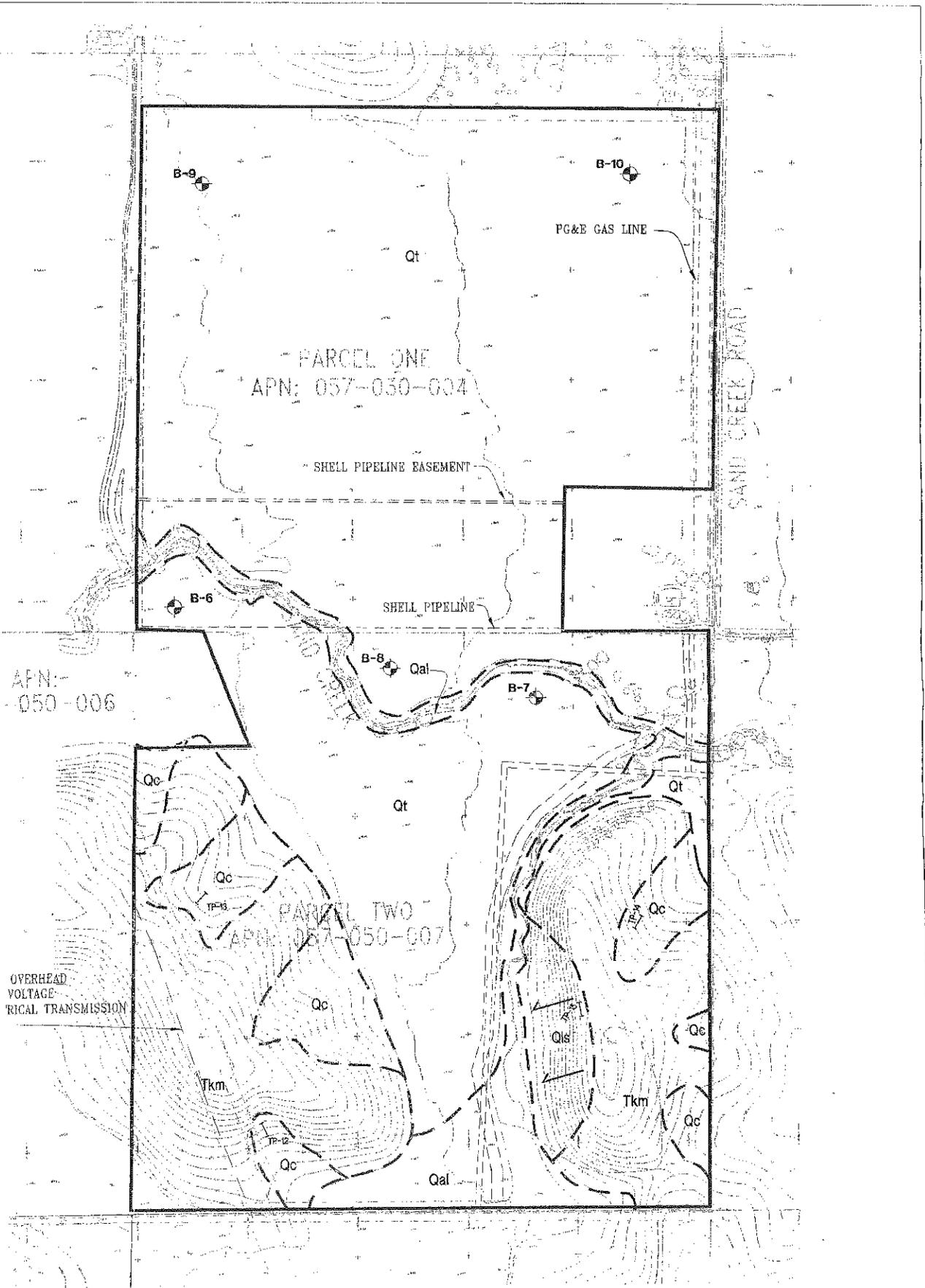
The Division of Oil, Gas, and Geothermal Resources recommends the following:

- a. The Division recommends maintaining access to all oil and gas wells.**
- b. The Division recommends abandoning all oil and gas wells to current standards.**

I have read and understand the above two recommendations. I have read and understand the Well Review Program Introduction (pages 1 - 7).

Name (please print): _____ Title: _____

Signature: _____ Date: _____



APN: 050-006

OVERHEAD
VOLTAGE
RICAL TRANSMISSION

BASE MAP SOURCE: CARLSON, BARBEE AND GIBSON



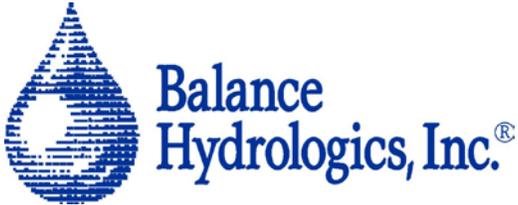
PRELIMINARY GEOLOGIC MAP
VINYARDS FUAI
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.5.002.01
DATE: JANUARY 2002
DRAWN BY: SRP CHECKED BY: DRH

FIGURE NO.
2

4894-5002-01-2801010

APPENDIX L



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March 2, 2015

Andrea Bellanca, P.E.
Carlson, Barbee & Gibson, Inc.
2633 Camino Ramon, Suite 350
San Ramon, California 94583

RE: Response to Comments Dated February 24, 2015, from the RMC Water and Environment Related to the Preliminary Stormwater Control Plan for Promenade, Vineyards at Sand Creek, City of Antioch

Dear Mr. Bellanca:

We recently received a copy of comments from RMC Water and Environment (RMC) dated February 24, 2015, related to their review of the Preliminary Stormwater Control Plan (SCP) for The Promenade project in the City of Antioch. As always, we appreciate all efforts to review the project details with respect to stormwater management, and welcome the feedback and suggestions provided.

Since Balance Hydrologics staff is actively involved in assisting with the planning and design of stormwater management infrastructure for the project, we feel it is appropriate to respond to a number of the pertinent comments to clarify the manner in which RMC concerns are being addressed. The recommendations have been incorporated into a revised SCP document, which is attached.

Response to Comments

The pertinent comments are addressed below using numbering based on the order of bulleted comments received.

Comment #1. *This comment notes that the additional peak flow modeling is not necessary for the SCP. It has been recommended that the reference to peak flow modeling be removed or moved to an appendix. Additionally, the comment recommends that a sensitivity analysis be conducted for the downstream tailwater condition if the peak flow modeling is to aid the design phase of the project.*

Response: We concur that peak flow modeling, which was included to comprehensively address potential impacts due to flood events, is not specifically a stormwater management item required

Mr. Andrea Bellanca, P.E.
March 2, 2015
Page 2

in the SCP format. Therefore, the peak flow modeling summary has been extracted from the SCP text and included as an appendix.

Regarding the tailwater sensitivity analysis, we note that the information provided was selected to represent a conservative tailwater elevation taken from the HEC-RAS modeling efforts. The selected value represents an estimate of the expected 10-year water surface in Sand Creek, which is quite conservative given the expected much longer lag time for flow to rise to peak in the creek (which must pass through the large upstream reservoir). We feel that no additional analysis is needed at the time, but assuring that the stormwater basins can drain freely against the downstream tailwater will continue to be a consideration as the respective designs move forward.

Comment #2. *This comment requests an update to the size of the interim basin as described in Section IV.D text so that it reflects the value shown in Table 7.*

Response: This comment correctly notes that the text was not updated during an earlier revision. The value in Table 7 is correct and the text in Section IV.D has been revised accordingly.

Comment #3. *This comment recommends the site drainage network, anticipated grading plan, and other features relative to the anticipated drainage be added to Figure 2. The comment also recommends call-outs for road names as well as call-outs or shading to represent the impervious and pervious areas. Lastly, the comment recommends standard sections for the detention and bioretention facilities be added to the figure.*

Response: Figure 2 (now Figure 3 in the revised SCP) has been updated to include the site drainage network, road names, and proposed grading. An additional figure has been included showing a typical section and bioretention detail representative of the stormwater facilities. We feel that the percent impervious cover discussed in the SCP is a conservative estimate based upon the typical lot configuration and street layout provided by Carlson, Barbee, and Gibson. The value used is consistent with projects of similar density constructed recently.

Comment #4. *This comment states that Figure 4 should include readable contour labels and call outs of specific features such as road names, drains, or any other feature that bounds the project.*

Response: This is a good suggestion and Figure 4 (now Figure 2 in the revised SCP) has been updated to include readable contour labels and road call outs.

Comment #5. *In this comment, RMC suggests that Figure 5 seems to be redundant with Figure 2.*

Response: The comment is correct in noting that the pertinent information is summarized elsewhere, and Figure 5 has been removed from the SCP.

Mr. Andrea Bellanca, P.E.
March 2, 2015
Page 3

Comment #6. *This comment notes that all information from comments 3 and 4 be added to Figure 6.*

Response: All additions discussed in the response to comments 3 and 4 have been added to Figure 6 (now Figure 5 in the revised SCP).

Comment #7. *This comment notes that units should be added to all tables and that the text be revised to include the refined information from the figures.*

Response: Clearly indicated units are indeed important, and the appropriate units have been added to all tables in the SCP and the text has been updated to reference the revised figures.

Closing

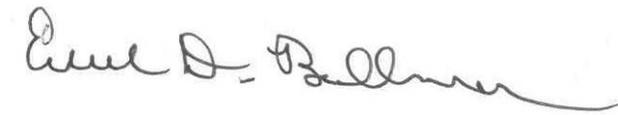
Thank you for the opportunity to provide these responses and do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

BALANCE HYDROLOGICS, Inc.



Adam Rianda, E.I.T.
Hydrologist/Engineer



Edward D. Ballman, P.E.
Principal Engineer

PRELIMINARY STORMWATER CONTROL PLAN
for
Promenade
Vineyards at Sand Creek
City of Antioch, California

March 02, 2015

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Appendix

Event Based Modeling for Peak Flow Control

Table A-1. Drainage area characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County
Table A-2. Infiltration and time lag calculations for stormwater detention modeling, Promenade, Vineyards at Sand Creek, Contra Costa County
Table A-3. Design storm coefficients and rainfall totals, Promenade, Vineyards at Sand Creek, Contra Costa County
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Table A-7. IMP2 bioretention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County
Table A-8. HEC-HMS stormwater detention modeling results for Phase 1, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-9. HEC-HMS stormwater detention modeling results, Promenade, Vineyards at Sand Creek,
Contra Costa County

This Stormwater Control Plan was prepared using the template dated February 15, 2012.

I. PROJECT DATA

Table 1. Project Data

Project Name/Number	Promenade, Vineyards at Sand Creek/Subdivision 9390
Application Submittal Date	Pending
Project Location	West of Heidorn Ranch Road, North of Sand Creek (APNs 057-030-003, 007)
Name of Developer	GBN Partners, LLC
Project Phase No.	NA
Project Type and Description	Residential project with up to 650 single-family homes
Project Watershed	Lower Marsh Creek
Total Project Study Area (acres)	160
Total Area of Land Disturbed (acres)	148.5
Total New Impervious Surface Area (sq. ft.)	4,553,500
Total Replaced Impervious Surface Area (sq. ft.)	70,000
Total Pre-Project Impervious Surface Area (sq. ft.)	122,847
Total Post-Project Impervious Surface Area (sq. ft.)	4,623,500
50% Rule[*]	Does not apply
Project Density	4.6 DU/acre
Applicable Special Project Categories [Complete even if all treatment is LID]	Does not apply
Percent LID and non LID treatment	100% LID for areas that require treatment
HMP Compliance [†]	Option 3: Post-project runoff does not exceed pre-project rates and durations

[*50% rule applies if:

Total Replaced Impervious Surface Area > 0.5 x Pre-Project Impervious Surface Area]

[†HMP applies if:

(Total New Impervious Surface Area + Total Replaced Impervious Surface Area) ≥ 1 acre]

II. SETTING

II.A. Project Location and Description

The Promenade, Vineyards at Sand Creek project (Project) is located on a 141.5-acre site in the City of Antioch, Contra Costa County, California. Accounting for the ultimate frontage road right-of-way on Hillcrest Avenue and Heidorn Ranch Road increases the project site area to 148.5 acres. A vicinity map showing the location of the site may be found in Figure 1, attached. The existing property consists of former farm land and open space. The property is bounded on the north by an existing housing development and bounded on the south by Sand Creek. The eastern boundary of the property is defined by Heidorn Ranch Road while a yet to be constructed extension of Hillcrest Avenue defines the western boundary.

The Project proposes to divide the existing property into two watersheds, Watershed A and Watershed B. Watershed A consists of approximately 481 single family residential homes, with lot sizes ranging from 3,600 square-feet (sq-ft) to 5,160 sq-ft. Watershed B consists of approximately 160 single family residential homes with an average lot size of 4,200 sq-ft. Both drainage areas will include a park feature as well as a stormwater facility to meet Contra Costa water-quality, flood control, and hydromodification requirements. Watershed A makes up nearly 70 percent of the proposed project totaling, 102.9 acres, while Watershed B totals 45.6 acres. In addition to the 148.5-acre project site there is approximately 11.5 acres to the north that is to be accounted for in the Promenade, Vineyards at Sand Creek Stormwater Control Plan study area. The offsite 11.5 acres, identified as Watershed C, consists of open space with one residence and multiple outbuildings. There are no proposed changes to Watershed C as part of the Promenade, Vineyards at Sand Creek project, therefore this watershed has been modeled under existing/historical conditions. The watershed delineation and development plan may be found in Figure 3, attached.

II.B. Existing Site Features and Conditions

The Project site topography is characterized by relatively flat terrain with the highest elevation in the area at approximately 170 feet (NGVD-29) in the north-western corner of the site and the lowest elevation at approximately 149 in the north-east corner near Heidorn Ranch Road, as shown in Figure 2.

The Project site is currently vacant land that was used for agricultural purposes in the past. There are no significant existing impervious areas other than Heidorn Ranch Road.

The Project is not located within a special flood hazard area (SFHA) as mapped by the Federal Emergency Management Agency (FEMA) in panel 06013C0335F. The entirety of the site is mapped in Zone X, defined as those areas of moderate to low flood risk, usually depicted on FIRMs as between 100-year to 500-year flood levels. Sand Creek, directly south of the Project is mapped in Zone A, however the Project will not encroach into any mapped floodplain areas with the exception of minor work to construct a storm drain outfall structure.

Figure 4 illustrates the primary soil types found in the vicinity of the Project as presented in the National Resources Conservative Service (NRCS) web soil survey (USDA, 2012). The web soil survey suggests that the Project site is essentially underlain by only one major soil group. Roughly 62% of the site consists of Capay Clay (CaA) and 37% of the site consists of Rincon Clay Loam with the remaining 1% being Altamont Clay. All three soils are classified as soil group C under the

NRCS hydrologic soil group (HSG)¹ system, with infiltration rates ranging from 0.13 in/hr for the Capay Clay to 0.85 in/hr for the Rincon Clay Loam. It is important to note that both of the Project stormwater facilities are located within the Rincon Clay Loam soils where the infiltration rate is highest.

The mean annual precipitation (MAP) at the site is roughly 13.6 inches. This estimate is based on the Project's location and information in the 1977 Mean Seasonal Isohyet Map published by the Contra Costa County Flood Control and Water Conservation District. Precipitation falling on the Project footprint currently sheet flows to the east where it is intercepted by Heidorn Ranch Road.

II.C. Opportunities and Constraints for Stormwater Control

There are a number of constraints related to the integrated management practices (IMP) selection and design for the Project as proposed. The Project has been designed to cluster new homes and most of the new improvements north of the future Sand Creek roadway alignment, and away from Sand Creek, resulting in a higher density configuration. The configuration of the project will result in limited developable space that can be utilized as part of the stormwater management approach within the neighborhoods, and the stormwater management has been designed to accommodate these limitations.

The entire site is underlain by soils classified as Hydrologic Soil Groups C. These Group C soils generally have low natural percolation rates and can severely limit the potential for direct infiltration of stormwater. This is particularly the case for the Capay Clay soils that underlay the majority of the proposed residential space. However, these soils produce runoff rates under pre-project conditions that are relatively high. Therefore, increased impervious area will have a proportionately smaller impact here than at a site underlain by more porous soils.

The gradual eastern sloping topography of the existing site limits stormwater management alternatives under post-project conditions. The proposed Project intends to drain directly south into Sand Creek, ultimately reducing the hydraulic head available for the conveyance of runoff to the outfall and restricting the use of stormwater management opportunities in the upper area of the watershed.

Both of the stormwater facilities are located relatively close to Sand Creek and are to drain into the Creek via one proposed outfall. Tailwater elevations in the Creek are an important consideration due to the proximity of the stormwater facilities and the potential backwater effect that could occur. This topic is discussed in detail in the Appendix.

III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

As previously mentioned, the Project proposes to construct up to 650 residential units located on a 141.5-acre parcel. By limiting development to the north side of Sand Creek Road, LID design options are limited to the available open spaces.

¹ The NRCS hydrologic soil groups divide all soil types into four categories on the basis of potential to produce runoff. Type A soils, typically sands or gravels, have the lowest runoff potential and typically have high infiltration rates. Type D soils have the highest runoff potential and typically have low infiltration rates. Type D soils are generally heavy clays or are very shallow.

III.A.2. Preservation of natural drainage features

No substantial natural drainage features currently exist at the Project site as it is relatively flat and generates sheet flow runoff. Native and drought tolerant landscaping will be incorporated in the proposed open space areas.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

All residential development is located over 250 feet from Sand Creek and is separated by the future alignment of Sand Creek Road. The larger of the two stormwater facilities is located south of Sand Creek Road, but remains outside of the 100-year floodplain (Zone A) as mapped by the Federal Emergency Management Agency in panel 06013C0335F.

III.A.4. Minimization of imperviousness

As noted above, the Project proposes to include roughly 23 acres of park and open space, divided between both drainage management areas. This does not include the 20-37 foot wide frontage landscape that will run along the perimeter of the Project site. Additionally, the Project plans to restrict sidewalks to only one side of the interior streets in effort to reduce the amount of impervious surfaces.

III.A.5. Use of drainage as a design element

The drainage areas in the post-project condition are illustrated in Figures 3. Both watersheds will utilize a conventional gravity-flow pipe system to convey stormwater runoff from all lots and roads into two separate stormwater facilities. Watershed A will drain to the larger of the two facilities, located south of the proposed Sand Creek Road. Watershed B, in addition to Watershed C, will drain to the second facility located at the south-east corner of the Project site, just north of Sand Creek Road. Both stormwater facilities were designed following the Contra Costa County cistern + bioretention approach with extended detention basins essentially functioning as cisterns. This configuration will allow for hydromodification management in the extended detention basin, water quality treatment in the bioretention basin, and provide peak flow control during large storm events. A typical profile of the stormwater facilities is shown in Figure 6.

III.B. Use of Permeable Pavements

Because of the relatively low permeability of the underlying soils at the project site, the use of permeable pavement is not feasible at the Project site.

III.C. Dispersal of Runoff to Pervious Areas

The Project site is entirely piped; however, stormwater runoff originating from the open space area south of Sand Creek Road is directed to the Creek when possible.

III.D. Feasibility Assessment of Harvesting and Use for Treatment and Flow-Control

III.D.1. Permeability of Site Soils

Because the type C soils located on the Project site have infiltration and percolation rates less than 1.6 inches/hour, the site is not exempt from harvesting rainwater. It should be noted that a small portion of the stormwater that enters each IMP will infiltrate and percolate into the underlying soils, and provide a small contribution to flow-control.

III.D.2. *Potential Opportunities for Harvesting and Use*

Rainwater may be collected by residential housing and reused for the purpose of public space irrigation. Given the density of the proposed development and the allocated park and open space, the Project has the potential of being a candidate for rainwater harvesting and reuse. However, use of the harvesting worksheets shown below indicates that harvesting and reuse are infeasible at this site.

III.D.3. *Harvesting and Use Feasibility Calculations*

The following calculations were performed using Table 4-2 and 4-3 of the Guidebook.

Table 2. Harvesting and Use Feasibility

A	B	C	D	E	F	G	H	I	J
<i>Building or other Impervious Area Description</i>	<i>Square feet of impervious surface</i>	<i>Acres</i>	<i>Uses and User Units</i>	<i>Toilet and Urinal Water Usage (gal/day)</i>	<i>Water Use per Acre (gal/day/acre)</i>	<i>Required demand (gal/day/acre).</i>	<i>Is Projected Use > Required Demand? (Column F > Column G?)</i>	<i>Can runoff be piped to an irrigated area 2.5x the impervious area (Column B)?</i>	<i>Is there any other consistent, reliable demand for the quantity in Column G?</i>
Roof	1,829,520	42	Resident [2.8] x 641 = 1,795	[8.6] x 1,795 =15,435	368	4,200	No	No	No

III.E. Integrated Management Practices

The project IMPs will include two stormwater facilities, IMP1 located south of Sand Creek Road and IMP2 located at the south-east corner of the project site north of Sand Creek Road. All runoff from the western seventy percent of the Project developed space (Watershed A) will be directed to IMP1 while the eastern thirty percent of the project site (Watershed B) will drain to IMP2. Both facilities have been designed to function as two stage systems where runoff enters a detention bay for peak-flow attenuation and hydromodification control and is then sent to an adjoining bioretention bay for water-quality treatment.

The peak-flow attenuation and hydromodification controls located in each detention bay will consist of a lower orifice sized to appropriately meter flows and a riser box structure set to act as a weir when the active storage volume in the detention basin goes beyond the required hydromodification storage volume identified in Tables 5 and 6 below. Specifics on the detention basin stage-storage relationships and orifice configurations may be found in Tables A-2 and A-4 of the Appendix.

The bioretention bays were sized using the cistern + bioretention water quality calculations for required surface area, the results of which may be found in Tables 5 and 6.

Maintenance of the stormwater facilities will be enabled by installation of roads that will provide maintenance crews with regular access to the basins. The maintenance crews will be responsible for removing sediment accumulation and coarse debris that would otherwise have the potential to clog the low flow orifices. Stormwater facility maintenance requirements are outlined in Section VI.

IV. DOCUMENTATION OF DRAINAGE DESIGN

The following section details the parameterization and calculation for the Project’s stormwater facilities. Although it is not always the case, the labeling of drainage management areas (DMA’s) are

consistent with the Project watersheds, however it is important to note that the DMA's have been split based on land cover (impervious vs pervious).

IV.A. Descriptions of each Drainage Management Area

IV.A.1. Table of Drainage Management Areas

Table 3. IMP-Treated Areas

<i>DMA Name</i>	<i>Surface Type</i>	<i>Area (square feet)</i>
<i>DMA A - pervious</i>	<i>Landscape</i>	<i>1,242,769</i>
<i>DMA A - impervious</i>	<i>Concrete or Asphalt</i>	<i>3,239,349</i>
<i>DMA B - pervious</i>	<i>Landscape</i>	<i>603,220</i>
<i>DMA B - impervious</i>	<i>Concrete or Asphalt</i>	<i>1,384,154</i>
<i>DMA C - pervious</i>	<i>Landscape</i>	<i>435,600</i>
<i>DMA C - impervious</i>	<i>Concrete or Asphalt</i>	<i>43,560</i>

IV.A.2. Drainage Management Area Descriptions

DMA A, totaling 4,482,118 square feet, drains the western seventy percent of the project site. DMA A drains to IMP 1, a cistern (extended detention) + bioretention facility south of Sand Creek Road.

DMA B, totaling 1,987,374 square feet, drains the eastern thirty percent of the project site. DMA B drains to IMP 2, a cistern (extended detention) + bioretention facility at the southeast corner of the project site, north of Sand Creek Road.

DMA C, totaling 479,160 square feet, drains the northern-eastern existing area. DMA C drains to IMP 2, the cistern (extended detention) + bioretention facility at the southeast corner of the project site, north of Sand Creek Road.

The drainage management areas are illustrated in Figure 3.

IV.B. Tabulation and Sizing Calculations

IV.B.1. Information Summary for IMP Design

Table 4. IMP Design Summary

Total Drainage Area (Square Feet)	6,948,652
Mean Annual Precipitation	13.6
IMPs Designed For:	Treatment + Flow Control

IV.B.2. Self-Treating Areas

No self-treating areas are located within the Project site.

IV.B.3. Self-Retaining Areas

No self-retaining areas are located within the Project site.

IV.B.4. Areas Draining to Self-Retaining Areas

No self-retaining areas are located within the Project site.

IV.B.5. Areas Draining to IMPs

Table 5. IMP 1 Sizing Calculations

<i>DMA Name</i>	<i>DMA Area (square feet)</i>	<i>Post-project surface type</i>	<i>DMA Runoff factor</i>	<i>DMA Area × runoff factor</i>	<i>Soil Type:</i>	<i>IMP Name</i>			
					C	IMP 1			
<i>DMA A - pervious</i>	1,242,769	Landscape	0.5	621,385					
<i>DMA A - impervious</i>	3,239,349	Concrete or Asphalt	1	3,239,349	<i>IMP Sizing factor</i>	<i>Rain Adjust-ment Factor</i>	<i>Minimum Area or Volume</i>	<i>Proposed Area or Volume</i>	
			Total	3,860,734	0.013	0.568	28,495	30,000	IMP Area (square feet)
					0.105	1.242	503,478	530,324	V or V1 (cubic feet)
									V2
								Orifice Size:	7.60 in

Table 6. IMP 2 Sizing Calculations

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:	IMP Name			
					C	IMP 2			
DMA B - pervious	603,220	Landscape	0.5	301,610	IMP Sizing factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume	IMP Area (square feet)
DMA B - impervious	1,384,154	Concrete or Asphalt	1	1,384,154					
DMA C - pervious	437,380	Landscape	0.5	217,800					
DMA C - impervious	43,560	Concrete or Asphalt	1	43,560					
Total				1,947,124	0.013	0.568	14,371	19,570	IMP Area (square feet)
					0.105	1.242	254,041	254,041	V or V1 (cubic feet)
									V2
									Orifice Size:
									5.25 in

IV.C. Phase 1 Design Consideration

The proposed project is to be constructed in two phases, with Phase 1 consisting of the northern 65 acres as shown in Figure 5. Rather than constructing both of the aforementioned stormwater facilities within the first phase, the entire Phase 1 watershed in addition to the northern offsite 11.5 acres will be directed to IMP 2. As shown in Table 7 below, IMP 2 has been sized with the adequate bioretention floor area to treat the Phase 1 watershed; however, it does not quite have the hydromodification capacity that is required per the County IMP sizing calculations. In order to meet hydromodification requirements, an interim detention basin will be constructed adjacent to IMP 2 and will be cross connected to provide the additional 91,743 cubic feet of storage. Since the maximum hydromodification underdrain flow allowable is greater under the Phase 1 condition, the orifice diameter for the ultimate condition will be used from the start, preventing the need for future retrofit. Upon completion of IMP 1 during Phase 2 construction, the project storm drain system will be reconfigured to route runoff from watersheds A and B accordingly, as discussed in section IV.A.2. of this report.

Table 7. Phase 1 IMP 2 Sizing Calculations

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:	IMP Name				
					C	IMP 2				
Phase 1 - pervious	914,760	Landscape	0.5	457,380						
Phase 1 - impervious	1,920,996	Concrete or Asphalt	1	1,920,996						
DMA C - pervious	457,380	Landscape	0.5	228,690						
DMA C - impervious	43,560	Concrete or Asphalt	1	43,560	IMP Sizing factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume		
Total				2,650,626	0.013	0.568	19,563	19,570	IMP Area (square feet)	
					0.105	1.242	345,668	253,925	V or V1 (cubic feet)	
							91,743	Interim V (cubic feet)		
							Orifice Size:	6.11 in		

V. SOURCE CONTROL MEASURES

V.A. Site activities and potential sources of pollutants

Pollutants typically found in urban runoff include household and lawn-care chemicals (insecticides, herbicides, fungicides and rodenticides), heavy metals (such as copper, zinc and cadmium), oils and greases, and nutrients (nitrogen and phosphorus).

The goal of the Project’s water-quality sensitive site design is to limit release of these pollutants into the stormwater system through source control. The clustered houses at the site coupled with the low permeability of the surface soils constrains the range of treatment measures that can be implemented.

Therefore, the project will construct IMPs designed to capture and treat flow at the downstream end of the project site, just prior to entering the Sand Creek. These IMPs will utilize a bioretention (also known as bio-filtration) approach.

In addition to the IMPs, the Project was designed to limit the amount of directly connected impervious area (DCIA) within the development envelope. Limiting DCIA promotes infiltration (though modestly in areas of low permeability) and generally leads to increased amounts of landscaping and open space uses that limit the introduction of pollutants to the environment and can filter out pollutants that already have been mobilized.

Other pollution control measures include regular maintenance activities such as street sweeping and storm drain inlet cleaning, and stenciling all storm drain inlets with appropriate warnings indicating that the runoff flows to the Sand Creek. Access to educational materials will also be provided to assist homeowners in reducing the introduction of pollutants to the stormwater management system.

V.B. Source Control Table

Table 8. Source Control Measures

<i>Potential source of runoff pollutants</i>	<i>Permanent source control BMPs</i>	<i>Operational source control BMPs</i>
On-site storm drain inlets	<ul style="list-style-type: none"> • Stenciled storm drain inlets with appropriate warnings indicating that runoff flows to the Sand Creek. 	<ul style="list-style-type: none"> • Maintain and periodically repaint or replace inlet markings • Provide stormwater pollution prevention information to new site owners, lessees, or operators.
Landscape/ Outdoor Pesticide Use	<p>The final landscape plans will accomplish all of the following:</p> <ul style="list-style-type: none"> • Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. • Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. • Consider using pest-resistant plants, especially adjacent to hardscape. • To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions. 	<ul style="list-style-type: none"> • Maintain landscaping using minimum or no pesticides • Provide IPM information to new owners, lessees and operators.
Vehicle and Equipment Cleaning	<ul style="list-style-type: none"> • Because a car wash area is not provided within the Project site, car washing will not be allowed in the development site. 	<ul style="list-style-type: none"> • Vehicle and equipment cleaning information will be provided to new site owners, lessees and operators.
Roofing, gutters, and trim	<ul style="list-style-type: none"> • Roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff will be avoided. 	<ul style="list-style-type: none"> • Roofing, gutters, and trim information will be provided to new site owners, lessees and operators.
Sidewalks, and street		<ul style="list-style-type: none"> • Maintain and regularly sweep sidewalks and streets to

parking		prevent accumulation of litter and debris. <ul style="list-style-type: none"> • Collect debris from pressure washing to prevent entry into the storm drain system.
---------	--	---

V.C. Features, Materials, and Methods of Construction of Source Control BMPs

The features, materials, and methods of construction of source control BMPs will be specified in the Grading, Improvement and Landscape construction plans. However, the bioretention facilities will be constructed per the CCCCWP’s Stormwater C.3 Guidebook (Guidebook). The soil mix will be consistent with that specified in Appendix B of the Guidebook. The storage and drainage layer will use Class 2 permeable per the Caltrans specification 68-1.025 or an equivalent material. The subsurface volume will satisfy the requirement specified in Table 4-8 of the Guidebook. Energy dissipaters, curb cuts, and grate inlets will be used as necessary to reduce erosion within the bioretention areas. Perforated pipe will be bedded near the top of the gravel layer and connect directly to the downstream storm drain system.

VI. STORMWATER FACILITY MAINTENANCE

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

The HOA will assume ownership and responsibility for maintenance of IMP2 (Basin B) while an LLD (landscape and lighting district) will assume ownership and responsibility for maintenance of IMP1 (Basin A). Operation and maintenance of facilities will be responsibility of owner until transferred to HOA or City (LLD).

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

The bioretention areas will require regular inspections of the inlets, outlets, and side slopes for evidence of erosion, obstructions, and instabilities. The soil at the bottom of the feature will require regular observations to check for uniform percolation, and will require tilling and replanting if percolation requirements are not achieved. Vegetation surrounding the bioretention facilities will be observed and maintained regularly, with invasive and noxious plants removed, fallen leaves disposed of, and mulch replenished as necessary. All irrigation used for the bioretention facilities will be assessed regularly. Any potential vectors will be abated by filling holes in the ground and eliminating standing water that persists for more than 48 hours. In addition, Contra Costa Mosquito and Vector Control District (CCMVCD) will be informed if mosquito larvae are found present at the bioretention facilities.

The extended detention portion of the stormwater facilities will require regular inspections of the inlets, outlets, and side slopes for evidence of erosion, obstructions, and instabilities, as in the bioretention area. Vector control will include filling any holes in and around the basin and by examining for evidence of mosquito larvae. A copy of the O&M plan, schedule of routine activities, and maintenance reports will be given to the CCMVCD in an effort to cooperatively facilitate control of mosquitoes and vectors. Non-routine maintenance may include the removal of accumulated sediment every five to fifteen years as well as removal of any invasive plants that may reduce the effective area of the pond.

VII. CONSTRUCTION PLAN C.3 CHECKLIST

Table 9. Construction Plan C.3 Checklist

Stormwater

Control

Plan

Page #

BMP Description

See Plan Sheet #s

<i>Page #</i>	<i>BMP Description</i>	<i>See Plan Sheet #s</i>
6	IMP1, bioretention facility for DMA A	
7	IMP2, bioretention facility for DMA B and Phase 1	

VIII. CERTIFICATIONS

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of the Central Valley Regional Water Quality Control Board Order R5-2010-0102.

Local staff will be contacted regarding other certification requirements.

Figures

Vicinity Map Figure 1

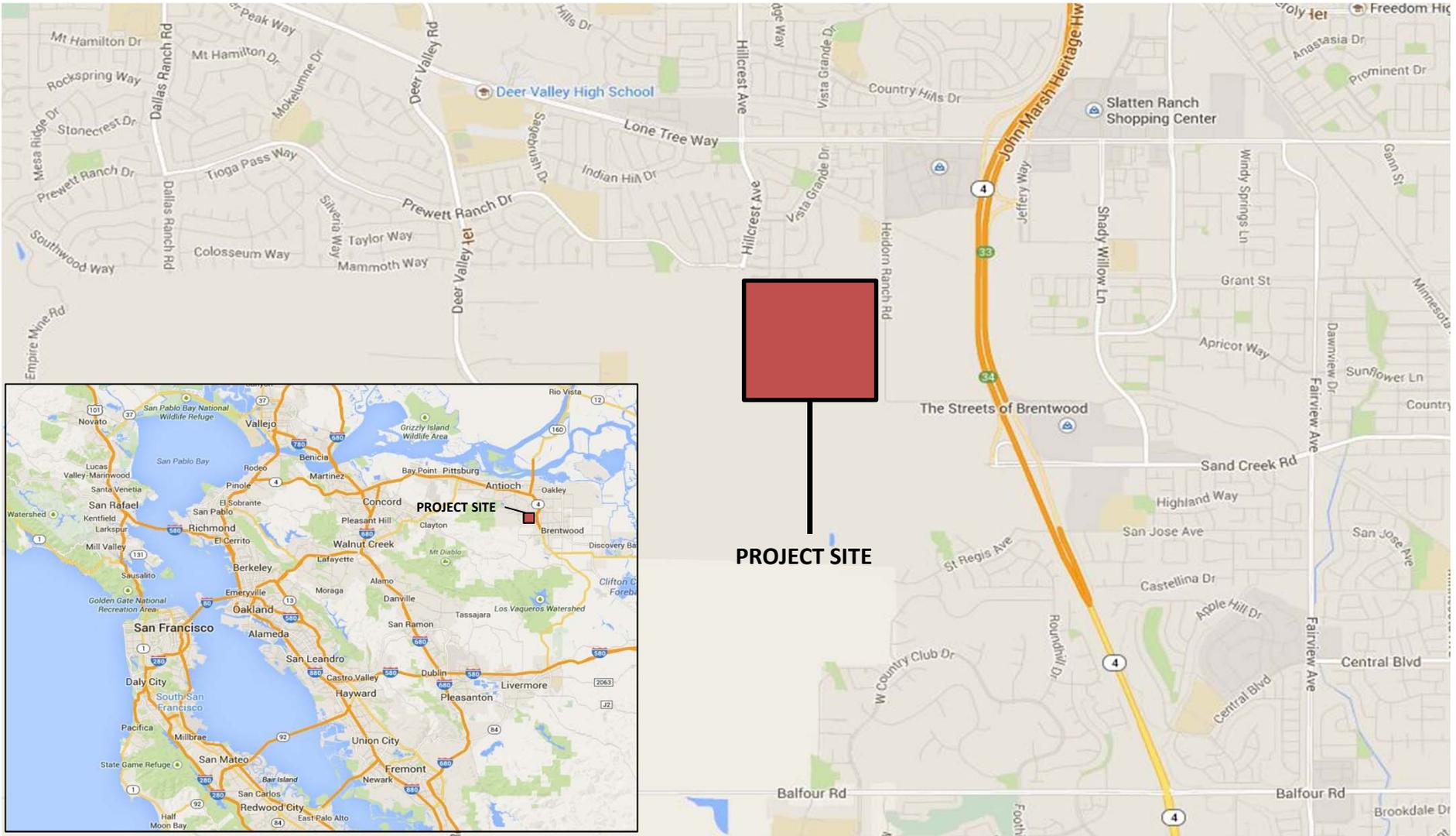
Pre-project Watersheds Figure 2

Post-project Watersheds Figure 3

Soil Map Figure 4

Phase 1 Watersheds Figure 5

Typical Stormwater Facility Section and Detail Figure 6



Source: Google Maps.



Figure 1. Regional location map of the Promenade Property



Balance Hydrologics, Inc.

Figure 2. Pre-project watershed map, Promenade Property, City of Antioch

Topographic Sources: Topography provided by CBG
2008 Contra Costa County Ortho Imagery Project



0' 200' 400' 800'

SCALE: 1" = 400'

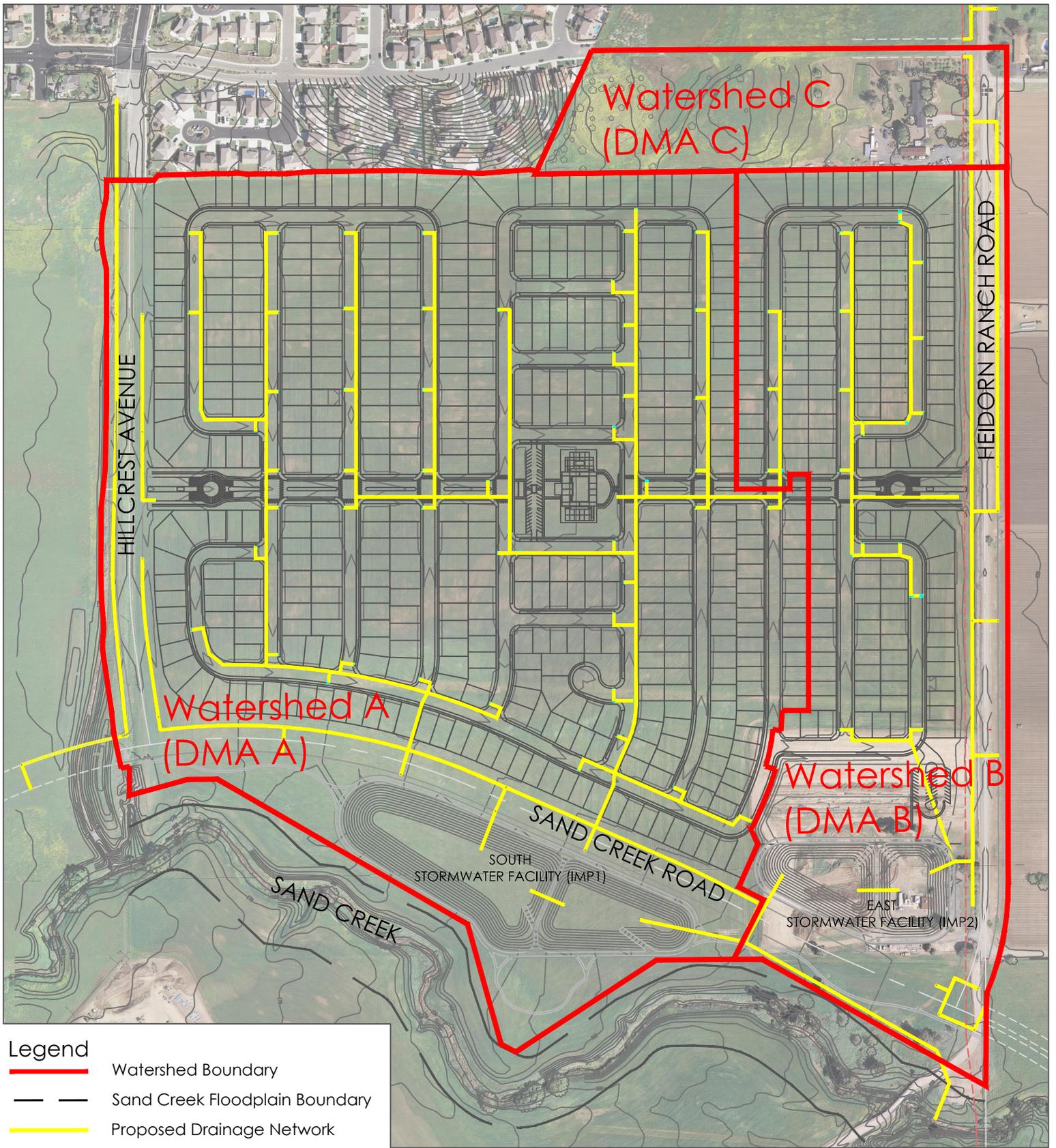


Figure 3. Post-project watershed map, Promenade Property, City of Antioch

Topographic Sources: Topography provided by CBG
2008 Contra Costa County Ortho Imagery Project



Balance Hydrologics, Inc.



0' 200' 400' 800'

SCALE: 1" = 400'



Hydrologic Soil Group— Summary by Map Unit — Contra Costa County, California (CA013)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AbD	Altamont clay, 9 to 15 percent slopes	C	1.3	0.8%
CaA	Capay clay, 0 to 2 percent slopes	C	92.2	62.1%
RbA	Rincon clay loam, 0 to 2 percent slopes, MLRA 14	C	55.0	37.1%
Totals for Area of Interest			148.5	100.0%

Saturated Hydraulic Conductivity (Ksat)— Summary by Map Unit — Contra Costa County, California (CA013)				
Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
AbD	Altamont clay, 9 to 15 percent slopes	0.8941	1.3	0.8%
CaA	Capay clay, 0 to 2 percent slopes	0.9100	92.2	62.1%
RbA	Rincon clay loam, 0 to 2 percent slopes, MLRA 14	6.0657	55.0	37.1%
Totals for Area of Interest			148.5	100.0%



Figure 4. Soils map of Promenade, Vineyards at Sand Creek, City of Antioch

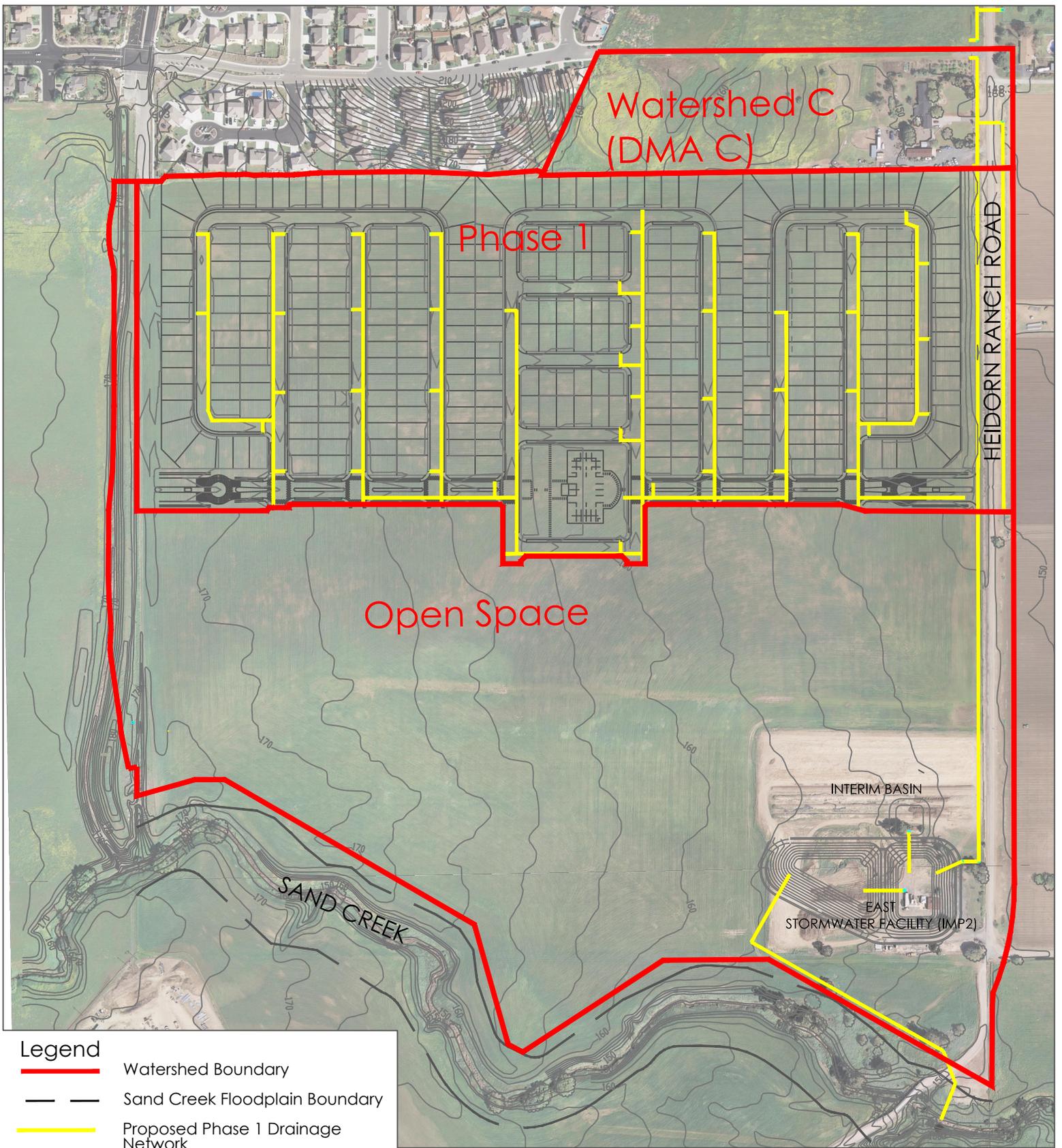
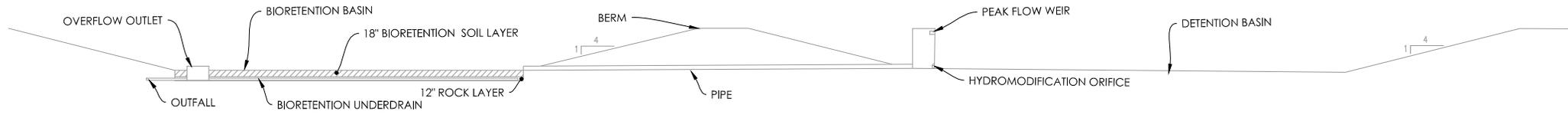


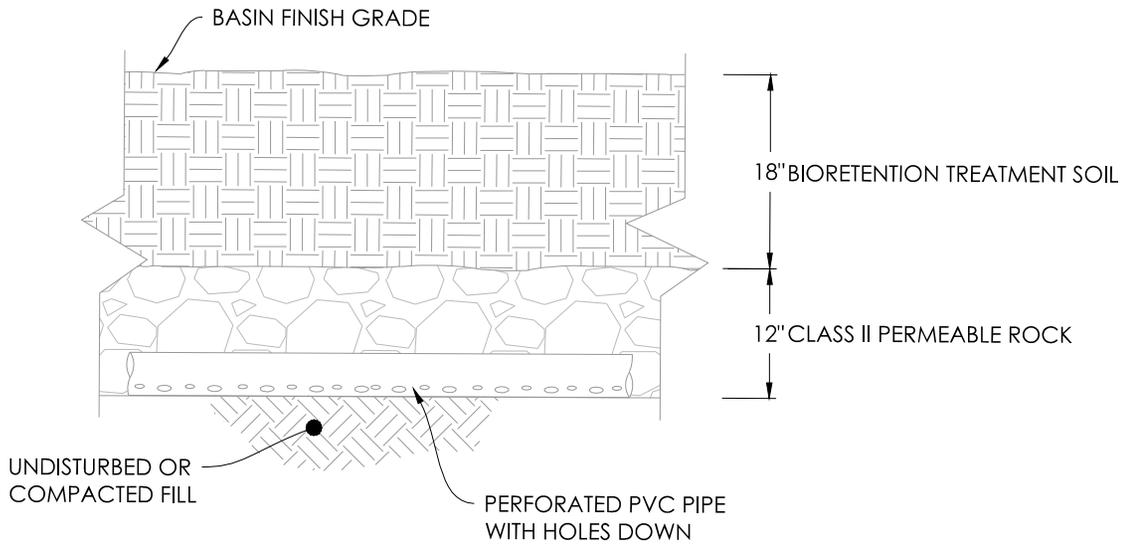
Figure 5. Phase 1 watershed map, Promenade Property, City of Antioch

Topographic Sources: Topography provided by CBG
2008 Contra Costa County Ortho Imagery Project





TYPICAL STORMWATER FACILITY SECTION



BIORETENTION DETAIL

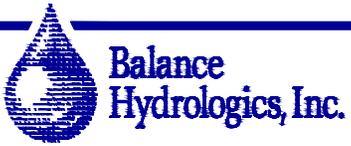


Figure 6. Typical stormwater facility section and detail, Promenade Property, City of Antioch

Appendix

Event Based Modeling for Peak Flow Control

Table A-1. Drainage area characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-2. Infiltration and time lag calculations for stormwater detention modeling, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-3. Design storm coefficients and rainfall totals, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-4. IMP1 detention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-5. IMP1 bioretention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-6. IMP2 detention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-7. IMP2 bioretention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-8. HEC-HMS stormwater detention modeling results for Phase 1, Promenade, Vineyards at Sand Creek, Contra Costa County

Table A-9. HEC-HMS stormwater detention modeling results, Promenade, Vineyards at Sand Creek, Contra Costa County

I. EVENT BASED MODELING FOR PEAK FLOW CONTROL

I.A. Overview

Without mitigation, the increase in impervious area at the Project site will unfavorably increase the peak flow leaving the site leading to potential negative impacts downstream where the runoff is discharged into Sand Creek. To address this issue and to assess the performance of the proposed stormwater facilities during larger storm events, a hydrologic model was developed. The U.S. Army Corps of Engineers HEC-HMS software package was used in conjunction with the modeling protocols set forth in the HEC-HMS Guidance Manual published by the Contra Costa County Flood Control & Water Conservation District.

I.B. Methodology

Input parameters for the HEC-HMS model were compiled from site topography, preliminary project plans, soil survey information and additional guidance from the County's HEC-HMS Guidance document. The input parameters are summarized in Tables A-1 through A-3.

To assess the function of the stormwater facilities for various duration rainfall events, model runs were completed for 3-, 6-, 12-, and 24-hour design storm events, based on a mean annual precipitation of 13.6 inches. For each of the aforementioned rainfall durations, runs were carried out to model the 10- and 100-year design storm recurrence intervals under pre-project, post-project, and phase 1 conditions.

I.C. Results

Output results from the HEC-HMS modeling are summarized in Table A-9. Under existing conditions the predicted peak discharge values from the Project site range from 37.7 cfs for the 10-year 12-hour storm to 107.5 cfs for the 100-year 24-hour storm. Without detention, post-project peak discharge is expected to increase to a maximum of 157.3 cfs for the 10-year 24-hour event to 240.9 for the 100-year 24-hour storm.

The model demonstrates that the proposed stormwater facilities and outlet control structures will be effective in attenuating post-project peak flow rates to less than that under pre-project conditions during large storm events. For example, the predicted peak flow rate for the 100-year 24-hour storm is 68.3 cfs, a reduction of 39.2 cfs. The maximum water surface elevations (WSEs) in the stormwater facilities occur during the 100-year 24 hour design storm, however it is important to note that the detention bay and the bioretention bay remain separated by an interior berm and therefore maintain different WSE's. For example, the peak WSE in the IMP1 detention bay during the 100-year 24-hour storm is 154.1 feet while the peak WSE in the bioretention bay is 149.6 feet. Similarly in IMP2, the 100-year 24-hour peak WSE in the detention bay is 147.9 feet while the peak in the bioretention bay is 140.6 feet. Both stormwater facilities are able to achieve the peak flow control goals while maintaining 2 feet of freeboard.

Output results from the Phase 1 model are summarized in Table A-8. Without detention, peak discharge under the Phase 1 condition is expected to increase to a maximum of 89.5 cfs for the 10-year 24-hour event to 160.7 for the 100-year 24-hour storm.

The model demonstrates that IMP 2, in conjunction with the interim basin, is capable of significantly reducing peak flow rates to less than that under pre-project conditions during large storm events. For example, the peak discharge for the 100-year 24-hour event is predicted to be 70.5 cfs, a 37 cfs reduction. The peak WSE in the IMP 2 detention bay during the 100-year 24-hour storm is 148 feet while the peak WSE in the bioretention bay is 140.9 feet.

I.D. Tailwater Consideration

With the eastern stormwater facility in close proximity to the proposed Sand Creek outfall, an appropriate tailwater elevation in the Creek was estimated to assess any potential backwater effects. Conveniently, a HEC-RAS model that includes the Sand Creek reach of interest had previously been constructed by Balance staff as part of a hydraulic analysis of the PG&E bridge crossing just upstream of the proposed outfall location. The flood flow rate of 100 cubic feet per second (cfs) used in the HEC-RAS analysis was estimated based on the average of peak flows between the 2- and 100-year design storms taken from the Upper Sand Creek Detention Basin Design Report completed by GEI Consultants in 2010.

The water surface elevation approximately 115 feet downstream of the PG&E bridge crossing where the proposed Sand Creek outfall is to be located was estimated to be 136.4 feet relative to the Creek bottom elevation of 133.8 feet. The ultimate discharge from the two stormwater facilities has been set to outfall into Sand Creek at an invert elevation of 134.4 feet. Although this is 2 feet below the calculated tailwater elevation, it does not appear to be of concern. In any case including a large storm event, the project site runoff should provide a sufficient amount of head in the bioretention basin to prevent any backwater effect throughout the system. Additionally, the IMP2 bioretention soil layer remains slightly above the estimated tailwater elevation, therefore if backwatering does occur it should have no effect on the bioretention media in regards to maintenance activity. For these reasons, no further analysis was undertaken.

Table A-1. Drainage area characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Pre-project Conditions

<u>Watershed</u>	<u>Watershed Area</u>		<u>Cover Type</u>	<u>Hydrologic Soil Group</u>	<u>Percent Impervious</u>
	<i>(acres)</i>	<i>(sq miles)</i>			
A/B	148.5	0.232	Grassland	C (100%)	2%
C	11.5	0.017	Grassland/ Developed	C (100%)	10%
Total	160.0	0.250			

Post-project Conditions

<u>Watershed</u>	<u>Watershed Area</u>		<u>Cover Type</u>	<u>Hydrologic Soil Group</u>	<u>Percent Impervious</u>
	<i>(acres)</i>	<i>(sq miles)</i>			
A	102.9	0.161	Developed	C (100%)	72%
B	45.6	0.071	Developed	C (100%)	70%
C	11.5	0.017	Grassland/ Developed	C (100%)	10%
Total	160.0	0.250			

Phase 1

<u>Watershed</u>	<u>Watershed Area</u>		<u>Cover Type</u>	<u>Hydrologic Soil Group</u>	<u>Percent Impervious</u>
	<i>(acres)</i>	<i>(sq miles)</i>			
Phase 1 Developed	65.0	0.102	Developed	C (100%)	68%
Open Space	83.5	0.130	Grassland	C (100%)	1%
C	11.0	0.017	Grassland/ Developed	C (100%)	10%
Total	159.5	0.249			

Table A-2. Infiltration and time lag calculations for stormwater detention modeling, Promenade, Vineyards at Sand Creek, Contra Costa County

Pre-project

Shed	Infiltration (in/hr)	N	L		Lc		Elevation		Slope (ft/mile)	Lag (hours)
			(feet)	(miles)	(feet)	(miles)	High (feet)	Low (feet)		
A/B	0.17	0.075	4,803	0.910	3,374	0.639	172	153	21	0.822
C	0.15	0.050	1542	0.292	606	0.115	160	148	41	0.163

Post-project

Shed	Infiltration (in/hr)	N	L		Lc		Elevation		Slope (ft/mile)	Lag (hours)
			(feet)	(miles)	(feet)	(miles)	High (feet)	Low (feet)		
A	0.05	0.025	2,996	0.567	1,576	0.298	172	160	21	0.171
B	0.05	0.029	2,988	0.566	993	0.188	157	140	30	0.156
C	0.15	0.050	1,542	0.292	606	0.115	160	148	41	0.163

Phase 1

Shed	Infiltration (in/hr)	N	L		Lc		Elevation		Slope (ft/mile)	Lag (hours)
			(feet)	(miles)	(feet)	(miles)	High (feet)	Low (feet)		
Phase 1 Developed	0.05	0.027	3,456	0.655	1,329	0.252	172	153	29	0.172
Open Space	0.16	0.075	4,122	0.781	2,352	0.445	170	153	22	0.671
C	0.15	0.050	1,542	0.292	606	0.115	160	148	41	0.163

Table A-3. Design storm coefficients and rainfall totals, Promenade, Vineyards at Sand Creek, Contra Costa County

MSP = 13.60 inches

Duration	Factor C1		Factor C2		Rainfall Depth (inches)	
	10-year	100-year	10-year	100-year	10-year	100-year
3-hour	0.434	0.620	0.0516	0.0760	1.14	1.65
6-hour	0.520	0.760	0.0760	0.1120	1.55	2.28
12-hour	0.588	0.888	0.1112	0.1632	2.10	3.11
24-hour	0.636	0.968	0.1584	0.2352	2.79	4.17

Site watersheds are at 13.6 inches mean seasonal precipitation per CCCFC Figure B-166.

Table A-4. IMP1 detention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Stage-storage-discharge

Elevation <i>(feet)</i>	Stage <i>(feet)</i>	Area <i>(acres)</i>	Storage <i>(ac-ft)</i>	Q Total <i>(cfs)</i>
146.00	0.00	1.46	0.00	0.00
147.00	1.00	1.59	1.53	1.29
148.00	2.00	1.72	3.18	1.99
149.00	3.00	1.85	4.96	2.50
150.00	4.00	1.98	6.87	2.92
151.00	5.00	2.11	8.92	3.29
152.00	6.00	2.25	11.10	3.62
152.50	6.50	2.32	12.24	4.03
153.00	7.00	2.39	13.42	21.50
153.50	7.50	2.46	14.63	44.42
154.00	8.00	2.53	15.88	61.47
154.50	8.50	2.60	17.16	70.96

Orifice Dimensions

Type	Diameter <i>(ft)</i>	Flowline¹ <i>(ft)</i>	Shape
---	---	---	---
Low Orifice	0.63	0.00	Circular

Grate Dimensions

Type	Width <i>(ft)</i>	Length <i>(ft)</i>	Flowline¹ <i>(ft)</i>	Shape
---	---	---	---	---
Grate	3.00	3.00	6.47	Square Box

1. Flowline is represented as stage

Table A-5. IMP1 bioretention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Stage-storage-discharge

Elevation <i>(feet)</i>	Stage <i>(feet)</i>	Area <i>(acres)</i>	Storage <i>(ac-ft)</i>	Q Total <i>(cfs)</i>
143.00	0.00	0.69	0.00	0.00
143.50	0.50	0.69	0.14	0.47
144.00	1.00	0.69	0.28	1.79
144.50	1.50	0.69	0.41	2.58
145.00	2.00	0.69	0.55	3.19
145.50	2.50	0.69	0.69	3.48
146.00	3.00	0.73	1.05	3.48
147.00	4.00	0.81	1.82	7.01
148.00	5.00	0.90	2.68	21.83
149.00	6.00	0.99	3.62	38.86
150.00	7.00	1.08	4.66	49.16
151.00	8.00	1.18	5.79	57.53
152.00	9.00	1.27	7.02	64.76
153.00	10.00	1.37	8.34	71.23
154.00	11.00	1.47	9.76	77.13
154.50	11.50	1.52	10.51	79.91

Underdrain Dimensions

Type ---	Diameter <i>(ft)</i>	Flowline¹ <i>(ft)</i>	Shape ---
Underdrain	0.83	0.17	Circular

Orifice Dimensions

Type ---	Width <i>(ft)</i>	Height <i>(ft)</i>	Flowline¹ <i>(ft)</i>	Shape ---
Upper Orifice	3.00	2.00	3.50	Rectangular

1. Flowline is represented as stage

Elevation 143.0 to 145.5 feet are for biofiltration soil and rock mix

Volume in soil mix is void volume only

Table A-6. IMP2 detention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Stage-storage-discharge

Elevation <i>(feet)</i>	Stage <i>(feet)</i>	Area <i>(acres)</i>	Storage <i>(ac-ft)</i>	Q Total <i>(cfs)</i>
138.50	0.00	0.42	0.00	0.00
139.00	0.50	0.45	0.22	0.40
140.00	1.50	0.51	0.70	0.83
141.00	2.50	0.56	1.23	1.10
142.00	3.50	0.62	1.82	1.31
143.00	4.50	0.68	2.47	1.50
144.00	5.50	0.75	3.18	1.67
145.00	6.50	0.81	3.96	1.82
146.00	7.50	0.88	4.81	1.95
146.50	8.00	0.92	5.26	2.02
147.00	8.50	0.95	5.72	2.08
147.50	9.00	0.99	6.21	17.51
148.00	9.50	1.03	6.71	51.43

Orifice Dimensions

Type	Diameter <i>(ft)</i>	Flowline ¹ <i>(ft)</i>	Shape
---	<i>(ft)</i>	<i>(ft)</i>	---
Low Orifice	0.44	0.00	Circular

Grate Dimensions

Type	Width <i>(ft)</i>	Length <i>(ft)</i>	Flowline ¹ <i>(ft)</i>	Shape
---	<i>(ft)</i>	<i>(ft)</i>	<i>(ft)</i>	---
Grate	4.00	4.00	8.20	Square Box

1. Flowline is represented as stage

Table A-7. IMP2 bioretention characteristics, Promenade, Vineyards at Sand Creek, Contra Costa County

Stage-storage-discharge

Elevation <i>(feet)</i>	Stage <i>(feet)</i>	Area <i>(acres)</i>	Storage <i>(ac-ft)</i>	Q Total <i>(cfs)</i>
135.50	0.00	0.45	0.00	0.00
136.00	0.50	0.45	0.09	0.13
136.50	1.00	0.45	0.18	1.01
137.00	1.50	0.45	0.27	1.54
137.50	2.00	0.45	0.36	1.94
138.00	2.50	0.45	0.45	2.26
139.00	3.50	0.51	0.92	2.26
140.00	4.50	0.57	1.46	10.59
141.00	5.50	0.63	2.06	36.31
142.00	6.50	0.70	2.73	36.31
143.00	7.50	0.77	3.47	43.96
144.00	8.50	0.85	4.28	50.41
145.00	9.50	0.92	5.17	56.10
146.00	10.50	1.01	6.13	61.24
147.00	11.50	1.09	7.18	65.96
148.00	12.50	1.18	8.32	70.36

Underdrain Dimensions

Type ---	Diameter <i>(ft)</i>	Flowline¹ <i>(ft)</i>	Shape ---
Underdrain	0.67	0.34	Circular

Orifice Dimensions

Type ---	Width <i>(ft)</i>	Height <i>(ft)</i>	Flowline¹ <i>(ft)</i>	Shape ---
Upper Orifice	2.50	2.00	3.50	Rectangular

1. Flowline is represented as stage

Elevation 135.5 to 138.0 feet are for biofiltration soil and rock mix

Volume in soil mix is void volume only

Table A-8. HEC-HMS stormwater detention modeling results for Phase 1, Promenade, Vineyards at Sand Creek, Contra Costa County

Design Storm	Peak Discharge at Project South Boundary			IMP2 Maximum Water Surface Elevation	
	Pre-Project (cfs)	Phase 1 (no detention) (cfs)	Phase 1 (detained) (cfs)	Detention Facility	Bioretention Facility (feet)
10-year 3-hour	55.3	88.8	36.1	145.5	138.0
10-year 6-hour	43.4	76.4	30.1	146.3	138.0
10-year 12-hour	37.7	69.2	25.0	147.1	138.0
10-year 24-hour	52.9	89.5	34.2	147.1	138.1
100-year 3-hour	96.8	141.3	60.4	147.6	139.5
100-year 6-hour	91.4	130.3	57.0	147.9	140.6
100-year 12-hour	91.0	132.5	55.8	147.8	140.7
100-year 24-hour	107.5	160.7	70.5	148.0	140.9
	457380.0				

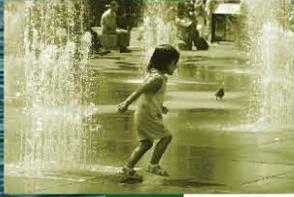
Table A-9. HEC-HMS stormwater detention modeling results, Promenade, Vineyards at Sand Creek, Contra Costa County

Design Storm	Peak Discharge at Project South Boundary			IMP1 Maximum Water Surface Elevation		IMP2 Maximum Water Surface Elevation	
	Pre-Project <i>(cfs)</i>	Post-project (no detention) <i>(cfs)</i>	Post-project (detained) <i>(cfs)</i>	Detention Facility	Bioretention Facility <i>(feet)</i>	Detention Facility	Bioretention Facility <i>(feet)</i>
10-year 3-hour	55.3	149.4	7.0	152.8	146.5	146.4	138.0
10-year 6-hour	43.4	135.9	15.8	153.0	147.5	147.1	138.0
10-year 12-hour	37.7	138.7	16.2	153.0	147.5	147.1	138.4
10-year 24-hour	52.9	157.3	14.5	152.9	147.4	147.1	138.3
100-year 3-hour	96.8	220.1	40.3	153.8	148.5	147.7	139.9
100-year 6-hour	91.4	204.0	63.1	154.0	149.3	147.9	140.5
100-year 12-hour	91.0	212.1	63.0	153.9	149.4	147.8	140.5
100-year 24-hour	107.5	240.9	68.3	154.1	149.6	147.9	140.6

APPENDIX M

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Water Supply Assessment for Vineyards at Sand Creek



Prepared for
City of Antioch

January 2015

WEST YOST

ASSOCIATES
Consulting Engineers

622-02-14-01

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WEST YOST ASSOCIATES
consulting engineers

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Water Supply Assessment for Vineyards at Sand Creek

Prepared for

City of Antioch

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622-02-14-01

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CHAPTER 1

Introduction



GBN Partners, a developer, is planning to construct a residential development, called Vineyards at Sand Creek (Project), on property within the City of Antioch (City) limits. A Project Environmental Impact Report (EIR) is being prepared. The purpose of this Water Supply Assessment (WSA) is to support the EIR for the proposed Project.

The legal requirement for a WSA and the project background are discussed below.

1.1 LEGAL REQUIREMENT FOR A WATER SUPPLY ASSESSMENT

California Senate Bill 610 (SB 610) was approved by Governor Davis on October 9, 2001, and made effective on January 1, 2002. SB 610 amended California state law to improve the link between information on water supply availability and certain land use decisions made by cities and counties. Specifically, certain sections of the California Water Code were amended to require coordination between land use lead agencies, and public water purveyors. The purpose of this coordination is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet existing demands, anticipated demands from approved projects and tentative maps, and the demands of proposed projects.

The amended Water Code sections 10910 through 10915 (inclusive) require land use lead agencies to: (1) identify any public water purveyor that may supply water for a proposed development project; and (2) request from the identified purveyor a WSA. The purpose of a WSA is to demonstrate the sufficiency of the purveyor's water supplies to satisfy the water demands of the project, while still meeting the water purveyor's existing and planned future uses. Water Code sections 10910 through 10915 delineate the specific information that must be included in a WSA.

The purpose of this WSA is to perform the evaluation required by Water Code sections 10910 through 10915 in connection with the Project. It is not to reserve water, or to function as a "will serve" letter or any other form of commitment to supply water (see Water Code section 10914). The provision of water service will continue to be undertaken in a manner consistent with applicable City policies and procedures and consistent with existing law.

1.2 BACKGROUND

As described in the Project Description section of the September 9, 2014 Project EIR Notice of Preparation (NOP), the proposed project site is located inside the City limits and consists of all or portions of three parcels located within the Sand Creek Focus Area. The Sand Creek Focus Area contains parcels designated by the Antioch General Plan for open space, residential, business park, commercial, and mixed-use development. The Project is also within the Contra Costa Water District (CCWD) water service area.

The Project site is primarily covered with non-native vegetation, and historical aerial photographs show the property has been farmed and disked since the 1930's. The Project site previously contained three oil/gas wells that were abandoned by plugging in 1981 and 1991. The site is generally rectangular; however, the southern boundary shifts north and south in an irregular shape along Sand Creek. The site's terrain is generally flat and the existing topography falls from west to east at approximately one percent slope with elevations ranging from 150 to



175 feet above mean sea level. Sand Creek, a tributary of Marsh Creek, flows in a northeastern direction and is located south of the project site. A 25-foot wide Shell Oil Company easement runs in an east-west direction across the southern portion of the site. An above-ground Calpine dehydration station servicing a 10-inch diameter Calpine gas line is located at the far southeast corner of the site.

The Project Vicinity is shown on Figure 1-1.

A draft Project Description for the Project has been prepared as indicated above. A Notice of Preparation of the Project EIR was prepared in September 2014 (City of Antioch, 2014). As a part of the Project application process and the preparation of the Project EIR, this WSA has been prepared on behalf of the City, which would be the water purveyor for the proposed Project.

1.3 WATER SUPPLY ASSESSMENT PREPARATION, FORMAT AND ORGANIZATION

This WSA for the Project has been prepared by West Yost Associates, as requested by the City.

The format of this WSA is intended to follow Water Code sections 10910 through 10915 to clearly delineate compliance with the specific requirements for a WSA. The WSA includes the following sections:

- Chapter 1: Introduction
- Chapter 2: Description of Project
- Chapter 3: Required Determinations
- Chapter 4: City of Antioch Water Service Area
- Chapter 5: City of Antioch Water Demands
- Chapter 6: City of Antioch Water Supplies
- Chapter 7: Determination of Water Supply Sufficiency
- Chapter 8: Water Supply Assessment Approval Process
- Chapter 9: References

Relevant citations of Water Code sections 10910 through 10915 are included throughout this WSA in *italics* to demonstrate compliance with the specific requirements of SB 610.



1.4 ACRONYMS AND ABBREVIATIONS USED IN THIS WATER SUPPLY ASSESSMENT

The following acronyms and abbreviations have been used throughout this WSA.

AFY	Acre-Feet Per Year
CCWD	Contra Costa Water District
CEQA	California Environmental Quality Act
City	City of Antioch
DMM	Demand Management Measures
DWR	California Department of Water Resources
EIR	Environmental Impact Report
gpcd	Gallons Per Capita Per Day
MCL	Maximum Containment Level
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter
Project	Vineyards at Sand Creek
SB 610	California State Senate Bill 610 of 2001
SR	State Route
TDS	Total Dissolved Solids
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment

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LEGEND

- Project Boundary
- City of Antioch

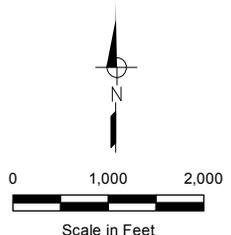


FIGURE 1-1

**City of Antioch
Vineyards at Sand Creek
Water Supply Assessment**

PROJECT VICINITY



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CHAPTER 2

Description of Project



A description of the Project, including Project Location and Proposed Land Usages and Acreages, is provided below.

2.1 PROJECT LOCATION

The Project site is located in Contra Costa County, north of Sand Creek, east of the proposed extension of Hillcrest Avenue, south of a residential area, and west of Heidorn Ranch Road. The Project area, located on the southeast side of the City, is within the City's limit and General Plan area. In the General Plan, the Project site land use is currently designated as within the Sand Creek Focus Area, including uses such as Business Park, Public/Quasi-Public, and Open Space/Senior Housing.

The Project area is surrounded by a variety of existing land uses as follows:

- **North:** The boundary on the north of the Project site is primarily occupied by a residential development and vacant land.
- **East:** The parcel to the east of the Project site, across Heidorn Ranch Road, is undeveloped land within the City of Brentwood. Highway 4 runs north-south a half-mile further east.
- **South:** The Project site is bordered on the south by Sand Creek. South of Sand Creek is undeveloped property, slated for future development, and a PG&E dehydration station.
- **West:** To the west, the Project site is bounded by the proposed extension of Hillcrest Avenue. To the west of Hillcrest Avenue is the proposed Aviano residential development.

The Project location is presented on Figure 1-1.

2.2 PROPOSED LAND USES AND ACREAGES

The Preliminary Site Plan (Figure 2-1) illustrates the proposed land uses within the Project area.

The proposed Land Uses will include up to 650 single family residential lots, irrigated and non-irrigated parks and open space, and possibly a clubhouse with swimming pool. The proposed land uses are listed in Table 2-1.



Table 2-1. Proposed Vineyards at Sand Creek Land Use Data

Proposed Land Use and Landscape Planting Per September 9, 2014 Project Description	Land Area, acres
Single Family Residential	68.9
Possible Clubhouse with Pool	0.1
Promenade Central Park (Turf)	2.0
Promenade Southeastern Park (Playing Fields)	5.6
Southeastern Detention Basin Open Space (Native and Drought Tolerant)	6.1
Non-irrigated Open Space	17.8
Hardscape (Streets and Sidewalks)	40.5
Total	141.0

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LEGEND

-  Project Boundary
-  City of Antioch

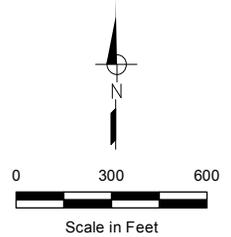


FIGURE 2-1

**City of Antioch
Vineyards at Sand Creek
Water Supply Assessment**

PRELIMINARY SITE PLAN



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CHAPTER 3

Required Determinations



This Chapter describes the required determinations for a WSA.

3.1 DOES SB 610 APPLY TO THE PROJECT?

10910(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

10912(a) “Project” means any of the following:

- (1) A proposed residential development of more than 500 dwelling units.*
- (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.*
- (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.*
- (4) A proposed hotel or motel, or both, having more than 500 rooms.*
- (5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.*
- (6) A mixed-use project that includes one or more of the projects specified in this subdivision.*
- (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.*

Based on the following facts, SB 610 does apply to the Project.

- The City has determined that the Project is subject to the California Environmental Quality Act (CEQA) and that an EIR is required.
- The Project includes up to 650 residential dwelling units (criterion 1) and therefore meets the definition of a “Project” as specified in Water Code section 10912(a) paragraph (1) as defined for proposed residential developments.

Therefore, according to Water Code section 10910(a), a WSA is required for the Project.



3.2 WHO IS THE IDENTIFIED PUBLIC WATER SYSTEM?

10910(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined by Section 10912, that may supply water for the project

10912(c) “Public water system” means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections...

As shown on Figure 1-1, the Project is currently located inside the existing City limits. The City’s water system service area includes all areas within the City limits. According to the City’s 2010 UWMP, in 2009, the City provided approximately 17,492 acre-feet of water to over 30,688 connections. The City is by definition a public water system. Therefore, the City is the identified public water system for the Project.

3.3 DOES THE CITY HAVE AN ADOPTED UWMP AND DOES THE UWMP INCLUDE THE PROJECTED WATER DEMAND FOR THE PROJECT?

10910(c)(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

The City’s most recently adopted UWMP (the City’s 2010 UWMP) was adopted by the City Council on June 14, 2011¹. The City’s 2010 UWMP included existing and projected water demands for existing and projected future land uses to be developed within the City’s General Plan Sphere of Influence through 2030. The water demand projections in the City’s 2010 UWMP included existing City water demands, future water demands for developments within the existing City limit, and future water demands for future service areas outside the existing City limit.

Total water use throughout the City service area is projected in the City’s 2010 UWMP to increase from 17,843 AFY in 2010 to 23,049 AFY in 2030, an increase of 5,206 AFY. The water demand projection included in the City’s 2010 UWMP includes the impacts of the City’s water conservation plan, and assumes compliance with the Water Conservation Act of 2009, known as SBx7-7.

¹ *Final City of Antioch 2010 Urban Water Management Plan*. June 27, 2011, prepared by Brown and Caldwell.

Chapter 3

Required Determinations



The City's 2010 UWMP showed a water supply surplus in Normal and Single Dry Years through the year 2030, but shows a supply deficit during Multiple Dry Years. The Project's potable water demand is not specifically designated in the City's 2010 UWMP, but is included as a planned development area within the Sand Creek Focus Area. This is described further in Chapters 5 and 6 of this WSA.

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CHAPTER 4

City of Antioch Water Service Area



This Chapter presents the City’s Water Service Area including history and growth information for the City.

4.1 WATER SERVICE AREA

As described in the City’s 2010 UWMP, the existing City water service area covers 28.8 square miles and includes the area within the City limits and some adjacent County land to the northeast and the west. The Antioch water system serves about 30,688 connections within Contra Costa County (as of 2009). The service area extends from steep hilly terrain in the south and west portions of the service area to flat with a gentle slope in the northeast portion of the service area. Elevations in the service area range from sea level to over 700 feet. Generally, the service area is limited to elevations less than 560 feet. Four pressure zones are currently required to distribute water, and eventually six to seven pressure zones may be necessary depending on future land development.

The principal sources of raw water supply are the Sacramento/San Joaquin Rivers Delta and the Contra Costa Canal (Canal). Raw water from the Canal can also be stored in the Antioch Municipal Reservoir. Canal water, purchased from CCWD, is pumped from Victoria Canal, Rock Slough, and Old River in the western Delta. For reference, background information is presented below for the City service area, including projected population and climate.

4.1.1 Current/Projected City Population

The population projection for the City from 2010 to 2035 is shown in Table 4-1.

Year	2010	2015	2020	2025	2030	2035
Service Area Population	102,330	106,228	109,841	113,083	116,592	120,101

^(a) City’s 2010 UWMP, Table 2-3 for 2010 through 2030. Straight-line extrapolation from 2030 population projection for 2035.



4.1.2 Climate

Climate and precipitation information are described in the City’s 2010 UWMP. Antioch has cool and humid winters, and hot and dry summers.

Monthly climate data are provided in Table 4-2. The data in Table 4-2 data were presented in the City’s 2010 UWMP Table 2-1 and were obtained from the California Irrigation Management Information Service (CIMIS) for Station 47-Brentwood.

Antioch’s average monthly temperature ranges from 45 to 72 degrees Fahrenheit. The historical annual average precipitation is approximately 13 inches. The rainy season begins in November and ends in March. Average monthly precipitation during the winter months is about 2 to 3 inches, but records show that the monthly precipitation has been as high as 8 inches and as low as 0 inches. Low humidity usually occurs in the summer months, from May to September. The combination of hot and dry weather during the summer results in high water demands. Landscape irrigation, including lawn watering, in the summer is a major contributor to the higher summer demands.

Month	Average Evapotranspiration, inches	Rainfall, inches	Average Temperature, F°
January	1.39	2.54	47.1
February	2.10	2.52	51.5
March	3.75	1.35	56.8
April	5.37	0.69	60.4
May	6.80	0.71	64.9
June	7.51	0.23	68.8
July	8.07	0.14	72.4
August	7.20	0.21	71.5
September	5.47	0.31	68.6
October	3.85	0.66	62.1
November	1.97	1.22	52.7
December	1.31	2.27	45.3
Total/Average	54.8	12.9	60.1

^(a) From City’s 2010 UWMP, Table 2-1. Original Data Sources: California Department of Water Resources, California Irrigation Management Information System, Station 47 (Brentwood), 1985 – 2010.

CHAPTER 5

City of Antioch Water Demands



10910(c)(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

5.1 PROJECTED WATER DEMAND

The projected water demand for the Project and the City are discussed below.

5.1.1 Projected Water Demand for the Project

The projected water demand for the Project is based on the City’s water demand factors for single family residences that were documented in the City’s 2010 UWMP, Tables 3-8 and 3-9, and an estimate of the required irrigation demand based on the City’s Water Efficient Landscape Ordinance. Single family dwelling unit (DU) potable water demand was projected to be 375 gallons per day per dwelling unit (gpd/DU) from 2020 through 2035. These factors will assist the City in complying with the provisions of Senate Bill x7-7 (SBx 7-7), which establishes target per capita water demands to be met by the year 2020.

The projected water demand is shown in Table 5-1. Detailed calculations are included in Attachment A.

Component	Projected Annual Potable Water Demand, AFY ^(b)
Vineyards at Sand Creek	320
Unaccounted-for Water ^(c)	10
Total Water Demand	330

(a) See Attachment A for detailed water demand projections.
 (b) AFY = Acre-Feet per Year
 (c) Based on 3 percent of total water production (see City's 2010 UWMP, Table 3-13).

As indicated in Table 5-1, the total projected annual water demand for the proposed Project is approximately 330 acre-feet per year (AFY), assuming an unaccounted for water value of 3 percent of total water produced. The General Plan land use designation for the Project parcels within the Sand Creek Focus Area indicates a potential Business Park. As documented in the Roddy Ranch Project Draft EIR (January 2009), commercial lands are projected to have a gross water demand of 3.41 AFY/acre. If the 141-acre parcel were to be developed as a Business Park, the projected water demand would be approximately 481 AFY (3.41 AFY/acre x 141 acres), which is greater than the 330 AFY projected for the proposed Project.

According to the 2010 Census, the City averages 3.15 persons per household. At that density, the Project could provide housing for up to approximately 2,048 people (3.15 persons per household x 650 total dwelling units = 2,048 people).



5.1.2 City Projected Water Demand

The City’s 2010 UWMP describes the projected City water demand through 2030. The City’s metered water use for 2010 was 16,981 AFY, which was a 15.6 percent reduction from the 2005 metered water use of 20,110 AFY. The recent economic downturn was the biggest factor in the decrease in water demand. As the economy improves, the water demand is expected to increase. The water demand projections provided in the City’s 2010 UWMP were based on population and employment projections and the SBx7-7 per capita water demand targets adopted by the City.

The City reported historical and projected population in Table 2-3 of the City’s 2010 UWMP. Total population for the years 2000, 2005, and 2010 was based on State of California Department of Finance (DOF) data from Table 2: E-5 City/County Population and Housing Estimates (2010). Population projections for 2015, 2020, 2025, and 2030 were based on the Association of Bay Area Governments (ABAG) data and assume that the occupancy rate rises one percent per five-year increment (i.e., 96 percent in 2015, 97 percent in 2020, 98 percent in 2025, and 99 percent in 2030).

The water use projections for 2015 assume that the City will use its 10-year baseline (i.e. 186 gallon per capita per day (gpcd)), since it is less than the interim Method 3 target of 200 gpcd, and the projections for 2020, 2025, and 2030 assume that the City will use its 2020 water use target (165 gpcd). The projected water use for 2035 is based on a straight line projection from 2030. Total historical and projected water demand from 2010 through 2035 is summarized in Table 5-2.

Sectors	Actual 2005	Actual 2010	2015	2020	2025	2030	2035
Single Family Residential	15,135	11,262	14,669	12,813	13,189	13,459	13,727
Multi-Family Residential	1,459	1,246	1,450	1,333	1,330	1,327	1,324
Commercial	1,389	1,294	1,816	1,878	2,008	2,295	2,582
Industrial	962	736	795	752	760	777	794
Institutional & Governmental	—	—	—	—	—	—	—
Landscape	1,022	1,871	1,969	1,948	1,916	1,863	1,810
Other	216	572	826	967	1,070	1,182	1,294
Total Water Deliveries	20,110	16,981	21,525	19,692	20,273	20,902	21,531
Raw Water	375	336	—	—	—	—	—
Recycled Water	—	—	487	1,000	1,500	1,500	1,500
Unaccounted-for System Losses (approximately 3%)	624	526	666	609	627	646	665
Total	21,109	17,843	22,678	21,301	22,400	23,048	23,696

^(a) Based on City’s 2010 UWMP, Tables 3-5 through 3-9, 3-13, and 3-15 for 2005 through 2030. Data for 2035 projected from 2030 data.

Chapter 5

City of Antioch Water Demands



Although the Project is not specifically identified in the City's 2010 UWMP, the Sand Creek Focus Area is included, and the City's growth projections (an additional 17,771 people from 2010 to 2035) and water demand projections (an additional 2,587 AFY from 2010 to 2035) accommodate the Project's potential population of 2,048 people and projected water demand of 330 AFY. Furthermore, the Project's projected water demand of 330 AFY is less than the projected water demand for the project (Business Park) originally proposed for those parcels.

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CHAPTER 6

City of Antioch Water Supplies



10910(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

10910(d)(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

- (A) Written contracts or other proof of entitlement to an identified water supply.*
- (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.*
- (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.*
- (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.*

10910(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contract-holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.

The Project, if approved by the City, is capable of being served by the City from the City's existing and future portfolio of water supplies. The water supply for the Project will have the same water supply reliability and water quality as the water supply available to each of the City's other existing and future water customers.

The water demands for the Project (together with existing water demands and planned future uses) are included in the City's 2010 UWMP as part of the Sand Creek Focus Area. The descriptions provided below for the City's water supplies have been taken from the City's 2010 UWMP, which was adopted in June 2011.



6.1 EXISTING POTABLE WATER SUPPLIES

10910(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment.

10910(f)(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

10910(f)(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

10910(f)(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records.

A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records.

10910(f)(4) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.



The City’s 2010 UWMP describes the City’s available water supplies which include surface water purchased from CCWD and delivered through the Contra Costa Canal, and surface water pumped from the City’s Sacramento/San Joaquin Rivers Delta intakes. A small (735 acre-foot) municipal reservoir located within City limits stores water pumped from the Contra Costa Canal. Surface water is conveyed to the City’s water treatment plant, treated, and then conveyed via the City’s potable water distribution system. Recycled water is not currently (as of the 2010 UWMP) a water supply source for the City, but is projected to be delivered from Delta Diablo (DD) in the near future.

The City’s current and projected water supplies are shown in Table 6-1, which is based on Table 4-11 of the City’s 2010 UWMP.

Table 6-1. City of Antioch Normal Year Water Supplies – Current and Projected, AFY^(a)

Water Supply Sources	2010 ^(b)	2015	2020	2025	2030	2035
CCWD Surface Water ^(c)	17,843	22,678	21,301	22,400	23,048	23,697
Sacramento/San Joaquin Rivers Delta	7,550	7,550	7,550	7,550	7,550	7,550
Municipal Reservoir	380	380	380	380	380	380
Recycled Water from DD ^(d)	—	487	1,000	1,500	1,500	1,500
Total	25,733	31,095	30,231	31,830	32,478	33,127

(a) Table 4-11 from City of Antioch 2010 Urban Water Management Plan. Projection for 2035 is based on a straight-line projection from 2030 data. AFY = Acre-Feet per Year
 (b) Actual deliveries.
 (c) CCWD = Contra Costa Water District.
 (d) DD = Delta Diablo

6.2 SURFACE WATER

As described in the City’s 2010 UWMP, the City is within the CCWD service area and purchases Central Valley Project (CVP) water pumped from the Sacramento-San Joaquin Delta by CCWD, its wholesale supplier. CCWD has a contract with the U.S. Bureau of Reclamation (USBR) for 195,000 AFY of CVP water. In May 2005, CCWD renewed their water service contract with the USBR for a period of 40 years through February 2045.

In 2010, approximately 70 percent of the City’s water supply was provided by CCWD. The City and CCWD have a contractual arrangement allowing the City to obtain such quantity of water as is necessary to meet 100 percent of its needs, subject to rationing restrictions in the event of drought or other extraordinary circumstances. CCWD’s future supply projections indicate adequate availability of surface water sources delivered through its contract with the USBR, other available sources, and short-term purchases under normal conditions.



The remaining approximately 30 percent of the City’s water supply in 2010 was obtained from the City’s intakes on the Sacramento/San Joaquin Rivers Delta intakes. There is no quantity limitation on the City’s appropriation from the Sacramento-San Joaquin Rivers Delta, provided the water is put to beneficial use. Beneficial use includes water diverted to the City’s municipal reservoir.

6.3 GROUNDWATER

The City does not currently pump groundwater, and has no plans to pump groundwater from the local groundwater basin in the future.

6.4 DRY YEAR WATER SUPPLY AVAILABILITY AND RELIABILITY

Water Code section 10910 (c)(4) requires that a WSA include a discussion with regard to *“whether total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.”* Accordingly, this WSA addresses these three hydrologic conditions through the year 2035.

A description of the City’s surface water and groundwater supply reliability is presented in Chapter 5 of the City’s 2010 UWMP and is summarized below.

6.4.1 Surface Water Reliability

In conformance with California Water Code Division 5, Part 2.6, Section 10635, CCWD prepared an assessment of its water supply reliability. This analysis was provided to all wholesale municipal customers of CCWD for use in the preparation of their UWMPs.

The water supply reliability goal adopted by CCWD’s Board of Directors is to meet at least 85 percent of demand during drought conditions and 100 percent of demand in normal years. The remaining 15 percent during drought conditions would be met by a combination of short-term water purchases and a voluntary short-term conservation program.

The projected water supplies from CCWD are not anticipated to incur supply deficits in normal years due to CCWD’s long-term conservation program, existing CVP contract supply, and long-term water transfer agreement with East Contra Costa Irrigation District. CCWD’s currently available and planned supplies are sufficient to meet their reliability goals and estimated water demands during normal, single dry and the first two years of a multi-year drought. In later years, several types of drought conditions may result in supply shortfalls. Supply reliability tables provided by CCWD are included in CCWD’s 2010 UWMP. The maximum amount of short-term conservation expected by CCWD is 15 percent of supply.

As an example of CCWD’s water supply reliability, in 2014, when the State Water Project allocations were 5 percent of Table A entitlements, CCWD was able to deliver 100 percent of its potable and raw water customers’ requested supply.



The City typically ceases diverting water from the Sacramento-San Joaquin Rivers Delta when the chloride concentration of the water exceeds 250 milligrams per liter (mg/l). This high chloride level occurs occasionally during dry years. The City ceased diversion in 1976/1977, and pumped only an average of seven days per year between 1986 and March 1991. For purposes of this WSA, and for the City’s 2010 UWMP, the City has assumed pumping from the Sacramento-San Joaquin Rivers Delta would be available in normal and wetter precipitation years, during a single year drought, and in the first year of a multiple-year drought, but would not be available in the second and third years of a multiple year drought. A summary of the City’s projected water supply during Normal, Single Dry, and Multiple-Dry Years is shown in Table 6-2

Table 6-2. Summary of Projected Water Supply During Hydrologic Normal, Single-Dry, and Multiple-Dry Years for City of Antioch, AFY^(a)

Hydrologic Condition	2015	2020	2025	2030	2035
Normal Year	31,095	30,231	31,830	32,478	33,127
Single Dry Year ^(b)	31,095	30,231	31,606	31,557	31,942
Multiple-Dry Year - First Year ^(c)	31,095	30,231	31,830	32,478	33,127
Multiple-Dry Year - Second Year ^(c)	23,165	22,301	23,676	23,627	24,012
Multiple-Dry Year - Third Year ^(c)	21,351	20,597	21,212	21,091	21,642

^(a) From City’s 2010 UWMP Tables 5-8, 5-9, and 5-10 for 2015 through 2030 (corrected). Calculated values based on assumptions listed below.

^(b) CCWD anticipates the following supply shortfalls in a single-year drought: 2015, (0%), 2020 (0%), 2025 (1%), 2030 (4%), 2035 (5%). City assumes all local water supplies and intakes would be available in a single-year drought.

^(c) CCWD anticipates the following supply shortfalls in a three-year drought scenario: 2015 (0%, 0%, 8%), 2020 (0%, 0%, 8%), 2025 (0%, 1%, 12%), 2030 (0%, 4%, 15%), 2035 (0%, 5%, 15%). City assumes the municipal reservoir and the Delta intakes would be available only in the first year of a multi-year drought. Recycled water is assumed to be available under all hydrologic conditions.

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CHAPTER 7

Determination of Water Supply Sufficiency



10910(c)(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

10911 (a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

- (1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.*
- (2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.*
- (3) Based on the consideration set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.*

7.1 FINDINGS

Based on the analysis described above, this WSA demonstrates that the City's existing and projected potable water supplies are sufficient to meet the City's existing and projected future potable water demands, including those future water demands associated with the Project, to the year 2035 under all hydrologic conditions as described below.

A comparison of the City's projected water supplies and demands is shown in Table 7-1 for Normal, Single Dry, and Multiple Dry Years. Table 7-1 is based on Tables 5-8, 5-9, and 5-10 from the City's 2010 UWMP. The positive difference between supply and demand in Table 7-1 indicates that, in average precipitation years, the City will have sufficient water to meet its customers' needs through 2035.

As indicated in Table 7-1, there is a projected supply deficit during the third year of a multi-year drought. The projected water supply deficit is approximately 9 percent of supply in 2035. This deficit would be closed by the City's short-term water demand reduction measures.

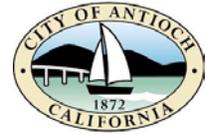
Table 7-1. Summary of Water Demand Versus Supply During Hydrologic Normal, Single-Dry, and Multiple-Dry Years for City of Antioch^(a)

Supply and Demand Comparison						
		2015	2020	2025	2030	2035
Normal Year						
Supply Totals, AFY		31,095	30,231	31,830	32,478	33,127
Demand Totals, AFY		22,678	21,301	22,400	23,048	23,697
Difference, AFY		8,417	8,930	9,430	9,430	9,430
Difference as % of Supply		27%	30%	30%	29%	28%
Difference as % of Demand		37%	42%	42%	41%	40%
Single Dry Year						
Supply Totals, AFY		31,095	30,231	31,606	31,557	31,942
Demand Totals, AFY		22,678	21,301	22,400	23,048	23,697
Difference, AFY		8,417	8,930	9,206	8,508	8,245
Difference as % of Supply		27%	30%	29%	27%	26%
Difference as % of Demand		37%	42%	41%	37%	35%
Multiple Dry-Year Events						
Multiple-Dry Year First Year Supply	Supply Totals, AFY	31,095	30,231	31,830	32,478	33,127
	Demand Totals, AFY	22,678	21,301	22,400	23,048	23,697
	Difference, AFY	8,417	8,930	9,430	9,430	9,430
	Difference as % of Supply	27%	30%	30%	29%	28%
	Difference as % of Demand	37%	42%	42%	41%	40%
Multiple-Dry Year Second Year Supply	Supply Totals, AFY	23,165	22,301	23,676	23,627	24,012
	Demand Totals, AFY	22,678	21,301	22,400	23,048	23,697
	Difference, AFY	487	1,000	1,276	578	315
	Difference as % of Supply	2%	4%	5%	2%	1%
	Difference as % of Demand	2%	5%	6%	3%	1%
Multiple-Dry Year Third Year Supply	Supply Totals, AFY	21,351	20,597	21,212	21,091	21,642
	Demand Totals, AFY	22,678	21,301	22,400	23,048	23,697
	Difference, AFY	-1,327	-704	-1,188	-1,957	-2,055
	Difference as % of Supply	-6%	-3%	-6%	-9%	-9%
	Difference as % of Demand	-6%	-3%	-5%	-8%	-9%

^(a) From Tables 5-2 (City of Antioch Historical and Projected Water Demand) and 6-5 (Summary of Projected Water Supply During Hydrologic Normal, Single-Dry, and Multiple-Dry Years for City of Antioch).

Chapter 7

Determination of Water Supply Sufficiency



As shown in Table 7-1 and as discussed above, although the Project is not specifically identified in the City's 2010 UWMP, the Sand Creek Focus Area is included, and the City's growth projections (an additional 17,771 people from 2010 to 2035) and water demand projections (an additional 2,587 AFY from 2010 to 2035) accommodate the Project's potential population of 2,048 people and projected water demand of 330 AFY. Furthermore, the Project's projected water demand of 330 AFY is less than the projected water demand for the project (Business Park) originally proposed for those parcels.

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CHAPTER 8

Water Supply Assessment Approval Process



10910(g)(1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

10911(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

The Antioch City Council must approve this WSA at a regular or special meeting. Furthermore, the City must include this WSA in the Draft EIR being prepared for the Project.

SB 221 applies to residential subdivisions of over 500 dwelling units and requires that the water supplier (the City) provide a written verification that the water supply for the project is sufficient. Because the Project does include more than 500 dwelling units, it is subject to the requirements of SB 221 (Government Code section 66473.7).

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CHAPTER 9

References



City of Antioch 2010 Urban Water Management Plan, June 2011.

City of Antioch 2014. *Promenade Project, Notice of Preparation of an Environmental Impact Report*, Antioch, CA.

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ATTACHMENT A

Potable Water Demand Projection

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Table A-1. Detailed Potable Water Demand Projection for Vineyards at Sand Creek

Land Use Data				Potable Water Demand			
Proposed Land Use Per September 2014 Notice of Preparation of an EIR	Area, acres	Quantity	Units	Water Use Factor	units	Average Water Demand, gpd	Annual Water Demand, af/year
Residential							
Single Family ^(a)	68.9	650	DU	375	gpd/DU	243,750	273.1
Subtotal Residential Land Use	68.9	650				243,750	273.1
Other Land Use							
Clubhouse with Pool ^{(b)(c)}	0.1		acres	4.3	acre-feet per acre	381	0.4
Subtotal Other Land Use		0				381	0.4
Turf Areas^(c)							
Promenade Central Park	2.0		acres	6.0	acre-feet per acre	10,742	12.0
Promenade Southeastern Park (Playing Fields)	5.6		acres	4.3	acre-feet per acre	21,355	23.9
Subtotal Turf Areas	7.6					32,097	36.0
Native and Drought Tolerant Landscaping^(c)							
Southeastern Detention Basin Open Space	6.1		acres	1.8	acre-feet per acre	9,829	11.0
Subtotal Native and Drought Tolerant Landscaping	6.1					9,829	11.0
Non-irrigated Areas							
Non-irrigated Open Space	17.8		acres	0.0	acre-feet per acre	-	-
Hardscape (Streets and Sidewalks)	40.5		acres	0.0	acre-feet per acre	-	-
Subtotal Non-irrigated Areas	58.3					-	-
Grand Total	141.0					286,058	320

^(a) Area is based on 641 single family residential dwelling units at an average lot size of 4,680 square feet per Preliminary Site Plan dated July 29, 2014. Up to 650 single family units may be constructed. Water use factor is based on City of Antioch 2010 UWMP Table 3-8.

^(b) Most of clubhouse water demand will be evaporation from pool and turf area (if any). Interior water demands will be negligible.

^(c) See Irrigation Water Demand (Table A-2). Assumes Central Park water demand factor is based on ETWU (Turf) and Southeastern Park (Playing Fields) water demand factor is based on ETWU (Special Landscape Area).

Table A-2. Projected Unit Irrigation Demand for Vineyards at Sand Creek^(a)

Month	ET ^(b) , in./mo	Rainfall ^(b) , in./mo	ETo in./mo.	ETWU (Turf) ^(c)		ETWU (Special Landscape Areas) ^(d)		ETWU (Native and Drought Tolerant) ^(e)	
				gal./acre	ac-ft./acre	gal./acre	ac-ft./acre	gal./acre	ac-ft./acre
January	1.4	2.5	0.8	28,719	0.09	20,390	0.06	8,616	0.03
February	2.1	2.5	1.5	55,916	0.17	39,701	0.12	16,775	0.05
March	3.8	1.4	3.4	129,806	0.40	92,162	0.28	38,942	0.12
April	5.4	0.7	5.2	197,704	0.61	140,370	0.43	59,311	0.18
May	6.8	0.7	6.6	251,909	0.77	178,855	0.55	75,573	0.23
June	7.5	0.2	7.5	283,481	0.87	201,271	0.62	85,044	0.26
July	8.1	0.1	8.0	305,638	0.94	217,003	0.67	91,691	0.28
August	7.2	0.2	7.1	271,879	0.83	193,034	0.59	81,564	0.25
September	5.5	0.3	5.4	205,122	0.63	145,636	0.45	61,536	0.19
October	3.9	0.7	3.7	140,171	0.43	99,522	0.31	42,051	0.13
November	2.0	1.2	1.7	63,334	0.19	44,967	0.14	19,000	0.06
December	1.3	2.3	0.7	28,243	0.09	20,053	0.06	8,473	0.03
Total	54.8	12.9	51.6	1,961,921	6.0	1,392,964	4.3	588,576	1.8

^(a) Based on the California Code of Regulations, Title 23 Waters, Division 2 DWR, Chapter 2.7 Model Water Efficient Landscape Ordinance (MWELO).

^(b) Average monthly rainfall and ET based on City's 2010 UWMP Table 2.1.

^(c) Assumes a Turf Plant Factor of 1.0 and an irrigation efficiency of 71%.

^(d) Assumes a Plant Factor of 1.0 and an irrigation efficiency of 100% per MWELO.

^(e) Assumes a Native and Drought Tolerant landscaping Plant Factor of 0.30 and an irrigation efficiency of 71%.

Notes:

LA = Landscape Areas

SLA = Special Landscape Areas (includes Playing Fields).

ET = Evapotranspiration

ETo = Reference ET

ET and Rainfall data from City of Antioch 2010 UWMP, Table 2.1.

ETo = ET - (0.25 x Rainfall)

ETWU = Estimated Total Water Use, ETo x 0.62 x [(PF x HA/irrigation efficiency)+SLA]

PF = Plant Factor based on Hydrozone Area

APPENDIX N

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B	24-hour Noise Monitoring Data
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D	Noise Barrier Inputs and Results

INTRODUCTION

This report has been prepared to address the noise impacts due to and upon the proposed Vineyards at Sand Creek Project. The project proposes up to 650 single family units. The Project is located on the eastern border of Antioch's Future Urban Area #1 in East Contra Costa County. The site is accessible from Heidorn Ranch Road and Hillcrest Avenue South. The proposed Project is bordered to the north by existing single-family residential uses, to the west by land entitled for single-family residential uses, to the east by undeveloped land proposed for commercial and residential uses, and to the south by Sand Creek and undeveloped Land.

Figure 1 shows the proposed project site plan.

ENVIRONMENTAL SETTING

Background Information on Noise and Vibration

Fundamentals of Acoustics

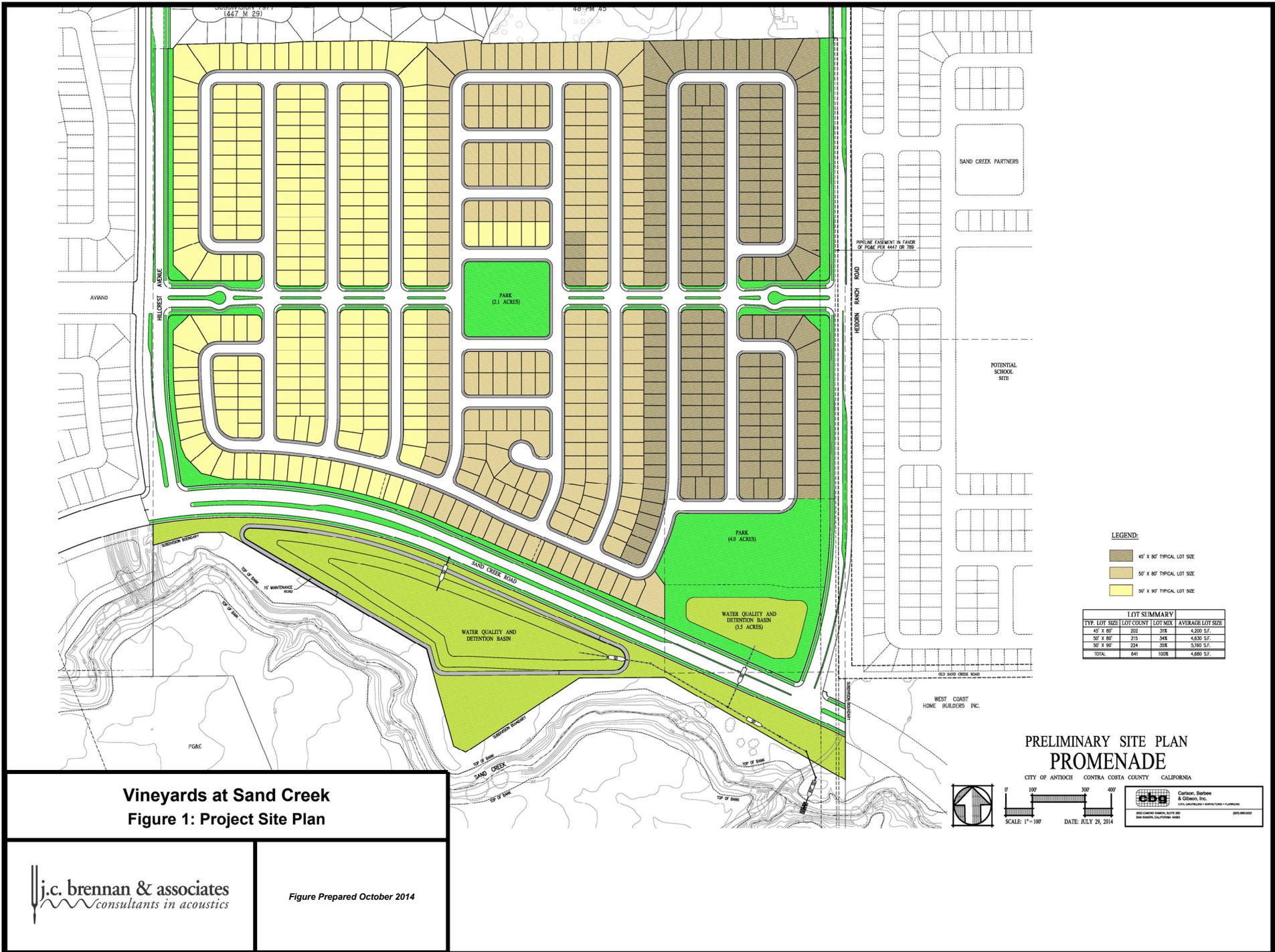
Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.



LEGEND:

- 45' x 80' TYPICAL LOT SIZE
- 50' x 80' TYPICAL LOT SIZE
- 50' x 90' TYPICAL LOT SIZE

LOT SUMMARY

TYP. LOT SIZE	LOT COUNT	LOT MAX	AVERAGE LOT SIZE
45' X 80'	202	31K	4,200 S.F.
50' X 80'	275	34K	4,530 S.F.
50' X 90'	224	32K	5,180 S.F.
TOTAL	641	100K	4,880 S.F.

Vineyards at Sand Creek
Figure 1: Project Site Plan

PRELIMINARY SITE PLAN
PROMENADE

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

Scale: 1" = 100' DATE: JULY 29, 2014

CBS Carlson, Barbee & Glavin, Inc. CIVIL ENGINEERS & ARCHITECTS - PLANNERS
 800 COLLEGE PARKWAY, SUITE 200 SAN RAMON, CALIFORNIA 94583 (925) 988-0000

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consultants in acoustics

Figure Prepared October 2014

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn} , and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

TABLE 1: TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. November 2009.		

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

Existing Conditions

The project site consists of relatively flat topography and is currently used for farming and ranch land.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

In the vicinity of the project site, sensitive land uses consist of rural residential uses located at varying distances around the project site.

Existing Ambient Noise Levels

To quantify existing ambient noise levels in the vicinity of the project site, j.c. brennan & associates, Inc. staff conducted short-term noise level measurements at two locations on the project site, and continuous 24-hour noise level measurements at two locations. See Figure 2 for noise measurement locations. The noise level measurements were conducted between Monday July 15, 2014 and Tuesday July 16, 2014. The noise level measurements were conducted to determine typical background noise levels and for comparison to the project related noise levels. Table 2 shows a summary of the noise measurement results. Appendix B provides the complete results of the 24-hr hour noise measurements.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max} , represents the highest noise level measured. The average value, denoted L_{eq} , represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50} , represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 2: MEASURED AMBIENT NOISE LEVELS

Site	Location	Date - Time	Average Measured Hourly Noise Levels, dBA									
			CNEL	Daytime (7:00 am - 7:00 pm)			Evening (7:00 pm – 10:00 pm)			Nighttime (10:00 pm – 7:00 am)		
				L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
Continuous 24-hour Noise Measurement Site												
A	North center of project on property line	July 15-16, 2014	49	46	42	61	41	39	56	41	40	54
B	Northeast corner on property line	July 15-16, 2014	52	46	43	60	43	40	55	46	41	59
Short-term Noise Measurement Sites							Notes:					
1	West center on property line	July 16, 2014	N/A	51	46	66	Measurement taken @ 3:58 p.m.					
2	East center on property Line	July 16, 2014	N/A	51	46	61	Measurement taken @ 4:29 p.m.					

Source: j.c. brennan & associates, Inc. – 2014



Vineyards at Sand Creek
Figure 2: Noise Monitoring Locations

Legend

-  : Continuous Noise Measurement Site
-  : Short-term Noise Measurement Site

Existing Roadway Noise Levels

To predict existing noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions.

Traffic volumes for existing conditions were obtained from the traffic study prepared for the project (Fehr & Peers). Truck percentages and vehicle speeds on the local area roadways were estimated from field observations.

Traffic noise levels are predicted at the closest typical residential outdoor use area along each project-area roadway segment. A conservative adjustment of -5 dB is assumed where noise barriers are located adjacent to sensitive receptors or where rear yards are shielded by intervening buildings. In some locations sensitive receptors may not receive full shielding from noise barriers, or may be located at distances which vary from the assumed calculation distance. However, the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the Project area roadway segments analyzed in this report.

The actual distances to noise level contours may vary from the distances predicted by the FHWA model due to roadway curvature, grade, shielding from local topography or structures, elevated roadways, or elevated receivers. The distances reported in Table 3 are generally considered to be conservative estimates of noise exposure along the project-area roadways.

Table 3 shows the existing traffic noise levels in terms of CNEL at closest sensitive receptors along each roadway segment. This table also shows the distances to existing traffic noise contours. A complete listing of the FHWA Model input data is contained in Appendix C.

TABLE 3 : PREDICTED EXISTING TRAFFIC NOISE LEVELS

Roadway	Segment	Typical Setback Distance (feet)	Exterior Noise Level, dBA CNEL	Distance to CNEL Noise Contours (feet) Existing (CNEL)		
				70 dB	65 dB	60 dB
Lone Tree Way	West of Deer Valley Rd	80	61.9	23	50	108
Lone Tree Way	Deer Valley Rd to Hillcrest Drive	80	62.3	24	53	113
Lone Tree Way	Hillcrest Ave to Heidorn Ranch Rd	80	63.0	27	59	126
Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	80	63.0	27	59	127
Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	80	64.5	35	74	160
Lone Tree Way	East of SR 4 WB Ramps	80	64.3	33	72	155
Deer Valley Rd	North of Lone Tree Way	65	60.3	15	32	68
Deer Valley Rd	South of Lone Tree Way	90	59.1	17	36	78
Hillcrest Ave	North of Lone Tree Way	75	59.5	15	32	70
Hillcrest Ave	South of Lone Tree Way	75	53.1	6	12	26
Heidorn Ranch Rd	South of Lone Tree Way	100	49.5	4	9	20
Sand Creek Rd	West of Hillcrest Ave	75	N/A	N/A	N/A	N/A
Sand Creek Rd	Hillcrest Ave to Heidorn Ranch Rd	75	N/A	N/A	N/A	N/A
Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	75	N/A	N/A	N/A	N/A
Sand Creek Rd	East of SR 4 WB Ramps	75	62.3	23	49	106

¹ Distances are measured in feet from the centerlines of the Roadways.

² Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: Fehr & Peers, 2014.

REGULATORY CONTEXT

Federal

There are no federal regulations related to noise that apply to the Proposed Project.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels.

California State Building Codes

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room.

Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment

City of Antioch

Environmental Hazards Chapter of the City of Antioch General Plan

The Environmental Hazards Chapter of the City of Antioch General Plan sets forth noise and land use compatibility standards to guide development, and noise goals and policies to protect citizens from the harmful and annoying effects of excessive noise. Objectives and policies established in the Noise Element of the General Plan that are applicable to the proposed project include:

11.6.1 Noise Objective

Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch as described below:

- Residential
Single-Family: 60 dBA CNEL within rear yards
Multi-Family: 60 dBA CNEL within exterior open space
- Schools
Classrooms: 65 dBA CNEL
Play and sports areas: 70 dB CNEL
- Hospitals, Libraries: 60 dBA CNEL

- Commercial/Industrial: 70 dBA CNEL at the front setback

11.6.2 Noise

Noise Compatible Land Use and Circulation Patterns

- b. Maintain a pattern of land uses that separates noise-sensitive land uses from major noise sources to the extent possible, and guide noise-tolerant land uses into the noisier portions of the Planning Area.

Noise Analysis and Mitigation

- e. When new development incorporating a potentially significant noise generator is proposed, require noise analyses to be prepared by a qualified acoustical engineer. Require the implementation of appropriate noise mitigation when the proposed project will cause new exceedances of General Plan noise objectives, or an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development.
- f. In reviewing noise impacts, utilize site design and architectural design features to the extent feasible to mitigate impacts on residential neighborhoods and other uses that are sensitive to noise. In addition to sound barriers, design techniques to mitigate noise impacts may include, but are not limited to:
 - Increased building setbacks to increase the distance between the noise source and sensitive receptor.
 - Orient buildings which are compatible with higher noise levels adjacent to noise generators or in clusters to shield more noise sensitive areas and uses.
 - Orient delivery, loading docks, and outdoor work areas away from noise sensitive uses.
 - Place noise tolerant use, such as parking areas, and noise tolerant structures, such as garages, between the noise source and sensitive receptor.
 - Cluster office, commercial, or multifamily residential structures to reduce noise levels within interior open space areas.
 - Provide double glazed and double paned windows on the side of the structure facing a major noise source, and place entries away from the noise source to the extent possible.
- g. Where feasible, require the use of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts.
 - The barrier must have sufficient mass to reduce noise transmission and high enough to shield the receptor from the noise source
 - To be effective, the barrier needs to be constructed without cracks or openings.
 - The barrier must interrupt the line-of-sight between the noise source and the receptor.

- The effects of noise “flanking” the noise barrier should be minimized by bending the end of the barrier back from the noise source
 - Require appropriate landscaping treatment to be provided in conjunction with noise barriers to mitigate their potential aesthetic impacts.
- h. Continue enforcement of California Noise Insulation Standards (Title 25, Section 1092, California Administration Code).

Temporary Construction

- i. Ensure that construction activities are regulated as to hours of operation in order to avoid or mitigate noise impacts on adjacent noise-sensitive land uses.
- j. Require proposed development adjacent to occupied noise sensitive land uses to implement a construction-related noise mitigation plan. This plan would depict the location of construction equipment storage and maintenance areas, and document methods to be employed to minimize noise impacts on adjacent noise sensitive land uses.
- k. Require that all construction equipment utilize noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- m. Prior to the issuance of any grading plans, the City shall condition approval of subdivisions and non-residential development adjacent to any developed/occupied noise sensitive land uses by requiring applicants to submit a construction-related noise mitigation plan to the City for review and approval. The plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project through the use of such methods as:
- The construction contractor shall use temporary noise-attenuation fences, where feasible, to reduce construction noise impacts on adjacent noise sensitive land uses.
 - During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers’ standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
 - The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
 - The construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.

- n. The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by the city.

City of Antioch Zoning Ordinance

Section 9-5.1901 of the Antioch Zoning Ordinance sets forth noise attenuation requirements for stationary and mobile noise sources. The provisions applicable to the project include the following:

- (A) *Stationary noise sources.* Uses adjacent to outdoor living areas (e.g., backyards for single-family homes and patios for multi-family units) and parks shall not cause an increase in background ambient noise which will exceed 60 CNEL.
- (B) Mobile noise sources.

(1) Arterial and street traffic shall not cause an increase in background ambient noise which will exceed 60 CNEL.

- (D) Noise attenuation. The City may require noise attenuation measures be incorporated into a project to obtain compliance with this section. Measures outlined in the noise policies of the General Plan should be utilized to mitigate noise to the maximum feasible extent.

The City of Antioch Zoning Ordinance (2005) provides noise attenuation requirements for construction activity. Specifically, Section 5-17.04 prohibits construction during sensitive evening, nighttime, and weekend hours.

5-17.04

Construction Noise Attenuation

- (B) It shall be unlawful for any person to be involved in construction activity during the hours specified below:
- On weekdays prior to 7:00 a.m. and after 6:00 p.m.
 - On weekdays within 300 feet of occupied dwellings, prior to 8:00 a.m. and after 5:00 p.m.
 - On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwellings.

Criteria for Acceptable Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

The City of Antioch does not contain specific policies pertaining to vibration levels. However, vibration levels associated with construction activities are discussed in this report.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 4, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 4 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. and continuous vibrations of 0.10 in/sec p.p.v., or greater, would likely cause annoyance to sensitive receptors.

TABLE 4: EFFECTS OF VARIOUS VIBRATION LEVELS ON PEOPLE AND BUILDINGS

Vibration Level (Peak Particle Velocity)*		Human Reaction	Effect on Buildings
mm/s	in/sec		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage.

Source: Transportation Related Earthborne Vibrations, Caltrans Experiences. Technical Advisory: TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-f]).

Additional thresholds included in the General Plan EIR also are shown.

Would the project:

- a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Specifically, 60 dB CNEL in exterior residential rear yard areas and 45 dB CNEL in interior residential areas;
- b. Expose persons to, or generate, excessive groundborne vibration or groundborne noise levels;
- c. Cause a substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the project. Specifically, an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development;
- d. Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels without the project. Specifically, an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development. This does not include construction noise which is exempt under the City's Zoning Ordinance during specific hours, as outlined in Section 5-17.04;
- e. Expose persons residing or working in the project area to excessive noise levels if located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport; or
- f. Expose persons residing or working in the project area to excessive noise levels if located within the vicinity of a private airstrip.

The proposed project is not located within two miles of a public or private airport or airstrip. Therefore, aircraft noise is not discussed further in this analysis.

Project-Specific Impacts and Mitigation Measures

Impact 1 Construction Noise at Sensitive Receptors

Construction of the Proposed Project would temporarily increase noise levels during construction. This would be a **potentially significant** impact.

During the construction of the project including roads, water and sewer lines and related infrastructure, noise from construction activities would add to the noise environment in the project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 5, ranging from 76 to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and would not occur within the hours restricted in the City of Antioch Zoning Ordinance Section 5-17.04, as outlined below:

Construction Noise Attenuation

- (B) It shall be unlawful for any person to be involved in construction activity during the hours specified below:
- On weekdays prior to 7:00 a.m. and after 6:00 p.m.
 - On weekdays within 300 feet of occupied dwellings, prior to 8:00 a.m. and after 5:00 p.m.
 - On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwellings.

TABLE 5: CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Predicted Noise Levels, L _{max} dB				Distances to Noise Contours (feet)	
	Noise Level at 50'	Noise Level at 100'	Noise Level at 200'	Noise Level at 400'	70 dB L _{max} contour	65 dB L _{max} contour
Backhoe	78	72	66	60	126	223
Compactor	83	77	71	65	223	397
Compressor (air)	78	72	66	60	126	223
Concrete Saw	90	84	78	72	500	889
Dozer	82	76	70	64	199	354
Dump Truck	76	70	64	58	100	177
Excavator	81	75	69	63	177	315
Generator	81	75	69	63	177	315
Jackhammer	89	83	77	71	446	792
Pneumatic Tools	85	79	73	67	281	500

Source: *Roadway Construction Noise Model User's Guide*. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

Construction activities associated with the proposed project will occur at typical distances ranging between 40 feet to over 1,800 feet, from the nearest noise-sensitive receptors. Some finish grading may occur near the northern boundary of the project site, adjacent to existing single-family homes. These activities could occur within approximately 15-20 feet of the existing residences. However, overall site grading activities would be expected to occur for no more than 3-5 weeks total for the proposed project. Therefore, the duration of grading that would occur within close proximity to the existing single-family uses would be substantially less than 3-5 weeks.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. Project-generated construction noise would also include traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Mitigation Measures

The following mitigation measures are required for the Proposed Project to minimize construction noise impacts.

- MM1a Construction activities shall comply with the City of Antioch Noise Ordinance. Specifically, construction activities shall not occur during the hours specified below:
- On weekdays prior to 7:00 a.m. and after 6:00 p.m.
 - On weekdays within 300 feet of occupied dwellings, prior to 8:00 a.m. and after 5:00 p.m.
 - On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwellings.
- MM1b Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power construction equipment according to industry best practices.
- MM1c Designate a disturbance coordinator and conspicuously post this person's number around the project site and in adjacent public spaces. The disturbance coordinator will receive all public complaints about construction noise disturbances and will be responsible for determining the cause of the complaint, and implement any feasible measures to be taken to alleviate the problem.

Significance after Mitigation

Less than significant

Impact 2 Transportation Noise at Existing Sensitive Receptors

Traffic generated by the Proposed Project could generate traffic noise increases exceeding the substantial increase criteria, as outlined in the Thresholds of Significance criteria above. This would be a **less than significant** impact.

Traffic noise levels are predicted at the closest typical residential outdoor use area along each project-area roadway segment. A conservative adjustment of -5 dB is assumed where noise barriers are located adjacent to sensitive receptors or where rear yards are shielded by intervening buildings. In some locations sensitive receptors may not receive full shielding from noise barriers, or may be located at distances which vary from the assumed calculation distance. However, the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the Project area roadway segments analyzed in this report.

The actual distances to noise level contours may vary from the distances predicted by the FHWA model due to roadway curvature, grade, shielding from local topography or structures, elevated roadways, or elevated receivers. The distances reported in Tables 6-8 are generally considered to be conservative estimates of noise exposure along the project-area roadways.

Table 6 shows the predicted traffic noise level increases on the local roadway network for existing no project and existing plus project conditions. Table 7 shows the predicted traffic noise level increases on the local roadway network for near term no project and near term plus project conditions. Table 8 shows the predicted traffic noise level increases on the local roadway network for cumulative no project and cumulative plus project conditions.

Appendix C provides the complete inputs and results of the FHWA traffic noise modeling.

TABLE 6: EXISTING NO PROJECT AND EXISTING + PROJECT TRAFFIC NOISE LEVELS

Roadway	Segment	Traffic Noise Levels CNEL, dBA				Distance to Noise Level Contours (feet)					
		Typical Setback Distance (feet)	Existing No Project	Existing + Project	Δ Change	Existing No Project (CNEL)			Existing + Project (CNEL)		
						70 dB	65 dB	60 dB	70 dB	65 dB	60 dB
Lone Tree Way	West of Deer Valley Rd	80	61.9	62.2	0.2	23	50	108	24	52	111
Lone Tree Way	Deer Valley Rd to Hillcrest Drive	80	62.3	62.6	0.3	24	53	113	26	55	119
Lone Tree Way	Hillcrest Ave to Heidorn Ranch Rd	80	63.0	63.4	0.5	27	59	126	29	63	136
Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	80	63.0	63.7	0.7	27	59	127	30	65	141
Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	80	64.5	65.0	0.5	35	74	160	37	80	173
Lone Tree Way	East of SR 4 WB Ramps	80	64.3	64.4	0.1	33	72	155	34	73	157
Deer Valley Rd	North of Lone Tree Way	65	60.3	60.5	0.1	15	32	68	15	32	70
Deer Valley Rd	South of Lone Tree Way	90	59.1	59.2	0.1	17	36	78	17	37	80
Hillcrest Ave	North of Lone Tree Way	75	59.5	59.9	0.4	15	32	70	16	34	74
Hillcrest Ave	South of Lone Tree Way	75	53.1	53.1	0.0	6	12	26	6	12	26
Heidorn Ranch Rd	South of Lone Tree Way	100	49.5	55.0	5.5	4	9	20	10	22	47
Sand Creek Rd	West of Hillcrest Ave	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Creek Rd	Hillcrest Ave to Heidorn Ranch Rd	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Creek Rd	East of SR 4 WB Ramps	75	62.3	62.4	0.1	23	49	106	23	50	109

¹ Distances are measured in feet from the centerlines of the Roadways.

² Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: Fehr & Peers, 2014

TABLE 7 : NEAR TERM NO PROJECT AND NEAR TERM + PROJECT TRAFFIC NOISE LEVELS

Roadway	Segment	Traffic Noise Levels CNEL, dBA				Distance to Noise Level Contours (feet)					
		Typical Setback Distance (feet)	Near Term No Project	Near Term + Project	Δ Change	Near Term No Project (CNEL)			Near Term + Project (CNEL)		
						70 dB	65 dB	60 dB	70 dB	65 dB	60 dB
Lone Tree Way	West of Deer Valley Rd	80	62.9	63.1	0.2	27	58	125	28	59	128
Lone Tree Way	Deer Valley Rd to Hillcrest Drive	80	63.1	63.7	0.6	28	60	129	30	66	141
Lone Tree Way	Hillcrest Ave to Heidorn Ranch Rd	80	64.3	64.5	0.2	33	72	155	34	74	159
Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	80	64.5	65.0	0.5	34	74	159	37	79	171
Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	80	65.7	66.1	0.4	42	90	193	44	95	204
Lone Tree Way	East of SR 4 WB Ramps	80	64.7	64.8	0.1	36	77	165	36	77	167
Deer Valley Rd	North of Lone Tree Way	65	60.6	60.7	0.1	15	33	71	16	34	73
Deer Valley Rd	South of Lone Tree Way	90	60.7	60.7	0.1	21	46	99	22	47	101
Hillcrest Ave	North of Lone Tree Way	75	60.6	60.9	0.3	18	38	83	19	40	87
Hillcrest Ave	South of Lone Tree Way	75	57.6	59.1	1.5	11	24	52	14	30	66
Heidorn Ranch Rd	South of Lone Tree Way	100	50.7	53.9	3.2	5	11	24	8	18	39
Sand Creek Rd	West of Hillcrest Ave	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Creek Rd	Hillcrest Ave to Heidorn Ranch Rd	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Creek Rd	East of SR 4 WB Ramps	75	63.0	63.1	0.1	26	55	119	26	56	121

¹ Distances are measured in feet from the centerlines of the Roadways.

² Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: Fehr & Peers, 2014

TABLE 8 : CUMULATIVE NO PROJECT AND CUMULATIVE + PROJECT TRAFFIC NOISE LEVELS

Roadway	Segment	Traffic Noise Levels (CNEL, dB)				Distance to Noise Level Contours (feet)					
		Typical Setback Distance (feet)	Cumulative No Project	Cumulative + Project	Δ Change	Cumulative No Project (CNEL)			Cumulative + Project (CNEL)		
						70 dB	65 dB	60 dB	70 dB	65 dB	60 dB
Lone Tree Way	West of Deer Valley Rd	80	63.1	63.4	0.3	28	60	128	29	63	135
Lone Tree Way	Deer Valley Rd to Hillcrest Drive	80	64.1	64.2	0.1	32	70	151	33	71	153
Lone Tree Way	Hillcrest Ave to Heidorn Ranch Rd	80	64.7	64.7	0.1	35	76	163	36	77	165
Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	80	64.9	65.0	0.1	37	79	169	37	80	172
Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	80	65.9	66.0	0.1	43	92	198	43	93	200
Lone Tree Way	East of SR 4 WB Ramps	80	65.6	65.6	0.1	41	87	188	41	88	190
Deer Valley Rd	North of Lone Tree Way	65	62.7	62.8	0.1	21	46	98	21	46	99
Deer Valley Rd	South of Lone Tree Way	90	61.6	61.7	0.1	25	53	114	25	54	116
Hillcrest Ave	North of Lone Tree Way	75	61.2	61.5	0.3	19	42	90	20	44	94
Hillcrest Ave	South of Lone Tree Way	75	58.2	58.9	0.7	12	26	57	14	29	63
Heidorn Ranch Rd	South of Lone Tree Way	100	51.9	53.0	1.1	6	13	29	7	16	34
Sand Creek Rd	West of Hillcrest Ave	75	63.3	63.4	0.2	27	57	124	27	59	127
Sand Creek Rd	Hillcrest Ave to Heidorn Ranch Rd	75	63.4	63.6	0.2	27	59	127	28	61	131
Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	75	63.6	64.0	0.5	28	60	130	30	65	139
Sand Creek Rd	East of SR 4 WB Ramps	75	64.2	64.3	0.1	31	66	142	31	67	144

¹ Distances are measured in feet from the centerlines of the Roadways.

² Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: Fehr & Peers, 2014

Tables 6-8 indicate that some noise sensitive receptors located along the project-area roadways are currently exposed to exterior traffic noise levels exceeding the City of Antioch 60 dB CNEL exterior noise level standard for residential uses. These receptors will continue to experience elevated exterior noise levels with implementation of the proposed project. However, the project is not predicted to cause any new exceedances of the City's 60 dB CNEL exterior noise level standard. This impact would be **less than significant** under CEQA checklist threshold (a) under Existing Plus Project, Near Term Plus Project, and Cumulative Plus Project conditions.

Table 6 shows the noise levels associated with traffic on the local roadway network under the Existing and Existing Plus Project traffic conditions. As indicated by Table 6, the related noise level increases under development of the proposed project are predicted to range between 0.1 to 5.5 dB. The predicted noise level increase of 5.5 dB would result in an overall noise level exposure of 55.0 dB CNEL in rear yard areas. This noise level is less than the City's 60 dB CNEL exterior noise level standard. Additionally, this increase would not cause an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development. Therefore, this impact would be **less than significant** under CEQA checklist threshold (c) under Existing Plus Project conditions.

Table 7 shows the noise levels associated with traffic on the local roadway network under the Near Term and Near Term Plus Project traffic conditions. As indicated by Table 7, the related noise level increases under development of the proposed project are predicted to range between 0.1 dB to 3.2 dB. The predicted noise level increase of 3.2 dB would result in an overall noise level exposure of 53.9 dB CNEL in rear yard areas. This noise level is less than the City's 60 dB CNEL exterior noise level standard. Additionally, this increase would not cause an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development. Therefore, this impact would be **less than significant** under CEQA checklist threshold (c) under Near Term Plus Project conditions.

Table 8 shows the noise levels associated with traffic on the local roadway network under the Cumulative and Cumulative plus project traffic conditions. As indicated by Table 8, the related noise level increases under development of the proposed project are predicted to range between 0.1 to 1.1 dB. The predicted noise level increase of 1.1 dB would result in an overall noise level exposure of 53.0 dB CNEL in rear yard areas. This noise level is less than the City's 60 dB CNEL exterior noise level standard. Additionally, this increase would not cause an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development. Therefore, this impact would be **less than significant** under CEQA checklist threshold (c) under Near Term Plus Project conditions.

Mitigation for Impact 2: **None required**

Impact 3: Transportation Noise at New Sensitive Receptors

*The proposed project could expose new noise-sensitive uses to transportation noise levels that exceed the City of Antioch exterior and interior noise level standards. This is considered to be a **potentially significant** impact.*

Exterior Traffic Noise Level Impacts:

The FHWA traffic noise prediction model was used to predict traffic noise levels at the proposed residential land uses associated with the project, under existing plus project, near term plus project, and cumulative plus project conditions. Table 9 shows the predicted traffic noise levels at the proposed residential uses adjacent to the major project-area arterial roadways. Table 9 also indicates the property line noise barrier heights required to achieve compliance with an exterior noise level standard of 60 dB CNEL.

Appendix D provides the complete inputs and results to the FHWA traffic noise prediction model and barrier calculations. The modeled noise barriers assume flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent.

TABLE 9 : TRANSPORTATION NOISE LEVELS AT PROPOSED RESIDENTIAL USES

Noise Source	Receptor Description	Approximate Distance to Center of Outdoor Activity Area, feet ¹	ADT	Predicted Noise Levels, dB CNEL			
				No Wall	6' Wall	7' Wall	8' Wall
<u>Traffic Noise</u>							
<u>Existing Plus Project</u>							
Hillcrest Avenue	Nearest Backyards	90	2,400	57	--	--	--
Heidorn Ranch Road	Nearest Backyards	120	9,070	60	--	--	--
Sand Creek Road	Nearest Backyards	90	N/A	N/A	--	--	--
<u>Near Term Plus Project</u>							
Hillcrest Avenue	Nearest Backyards	90	6,720	61	55	54	53
Heidorn Ranch Road	Nearest Backyards	120	7,030	59	--	--	--
Sand Creek Road	Nearest Backyards	90	N/A	N/A	--	--	--
<u>Cumulative Plus Project</u>							
Hillcrest Avenue	Nearest Backyards	90	9,020	63	57	56	54
Heidorn Ranch Road	Nearest Backyards	120	5,670	58	--	--	--
Sand Creek Road	Nearest Backyards	90	26,740	67	61	60	59
¹ Setback distances are measured in feet from the centerlines of the roadways to the center of residential backyards. -- Meets the City of Antioch exterior noise standard without mitigation. Standard does not apply to second floor facades. Source: FHWA-RD-77-108 with inputs from Fehr & Peers, and j.c. brennan & associates, Inc. 2014.							

The Table 9 data indicate that noise barriers 6-feet in height would be required to reduce exterior noise levels to 60 dB CNEL or less at the sensitive receptors located along Hillcrest Avenue and a 7 foot tall barrier along Sand Creek Road. Noise barriers may include a combination of earthen berm and concrete (CMU) wall to achieve the total required height. Barrier heights are relative to pad elevations. Figure 3 shows recommended noise barrier locations.



Vineyards at Sand Creek
Figure 3: Recommended Noise Barrier Locations

j.c. brennan & associates
consultants in acoustics

Figure Prepared October 2014

Legend

————— : Noise Barrier Location

Interior Noise Impacts:

Modern construction typically provides a 25 dB exterior-to-interior noise level reduction with windows closed. Therefore, sensitive receptors exposed to exterior noise of 70 dB CNEL, or less, will typically comply with the City's 45 dB CNEL interior noise level standard. Additional noise reduction measures, such as acoustically rated windows are generally required for exterior noise levels exceeding 70 dB CNEL.

It should be noted that exterior noise levels are typically 2-3 dB higher at second floor locations. Additionally, noise barriers do not reduce exterior noise levels at second floor locations. The proposed residential uses are predicted to be exposed to unmitigated first floor exterior traffic noise levels ranging between 60-67 dB CNEL. Therefore, second floor facades are predicted to be exposed to exterior traffic noise levels of up to 63-70 dB CNEL. Based upon a 25 dB exterior-to-interior noise level reduction, interior traffic noise levels are predicted to range between 38-45 dB CNEL. Therefore, no interior noise control measures would be required for traffic noise.

Mitigation for Impact 3:

MM 3a: Sound walls and/or landscaped berms shall be constructed along Hillcrest Avenue and Sand Creek Road at proposed residential uses. Noise barrier walls shall be constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials. Wood is not recommended due to eventual warping and degradation of acoustical performance. Barrier heights and locations should be reviewed against grading plans.

MM 3b: Mechanical ventilation shall be installed in all residential uses to allow residents to keep doors and windows closed, as desired for acoustical isolation.

Significance after Mitigation: **Less-than-significant.**

Impact 4: Construction Vibration at Sensitive Receptors

*The proposed project has the potential to expose sensitive receptors to substantial vibration associated with construction activities. This would be a **less-than-significant** impact.*

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading and utility placement.

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 10 shows the typical vibration levels produced by construction equipment.

Sensitive receptors could be impacted by construction related vibrations, especially vibratory compactors/rollers. The nearest receptors are located approximately 50 feet (or further) to the north from any areas of the project site that might require grading or paving. At this distance construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

TABLE 10: VIBRATION LEVELS FOR VARYING CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity @ 25 feet (inches/second)	Peak Particle Velocity @ 50 feet (inches/second)	Peak Particle Velocity @ 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210	0.074	0.026

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006

The Table 10 data indicate that construction vibration levels anticipated for the project are less than the 0.1 in/sec criteria at distances of 50 feet. Therefore, construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors. Implementation of the proposed project would have a **less than significant** impact.

Mitigation for Impact 4: **None required**

Impact 5: Noise Levels from Park Activities at Sensitive Receptors

*The proposed project has the potential to expose sensitive receptors to substantial noise from proposed park uses. This would be a **less than significant impact**.*

Children playing at neighborhood parks or outdoor recreational fields (softball, soccer, basketball, tennis) are often considered potentially significant noise sources which could adversely affect adjacent noise-sensitive land uses. Typical noise levels associated with groups of approximately 50 children playing at a distance of 50 feet generally range from 55 to 60 dB L_{eq} and 70-75 dB L_{max} . It is expected that park activities would occur during daytime (7:00 am to 7:00 pm) or evening (7:00 p.m. to 10:00 pm) hours. The CNEL due to daytime park activities would be approximately 59 dB CNEL at 50 feet.

Based upon the project site plan, the center of the proposed park areas would be located approximately 180 feet from the closest residential receptors. At this distance the exterior noise level due to park activities is predicted to be approximately 48 dB CNEL and would comply with the City's 60 dB CNEL exterior noise level standard.

Mitigation for Impact 5: **None required**

Cumulative Impacts and Mitigation Measures

Impact 6: Cumulative Noise Levels

*The cumulative context for noise impacts associated with the Proposed Project consists of the existing and future noise sources that could affect the project or surrounding uses. Noise generated by construction would be temporary, and would not add to the permanent noise environment or be considered as part of the cumulative context. The total noise impact of the Proposed Project would be fairly small and would not be a substantial increase to the existing future noise environment. Thus, the Proposed Project would result in a **less-than-significant cumulative impact**.*

Traffic

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to the Proposed Project and on-site activities resulting from operation of the proposed project. Table 8 above shows cumulative traffic noise levels with and without the Proposed Project. As discussed, the project would not result in significant increases in traffic noise levels at existing sensitive receptors. New residential uses will be constructed to comply with the applicable City of Antioch exterior and interior noise level standards.

Cumulative Conclusion

The traffic noise from the Proposed Project is not expected to produce noise levels that would exceed City standards. Project related traffic would not cause an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development. Consequently, the total noise impact of the Proposed Project would not be a substantial increase to the future noise environment. The Proposed Project would result in a **less-than-significant cumulative impact**.

Mitigation for Impact 6: **None required**

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
L_(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L ₅₀ is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B-1

Vineyards at Sand Creek
 Continuous 24 Hr Monitoring
 7/15/2014 - 7/16/2014

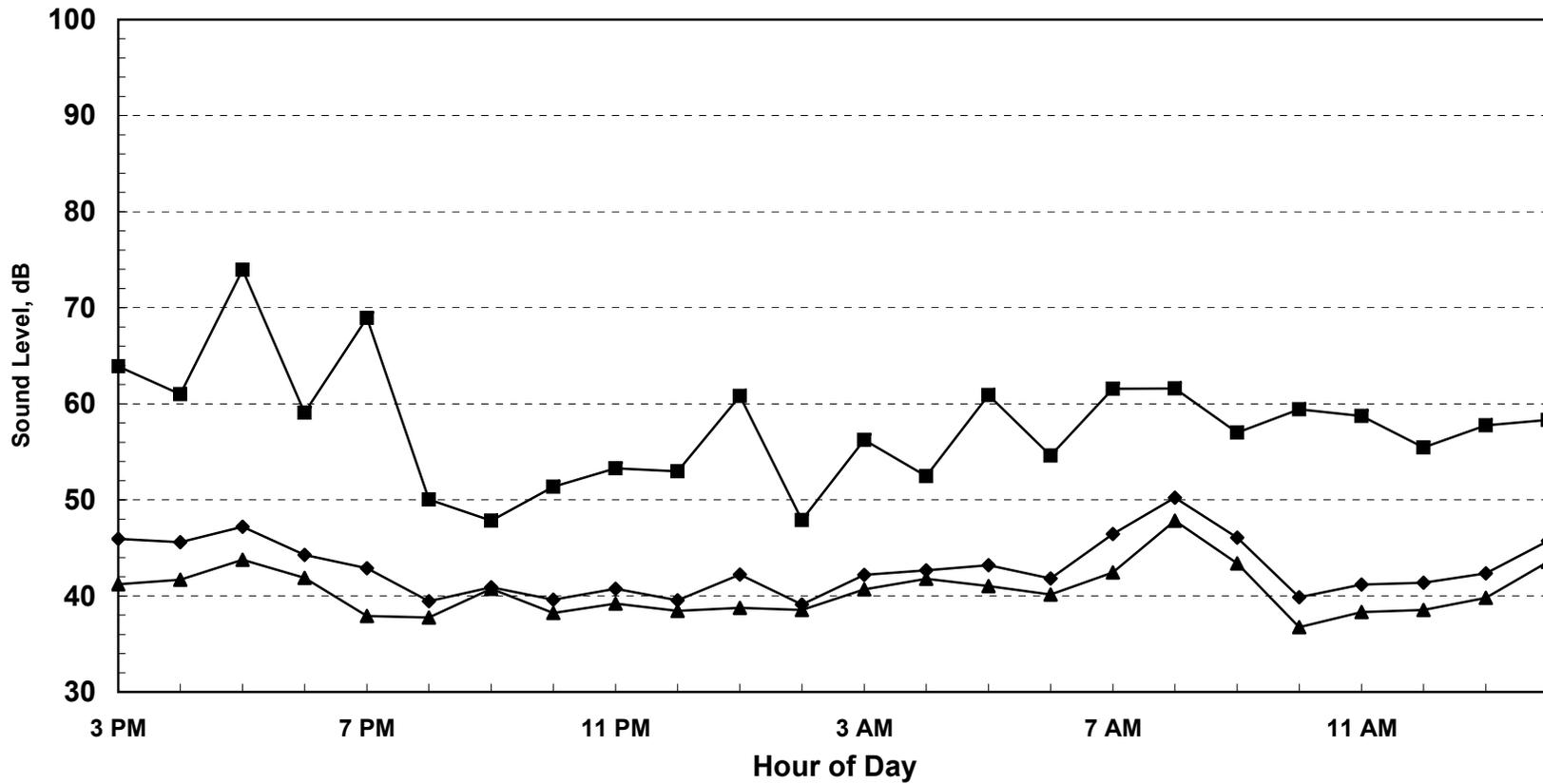
Hour	Leq	Lmax	L50	L90
15:00	46	64	41	36
16:00	46	61	42	37
17:00	47	74	44	40
18:00	44	59	42	38
19:00	43	69	38	35
20:00	39	50	38	35
21:00	41	48	41	37
22:00	40	51	38	35
23:00	41	53	39	37
0:00	40	53	38	35
1:00	42	61	39	36
2:00	39	48	39	36
3:00	42	56	41	38
4:00	43	52	42	40
5:00	43	61	41	39
6:00	42	55	40	37
7:00	46	62	42	35
8:00	50	62	48	43
9:00	46	57	43	36
10:00	40	59	37	34
11:00	41	59	38	34
12:00	41	55	39	35
13:00	42	58	40	36
14:00	46	58	44	39

Statistical Summary									
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	50	40	46	43	39	41	43	39	41
Lmax (Maximum)	74	55	61	69	48	56	61	48	55
L50 (Median)	48	37	42	41	38	39	42	38	40
L90 (Background)	43	34	37	37	35	36	40	35	37

Computed CNEL, dB	49
% Daytime Energy	72%
% Evening Energy	7%
% Nighttime Energy	21%



Appendix B-1
 Continuous Measured Hourly Noise Levels
 Vineyards at Sand Creek - Site A
 7/15/2014 - 7/16/2014



CNEL = 49 dB

◆ Leq ■ Lmax ▲ L50



Appendix B-2

Vineyards at Sand Creek

Continuous 24 Hr Monitoring - Site B

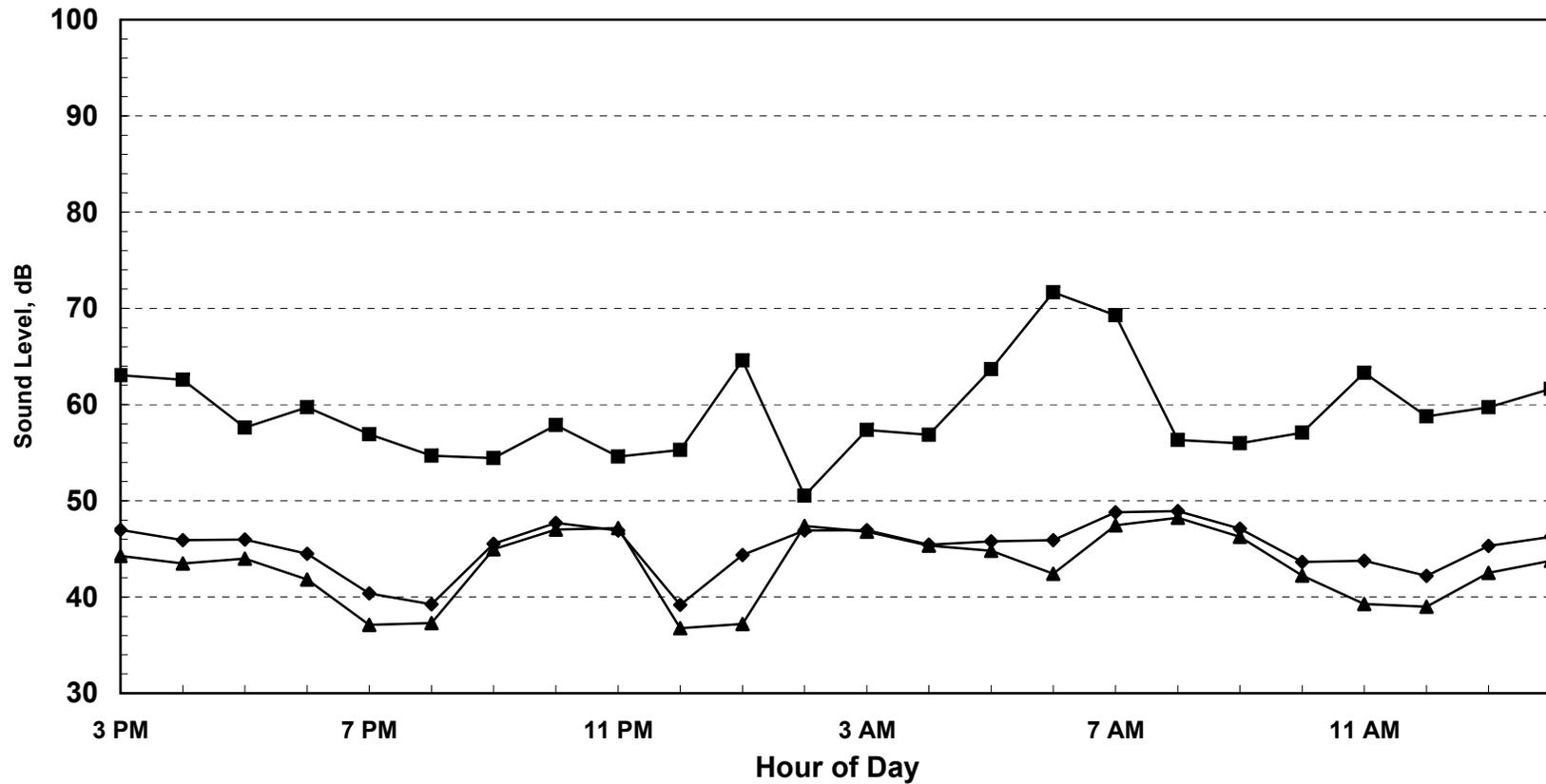
7/15/2014 - 7/16/2014

Hour	Leq	Lmax	L50	L90
15:00	47	63	44	39
16:00	46	63	43	38
17:00	46	58	44	41
18:00	44	60	42	38
19:00	40	57	37	35
20:00	39	55	37	35
21:00	46	54	45	39
22:00	48	58	47	42
23:00	47	55	47	37
0:00	39	55	37	35
1:00	44	65	37	35
2:00	47	51	47	37
3:00	47	57	47	44
4:00	45	57	45	43
5:00	46	64	45	41
6:00	46	72	42	40
7:00	49	69	47	40
8:00	49	56	48	45
9:00	47	56	46	41
10:00	44	57	42	37
11:00	44	63	39	36
12:00	42	59	39	37
13:00	45	60	43	38
14:00	46	62	44	40

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	49	42	46	46	39	43	48	39	46
Lmax (Maximum)	69	56	60	57	54	55	72	51	59
L50 (Median)	48	39	44	45	37	40	47	37	44
L90 (Background)	45	36	39	39	35	37	44	35	39

Computed CNEL, dB	52.4
% Daytime Energy	55%
% Evening Energy	6%
% Nighttime Energy	39%

Appendix B-2
 Continuous Measured Hourly Noise Levels
 Vineyards at Sand Creek - Site B
 7/15/2014 - 7/16/2014



CNEL = 52 dB

◆ Leq ■ Lmax ▲ L50



Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Vineyards at Sand Creek

Description: Existing Conditions

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Deer Valley Rd	18,440	73	12	15	2	1	45	80	-5
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	19,900	73	12	15	2	1	45	80	-5
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	23,430	73	12	15	2	1	45	80	-5
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	23,670	73	12	15	2	1	45	80	-5
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	33,560	73	12	15	2	1	45	80	-5
6	Lone Tree Way	East of SR 4 WB Ramps	31,720	73	12	15	2	1	45	80	-5
7	Deer Valley Rd	North of Lone Tree Way	10,100	77	10	13	2	1	45	65	-5
8	Deer Valley Rd	South of Lone Tree Way	12,420	77	10	13	2	1	45	90	-5
9	Hill Crest Ave	North of Lone Tree Way	10,450	77	10	13	2	1	45	75	-5
10	Hill Crest Ave	South of Lone Tree Way	2,400	77	10	13	2	1	45	75	-5
11	Heidorn Ranch Rd	South of Lone Tree Way	2,560	77	10	13	0.5	0.5	40	100	-5
12	Sand Creek Rd	West of Hill Crest Ave	0	77	10		2	1	45	75	-5
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	0	77	10		2	1	45	75	-5
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	0	77	10		2	1	45	75	-5
15	Sand Creek Rd	East of SR 4 WB Ramps	19,670	77	10	13	2	1	45	75	-5

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Vineyards at Sand Creek
 Description: Existing Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Deer Valley Rd	60.6	52.4	53.9	61.9
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	60.9	52.7	54.2	62.3
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	61.6	53.4	54.9	63.0
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	61.7	53.5	55.0	63.0
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	63.2	55.0	56.5	64.5
6	Lone Tree Way	East of SR 4 WB Ramps	62.9	54.8	56.2	64.3
7	Deer Valley Rd	North of Lone Tree Way	59.0	50.8	52.2	60.3
8	Deer Valley Rd	South of Lone Tree Way	57.7	49.5	51.0	59.1
9	Hill Crest Ave	North of Lone Tree Way	58.2	50.0	51.5	59.5
10	Hill Crest Ave	South of Lone Tree Way	51.8	43.6	45.1	53.1
11	Heidorn Ranch Rd	South of Lone Tree Way	48.8	35.2	40.0	49.5
15	Sand Creek Rd	East of SR 4 WB Ramps	60.9	52.7	54.2	62.3



Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: Vineyards at Sand Creek

Description: Existing Conditions

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	Lone Tree Way	West of Deer Valley Rd	11	23	50	108	232
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	11	24	53	113	244
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	13	27	59	126	272
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	13	27	59	127	274
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	16	35	74	160	346
6	Lone Tree Way	East of SR 4 WB Ramps	15	33	72	155	333
7	Deer Valley Rd	North of Lone Tree Way	7	15	32	68	147
8	Deer Valley Rd	South of Lone Tree Way	8	17	36	78	169
9	Hill Crest Ave	North of Lone Tree Way	7	15	32	70	150
10	Hill Crest Ave	South of Lone Tree Way	3	6	12	26	56
11	Heidorn Ranch Rd	South of Lone Tree Way	2	4	9	20	43
15	Sand Creek Rd	East of SR 4 WB Ramps	11	23	49	106	229



Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Vineyards at Sand Creek
 Description: Existing + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Deer Valley Rd	19,420	73	12	15	2	1	45	80	-5
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	21,540	73	12	15	2	1	45	80	-5
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	26,040	73	12	15	2	1	45	80	-5
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	27,580	73	12	15	2	1	45	80	-5
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	37,460	73	12	15	2	1	45	80	-5
6	Lone Tree Way	East of SR 4 WB Ramps	32,370	73	12	15	2	1	45	80	-5
7	Deer Valley Rd	North of Lone Tree Way	10,430	77	10	13	2	1	45	65	-5
8	Deer Valley Rd	South of Lone Tree Way	12,750	77	10	13	2	1	45	90	-5
9	Hill Crest Ave	North of Lone Tree Way	11,430	77	10	13	2	1	45	75	-5
10	Hill Crest Ave	South of Lone Tree Way	2,400	77	10	13	2	1	45	75	-5
11	Heidorn Ranch Rd	South of Lone Tree Way	9,070	77	10	13	0.5	0.5	40	100	-5
12	Sand Creek Rd	West of Hill Crest Ave	0	77	10		2	1	45	75	-5
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	0	77	10		2	1	45	75	-5
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	0	77	10		2	1	45	75	-5
15	Sand Creek Rd	East of SR 4 WB Ramps	20,320	77	10	13	2	1	45	75	-5



Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Vineyards at Sand Creek
 Description: Existing + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Deer Valley Rd	60.8	52.6	54.1	62.2
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	61.3	53.1	54.6	62.6
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	62.1	53.9	55.4	63.4
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	62.3	54.2	55.6	63.7
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	63.7	55.5	57.0	65.0
6	Lone Tree Way	East of SR 4 WB Ramps	63.0	54.8	56.3	64.4
7	Deer Valley Rd	North of Lone Tree Way	59.1	50.9	52.4	60.5
8	Deer Valley Rd	South of Lone Tree Way	57.9	49.7	51.1	59.2
9	Hill Crest Ave	North of Lone Tree Way	58.6	50.4	51.9	59.9
10	Hill Crest Ave	South of Lone Tree Way	51.8	43.6	45.1	53.1
11	Heidorn Ranch Rd	South of Lone Tree Way	54.3	40.7	45.5	55.0
15	Sand Creek Rd	East of SR 4 WB Ramps	61.1	52.9	54.3	62.4



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: Vineyards at Sand Creek
 Description: Existing + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	Lone Tree Way	West of Deer Valley Rd	11	24	52	111	240
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	12	26	55	119	257
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	14	29	63	136	292
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	14	30	65	141	303
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	17	37	80	173	372
6	Lone Tree Way	East of SR 4 WB Ramps	16	34	73	157	338
7	Deer Valley Rd	North of Lone Tree Way	7	15	32	70	150
8	Deer Valley Rd	South of Lone Tree Way	8	17	37	80	172
9	Hill Crest Ave	North of Lone Tree Way	7	16	34	74	160
10	Hill Crest Ave	South of Lone Tree Way	3	6	12	26	56
11	Heidorn Ranch Rd	South of Lone Tree Way	5	10	22	47	100
15	Sand Creek Rd	East of SR 4 WB Ramps	11	23	50	109	234



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Vineyards at Sand Creek
 Description: Near Term No Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Deer Valley Rd	22,950	73	12	15	2	1	45	80	-5
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	24,280	73	12	15	2	1	45	80	-5
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	31,700	73	12	15	2	1	45	80	-5
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	33,050	73	12	15	2	1	45	80	-5
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	44,280	73	12	15	2	1	45	80	-5
6	Lone Tree Way	East of SR 4 WB Ramps	34,960	73	12	15	2	1	45	80	-5
7	Deer Valley Rd	North of Lone Tree Way	10,740	77	10	13	2	1	45	65	-5
8	Deer Valley Rd	South of Lone Tree Way	17,770	77	10	13	2	1	45	90	-5
9	Hill Crest Ave	North of Lone Tree Way	13,510	77	10	13	2	1	45	75	-5
10	Hill Crest Ave	South of Lone Tree Way	6,720	77	10	13	2	1	45	75	-5
11	Heidorn Ranch Rd	South of Lone Tree Way	3,370	77	10	13	0.5	0.5	40	100	-5
12	Sand Creek Rd	West of Hill Crest Ave	0	77	10		2	1	45	75	-5
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	0	77	10		2	1	45	75	-5
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	0	77	10		2	1	45	75	-5
15	Sand Creek Rd	East of SR 4 WB Ramps	23,320	77	10	13	2	1	45	75	-5



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Vineyards at Sand Creek
 Description: Near Term No Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Deer Valley Rd	61.5	53.4	54.8	62.9
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	61.8	53.6	55.1	63.1
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	62.9	54.8	56.2	64.3
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	63.1	54.9	56.4	64.5
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	64.4	56.2	57.7	65.7
6	Lone Tree Way	East of SR 4 WB Ramps	63.4	55.2	56.7	64.7
7	Deer Valley Rd	North of Lone Tree Way	59.2	51.0	52.5	60.6
8	Deer Valley Rd	South of Lone Tree Way	59.3	51.1	52.6	60.7
9	Hill Crest Ave	North of Lone Tree Way	59.3	51.1	52.6	60.6
10	Hill Crest Ave	South of Lone Tree Way	56.3	48.1	49.5	57.6
11	Heidorn Ranch Rd	South of Lone Tree Way	50.0	36.4	41.2	50.7
15	Sand Creek Rd	East of SR 4 WB Ramps	61.7	53.5	54.9	63.0



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: Vineyards at Sand Creek
 Description: Near Term No Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	Lone Tree Way	West of Deer Valley Rd	12	27	58	125	268
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	13	28	60	129	279
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	15	33	72	155	333
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	16	34	74	159	342
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	19	42	90	193	416
6	Lone Tree Way	East of SR 4 WB Ramps	16	36	77	165	355
7	Deer Valley Rd	North of Lone Tree Way	7	15	33	71	153
8	Deer Valley Rd	South of Lone Tree Way	10	21	46	99	214
9	Hill Crest Ave	North of Lone Tree Way	8	18	38	83	179
10	Hill Crest Ave	South of Lone Tree Way	5	11	24	52	112
11	Heidorn Ranch Rd	South of Lone Tree Way	2	5	11	24	52
15	Sand Creek Rd	East of SR 4 WB Ramps	12	26	55	119	257



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Vineyards at Sand Creek
 Description: Near Term + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Deer Valley Rd	23,930	73	12	15	2	1	45	80	-5
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	27,690	73	12	15	2	1	45	80	-5
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	33,020	73	12	15	2	1	45	80	-5
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	36,950	73	12	15	2	1	45	80	-5
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	48,180	73	12	15	2	1	45	80	-5
6	Lone Tree Way	East of SR 4 WB Ramps	35,610	73	12	15	2	1	45	80	-5
7	Deer Valley Rd	North of Lone Tree Way	11,070	77	10	13	2	1	45	65	-5
8	Deer Valley Rd	South of Lone Tree Way	18,090	77	10	13	2	1	45	90	-5
9	Hill Crest Ave	North of Lone Tree Way	14,480	77	10	13	2	1	45	75	-5
10	Hill Crest Ave	South of Lone Tree Way	9,540	77	10	13	2	1	45	75	-5
11	Heidorn Ranch Rd	South of Lone Tree Way	7,030	77	10	13	0.5	0.5	40	100	-5
12	Sand Creek Rd	West of Hill Crest Ave	0	77	10		2	1	45	75	-5
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	0	77	10		2	1	45	75	-5
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	0	77	10		2	1	45	75	-5
15	Sand Creek Rd	East of SR 4 WB Ramps	23,970	77	10	13	2	1	45	75	-5



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Vineyards at Sand Creek
 Description: Near Term + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Deer Valley Rd	61.7	53.5	55.0	63.1
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	62.3	54.2	55.7	63.7
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	63.1	54.9	56.4	64.5
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	63.6	55.4	56.9	65.0
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	64.7	56.6	58.1	66.1
6	Lone Tree Way	East of SR 4 WB Ramps	63.4	55.3	56.8	64.8
7	Deer Valley Rd	North of Lone Tree Way	59.4	51.2	52.6	60.7
8	Deer Valley Rd	South of Lone Tree Way	59.4	51.2	52.7	60.7
9	Hill Crest Ave	North of Lone Tree Way	59.6	51.4	52.9	60.9
10	Hill Crest Ave	South of Lone Tree Way	57.8	49.6	51.1	59.1
11	Heidorn Ranch Rd	South of Lone Tree Way	53.2	39.6	44.4	53.9
15	Sand Creek Rd	East of SR 4 WB Ramps	61.8	53.6	55.1	63.1



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: Vineyards at Sand Creek
 Description: Near Term + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	Lone Tree Way	West of Deer Valley Rd	13	28	59	128	276
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	14	30	66	141	304
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	16	34	74	159	342
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	17	37	79	171	369
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	20	44	95	204	440
6	Lone Tree Way	East of SR 4 WB Ramps	17	36	77	167	360
7	Deer Valley Rd	North of Lone Tree Way	7	16	34	73	156
8	Deer Valley Rd	South of Lone Tree Way	10	22	47	101	217
9	Hill Crest Ave	North of Lone Tree Way	9	19	40	87	187
10	Hill Crest Ave	South of Lone Tree Way	7	14	30	66	142
11	Heidorn Ranch Rd	South of Lone Tree Way	4	8	18	39	85
15	Sand Creek Rd	East of SR 4 WB Ramps	12	26	56	121	262



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Vineyards at Sand Creek
 Description: Cumulative No Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Deer Valley Rd	24,010	73	12	15	2	1	45	80	-5
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	30,500	73	12	15	2	1	45	80	-5
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	34,500	73	12	15	2	1	45	80	-5
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	36,400	73	12	15	2	1	45	80	-5
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	45,900	73	12	15	2	1	45	80	-5
6	Lone Tree Way	East of SR 4 WB Ramps	42,700	73	12	15	2	1	45	80	-5
7	Deer Valley Rd	North of Lone Tree Way	17,400	77	10	13	2	1	45	65	-5
8	Deer Valley Rd	South of Lone Tree Way	21,900	77	10	13	2	1	45	90	-5
9	Hill Crest Ave	North of Lone Tree Way	15,400	77	10	13	2	1	45	75	-5
10	Hill Crest Ave	South of Lone Tree Way	7,700	77	10	13	2	1	45	75	-5
11	Heidorn Ranch Rd	South of Lone Tree Way	4,400	77	10	13	0.5	0.5	40	100	-5
12	Sand Creek Rd	West of Hill Crest Ave	24,600	77	10	13	2	1	45	75	-5
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	25,600	77	10	13	2	1	45	75	-5
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	26,400	77	10	13	2	1	45	75	-5
15	Sand Creek Rd	East of SR 4 WB Ramps	30,400	77	10	13	2	1	45	75	-5



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Vineyards at Sand Creek
 Description: Cumulative No Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Deer Valley Rd	61.7	53.6	55.0	63.1
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	62.8	54.6	56.1	64.1
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	63.3	55.1	56.6	64.7
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	63.5	55.4	56.8	64.9
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	64.5	56.4	57.9	65.9
6	Lone Tree Way	East of SR 4 WB Ramps	64.2	56.1	57.5	65.6
7	Deer Valley Rd	North of Lone Tree Way	61.3	53.1	54.6	62.7
8	Deer Valley Rd	South of Lone Tree Way	60.2	52.0	53.5	61.6
9	Hill Crest Ave	North of Lone Tree Way	59.9	51.7	53.1	61.2
10	Hill Crest Ave	South of Lone Tree Way	56.9	48.6	50.1	58.2
11	Heidorn Ranch Rd	South of Lone Tree Way	51.2	37.5	42.3	51.9
12	Sand Creek Rd	West of Hill Crest Ave	61.9	53.7	55.2	63.3
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	62.1	53.9	55.4	63.4
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	62.2	54.0	55.5	63.6
15	Sand Creek Rd	East of SR 4 WB Ramps	62.8	54.6	56.1	64.2



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: Vineyards at Sand Creek
Description: Cumulative No Project Conditions
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	Lone Tree Way	West of Deer Valley Rd	13	28	60	128	277
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	15	32	70	151	324
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	16	35	76	163	352
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	17	37	79	169	365
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	20	43	92	198	426
6	Lone Tree Way	East of SR 4 WB Ramps	19	41	87	188	406
7	Deer Valley Rd	North of Lone Tree Way	10	21	46	98	211
8	Deer Valley Rd	South of Lone Tree Way	11	25	53	114	246
9	Hill Crest Ave	North of Lone Tree Way	9	19	42	90	195
10	Hill Crest Ave	South of Lone Tree Way	6	12	26	57	123
11	Heidorn Ranch Rd	South of Lone Tree Way	3	6	13	29	62
12	Sand Creek Rd	West of Hill Crest Ave	12	27	57	124	266
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	13	27	59	127	273
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	13	28	60	130	279
15	Sand Creek Rd	East of SR 4 WB Ramps	14	31	66	142	307

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Vineyards at Sand Creek
 Description: Cumulative + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Deer Valley Rd	25,980	73	12	15	2	1	45	80	-5
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	31,190	73	12	15	2	1	45	80	-5
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	35,110	73	12	15	2	1	45	80	-5
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	37,310	73	12	15	2	1	45	80	-5
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	46,810	73	12	15	2	1	45	80	-5
6	Lone Tree Way	East of SR 4 WB Ramps	43,350	73	12	15	2	1	45	80	-5
7	Deer Valley Rd	North of Lone Tree Way	17,720	77	10	13	2	1	45	65	-5
8	Deer Valley Rd	South of Lone Tree Way	22,510	77	10	13	2	1	45	90	-5
9	Hill Crest Ave	North of Lone Tree Way	16,370	77	10	13	2	1	45	75	-5
10	Hill Crest Ave	South of Lone Tree Way	9,020	77	10	13	2	1	45	75	-5
11	Heidorn Ranch Rd	South of Lone Tree Way	5,670	77	10	13	0.5	0.5	40	100	-5
12	Sand Creek Rd	West of Hill Crest Ave	25,520	77	10	13	2	1	45	75	-5
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	26,740	77	10	13	2	1	45	75	-5
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	29,400	77	10	13	2	1	45	75	-5
15	Sand Creek Rd	East of SR 4 WB Ramps	31,050	77	10	13	2	1	45	75	-5



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Vineyards at Sand Creek
Description: Cumulative + Project Conditions
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Deer Valley Rd	62.1	53.9	55.4	63.4
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	62.9	54.7	56.2	64.2
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	63.4	55.2	56.7	64.7
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	63.6	55.5	57.0	65.0
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	64.6	56.5	57.9	66.0
6	Lone Tree Way	East of SR 4 WB Ramps	64.3	56.1	57.6	65.6
7	Deer Valley Rd	North of Lone Tree Way	61.4	53.2	54.7	62.8
8	Deer Valley Rd	South of Lone Tree Way	60.3	52.1	53.6	61.7
9	Hill Crest Ave	North of Lone Tree Way	60.1	51.9	53.4	61.5
10	Hill Crest Ave	South of Lone Tree Way	57.5	49.3	50.8	58.9
11	Heidorn Ranch Rd	South of Lone Tree Way	52.3	38.6	43.5	53.0
12	Sand Creek Rd	West of Hill Crest Ave	62.1	53.9	55.3	63.4
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	62.3	54.1	55.5	63.6
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	62.7	54.5	56.0	64.0
15	Sand Creek Rd	East of SR 4 WB Ramps	62.9	54.7	56.2	64.3

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: Vineyards at Sand Creek
 Description: Cumulative + Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment	----- Distances to Traffic Noise Contours -----				
			75	70	65	60	55
1	Lone Tree Way	West of Deer Valley Rd	14	29	63	135	292
2	Lone Tree Way	Deer Valley Rd to Hillcrest Drive	15	33	71	153	329
3	Lone Tree Way	Hill Crest Ave to Heidorn Ranch Rd	17	36	77	165	356
4	Lone Tree Way	Heidorn Ranch Rd to Canada Valley Rd	17	37	80	172	371
5	Lone Tree Way	Canada Valley Rd to SR 4 EB Ramps	20	43	93	200	432
6	Lone Tree Way	East of SR 4 WB Ramps	19	41	88	190	410
7	Deer Valley Rd	North of Lone Tree Way	10	21	46	99	214
8	Deer Valley Rd	South of Lone Tree Way	12	25	54	116	251
9	Hill Crest Ave	North of Lone Tree Way	9	20	44	94	203
10	Hill Crest Ave	South of Lone Tree Way	6	14	29	63	136
11	Heidorn Ranch Rd	South of Lone Tree Way	3	7	16	34	73
12	Sand Creek Rd	West of Hill Crest Ave	13	27	59	127	273
13	Sand Creek Rd	Hill Crest Ave to Heidorn Ranch Rd	13	28	61	131	281
14	Sand Creek Rd	Heidorn Ranch Rd to SR 4 EB Ramps	14	30	65	139	300
15	Sand Creek Rd	East of SR 4 WB Ramps	14	31	67	144	311



Appendix D

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Vineyards at Sand Creek
 Description: Existing, Near-Term, and Cumulative - Plus Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Location	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Hillcrest Avenue	Nearest Backyards	2,400	77	10	13	2	1	45	90	
2	Heidorn Ranch Road	Nearest Backyards	9,070	77	10	13	2	1	40	120	
3	Sand Creek Road	Nearest Backyards	N/A	77	10	13	2	1	45	90	
<u>Near Term Plus Project</u>											
1	Hillcrest Avenue	Nearest Backyards	6,720	77	10	13	2	1	45	90	
2	Heidorn Ranch Road	Nearest Backyards	7,030	77	10	13	2	1	40	120	
3	Sand Creek Road	Nearest Backyards	N/A	77	10	13	2	1	45	90	
<u>Cumulative Plus Project</u>											
1	Hillcrest Avenue	Nearest Backyards	9,020	77	10	13	2	1	45	90	
2	Heidorn Ranch Road	Nearest Backyards	5,670	77	10	13	2	1	40	120	
3	Sand Creek Road	Nearest Backyards	26,740	77	10	13	2	1	45	90	

Appendix D
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: Vineyards at Sand Creek
 Description: Existing, Near-Term, and Cumulative - Plus Project Conditions
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Location	Autos	Medium Trucks	Heavy Trucks	Total
1	Hillcrest Avenue	Nearest Backyards	56	47	49	57
2	Heidorn Ranch Road	Nearest Backyards	58	50	52	60
3	Sand Creek Road	Nearest Backyards	#VALUE!	#VALUE!	#VALUE!	#VALUE!
1	Hillcrest Avenue	Nearest Backyards	60	52	53	61
2	Heidorn Ranch Road	Nearest Backyards	57	49	51	59
3	Sand Creek Road	Nearest Backyards	#VALUE!	#VALUE!	#VALUE!	#VALUE!
1	Hillcrest Avenue	Nearest Backyards	61	53	55	63
2	Heidorn Ranch Road	Nearest Backyards	56	48	50	58
3	Sand Creek Road	Nearest Backyards	66	58	59	67

Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Near Term Plus Project
 Roadway Name: Hillcrest Avenue
 Location(s): 1

Noise Level Data: Year: Near Term Plus Project
 Auto L_{dn}, dB: 60
 Medium Truck L_{dn}, dB: 52
 Heavy Truck L_{dn}, dB: 53

Site Geometry: Receiver Description: Nearest Backyards
 Centerline to Barrier Distance (C₁): 75
 Barrier to Receiver Distance (C₂): 15
 Automobile Elevation: 173.5
 Medium Truck Elevation: 175.5
 Heavy Truck Elevation: 181.5
 Pad/Ground Elevation at Receiver: 170.8
 Receiver Elevation¹: 175.8
 Base of Barrier Elevation: 173.5
 Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
179.5	6	51	43	46	53	Yes	Yes	Yes
180.5	7	50	42	45	52	Yes	Yes	Yes
181.5	8	49	41	44	51	Yes	Yes	Yes
182.5	9	48	40	43	50	Yes	Yes	Yes
183.5	10	47	39	42	49	Yes	Yes	Yes
184.5	11	46	38	41	48	Yes	Yes	Yes
185.5	12	46	38	40	47	Yes	Yes	Yes
186.5	13	45	37	39	47	Yes	Yes	Yes
187.5	14	45	37	39	46	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Cumulative Plus Project
 Roadway Name: Hillcrest Avenue
 Location(s): 1

Noise Level Data:

Year: Cumulative Plus Project

Auto L_{dn}, dB: 61

Medium Truck L_{dn}, dB: 53

Heavy Truck L_{dn}, dB: 55

Site Geometry:

Receiver Description: Nearest Backyards

Centerline to Barrier Distance (C₁): 75

Barrier to Receiver Distance (C₂): 15

Automobile Elevation: 173.5

Medium Truck Elevation: 175.5

Heavy Truck Elevation: 181.5

Pad/Ground Elevation at Receiver: 170.8

Receiver Elevation¹: 175.8

Base of Barrier Elevation: 173.5

Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
179.5	6	52	44	47	54	Yes	Yes	Yes
180.5	7	51	43	46	53	Yes	Yes	Yes
181.5	8	50	42	45	52	Yes	Yes	Yes
182.5	9	49	41	44	51	Yes	Yes	Yes
183.5	10	48	41	43	50	Yes	Yes	Yes
184.5	11	48	40	42	49	Yes	Yes	Yes
185.5	12	47	39	41	49	Yes	Yes	Yes
186.5	13	47	39	41	48	Yes	Yes	Yes
187.5	14	46	39	40	48	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Cumulative Plus Project
 Roadway Name: Sand Creek Road
 Location(s): Lots 360-364

Noise Level Data: Year: Cumulative Plus Project
 Auto L_{dn}, dB: 66
 Medium Truck L_{dn}, dB: 58
 Heavy Truck L_{dn}, dB: 59

Site Geometry: Receiver Description:
 Centerline to Barrier Distance (C₁): 75
 Barrier to Receiver Distance (C₂): 15
 Automobile Elevation: 170
 Medium Truck Elevation: 172
 Heavy Truck Elevation: 178
 Pad/Ground Elevation at Receiver: 170
 Receiver Elevation¹: 175
 Base of Barrier Elevation: 170
 Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
176	6	60	52	54	61	Yes	Yes	Yes
177	7	59	51	54	60	Yes	Yes	Yes
178	8	57	50	52	59	Yes	Yes	Yes
179	9	56	48	51	58	Yes	Yes	Yes
180	10	55	47	50	57	Yes	Yes	Yes
181	11	54	46	49	56	Yes	Yes	Yes
182	12	53	45	48	55	Yes	Yes	Yes
183	13	53	45	47	54	Yes	Yes	Yes
184	14	52	44	46	54	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Cumulative Plus Project
 Roadway Name: Sand Creek Road
 Location(s): Lots 365-368

Noise Level Data: Year: Cumulative Plus Project
 Auto L_{dn}, dB: 66
 Medium Truck L_{dn}, dB: 58
 Heavy Truck L_{dn}, dB: 59

Site Geometry: Receiver Description:
 Centerline to Barrier Distance (C₁): 75
 Barrier to Receiver Distance (C₂): 15
 Automobile Elevation: 169
 Medium Truck Elevation: 171
 Heavy Truck Elevation: 177
 Pad/Ground Elevation at Receiver: 168.4
 Receiver Elevation¹: 173.4
 Base of Barrier Elevation: 168.4
 Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
174.4	6	60	52	54	62	Yes	Yes	Yes
175.4	7	59	51	54	60	Yes	Yes	Yes
176.4	8	57	50	52	59	Yes	Yes	Yes
177.4	9	56	48	51	58	Yes	Yes	Yes
178.4	10	55	47	50	57	Yes	Yes	Yes
179.4	11	54	47	49	56	Yes	Yes	Yes
180.4	12	53	46	48	55	Yes	Yes	Yes
181.4	13	53	45	47	54	Yes	Yes	Yes
182.4	14	52	44	46	54	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Cumulative Plus Project
 Roadway Name: Sand Creek Road
 Location(s): Lots 369-375

Noise Level Data: Year: Cumulative Plus Project

Auto L_{dn}, dB: 66
 Medium Truck L_{dn}, dB: 58
 Heavy Truck L_{dn}, dB: 59

Site Geometry:

Receiver Description:
 Centerline to Barrier Distance (C₁): 75
 Barrier to Receiver Distance (C₂): 15
 Automobile Elevation: 166
 Medium Truck Elevation: 168
 Heavy Truck Elevation: 174
 Pad/Ground Elevation at Receiver: 165.4
 Receiver Elevation¹: 170.4
 Base of Barrier Elevation: 165.4
 Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
171.4	6	60	52	54	62	Yes	Yes	Yes
172.4	7	59	51	54	60	Yes	Yes	Yes
173.4	8	57	50	52	59	Yes	Yes	Yes
174.4	9	56	48	51	58	Yes	Yes	Yes
175.4	10	55	47	50	57	Yes	Yes	Yes
176.4	11	54	47	49	56	Yes	Yes	Yes
177.4	12	53	46	48	55	Yes	Yes	Yes
178.4	13	53	45	47	54	Yes	Yes	Yes
179.4	14	52	44	46	54	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Cumulative Plus Project
 Roadway Name: Sand Creek Road
 Location(s): Lots 376-377

Noise Level Data: Year: Cumulative Plus Project
 Auto L_{dn}, dB: 66
 Medium Truck L_{dn}, dB: 58
 Heavy Truck L_{dn}, dB: 59

Site Geometry: Receiver Description:
 Centerline to Barrier Distance (C₁): 75
 Barrier to Receiver Distance (C₂): 15
 Automobile Elevation: 165
 Medium Truck Elevation: 167
 Heavy Truck Elevation: 173
 Pad/Ground Elevation at Receiver: 164.5
 Receiver Elevation¹: 169.5
 Base of Barrier Elevation: 164.5
 Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
170.5	6	60	52	54	62	Yes	Yes	Yes
171.5	7	59	51	54	60	Yes	Yes	Yes
172.5	8	57	50	52	59	Yes	Yes	Yes
173.5	9	56	48	51	58	Yes	Yes	Yes
174.5	10	55	47	50	57	Yes	Yes	Yes
175.5	11	54	47	49	56	Yes	Yes	Yes
176.5	12	53	46	48	55	Yes	Yes	Yes
177.5	13	53	45	47	54	Yes	Yes	Yes
178.5	14	52	44	46	54	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Cumulative Plus Project
 Roadway Name: Sand Creek Road
 Location(s): Lots 378-385

Noise Level Data: Year: Cumulative Plus Project
 Auto L_{dn}, dB: 66
 Medium Truck L_{dn}, dB: 58
 Heavy Truck L_{dn}, dB: 59

Site Geometry: Receiver Description:
 Centerline to Barrier Distance (C₁): 75
 Barrier to Receiver Distance (C₂): 15
 Automobile Elevation: 163
 Medium Truck Elevation: 165
 Heavy Truck Elevation: 171
 Pad/Ground Elevation at Receiver: 162.5
 Receiver Elevation¹: 167.5
 Base of Barrier Elevation: 162.5
 Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
168.5	6	60	52	54	62	Yes	Yes	Yes
169.5	7	59	51	54	60	Yes	Yes	Yes
170.5	8	57	50	52	59	Yes	Yes	Yes
171.5	9	56	48	51	58	Yes	Yes	Yes
172.5	10	55	47	50	57	Yes	Yes	Yes
173.5	11	54	47	49	56	Yes	Yes	Yes
174.5	12	53	46	48	55	Yes	Yes	Yes
175.5	13	53	45	47	54	Yes	Yes	Yes
176.5	14	52	44	46	54	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



Appendix D

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)

Noise Barrier Effectiveness Prediction Worksheet

Job Number: Vineyards at Sand Creek
 Description Cumulative Plus Project
 Roadway Name: Sand Creek Road
 Location(s): Lots 386-392

Noise Level Data: Year: Cumulative Plus Project
 Auto L_{dn}, dB: 66
 Medium Truck L_{dn}, dB: 58
 Heavy Truck L_{dn}, dB: 59

Site Geometry: Receiver Description:
 Centerline to Barrier Distance (C₁): 75
 Barrier to Receiver Distance (C₂): 15
 Automobile Elevation: 159.7
 Medium Truck Elevation: 161.7
 Heavy Truck Elevation: 167.7
 Pad/Ground Elevation at Receiver: 159
 Receiver Elevation¹: 164
 Base of Barrier Elevation: 159
 Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height ² (ft)	----- L _{dn} , dB -----				Barrier Breaks Line of Sight to...		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
165	6	60	52	54	62	Yes	Yes	Yes
166	7	59	51	54	60	Yes	Yes	Yes
167	8	57	50	53	59	Yes	Yes	Yes
168	9	56	48	51	58	Yes	Yes	Yes
169	10	55	47	50	57	Yes	Yes	Yes
170	11	54	47	49	56	Yes	Yes	Yes
171	12	53	46	48	55	Yes	Yes	Yes
172	13	53	45	47	54	Yes	Yes	Yes
173	14	52	44	46	54	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)



APPENDIX O



Prepared by

FEHR & PEERS

Prepared for:
City of Antioch



March 2015

The Vineyards at Sand Creek

Vineyards at Sand Creek Residential Transportation Impact Assessment

**Prepared for:
City of Antioch**

March 2015

WC14-3151

FEHR  PEERS

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1.0 INTRODUCTION

This report presents the analysis and findings of the Transportation Impact Assessment (TIA) for the Vineyards at Sand Creek residential development (Project) located in the City of Antioch, Contra Costa County. This chapter discusses the TIA purpose, study locations and analysis scenarios, analysis methods, criteria used to identify significant impacts, and report organization.

1.1 STUDY PURPOSE

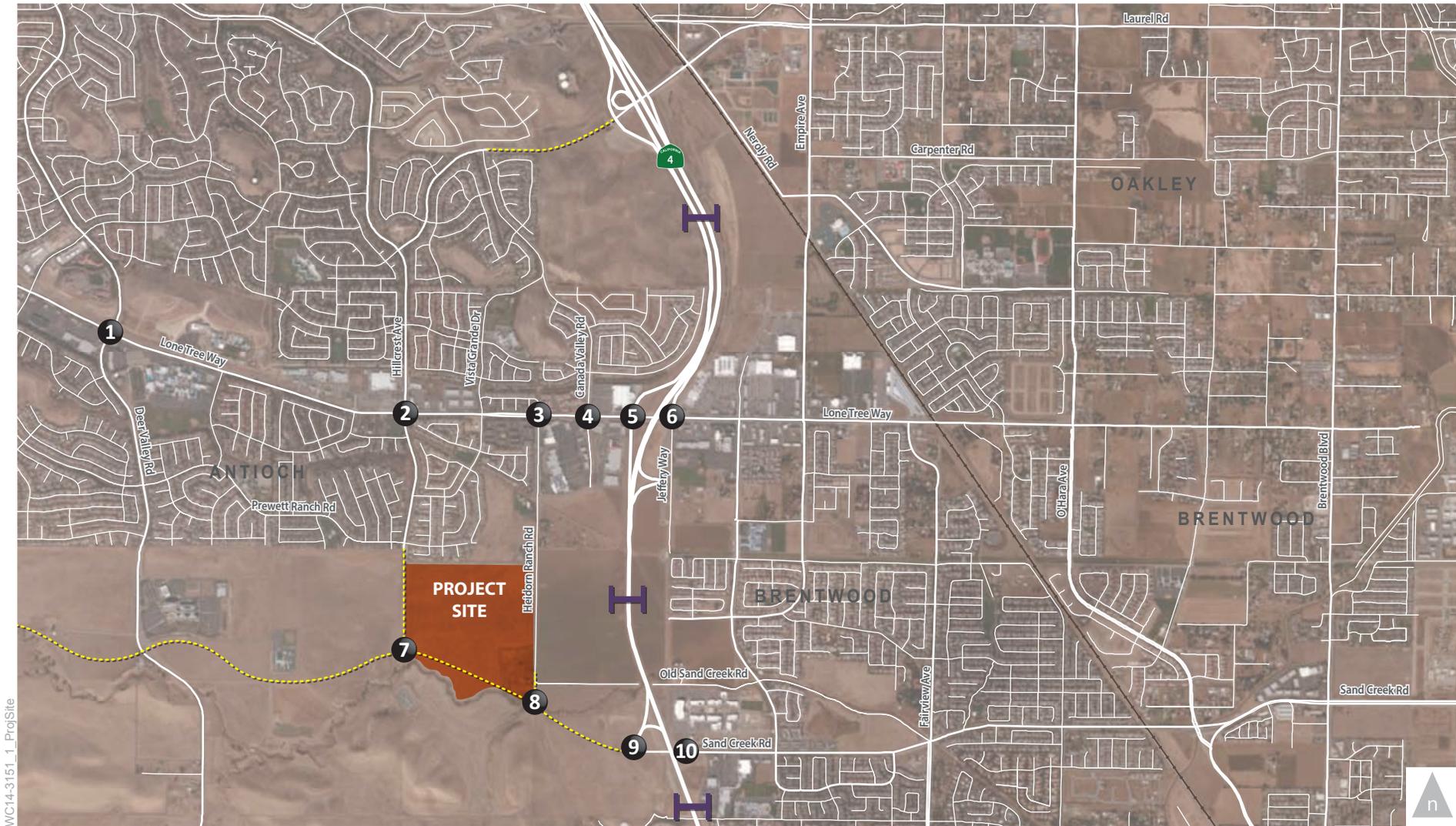
The study's purpose is to evaluate the transportation impacts of the Vineyards at Sand Creek residential development, a 650 single-family home development on approximately 140-acres in the southeastern portion of the City of Antioch, near the City of Brentwood, as shown on **Figure 1**. A conceptual project site plan is shown on **Figure 2**.

1.2 STUDY LOCATIONS AND ANALYSIS SCENARIOS

Project impacts on study area roadway facilities were determined by measuring the effect Project traffic would have on intersections in the vicinity of the site during the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods. The following intersections were selected based on a review of the Project location, estimates of the added traffic from the Project, and locations of planned roadways in the area:

1. Lone Tree Way at Deer Valley Road
2. Lone Tree Way at Hillcrest Avenue
3. Lone Tree Way at Heidorn Ranch Road
4. Lone Tree Way at Canada Valley Road
5. Lone Tree Way at State Route (SR) 4 Eastbound Ramps
6. Lone Tree Way at State Route (SR) 4 Westbound Ramps
7. Sand Creek Road at Hillcrest Avenue (future intersection)
8. Sand Creek Road at Heidorn Ranch Road (future intersection)
9. Sand Creek Road at State Route (SR) 4 Eastbound Ramps
10. Sand Creek Road at State Route (SR) 4 Westbound Ramps





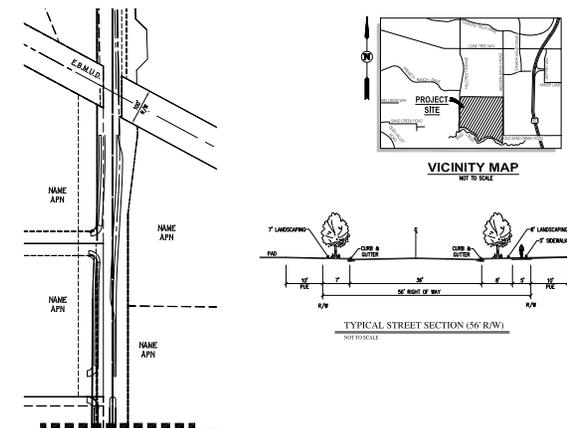
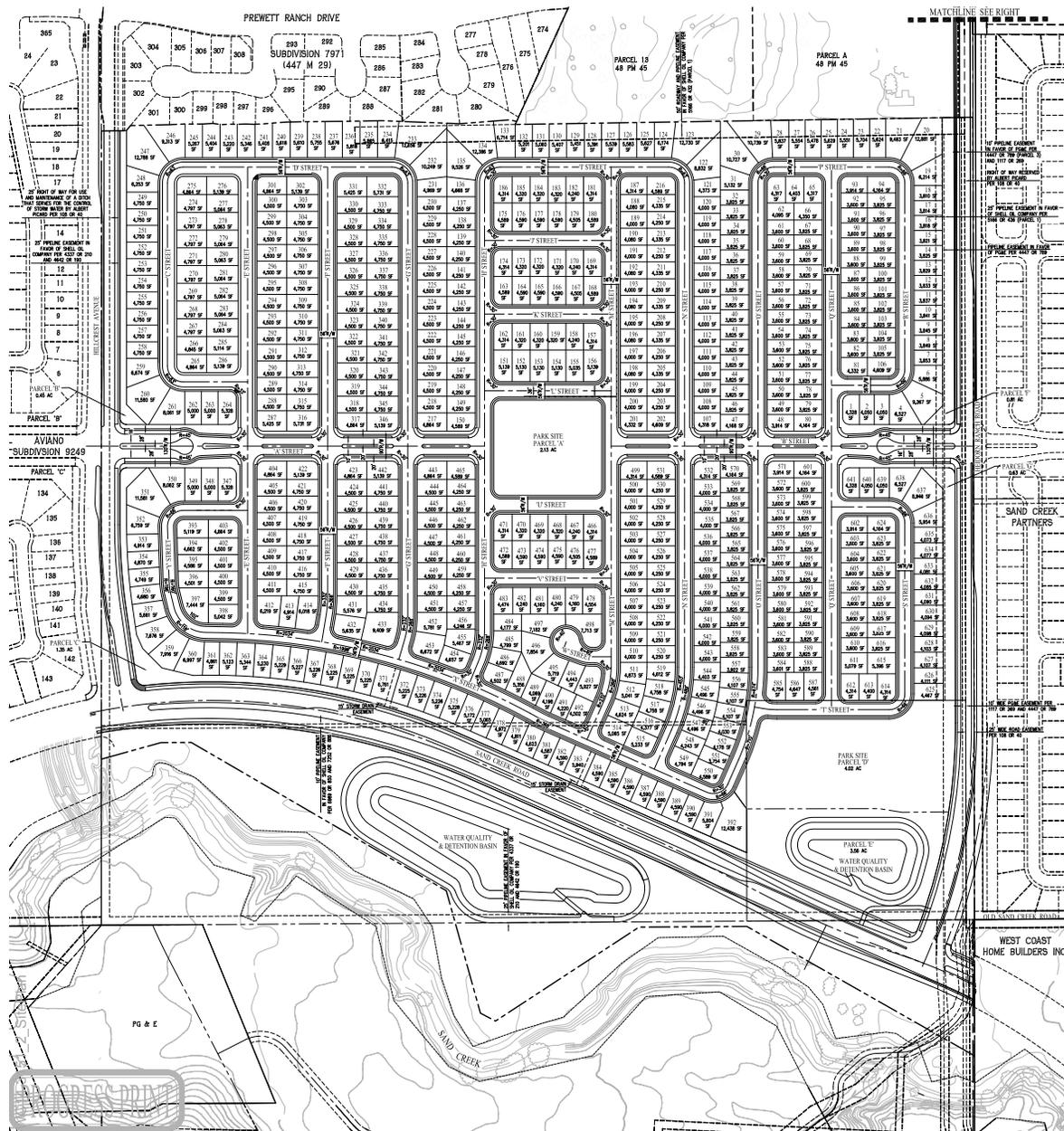
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LEGEND

- # Proposed Study Intersection
- H Proposed Study Freeway Segment
- - - - Proposed Roadway Extension



Figure 1
Project Site and Proposed Study Locations



Source: Carlson, Barbee & Gibson, Inc. 



Figure 2

Conceptual Project Site Plan

The following freeway segments were also evaluated:

1. State Route 4, north of Lone Tree Way
2. State Route 4, between Lone Tree Way and Sand Creek Road
3. State Route 4, south of Sand Creek Road

The following scenarios were evaluated:

- **Existing** – Existing (2014) conditions based on recent traffic counts.
- **Existing with Project** – Existing (2014) conditions with Project-related traffic.
- **Near-Term without Project** – Existing (2014) conditions with approved projects within the study area that could be constructed over the next five to ten years. Additional details are provided in Chapter 5.
- **Near-Term with Project** – Near-Term conditions with Project-related traffic.
- **Cumulative without Project** – Forecasts for the cumulative scenario based on traffic growth trends as described in both the Antioch and Brentwood General Plan EIR, and supplemented by a check of traffic forecasts for the study area in the most recent Contra Costa Transportation Authority Countywide travel demand model. The scenario reflects conditions over the next 20 to 25 years. Additional details are provided in Chapter 6.
- **Cumulative with Project** – Future forecast conditions with Project-related traffic.

1.3 ANALYSIS METHODS

The operations of roadway facilities are described with the term “level of service” (LOS). LOS is a qualitative description of traffic flow from a vehicle driver’s perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations “at capacity.” When volumes exceed capacity, stop-and-go conditions result and operations are designated LOS F.



1.3.1 SIGNALIZED INTERSECTIONS

Traffic conditions at signalized intersections were evaluated using methods developed by the Transportation Research Board (TRB), as documented in the 2010 *Highway Capacity Manual* (2010 HCM) for vehicles¹ or the 2000 *Highway Capacity Manual* (2000 HCM) for vehicles, for intersections that cannot be analyzed using the 2010 HCM method in Synchro 8.0. The HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay is summarized in **Table 1**.

TABLE 1
SIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: 2010 *Highway Capacity Manual*

¹ The Contra Costa Transportation Authority (CCTA) adopted the 2010 *Highway Capacity Manual* method in March 2013. However, the available software platform (Synchro 8.0) to evaluate intersection operations consistent with HCM 2010 method as implemented in Synchro has computational limitations depending on signal timing/phasing factors. As the HCM method for analyzing vehicle operations has not changed between the 2000 and 2010 HCM, the 2000 HCM was used to analyze intersections that could not be analyzed using HCM 2010.



1.3.2 UNSIGNALIZED INTERSECTIONS

For unsignalized (all-way stop controlled and side-street stop controlled) intersections, the 2010 HCM method for unsignalized intersections was used. With this method, operations are defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. **Table 2** summarizes the relationship between LOS and delay for unsignalized intersections. At side-street stop controlled intersections, the delay is calculated for each stop-controlled movement, the left turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side-street stop controlled intersections.

**TABLE 2
 UNSIGNALIZED INTERSECTION LOS CRITERIA**

Level of Service	Description	Delay in Seconds
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: 2010 Highway Capacity Manual

1.3.3 FREEWAY SEGMENTS

For freeway segments, the *East County Action Plan for Routes of Regional Significance*, CCTA has established the delay index as the Multimodal Transportation Service Objective (MTSO) for State Route 4 (SR 4) through the study area. The delay index is the ratio of actual travel times on a facility divided by the travel times that occur during non-congested free-flow periods. Should the delay index exceed 2.5 during either the AM or PM peak period, freeway operations would be considered deficient. This would equate to peak hour travel taking 2.5 times as long as off-peak travel or an average travel speed below 26 miles per hour assuming a non-congested free-flow speed of 65 miles per hour.



1.4 REGULATORY SETTING AND SIGNIFICANCE CRITERIA

The Project would have a significant impact on the environment if it would cause an increase in traffic which is substantial in relation to the traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, or delay and congestion at intersections), or change the condition of an existing street (e.g., street closures, changing direction of travel) in a manner that would substantially impact access or traffic load and capacity of the street system. Significance criteria are used to determine whether a Project impact is considered significant and therefore requires mitigation. The City of Antioch strives to maintain mid-LOS D operations at signalized intersections.

The following thresholds of significance were developed based on City of Antioch and East Contra Costa County Action Plan policies, as well as the CEQA Checklist criteria as shown below.

- A. Would the Project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
 1. Would the operations of a study intersection not on a route of regional significance decline from LOS mid-D (an average delay of 50 seconds for signalized intersections) or better to a high LOS D, LOS E or F, based on the HCM LOS method, with the addition of Project traffic?
 2. Would the Project deteriorate already unacceptable operations at a signalized intersection by adding traffic?
 3. Would the operations of an unsignalized study intersection decline from acceptable (as defined in Table 3) to unacceptable with the addition of Project traffic, and would the installation of a traffic signal at based on the *Manual on Uniform Traffic Control Devices* (MUTCD) Peak Hour Signal Warrant (Warrant 3), be warranted?
 4. Would construction traffic from the Project have a significant, though temporary, impact on the environment, or would Project construction substantially affect traffic flow and circulation, parking, and pedestrian safety?
- B. Would the Project conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads and highways?



1. Would the operations of a study intersection on a route of regional significance decline from LOS high-D (an average delay of 55 seconds for signalized intersections) or better to LOS E or F, based on the HCM LOS method, with the addition of Project traffic?
 2. Would the Project result in or worsen unacceptable conditions on State Route 4, based on delay index calculations?
- C. Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?
- D. Would the Project substantially increase traffic hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?
- E. Would the project result in inadequate emergency access?
- F. Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

1.5 REPORT ORGANIZATION

This report is divided into seven chapters as described below:

- **Chapter 1 – Introduction** discusses the purpose and organization of the report.
- **Chapter 2 – Existing Conditions** describes the transportation system in the Project vicinity, including the surrounding roadway network morning and evening peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.
- **Chapter 3 – Project Characteristics** presents relevant Project information, such as the Project components and Project trip generation, distribution, and assignment.
- **Chapter 4 – Existing with Project Traffic Conditions** addresses the existing conditions with the Project, and discusses Project vehicular impacts.
- **Chapter 5 – Near-Term Traffic Conditions** addresses the near-term future conditions, both without and with the Project, and discusses Project vehicular impacts.
- **Chapter 6 – Cumulative Traffic Conditions** addresses the long-term future conditions, both without and with the Project, and discusses Project vehicular impacts.
- **Chapter 7 – Site Plan Review** describes Project access and circulation for all travel modes.



2.0 EXISTING CONDITIONS

This chapter describes transportation facilities in the Project study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the Project site vicinity. Existing intersection operations are also described.

2.1 ROADWAY SYSTEM

The Project site is located west of Heidorn Ranch Road and east of the future, southern extension of Hillcrest Avenue, south of Prewett Ranch Drive, and north of the future, western extension of Sand Creek Road in the City of Antioch. Antioch is located in eastern Contra Costa County, adjacent to the cities of Oakley and Brentwood, located east and southeast, respectively. Land uses surrounding the Project site are primarily vacant or agricultural. Regional access to the site is provided by State Route 4, Lone Tree Way, and, once extended, Sand Creek Road, with Hillcrest Avenue and Heidorn Ranch Road, providing local access. The following discusses the roadways that would provide access to the site and are most likely to experience direct traffic impacts, if any, from the proposed Project.

State Route 4 (SR 4) is an east-west freeway that extends from Hercules in the west to the Stockton and beyond in the east. In the study area, SR 4 has a northwest/southeast orientation between SR 160 and Walnut Boulevard in east Contra Costa County. The facility was recently widened between Lone Tree Way and Sand Creek Road to provide a four-lane freeway and the first phase of a grade-separated interchange at Sand Creek Road was recently completed. Between Sand Creek Road and Walnut Boulevard, the facility is a two-lane highway with at-grade intersections at Balfour Road and Marsh Creek Road. Each intersection is signalized and operated by the California Department of Transportation (Caltrans). State Route 4 is a designated route of regional significance by the Contra Costa County Transportation Agency (CCTA). Routes of regional significance are roadways that connect two or more subareas of Contra Costa, cross County boundaries, carry significant through traffic, and/or provide access to a regional highway or transit facility.

Heidorn Ranch Road is a north-south oriented roadway that provides one to two travel lanes per direction. Heidorn Ranch Road becomes Fairside Way to the north of Lone Tree Way. Sidewalks and bicycle facilities are provided on portions of Heidorn Ranch Road that have been built-out. The segment adjacent to the Project is one lane in each direction without sidewalks, shoulders or bicycle facilities. From just south of Lone Tree Plaza Drive to Lone Tree Way, the roadway provides two travel lanes in each direction, plus bicycle lanes, sidewalks and a landscaped median that allows for the provision of left-turn pockets at intersections.



Lone Tree Way is an east-west roadway located north of the Project site. The roadway provides two travel lanes in both directions to the west of Hillcrest Drive, and three travel lanes in both directions east of Hillcrest Drive. The posted speed limit is 45 miles per hour (mph). No on-street parking is permitted. Lone Tree Way is a designated route of regional significance.

Hillcrest Avenue is a north-south oriented roadway that provides two travel lanes per direction in the study area. Hillcrest Avenue currently terminates at Prewett Ranch Drive in the south and Jacobsen Street in the north, past State Route 4. The posted speed limit is 45 mph in the study area. Sidewalks and bicycle facilities are provided along the full length of Hillcrest Avenue within the study area. Hillcrest Avenue, north of Lone Tree Way is a designated route of regional significance.

Sand Creek Road is a four-lane, east-west roadway that extends east from State Route 4 through Brentwood. The posted speed limit is 45 mph. No on-street parking is permitted on Sand Creek Road. Class II bicycle lanes and sidewalks are provided along most of the roadway through Brentwood. Sand Creek Road from Brentwood Boulevard to its current terminus at State Route 4 is a route of regional significance. When constructed, the future extension of Sand Creek Road will also be a designated route of regional significance.

2.2 EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian facilities in the study area include sidewalks, crosswalks, pedestrian signals and multi-use trails. Improved roadways in the study area generally provide sidewalks on both sides of the street. No sidewalks are provided along Heidorn Ranch Road along the Project frontage, but would be constructed with the Project. At the signalized intersections in the area, crosswalks and pedestrian push-button actuated signals are provided. Bicycle facilities include the following:

- **Bike paths (Class I)** – Paved trails that are separated from roadways. These trails are also shared with pedestrians.
- **Bike lanes (Class II)** – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- **Bike routes (Class III)** – Roadways designated for bicycle use by signs only; may or may not include additional pavement width for cyclists.

Portions of Heidorn Ranch Road, Hillcrest Avenue, Canada Valley Road (north of Lone Tree Way), and Deer Valley Road provide Class II bicycle facilities with separate lanes designated for bicycle travel. Lone Tree Way runs parallel with the Mokelumne Trail near the Project site. The Mokelumne Trail continues west, connecting to the Pittsburg/Bay Point BART Station, and east through Brentwood. However, it



currently does not have a connection across State Route 4. Other Class I facilities in the area include the Canada Valley Trail, Mesa Ridge Trail and Deerfield Corridor Trail. The Sand Creek Trail would be constructed along Sand Creek as development occurs in the area.

2.3 EXISTING TRANSIT SERVICE

Eastern Contra Costa Transit Authority (Tri Delta Transit) provides transit service in eastern Contra Costa County, serving the communities of Brentwood, Antioch, Oakley, Concord, Discovery Bay, Bay Point and Pittsburg. Thirteen routes operate on weekdays, with four routes operating on weekends. Four routes operate in the vicinity of the Project site, with Routes 380, 383, 385 and 392 stopping at the Hillcrest Avenue/Lone Tree Way intersection. Routes 380, 383 and 385 have stops in the vicinity of the Heidorn Ranch Road on Lone Tree Way.

Route 380 and 392 provide access to the Pittsburg BART, with Route 380 providing weekday service on 30-minute headways and Route 392 providing weekend service on 60-minute headways. Route 385 provides weekday service on hour headways between the Brentwood Park-n-Ride lot (on Walnut Boulevard at Central Boulevard) and the Antioch Park-n-Ride lot (on Sunset Drive at Hillcrest Avenue), where connections to numerous other bus routes are provided. The route 383 loop also provides weekday connections to the Antioch Park-n-Ride lot with 60-minute headways. In addition to the regular transit service to the study area, dial-a-ride door-to-door service within Eastern Contra Costa County is provided by Tri Delta Transit for disabled people of all ages and senior citizens.

2.4 EXISTING TRAFFIC COUNTS

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were collected at four of the study intersections, including separate counts of pedestrians and bicyclists, in August 2014 with area schools in normal session. For the remaining study intersections, traffic counts taken in 2013 for the Aviano Residential Traffic Impact Study were used. The 2013 and 2014 traffic counts were compared: during the morning peak hour, 2014 traffic volumes were approximately ten percent higher than 2013 volumes for intersections along Lone Tree Way, and 2014 volumes were approximately two percent higher than 2013 volumes in the evening peak hour. For intersections along Lone Tree Way where new data was not collected, the 2013 data was increased by the observed growth rate to reflect 2014 conditions. Peak hour intersection volumes are summarized on **Figure 3** along with existing lane configurations and traffic controls. The traffic counts for existing conditions are provided in **Appendix A**.



2.5 EXISTING INTERSECTION LEVELS OF SERVICE

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the levels of service for the study intersections during each peak hour. The results of the LOS analysis using the Synchro 8.0 software program for Existing conditions are presented in **Table 3**. **Appendix B** contains the corresponding LOS calculation sheets. The results of the LOS calculations indicate the study intersections operate within their level of service standard during both the morning and evening peak hours.

TABLE 3
EXISTING CONDITIONS PEAK HOUR INTERSECTION LOS SUMMARY

Intersection	Control ¹	Peak Hour	Delay ²	LOS
1. Lone Tree Way at Deer Valley Road	Signal	AM	48	D
		PM	40	D
2. Lone Tree Way at Hillcrest Avenue	Signal	AM	31	C
		PM	22	C
3. Lone Tree Way at Heidorn Ranch Road	Signal	AM	5	A
		PM	6	A
4. Lone Tree Way at Canada Valley Road	Signal	AM	30	C
		PM	39	D
5. Lone Tree Way at SR 4 EB Ramps	Signal	AM	24	C
		PM	22	C
6. Lone Tree Way at Jeffery Avenue	Signal	AM	18	B
		PM	24	C
9. Sand Creek Road at SR 4 EB Ramps	Signal	AM	20	B
		PM	18	B
10. Sand Creek Road at SR 4 WB Ramps	Signal	AM	13	B
		PM	12	B

Notes:

1. Signal = signalized intersection

2. Average intersection delay is calculated for all signalized intersections using the HCM method for vehicles.

Source: Fehr & Peers, March 2015.

Vehicle queues were also calculated by Synchro 8.0 and the queuing reports are provided in **Appendix C** along with a summary table. In the existing condition, the 95th percentile vehicle queue at intersections is generally contained within the available storage space except for the southbound left-turn movement at the Lone Tree Way at Canada Valley Road intersection during both the morning and evening peak hours.



The City has a planned improvement at this intersection that would reduce the potential for vehicle queue spillback.

2.6 EXISTING FREEWAY OPERATIONS

Mainline traffic counts were conducted on State Route 4 south of Sand Creek Road in spring 2014. Traffic volumes at the Sand Creek Road and Lone Tree Way interchanges were used to estimate traffic volumes on the mainline segments from north of Sand Creek Road to north of Lone Tree Way, as presented in **Table 4**. The traffic volumes and number of travel lanes were used to calculate vehicle speeds using the HCM 2010 method, which were then used to calculate the delay index. The results were verified through travel of the corridor during peak hours. State Route 4 north of Sand Creek Road operates at free-flow speeds during both the morning and evening peak hour. State Route 4 south of Sand Creek Road experiences congestion during peak hours with a delay index of 1.8 during the morning peak hour and 1.9 during the evening peak hour, indicating that peak travel takes approximately twice as long as off-peak travel. Although this segment experiences congestion, operations are within the service objective established by the Contra Costa County Transportation Authority (CCTA) in the East County Action Plan.

**TABLE 4
 EXISTING CONDITIONS
 FREEWAY OPERATIONS SUMMARY**

Segment	Direction	Peak Hour	Volume	Delay Index
South of Sand Creek Road	Northbound/ Westbound	AM	1,325	1.8
		PM	1,638	1.9
Between Sand Creek Road and Lone Tree Way	Northbound/ Westbound	AM	1,773	1.0
		PM	2,034	1.0
North Lone Tree Way	Northbound/ Westbound	AM	1,858	1.0
		PM	1,934	1.0
North Lone Tree Way	Southbound/ Eastbound	AM	2,026	1.0
		PM	2,448	1.0
Between Sand Creek Road and Lone Tree Way	Southbound/ Eastbound	AM	1,791	1.0
		PM	2,284	1.0
South of Sand Creek Road	Southbound/ Eastbound	AM	1,475	1.8
		PM	1,507	1.9

Source: Fehr & Peers, March 2015.



3.0 PROJECT CHARACTERISTICS

This chapter provides an overview of the proposed Project components and addresses the proposed Project trip generation, distribution, and assignment characteristics, allowing for an evaluation of Project impacts on the surrounding roadway network. The amount of traffic associated with the Project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the Project site was estimated.
2. **Trip Distribution** – The *direction* trips would use to approach and depart the site was projected.
3. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements.

3.1 PROJECT DESCRIPTION

The Project site is located west of Heidorn Ranch Road and east of the future, southern extension of Hillcrest Avenue, south of Prewett Ranch Drive, and north of the future, western extension of Sand Creek Road. The Project would construct 650 single-family homes. In the near-term, access would be provided from Heidorn Ranch Road and an extension of Hillcrest Avenue. In the cumulative condition Sand Creek Road would form the southern boundary of the site although no vehicle access is proposed from Sand Creek Road. The construction of the Sand Creek Road extension would provide additional roadway connections to the surrounding roadway system including State Route 4.

3.2 PROJECT TRIP GENERATION

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created on a daily basis and for the peak one-hour period during the morning and evening commute periods when traffic volumes on the adjacent streets are highest. The Project trip generation was estimated using rates and equations from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (9th Edition). Trips were calculated by applying the applicable rate to the size of the proposed use, as presented in **Table 5**. The proposed Project is expected to generate approximately 6,200 vehicle trips on a daily basis, with approximately 490 trips during the morning peak hour and 650 trips during the evening peak hour.



**TABLE 5
 PROJECT TRIP GENERATION ESTIMATES**

Project	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Proposed Project – 650 Single Family Units ¹	6,190	122	366	488	410	240	650

Notes:

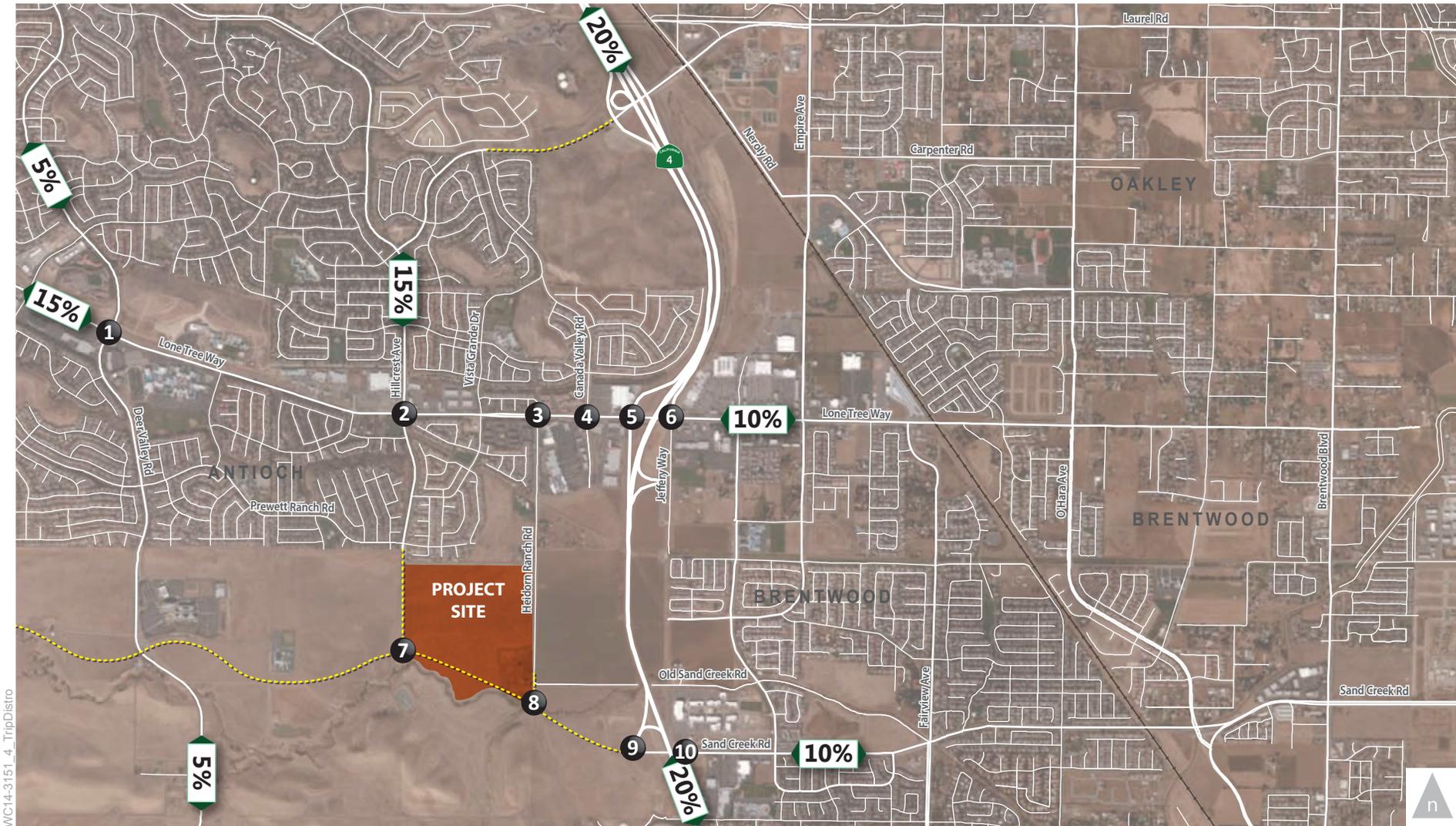
1. Trip generation based on ITE *Trip Generation* Manual (9th Edition) rate for single family homes (Land Use Code 220):
 Daily: $T = 9.52(X)$
 AM: $T = 0.75(X)$; 25 percent inbound/75 percent outbound
 PM: $T = 1.0(X)$; 63 percent inbound/37 percent outbound
 Where T = trips generated, X = dwelling units
2. The with project analysis presented in the following chapters reflected 641 single family homes, which would generate 6,100 daily trips, 481 morning peak hour and 641 evening peak hour trips.

The analysis presented in the following chapters is based on the trip generating potential of 641-units as that was the project description at the time the analysis was conducted. Based on consultation with City staff, the addition of 9 units would not change the overall analysis conclusions and transportation fees/fair share contributions will be based on the actual number of units constructed.

3.3 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Based on the location of the site and surrounding land uses, existing intersection and roadway operations, and the roadway network connections, Project trip distribution percentages were developed as shown on **Figure 4**. Project trips were then assigned to the roadway network based on the directions of approach and departure, as presented on **Figure 5**, reflective of the expected trip generating potential of 641 single-family homes. Project trip assignment would change as additional roadway connections are constructed in the area. **Figure 5a** depicts Project trip assignment with access from Hillcrest Avenue and Heidorn Ranch Road, and **Figure 5b** shows conditions when Sand Creek Road is extended through the area.





WC14-3151_4_TripDistro

LEGEND

- # Proposed Study Intersection
- Proposed Roadway Extension
- X% Project Trip Distribution



Figure 4

Project Trip Distribution Percentages



LEGEND

XX (YY) AM (PM) Peak Hour Traffic Volumes



Signalized Intersection



Proposed Study Intersection



Proposed Roadway Extension



Figure 5B

Cumulative Conditions Project Trip Assignment

4.0 EXISTING WITH PROJECT TRAFFIC CONDITIONS

This chapter evaluates potential off-site traffic impacts under Existing With Project conditions.

4.1 EXISTING WITH PROJECT TRAFFIC VOLUMES

The Project traffic volumes in Figure 5a were added to the existing traffic volumes from Figure 3 to estimate the Existing With Project traffic volumes, as shown on **Figure 6**. Roadway improvements would be constructed with the Project to provide access from Hillcrest Avenue and Heidorn Ranch Road. No roadway improvements were assumed at the study intersections in the assessment of Existing With Project conditions.

4.2 ANALYSIS OF EXISTING WITH PROJECT CONDITIONS

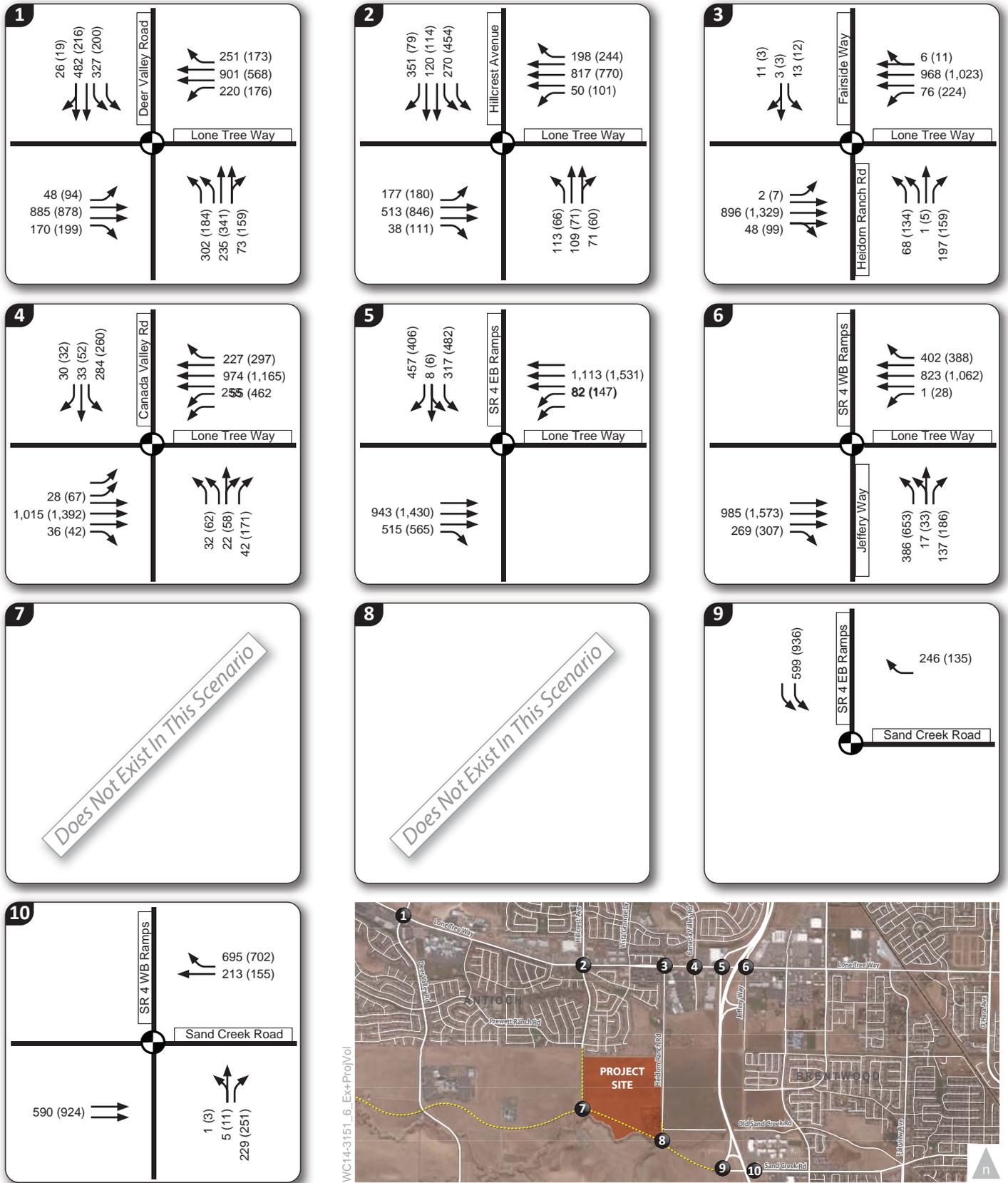
4.2.1 INTERSECTION OPERATIONS

Existing With Project intersection operations were evaluated using the same methods described in Chapter 1. The Existing With Project analysis results are presented in **Table 6**, based on the traffic volumes presented on Figure 6. Table 6 also includes the operations results for Existing conditions. The addition of Project traffic would slightly increase average delay at the study intersections, but would not cause overall intersection operations to degrade beyond the established level of service standard. Operations of the Project driveways are discussed in Chapter 7. Vehicle queues are expected to increase slightly with the addition of project traffic, but would be generally contained within the available storage space. During the morning peak hour, northbound left-turn vehicle queues at the Lone Tree Way/Hillcrest Avenue intersection could periodically extend the entire length of the turn pocket. Adjusting traffic signal timings in response to changing travel patterns in the area with the development of this and other projects would reduce the potential for vehicle queue spillback from turn pockets.

4.2.2 FREEWAY OPERATIONS

Existing With Project freeway operations were evaluated using the same methods described in Chapter 1. The Existing With Project analysis results are presented in **Table 7**, based on the existing traffic volumes, plus estimates of Project traffic. Although the project would increase traffic on State Route 4, it would not result in operations to degrade beyond the established standard.





LEGEND

- XX (YY) AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Proposed Study Intersection
- Proposed Roadway Extension

Figure 6

Existing Plus Project Conditions Peak Hour Intersection Volumes, Lane Configurations and Traffic Control



**TABLE 6
 EXISTING WITH PROJECT CONDITIONS
 PEAK HOUR INTERSECTION LOS SUMMARY**

Intersection	Control ¹	Peak Hour	Existing		Existing With Project	
			Delay ²	LOS	Delay ²	LOS
1. Lone Tree Way at Deer Valley Road	Signal	AM	48	D	49	D
		PM	40	D	42	D
2. Lone Tree Way at Hillcrest Avenue	Signal	AM	31	C	38	D
		PM	22	C	25	C
3. Lone Tree Way at Heidorn Ranch Road ³	Signal	AM	5	A	11	B
		PM	6	A	14	B
4. Lone Tree Way at Canada Valley Road	Signal	AM	30	C	31	C
		PM	39	D	35	C
5. Lone Tree Way at SR 4 EB Ramps	Signal	AM	24	C	26	C
		PM	22	C	27	C
6. Lone Tree Way at SR 4 WB Ramp/Jeffery Avenue	Signal	AM	18	B	19	B
		PM	24	C	27	C
9. Sand Creek Road at SR 4 EB Ramps	Signal	AM	20	B	20	B
		PM	18	B	18	B
10. Sand Creek Road at SR 4 WB Ramps	Signal	AM	13	B	13	B
		PM	12	B	12	B

Notes:

1. Signal = signalized intersection
2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
3. Signal timing was assumed to be retimed to better accommodate increased traffic flows to/from Heidorn Ranch Road in the With Project condition.

Source: Fehr & Peers, March 2015



**TABLE 7
 EXISTING WITH PROJECT CONDITIONS
 FREEWAY OPERATIONS SUMMARY**

Segment	Direction	Peak Hour	Existing		With Project	
			Volume	Delay Index	Volume	Delay Index
South of Sand Creek Road	Northbound/ Westbound	AM	1,325	1.8	1,356	1.8
		PM	1,638	1.9	1,741	2.0
Between Sand Creek Road and Lone Tree Way	Northbound/ Westbound	AM	1,773	1.0	1,816	1.0
		PM	2,034	1.0	2,178	1.0
North Lone Tree Way	Northbound/ Westbound	AM	1,858	1.0	1,931	1.0
		PM	1,934	1.0	1,982	1.0
North Lone Tree Way	Southbound/ Eastbound	AM	2,026	1.0	2,050	1.0
		PM	2,448	1.0	2,530	1.0
Between Sand Creek Road and Lone Tree Way	Southbound/ Eastbound	AM	1,791	1.0	1,919	1.0
		PM	2,284	1.0	2,368	1.0
South of Sand Creek Road	Southbound/ Eastbound	AM	1,475	1.8	1,567	1.8
		PM	1,507	1.9	1,567	2.0

Source: Fehr & Peers, March 2015.

4.2.3 CONSTRUCTION ASSESSMENT

The assessment of construction activity considers construction vehicles (including vehicles removing or delivering fill material, bulldozers, and other heavy machinery, as well as building materials delivery) and construction worker activity.

Given the topography of the site, limited import or export of fill is expected. Truck traffic would follow designated truck routes. Project construction would likely stage any large vehicles (i.e., earth-moving equipment, cranes, etc.) on the site prior to beginning site work and remove these vehicles at Project completion. As such, a daily influx of construction equipment is unlikely.

Detailed information relating to the construction schedule during site development or a construction management plan is not available. Based on information from other residential developments, approximately five workers per day are needed for each home under construction, with one to two deliveries per week of materials for each home. Not all homes are expected to be under construction at the same time and construction workers tend to arrive/depart work sites outside typical commute periods. Assuming ten percent of homes under construction at the peak of Project construction, there could be



326 workers on site at one time (65 homes with five workers for each home), plus additional people such as building inspectors, foreman, and others. Maximum site activity could result in 600 to 700 daily trips to/from the site, which is less than would be generated by the Project at completion.

4.3 EXISTING CONDITIONS IMPACTS AND MITIGATION

Off-site intersection and roadway segment impacts of the proposed Project were found to be less-than-significant in the Existing with Project condition based on the significance criteria. However, there could be temporary, although significant impacts during the construction phase of the Project.

Impact Statement 1: Construction related activities could create potential conflicts with other roadway users, such as construction related activities resulting in lane closures along the project frontage, construction vehicles queuing within the public right-of-way waiting entry to the site, construction worker parking in non-designated parking areas, or construction debris on public streets. Construction impacts would be temporary in nature; however, this impact is considered **potentially significant**.

Mitigation Measure 1: Although construction impacts would be temporary, development of a construction management plan would reduce the potential for construction vehicle conflicts with other roadway users. The plan should include:

- Project staging plan to maximize on-site storage of materials and equipment
- A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak hours; lane closure proceedings; signs, cones, and other warning devices for drivers; and designation of construction access routes
- Permitted construction hours
- Location of construction staging
- Identification of parking areas for construction employees, site visitors, and inspectors, including on-site locations
- Provisions for street sweeping to remove construction related debris on public streets

Implementation of the construction management plan would reduce the temporary construction impact to a **less-than-significant** level.



5.0 NEAR-TERM TRAFFIC CONDITIONS

The near-term scenario reflects existing traffic counts plus traffic from approved and pending developments that are expected to be completed and occupied upon project completion. Near-term conditions without and with the project are evaluated. It also includes transportation projects programmed for implementation around the time that the project is completed, and construction of required transportation mitigation measures for approved projects. The analysis of cumulative conditions (see Chapter 6 for details) considers development within the City of Antioch as described in the General Plan and approved General Plan Amendments, and as such, reflects potential development applications received after the project was started that are consistent with the General Plan land use and circulation assumptions.

5.1 NEAR-TERM FORECASTS

The available *City of Brentwood Project Status Report* (April 1, 2014 for commercial projects and January 1, 2014 for residential projects) and *City of Antioch Project Pipeline* (August 28, 2014) at the time the project's Notice of Preparation (NOP) was issued were reviewed to identify developments to include in this scenario. Copies of these reports are provided in **Appendix D**. A review of more recent project status reports available as of March 2015 does not indicate new approved or pending projects that would affect the near-term traffic forecasts. The developments that could generate additional traffic through the study area are summarized in **Table 8** and their locations shown on **Figure 7**.

Near-Term project vehicle trip generation was estimated using trip generation rates and equations for the proposed land uses from ITE's *Trip Generation Manual* (9th Edition). The results are provided in **Appendix E**. Traffic generated by approved and pending developments was added to the existing traffic volumes to provide the basis for the Near-Term Without Project analysis, as presented on **Figure 8**. Project traffic volumes from Figure 5a were added to the Near-Term without Project forecasts to estimate Near-Term With Project volumes at the study intersections, as presented on **Figure 9**.

5.2 NEAR-TERM ROADWAY ASSUMPTIONS

For the near-term scenario, it is assumed Hillcrest Avenue would have been extended south along the western project frontage to provide access to the Aviano development, and the proposed Project would have constructed its portion of Hillcrest Avenue along the Project frontage.



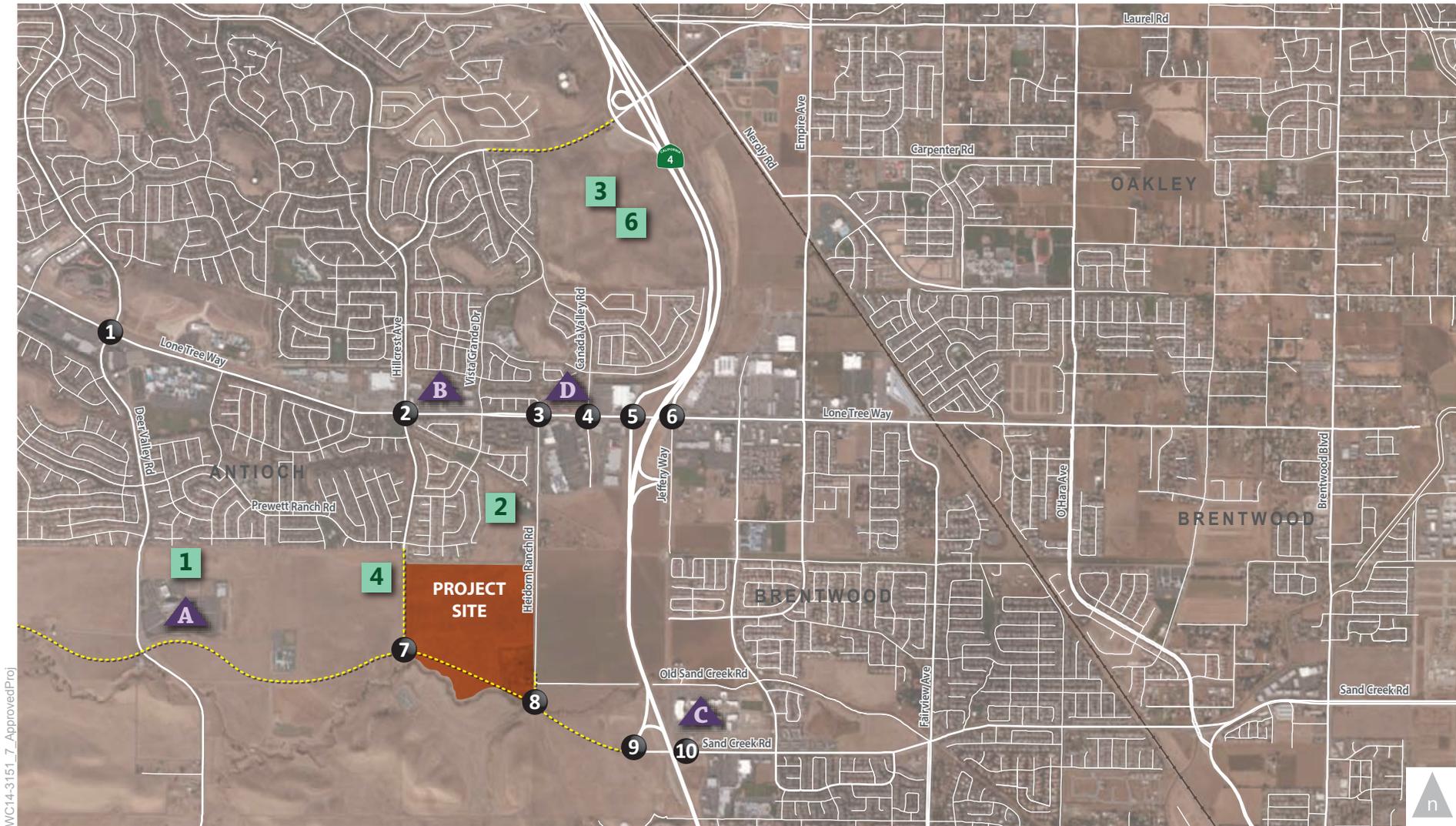
In the near-term condition, Lone Tree Way is planned to be restriped to provide three through lanes in both the eastbound and westbound directions from west of Deer Valley Road to Hillcrest Avenue; at the Lone Tree Way/Deer Valley Road intersection, the third westbound through lane would become a second westbound left-turn lane. The Lone Tree Way/Canada Valley Road intersection will also be modified to provide dual southbound left-turn lanes and through/right shared lane. Lane configurations are shown on Figures 8 and 9.

**TABLE 8
 APPROVED PROJECTS SUMMARY**

Map Location	Project Name	Size	Land Use	Status
1	Deer Valley Estates	136 dwelling units (DU)	Single Family Homes	Approved
2	Heidorn Village	117 dwelling units	Single Family Homes	Pending
3	Park Ridge	124 dwelling units	Single Family Homes	Approved
4	Aviano	553 dwelling units	Single Family Homes	Pending
5	Sand Creek Ranch	400 dwelling units 61 dwelling units	Single Family Homes Single Family Homes	Built Approved
	Brentwood Residential along Lone Tree Way Corridor	247 dwelling units	Single Family Homes	Approved/Under Construction
A	Kaiser Medical Center	653,450 square feet	Medical Center	Built
B	City Sports Club	38,000 square feet	Fitness Center	Approved
C	Streets of Brentwood	137,530 square feet	Shopping Center	Under Construction
D	AutoZone	7,930 square feet	Automobile Parts Store	Pending

Source: *City of Brentwood Project Status Report* (April 1, 2014 for commercial projects and January 1, 2014 for residential projects) and *City of Antioch Project Pipeline* (August 28, 2014)





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LEGEND



Residential Project



Commercial Project



Proposed Study Intersection

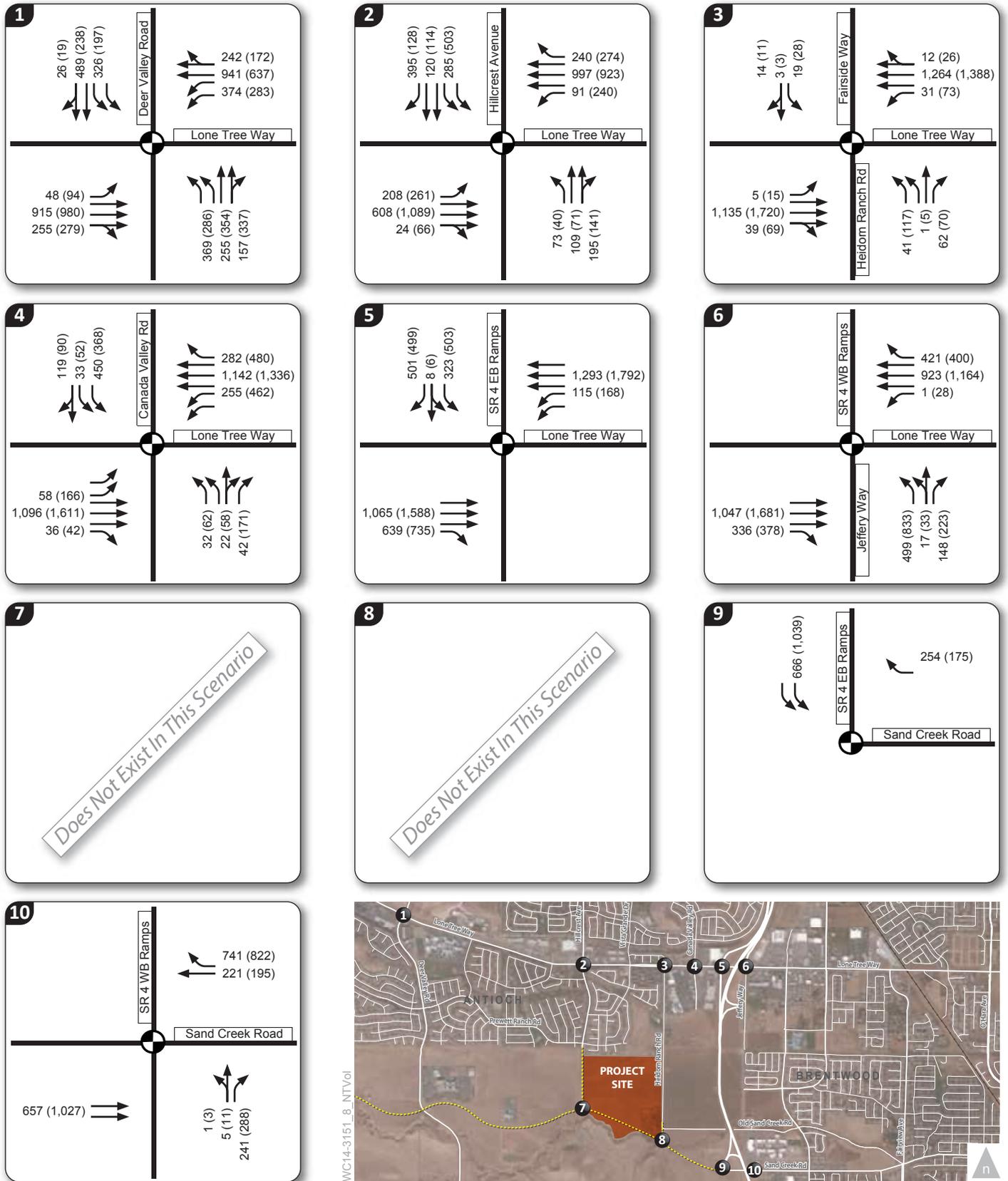


Proposed Roadway Extension



Figure 7

Approved Project Locations



LEGEND

- XX (YY) AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Proposed Study Intersection
- Proposed Roadway Extension

Figure 8

Near-Term Conditions Peak Hour Intersection Volumes, Lane Configurations and Traffic Control



5.3 ANALYSIS OF NEAR-TERM CONDITIONS

5.3.1 INTERSECTION OPERATIONS

Near-Term without and with Project conditions were evaluated using the same methods described in Chapter 1. The analysis results are presented in **Table 9**, based on the traffic volumes presented on Figures 8 and 9.

TABLE 9
NEAR-TERM CONDITIONS
PEAK HOUR INTERSECTION LOS SUMMARY

Intersection	Control ¹	Peak Hour	Near-Term without Project		Near-Term with Project	
			Delay ²	LOS	Delay ²	LOS
1. Lone Tree Way at Deer Valley Road	Signal	AM	42	D	42	D
		PM	36	D	38	D
2. Lone Tree Way at Hillcrest Avenue	Signal	AM	33	C	38	D
		PM	38	D	50	D
3. Lone Tree Way at Heidorn Ranch Road ³	Signal	AM	5	A	11	B
		PM	7	A	15	B
4. Lone Tree Way at Canada Valley Road	Signal	AM	31	C	32	C
		PM	36	D	32	C
5. Lone Tree Way at SR 4 EB Ramps	Signal	AM	37	D	39	D
		PM	34	C	40	D
6. Lone Tree Way at SR 4 WB Ramp/Jeffery Avenue	Signal	AM	28	C	30	C
		PM	33	C	36	D
9. Sand Creek Road at SR 4 EB Ramps	Signal	AM	19	B	19	B
		PM	16	B	16	B
10. Sand Creek Road at SR 4 WB Ramps	Signal	AM	16	B	16	B
		PM	18	B	19	B

Notes:

1. Signal = signalized intersection

2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.

3. Signal timing was assumed to be retimed to better accommodate increased traffic flows to/from Heidorn Ranch Road in the With Project condition.

Source: Fehr & Peers, March 2015



Intersections in the vicinity of the project site are expected to operate at acceptable service levels with construction and occupation of approved/pending projects in the study area. With the addition of Project traffic, intersections would continue to operate at acceptable service levels and no impacts were identified based on the significance criteria. Vehicle queues are expected to increase at study intersections as traffic volumes increase, which would further increase with the addition of Project traffic. Monitoring and adjusting traffic signal timings in response to actual traffic volumes to minimize the potential for vehicle queue spillback is recommended. Queuing worksheets are provided in Appendix C.

5.3.2 FREEWAY OPERATIONS

Near-term freeway operations were evaluated using the same methods described in Chapter 1 with the results presented in **Table 10**, based on the estimates of near-term traffic plus Project generated traffic. In the near-term condition, travel speeds are expected to remain free-flow north of Sand Creek Road. South of Sand Creek Road, average travel time would slightly increase, but would remain within the established standard. Although the Project would further increase traffic on State Route 4 in the near-term condition, it would not result in operations to degrade beyond the established standard.

**TABLE 10
 NEAR-TERM CONDITIONS
 FREEWAY OPERATIONS SUMMARY**

Segment	Direction	Peak Hour	Near-term Without Project		Near-term With Project	
			Volume	Delay Index	Volume	Delay Index
South of Sand Creek Road	Northbound/ Westbound	AM	1,568	2.0	1,599	2.1
		PM	1,809	2.1	1,912	2.2
Between Sand Creek Road and Lone Tree Way	Northbound/ Westbound	AM	2,099	1.0	2,142	1.0
		PM	2,247	1.0	2,391	1.0
North of Lone Tree Way	Northbound/ Westbound	AM	2,199	1.0	2,272	1.0
		PM	2,136	1.0	2,184	1.0
North of Lone Tree Way	Southbound/ Eastbound	AM	2,398	1.0	2,422	1.0
		PM	2,704	1.0	2,786	1.0
Between Sand Creek Road and Lone Tree Way	Southbound/ Eastbound	AM	2,120	1.0	2,248	1.0
		PM	2,523	1.0	2,607	1.0
South of Sand Creek Road	Southbound/ Eastbound	AM	1,746	2.0	1,838	2.1
		PM	1,665	2.1	1,725	2.2

Source: Fehr & Peers, March 2015.



6.0 CUMULATIVE TRAFFIC CONDITIONS

This chapter discusses Cumulative traffic conditions both without and with the Project. The future conditions analysis considers development within the City of Antioch as described in the General Plan, as well as development in Brentwood given the proximity of the site to the Brentwood/Antioch border.

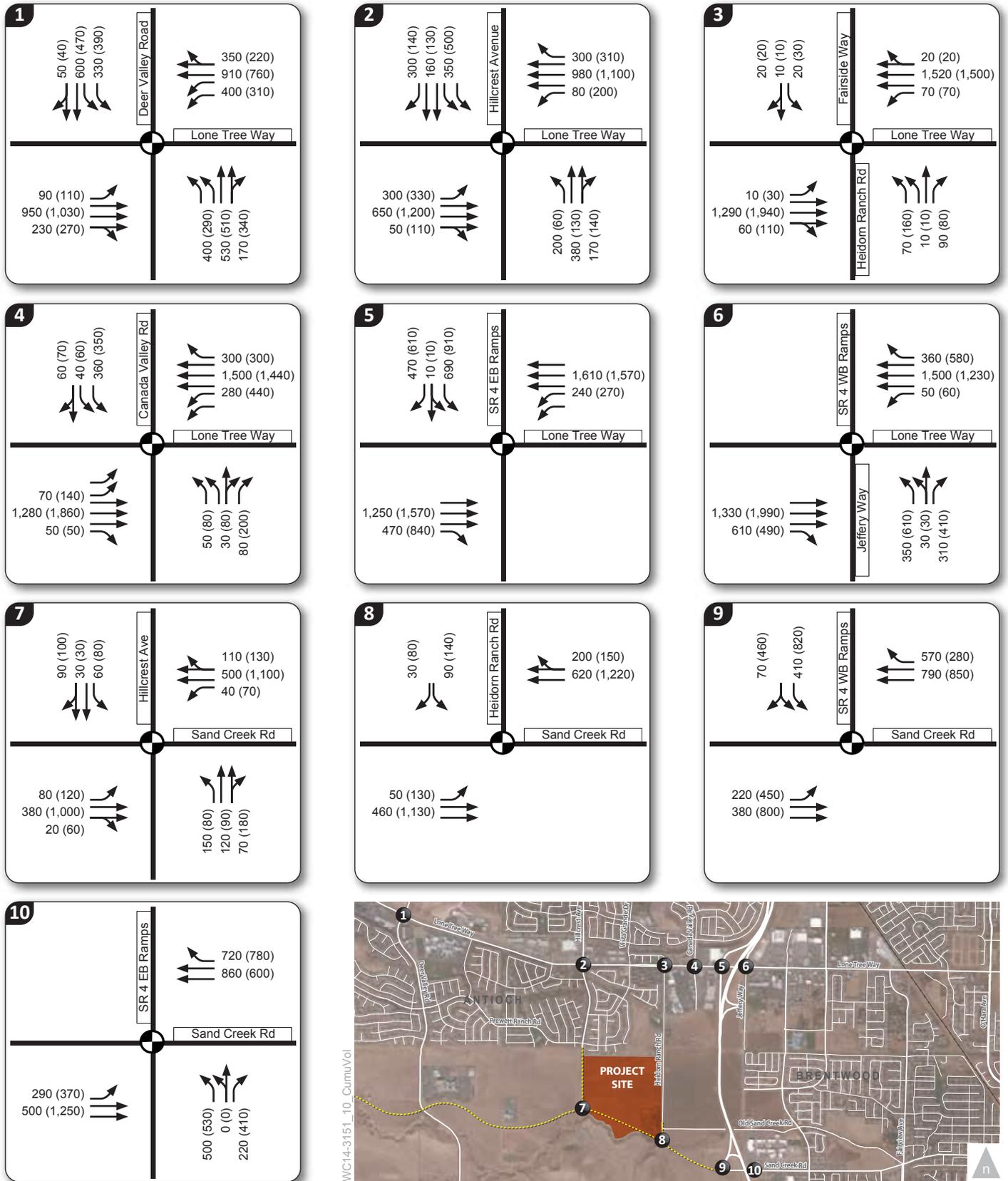
6.1 CUMULATIVE TRAFFIC FORECASTS

To assess future growth through with planned development in both the Cities of Antioch and Brentwood, several sources of data were reviewed, including the Contra Costa County Travel Demand Model (CCTA Model), future projections from the City of Brentwood General Plan Environmental Impact Report, April 2014, and projections developed as part of the Aviano transportation impact study. Traffic forecasts within the immediate study area were reviewed to ensure that known developments were adequately reflected in the forecasts, such as the Bridle Gate project located on the south side of the proposed Sand Creek extensions, west of State Route 4, the Aviano Development, and a housing development with school site on the east side of Heidorn Ranch Road, north of the Sand Creek Road extension. The potential for an eBART station in the State Route 4 median between Sand Creek Road and Lone Tree Way was also considered. Minor adjustments were made to the forecasts to balance traffic volumes between closely spaced intersections in the study area. The resulting Cumulative Without Project forecasts are presented on **Figure 10**, which are representative of conditions over the next 20 to 25 years. The Project volumes from Figure 5b were added to the Cumulative Without Project traffic volumes to represent Cumulative With Project conditions, as presented on **Figure 11**.

6.2 CUMULATIVE ROADWAY ASSUMPTIONS

For the analysis of cumulative conditions, the extension of Sand Creek Road as a four lane facility from its existing terminus at State Route 4 to Deer Valley Road was assumed. It was also assumed that regardless of the proposed Project, Hillcrest Avenue and Heidorn Ranch Road would have been extended to Sand Creek Road, both as four-lane arterial roadways, consistent with the City of Antioch General Plan (Hillcrest Avenue) and both the City of Antioch and the City of Brentwood General Plans (Heidorn Ranch Road). Improvements noted in the near-term conditions chapter are also assumed to be in place.





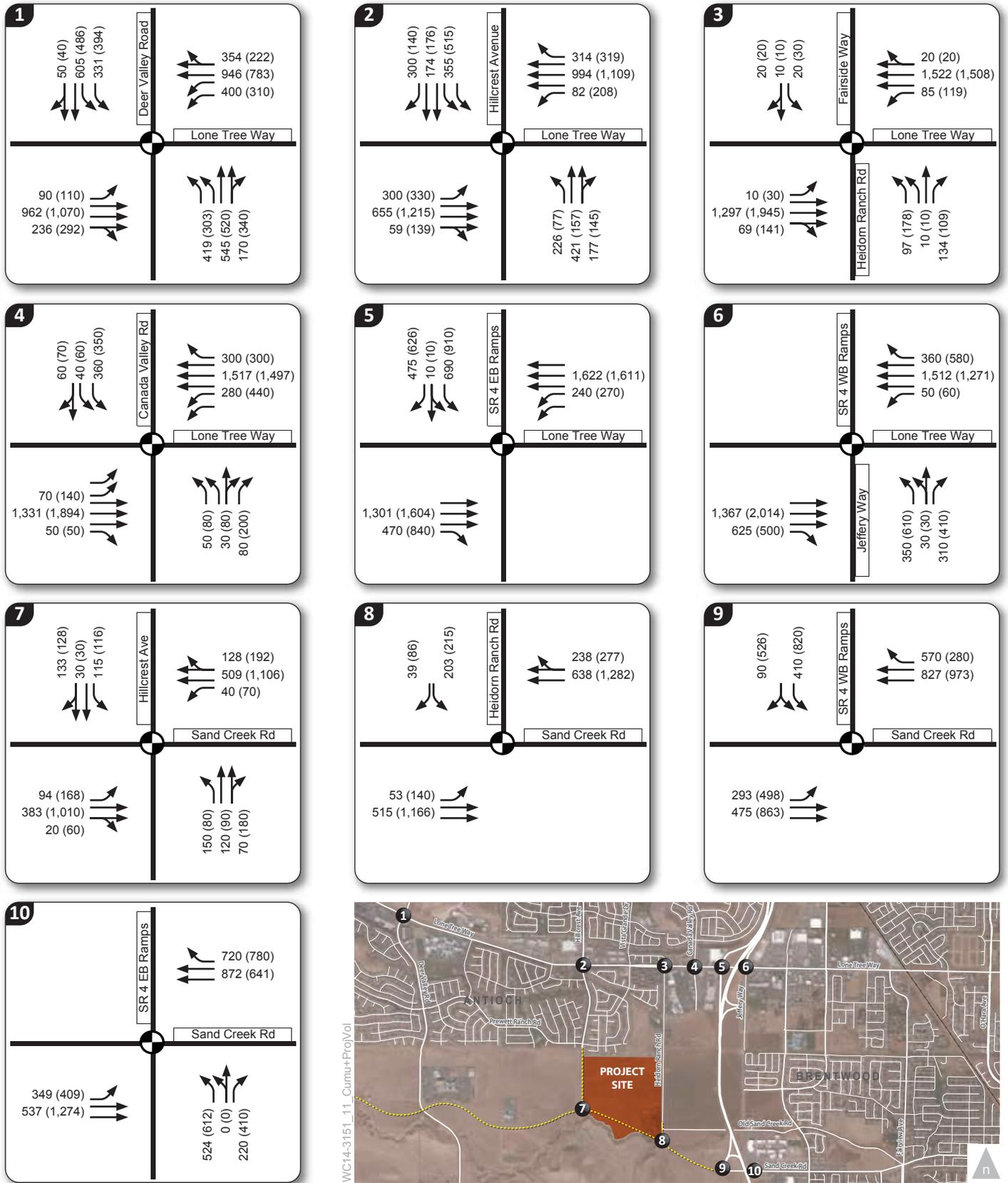
LEGEND

- XX (YY) AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Proposed Study Intersection
- Proposed Roadway Extension

Figure 10

Cumulative Conditions Peak Hour Intersection Volumes, Lane Configurations and Traffic Control





LEGEND

- XX (YY) AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Proposed Study Intersection
- Proposed Roadway Extension

Figure 11

Cumulative Plus Project Conditions Peak Hour Intersection Volumes, Lane Configurations and Traffic Control



Improvements along the State Route 4 corridor to provide two travel lanes in each direction between Balfour Road and Sand Creek Road were also assumed; construction of an interchange at the Balfour Road/State Route 4 intersection is scheduled to begin in Spring 2015 in conjunction with widening the freeway to provide two lanes in each direction between Sand Creek Road and Balfour Road. Further upgrades to the Sand Creek Road/State Route 4 interchange are planned but not fully funded; therefore additional improvements are not assumed in the analysis of cumulative conditions as the timing of those improvements is uncertain.

Vehicle traffic generated by the proposed Project would contribute to the need for local and regional roadway improvements. The Project would contribute to the construction of regional roadway improvements through the payment of regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA). The Project should also contribute their fair share to construction of local roadways that would provide access to the site, including the Sand Creek Road extension.

6.3 ANALYSIS OF CUMULATIVE CONDITIONS

6.3.1 INTERSECTION OPERATIONS

Cumulative without and with Project conditions were evaluated using the same methods described in Chapter 1. The analysis results are presented in **Table 11**, based on the traffic volumes presented on Figures 10 and 11. One intersection is projected to operate deficiently in the cumulative condition prior to the addition of Project traffic:

- Sand Creek Road/State Route 4 Southbound Ramps – LOS E PM Peak Hour

The addition of Project traffic would increase delay, resulting in a potentially significant impact at the above intersection. All other study intersections are projected to operate at acceptable service levels.

Vehicle queues are expected to increase at study intersections as traffic volumes increase, which would further increase with the addition of Project traffic. Monitoring and adjusting traffic signal timings in response to actual traffic volumes to minimize the potential for vehicle queue spillback is recommended. Queuing worksheets are provided in Appendix C.

Mitigation Measures are discussed below.



TABLE 11
CUMULATIVE CONDITIONS
PEAK HOUR INTERSECTION LOS SUMMARY

Intersection	Control ¹	Peak Hour	Cumulative Without Project		Cumulative With Project	
			Delay ²	LOS	Delay ²	LOS
1. Lone Tree Way at Deer Valley Road	Signal	AM	48	D	49	D
		PM	50	D	51	D
2. Lone Tree Way at Hillcrest Avenue	Signal	AM	41	D	44	D
		PM	40	D	43	D
3. Lone Tree Way at Heidorn Ranch Road	Signal	AM	7	A	9	A
		PM	8	A	12	B
4. Lone Tree Way at Canada Valley Road	Signal	AM	30	C	30	C
		PM	41	D	40	D
5. Lone Tree Way at SR 4 EB Ramps	Signal	AM	31	C	30	C
		PM	42	D	41	D
6. Lone Tree Way at SR 4 WB Ramp/Jeffery Avenue	Signal	AM	28	C	29	C
		PM	25	C	25	C
7. Sand Creek Road/Hillcrest Avenue	Signal	AM	21	C	22	C
		PM	19	B	25	C
8. Sand Creek Road/Heidorn Ranch Road	Signal	AM	9	A	12	B
		PM	12	B	12	B
9. Sand Creek Road at SR 4 EB Ramps	Signal	AM	36	D	38	D
		PM	77	E	93	F
10. Sand Creek Road at SR 4 WB Ramps	Signal	AM	26	C	28	C
		PM	28	C	31	C

Notes: **Bold** indicates deficient operations.

1. Signal = signalized intersection

2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.

Source: Fehr & Peers, March 2015



6.3.2 FREEWAY OPERATIONS

Cumulative freeway operations were evaluated using the same methods described in Chapter 1 with the results presented in **Table 12**, based on the estimates of cumulative traffic plus Project generated traffic. In the cumulative condition with planned improvements along the State Route 4 corridor, travel speeds are expected to be generally free-flow through the study area. Although the project would further increase traffic on State Route 4 in the cumulative condition, planned improvements would allow the freeway to operate with acceptable levels of congestion during peak hours.

**TABLE 12
 CUMULATIVE CONDITIONS
 FREEWAY OPERATIONS SUMMARY**

Segment	Direction	Peak Hour	Cumulative Without Project		Cumulative With Project	
			Volume	Delay Index	Volume	Delay Index
South of Sand Creek Road	Northbound/ Westbound	AM	1,820	1	1,851	1
		PM	1,921	1	2,024	1
Between Sand Creek Road and Lone Tree Way	Northbound/ Westbound	AM	2,435	1	2,478	1
		PM	2,385	1	2,529	1
North of Lone Tree Way	Northbound/ Westbound	AM	2,552	1	2,625	1
		PM	2,268	1	2,316	1
North of Lone Tree Way	Southbound/ Eastbound	AM	2,783	1	2,807	1
		PM	2,871	1	2,953	1
Between Sand Creek Road and Lone Tree Way	Southbound/ Eastbound	AM	2,460	1	2,588	1
		PM	2,679	1	2,763	1
South of Sand Creek Road	Southbound/ Eastbound	AM	2,026	1	2,118	1
		PM	1,767	1	1,827	1

Source: Fehr & Peers, March 2015.

6.4 MITIGATION MEASURES

One intersection is projected to operate deficiently in the cumulative condition prior to the addition of Project traffic:

- Sand Creek Road/State Route 4 Southbound Ramps – LOS E PM Peak Hour



Impact Statement 2: The Sand Creek Road/State Route 4 Southbound Ramps intersection is projected to operate at LOS E during the PM peak hour, and the addition of Project traffic would increase delay. This is considered a **significant impact** based on the significance criteria.

Mitigation Measure 2: The Project applicant shall pay regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA) that would fund construction of additional improvements at the Sand Creek Road interchange, which includes a slip-ramp for the eastbound Sand Creek to southbound State Route 4 movement, eliminating the conflicting left-turn movement at the intersection. Construction of this improvement would result in acceptable operations, as shown in **Table 13**, reducing the cumulative impact to a **less-than-significant** level. As this improvement is in a programmed fee program, payment of the fee would reduce the impact to a less-than-significant level.



TABLE 13
CUMULATIVE CONDITIONS WITH MITIGATION
PEAK HOUR INTERSECTION LOS SUMMARY

Intersection	Peak Hour	Cumulative Without Project		Cumulative With Project		Cumulative With Project With Mitigation	
		Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
Sand Creek Road at SR 4 EB Ramps	AM	36	D	38	D	19	B
	PM	77	E	93	F	23	C

Notes: **Bold** indicates deficient operations.

1. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.

Source: Fehr & Peers, March 2015



7.0 SITE PLAN REVIEW

This chapter analyzes site access and internal circulation for vehicles, pedestrians, bicycles, and emergency vehicles based on the site plan presented previously on Figure 2.

7.1 VEHICULAR SITE ACCESS AND CIRCULATION

The Project site would be a gated community with access restricted to residents and their guests. A vehicle turn-around is provided at each entry to facilitate vehicle turn around should vehicles turn to the access road and not enter the community. All internal roadways would be private; as such, the California Vehicle Code cannot be enforced on internal project streets unless requested by the Homeowners Association and posted at the project entries.

Vehicular site access would occur from roadway connections to Heidorn Ranch Road and Hillcrest Avenue. As Heidorn Ranch Road and Hillcrest Avenue are both planned to be four lane arterial roadways, the resulting project access intersections are assumed to be signalized. Operations of the access locations are presented in **Table 14** for the Cumulative condition.

**TABLE 14
 CUMULATIVE WITH PROJECT CONDITIONS
 PEAK HOUR SITE ACCESS LOS SUMMARY**

Intersection	Control ¹	Peak Hour	Cumulative With Project	
			Delay ²	LOS
1. Project Entry at Heidorn Ranch Road	Signal	AM	14	B
		PM	14	B
2. Project Entry at Hillcrest Avenue	Signal	AM	14	B
		PM	19	B

Notes:

1. Signal = signalized intersection

2. Delay is based on 2010 HCM method for vehicles.

Source: Fehr & Peers, March 2015.

Based on the projected intersection operations and traffic volumes at the project entries, it is recommended that the northbound left-turn pocket from Heidorn Ranch Road and the southbound left-turn pocket from Hillcrest Avenue be designed to provide approximately 75 to 100 feet of vehicle storage, plus the taper length.



The Project site plan includes various north-south and east-west roadways in a modified grid system. The main east-west spine connects Hillcrest Avenue to Heidorn Ranch Road. It is expected that where north-south streets intersect the main roadway, the side-streets would be stop-controlled. As future conditions dictate, all-way stop-control could be installed at some internal intersections.

Several of the north-south roadways have block lengths between 600 and 1,000 feet prior to an intersection or roadway curve. Speed humps are proposed to be installed on all streets greater than 600 feet throughout the site. City Design guidelines encourage shorter block lengths, with the City of Antioch municipal code specifying that block lengths cannot be longer than 1,000 feet. A design variance may be needed to permit block lengths greater than 600 feet.

The major east-west roadway through the site would provide a 20-foot pavement cross section in each direction along with a ten to sixteen foot median within a 90-foot right-of-way. The right-of-way is increased to 130-feet at the widest part of the project entries. A five to eleven foot landscape buffer between the street and sidewalk, a five foot sidewalk, and a ten foot landscape buffer between the sidewalk and fence line would be provided on each side of the street.

Other streets through the site would have a 56-foot right-of-way, including a 36-foot pavement cross section, facilitating two-way travel plus parking on both sides of the street in addition to a seven to eight foot landscape buffer and a five foot sidewalk on one side of the street.

7.1.1 EMERGENCY VEHICLE ACCESS

Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Number of access points (both public and emergency access only)
2. Width of access points
3. Width of internal roadways

Each of these factors is discussed in further detail below.

The Project site plan shows two vehicle access points for emergency vehicles, the entrances from Heidorn Ranch Road and Hillcrest Avenue. If one of these roadways was blocked or obstructed, emergency vehicles would have an alternative route to access the site.

The Project entry points provide a 28-foot clear way in each direction, sufficient width to accommodate emergency vehicle access.



7.2 PEDESTRIAN ACCESS AND CIRCULATION

The Project would provide five foot wide sidewalks on at least one side of all internal roadways and six foot sidewalks on the portions of Hillcrest Avenue and Heidorn Ranch Road along the project frontage. The Project site is a gated community and pedestrian access would be restricted to residents and their guests to the vehicular entries. Should future residents request increased pedestrian access to the Sand Creek Trail, it would be feasible to convert a fence near the park in the southeast portion of the site to a pedestrian gate.

Signalized intersections constructed as part of the Project should be designed to provide crosswalks, pedestrian actuation, and bicycle detection.

7.3 BICYCLE ACCESS AND CIRCULATION

Class II bicycle lanes would be constructed on Hillcrest Avenue, Heidorn Ranch Road and Sand Creek Road. A Class I facility would parallel Sand Creek Road. As noted above, bicycle detection should be incorporated into new traffic signals in the area.

7.4 TRANSIT ACCESS ADJACENT TO SITE

No transit service is provided in the area. An eBART station may be constructed within the median of State Route 4 between Lone Tree Way and Sand Creek Road, approximately ¼-mile east of the project site. TriDelta transit has requested the provision of bus turnouts on Hillcrest Avenue and Heidorn Ranch Road at the project entries. The final site plan should show transit amenities along the project frontages.

