Appendix BR-1

Biological Resources Assessment

Biological Resources Assessment

±1,367-Acre Jackson Township Specific Plan Area
Sacramento County, California

Prepared for:

Tsakopoulos Investments

Date:

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Submitted by:

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1.0 EXECUTIVE SUMMARY

The Jackson Township Specific Plan Area (JTSPA or Plan Area) is located central Sacramento County, north of Jackson Highway approximately four miles east of Sacramento City limits. The proposed JTSPA consists of ±1,367 acres of land that is currently utilized for a variety of purposes: livestock grazing, cropland, rural residential, and the Sacramento Raceway. Land uses surrounding the project site include: rangeland, cropland, rural residential and aggregate mining.

Foothill Associates has evaluated the biological resources in the JTSPA. This evaluation included review of relevant natural resource documents and also included field survey of portions of the Specific Plan Area conducted at various times between 2004 and 2013. The purpose of this document is to summarize the general biological resources on the site, to assess the suitability of the site to support special-status species and sensitive habitat types, and to provide recommendations for regulatory permitting or further analysis required prior to development activities occurring within the project site.

This report contains information and analysis for both the participating property (the ±889-acre Excelsior Estates property owned by Tsakopoulos Investments) and non-participating properties (the balance of the JTSPA). Foothill Associates had access to participating properties and therefore specific details about biological resources on that property is included in this document. For non-participating properties information and analysis relies on review of aerial photography, published studies, and visual observations at ground-level from participating properties and from public roadways.

Habitat types occurring on the site include: annual grassland, irrigated pasture and ditch, northern hardpan vernal pool, seasonal wetland, marsh, irrigation pond, and ephemeral drainages. Rural residential properties may contain some of these natural communities, but they also typically support non-native cultivated species typically planted around homes and gardens.

Known or potential biological constraints in the JTSPA include:

- Existing and potential habitat for special-status vernal pool plant and animal species, including state and federally listed species and critical habitat for those species;
- Potential habitat for other special-status aquatic plant and animal species;
- Potential foraging and nesting habitat for Swainson's hawk, a state-listed species;
- Potential foraging and nesting habitat for other special-status birds species;
- Sensitive habitats including: Morrison Creek, vernal pools, marshes, other potential waters of the U.S.; and
- Potential for protected trees.

2.0 INTRODUCTION

This report summarizes the findings of a Biological Resources Assessment (BRA) completed for the ±1,367-acre Jackson Township Specific Plan Area (JTSPA or Plan Area), located within Sacramento County, California (**Figure 1**). This document addresses the onsite physical features, the plant communities present, and the common plant and wildlife species occurring, or potentially occurring on the site. Further, the suitability of habitats to support special-status species and sensitive habitats are analyzed and recommendations for any regulatory permitting or for further analysis required prior to development activities on the project site are included.

This report analyzes natural resource information for the entire JTSPA, but on-the-ground field surveys only occurred on the participating property, in this case the ±889-acre Excelsior Estates property (**Figure 2**). No field survey was conducted on the balance of the JTSPA and review of natural resource documents, soil surveys, aerial photography, and observations made while on participating properties or from public rights-of-way form the basis for analyzing resources on non-participating properties.

2.1 Specific Plan Project Overview

The proposed Jackson Township Specific Plan Area (JTSPA) (Plan Area), approximately 1,367 acres, is located in southeastern Sacramento County, lying south of the Mather Specific Plan Area (MSPA), east of Excelsior Road, north of Jackson Highway and west of Eagles Nest Road in the Vineyard Community (**Figure 1**). The largest landowner, Excelsior Estates LLC, represented by Angelo G. Tsakopoulos, owns and/or controls approximately 889 acres (approximately 65%) within the Plan Area boundaries, referred to as Excelsior Estates. The remaining area is referred to as the "non-participating properties."

The Proposed Project includes a mix of land uses including low density, medium density, and high density residential, commercial and office development, and open space. Proposed open space includes lands along the northern and eastern portions of the site, intended to provide preservation of vernal pool grassland habitat. These preserves are contiguous with similar preserves on lands to the north and east and are consistent with the conservation strategy in the proposed South Sacramento Habitat Conservation Plan (SSHCP).

Additional open-space within the Plan Area includes two drainage corridors, intended to maintain surface drainage across the subject property. These corridors will contain meandering low-flow channels and will be planted with native trees and shrubs, forming two riparian woodland corridors within the Plan Area. The natural open space uses within the Plan Area encompass approximately 300 acres.

3.0 METHODS AND SOURCES OF INFORMATION

Available information pertaining to the natural resources of the region was reviewed. All references reviewed for this assessment are listed in the **References** section of this document. Site-specific information reviewed includes:

- California Department of Fish and Wildlife (CDFW). 2013. *Rarefind California Natural Diversity Database* (CNDDB). July 24, 2013. California Department of Fish and Wildlife, Sacramento, CA.;
- California Native Plant Society. 2013. *Inventory of Rare and Endangered Plants* (online edition, v6-04d). California Native Plant Society. Sacramento, CA;
- Natural Resource Conservation Service (NRCS). 1993. *Soil Survey of Sacramento County, California*. U.S. Department of Agriculture;
- Foothill Associates. 2004a. *Excelsior Estates ±866.3-Acre Site Wetland Delineation Report. Prepared for Tsakopoulos Real Estate Investments*;
- Foothill Associates. 2004b. *Draft Biological Resources Assessment, ±866-Acre Excelsior Estates, Sacramento County, California*;
- Foothill Associates. 2006. *Results of a Focused Survey for Sacramento Orcutt Grass (Orcuttia viscida) and Slender Orcutt grass (Orcuttia tenuis) on the Excelsior Estates ±866.3-Acre Site* (**Appendix C**);
- Foothill Associates. 2007a. *Delineation of Waters of U.S. Supplemental Report Regulatory #200400791, Excelsior Estates ±866-Acre Site Sacramento County, California*;
- Foothill Associates. 2007b. *Orcutt Grass Survey on the ±866- Acre Excelsior Estates Site, Sacramento County, California* (**Appendix C**);
- Foothill Associates. 2010. *90-Day 2009-2010 Wet-Season Survey for Listed Vernal Pool Branchiopods, Excelsior Estates, Sacramento County, California* (**Appendix E**);
- Foothill Associates. 2014. *Special-Status Plant Surveys on the ±886-Acre Excelsior Estates Site, Sacramento County, California*. August 5, 2014 (**Appendix D**);
- U.S. Fish and Wildlife Service (USFWS). 2013. *Federal Endangered and Threatened Species that may be affected by Projects in the Carmichael 7.5 minute series quadrangle Sacramento, CA*.; and
- U.S. Geological Survey. 1992. *Carmichael, California*. 7.5-minute series topographic quadrangle. United States Department of Interior, U.S. Geological Survey, Reston, Virginia.

Foothill Associates' biologists conducted site visits, a wetland delineation, and various field surveys of the Excelsior Estates site on a variety of dates between 2004 and 2013. These site visits included inspections in all seasons. Some surveys were general in nature, including site visits with resource agency and County personnel. Other surveys were targeted address specific plants or animals. Specific survey dates are listed in the enclosed reports (see **Appendices A through F**).

For non-participating properties, Foothill Associates' biologists relied on relevant natural resource studies, soil surveys, aerial photography, and ground-level observations made from participating properties and from public rights-of-way. The extent of aquatic habitat and upland communities within these areas was made through aerial photo interpretation, with aquatic habitats digitized into a Geographic Information System (GIS). "Windshield surveys" provided limited ground-truthing of aerial photo observations.

4.0 REGULATORY SETTING

4.1 Federal Laws and Policies

4.1.1 Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

FESA and Clean Water Act (CWA) Section 404 guidelines prohibit the issuance of wetland permits for projects that jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species. The U.S. Army Corps of Engineers (Corps) must consult with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) when threatened or endangered species under their jurisdiction may be affected by a proposed project. In the context of the proposed project, FESA would be initiated if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could jeopardize the continued existence of an endangered or threatened species or adversely modify critical habitat of such a species.

4.1.2 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), first enacted in 1916, prohibits any person, unless permitted by regulations, to: "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird." (16 U.S.C. 703).

The list of migratory birds includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act (MBTRA) of 2004 further defined species

protected under the act and excluded all non-native species. The statute was extended in 1974 to include parts of birds, as well as eggs and nests. Thus, it is illegal under MBTA to directly kill, or destroy a nest of, nearly any bird species, not just endangered species. Activities that result in removal or destruction of an active nest (a nest with eggs or young being attended by one or more adults) would violate the MBTA. Removal of unoccupied nests, or bird mortality resulting indirectly from disturbance activities, is not considered a violation of the MBTA.

4.1.3 Clean Water Act, Section 404

The U.S. Army Corps of Engineers (Corps) regulates discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines." [33 C.F.R. §328.2(f)]. Section 404 of the Clean Water Act requires that a permit be obtained from the Corps prior to discharging dredged or fill material into the "waters of the United States." Typical activities requiring Section 404 permits are:

- Depositing fill or dredged material in waters of the U.S. or adjacent wetlands to facilitate site development for residential, commercial, or recreational uses. Construction of revetments, groins, breakwaters, levees, dams, dikes, and weirs.
- Placement of riprap and road fills.

A new rule published on June 29, 2015 and which went into effect on August 28, 2015 clarified the extent of the Corps' jurisdiction over wetlands and other, non-navigable waters. The term "waters of the United States" includes (a) traditional navigable waters, (b) interstate waters, (c) territorial seas, (d) impoundments of jurisdictional waters, and (e) their tributaries. Tributaries must have a bed and bank and ordinary high water mark and may have ephemeral, intermittent, or perennial flow. Additionally the rule defines "adjacent waters" as jurisdictional due to their significant nexus with a jurisdictional water in class (a) through (e). Adjacent waters include any waters located in whole or part within 100 feet of a jurisdictional water in class (a) through (e); any waters located within the 100-year floodplain and within 1,500 feet of a jurisdictional water in class (a) through (e); and any waters within 1,500 feet f the ordinary high water mark of a traditionally navigable water, territorial sea, or the Great Lakes. Five classes of waters, prairie potholes, Carolina bays and Delmarva bays, pocosins, western vernal pools, and Texas coastal prairie wetlands, were determined to be jurisdictional due to their nexus with jurisdictional waters when considered in combination with similarly situated waters. Other waters not previously defined as jurisdictional that are located within the 100-year floodplain of a traditionally navigable water, interstate water, or territorial sea or are within 4,000 feet of the ordinary high water mark of a jurisdictional water in class (a) through (e) are evaluated on a case-specific basis. The rule specifically exempts the following types of features from Federal jurisdiction: waste treatment systems, including

ponds or lagoons designed to meet the requirements of the Clean Water Act, prior converted cropland, ditches with ephemeral or intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands, ditches that do not flow directly or indirectly into a jurisdictional water, artificially irrigated areas that would revert to dry land should irrigation cease, artificial constructed lakes, ponds, reflecting pools, or swimming pools constructed in uplands, water filled depressions created in uplands incidental to mining or construction activity, erosional features, puddles, and stormwater control features and wastewater recycling structures constructed in uplands [33 C.F.R. § 328.3].

The new rule was challenged in court and on October 9, 2015 the U.S. Court of Appeals for the Sixth Circuit stayed the new rule nationwide. Until a final ruling is made, the Corps will continue to operate pursuant to the Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208) and agency guidance subsequent to this decision. Under these rules, the Corps will assert jurisdiction over wetlands adjacent to traditional navigable waters, relatively permanent non-navigable tributaries (i.e., waters that have a continuous flow at least three months out of the year), and wetlands that abut relatively permanent tributaries. The Corps will determine jurisdiction over waters that are non-navigable tributaries that are not relatively permanent, and wetlands adjacent to these tributaries, by making a determination whether such waters "significantly affect the chemical, physical, and biological integrity of other jurisdictional waters more readily understood as "navigable." Finally, the Corps generally does not consider the following to be "waters of the United States": swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent or short duration flow) and ditches "wholly in and draining only uplands…which do not carry a relatively permanent flow of water."

4.1.4 Clean Water Act, Section 401

Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. This program is meant to protect waters of the United States by ensuring that waste discharged into them meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit, the definition of "waters of the United States" under Section 401 is the same as that used by the Corps under Section 404.

4.2 State of California Laws and Policies

4.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires evaluations of project effects on biological resources. Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study

checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would result in any of the following:

- 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 California Department of Fish and Wildlife or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means;
- 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; and
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, State, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. This is necessary because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

4.2.2 California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to FESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW) when preparing California Environmental Quality Act (CEQA) documents. The purpose is to ensure that the state lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse

modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code §2080). The CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows CDFW to authorize exceptions to the state's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code § 2081).

4.2.3 California Porter-Cologne Water Quality Control Act

Water quality in California is governed by the Porter-Cologne Water Quality Control Act (Porter Cologne; Ca. Water Code, Div. 7, §13000 et seq.). Under the California Porter-Cologne Water Quality Control Act, discharges to wetlands and other "waters of the state" are subject to state regulation. Under California State law, "waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". Waters of the State may include waters that not considered a Water of the U.S. This law assigns overall responsibility for water rights and water quality protection to the State Water Resource Control Board (SWRCB) and directs the nine statewide Regional Water Quality Control Boards to develop and enforce water quality standards within their boundaries. In general, the Regional Water Quality Control Boards regulate discharges to isolated waters in much the same way as they do for federal-jurisdictional waters, using the Porter-Cologne Act rather than CWA authority.

4.2.4 California Department of Fish and Game Code

Fish and Game Code, Section 1600 *et. sq.* (Streambed and Lakebed Alteration)

CDFW is a trustee agency that has jurisdiction under Section 1600 *et seq.* of the California Fish and Game Code. Under Section 1602, a private party must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds except when the department has been notified pursuant to Section 1601." If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures.

Fish and Game Code, Section 3503.5 (Raptor Nests)

Section 3503.5 of the California Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

4.2.5 CDFW Species of Concern

In addition to formal listing under FESA and CESA, species receive additional consideration by CDFW and local lead agencies during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern," developed by CDFW. It tracks species in California whose numbers, reproductive success, or habitat may be threatened.

4.2.6 California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that has low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Plants of California* (CNPS 2013). Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS rankings:

- Rank 1A: Plants presumed Extinct in California
- Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- Rank 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere
- Rank 3: Plants about which we need more information – A Review List
- Rank 4: Plants of limited distribution – A Watch List

4.3 County Laws and Policies

4.3.1 Sacramento County General Plan

In addition to federal and State regulations, the *Sacramento County General Plan* identifies goals, objectives, and policies to provide further protection to biological resources within the County's limits (Sacramento County 2011). The General Plan's Conservation Element sets forth the goal of "preserving and managing natural habitats and their ecological functions throughout Sacramento County." In furtherance of this goal, Policy CO-58 provides that projects should "ensure no net loss of wetlands, riparian woodlands, and oak woodlands," while Policy CO-59 provides that mitigation should occur for impacts to vernal pools, wetlands, riparian habitats, native vegetation habitats and special status species habitat. The General Plan also seeks to protect native trees. Policy CO-138 encourages protection and preservation of native oak trees measuring a minimum of 6 inches in diameter at breast height. Policy CO-139 requires that native trees, other than oaks, which cannot be protected through development, shall be replaced with in-kind species, the combined diameter of which shall equal the combined diameter of the trees removed. Policy CO-145 requires that non-native tree canopy removed for development be replaced with the equivalent acreage of new tree canopy.

4.3.2 Sacramento County Tree Ordinance

Sacramento County has two tree ordinances. The Tree Ordinance (County Code Chapter 19.04) regulates removal and impacts to public trees, heritage trees, and landmark trees. Public trees are defined as any tree or shrub planted or maintained by the County on an easement, planting easement, street, County park, or public premises; heritage trees are any California oak tree with a trunk sixty inches or greater in girth, which equates to a trunk diameter of approximately 19 inches; landmark trees include any especially prominent or stately tree. The Tree Preservation Ordinance (County Code Chapter 19.12) regulates removal and impacts to any native oak tree. Native oak trees are defined as any valley oak (*Quercus lobata*), interior live oak (*Quercus wislizeni*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus x morehus*) with a trunk diameter of at least 6 inches at 4-1/2 feet above the ground (DBH) or an aggregate DBH of at least 10 inches for multi-trunk trees. Tree permits are required prior to the removal or disturbance, including trenching, grading, or fill within the dripline, of a protected tree.

Additionally, native trees that are 4 inches or diameter or larger at breast height are considered in the County's CEQA review process. Tree species considered through the County's CEQA process include valley oak (*Quercus lobata*), interior live oak (*Quercus wislizeni*), blue oak(*Quercus douglasii*), coast live oak (*Quercus agrifolia*) (in the Delta area), oracle oak (*Quercus x morehus*), native oak hybrids, California sycamore (*Platanus racemosa*), Northern California black walnut (*Juglans hindsii*), Oregon ash (*Fraxinus latifolia*), Goodding's black willow (*Salix gooddingii*), box elder (*Acer negundo* v. *californicum*), white alder (*Alnus rhombifolia*), and California buckeye (*Aesculus californica*). Large, healthy non-native trees are considered in the CEQA review.

4.3.3 Swainson's Hawk Ordinance

The Sacramento County and CDFW jointly developed a methodology for determining foraging habitat impacts in unincorporated Sacramento County. The methodology recognizes that Swainson's hawk foraging habitat value is greater in large expansive open spaces and agricultural areas than in areas which have been fragmented by agricultural-residential or urban development. As a baseline, County staff assumes that properties zoned AG-40 and larger have 100% habitat value, AG-20 properties have 75% and AR-10 properties have 25% habitat value. Properties zoned AR-5 and smaller, such as AR-2, AR-1, the urban residential densities (RD-1 through 40), commercial and industrial zonings, retain no habitat value.

If a project will result in impacts to foraging habitat, there are several options to mitigate this impact. The Sacramento County worked with staff of CDFW to develop an ordinance that provides a simplified means for individual development projects to mitigate impacts to Swainson's hawk foraging habitat on a region-wide basis. The ordinance (Chapter 16.130 of the County Code) which was last amended in 2009 requires mitigation of impacts to Swainson's hawk foraging habitat by preserving similar habitat at a 1:1 mitigation ratio. Projects impacting 40 acres of foraging habitat or more must preserve foraging habitat through conservation easements or transfer of title to either the County or an approved conservation entity. Projects impacting less than 40 acres may preserve foraging habitat through conservation easements or transfer of title to the

County or an approved conservation entity or may pay an impact mitigation fee as determined by the County. The current impact mitigation fees, approved on December 15, 2009, are $10,550 per acre for land acquisition and $2,375 per acre for operations and management. Applicants can also mitigate pursuant to CDFW's 1994 *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks* (*Buteo swainsoni*) *in the Central Valley of California*. According to that staff report, projects within ten miles of an active nest but greater five miles from an active nest shall provide ½ acre of managed habitat, protected via a conservation easement, for each acre of suitable habitat impacted.

4.3.4 South Sacramento Habitat Conservation Plan

The anticipated South Sacramento Habitat Conservation Plan (SSHCP) is a regional approach to conserving species and addressing issues related to urban development, habitat conservation, open space preservation, and agricultural protection. The intent of the SSHCP is to provide a mechanism by which Sacramento County and its partners would be authorized to issue permits that allow landowners to engage in specific development activities (covered activities) that could result in the incidental take of listed species (covered species). Sacramento County would adopt a developer-paid fee based on the projected loss of habitat acreage, habitat type and long-term management costs. These fees would then fund the preservation, restoration and management elements of the anticipated SSHCP. As currently envisioned, the SSHCP would consolidate environmental efforts to protect and enhance vernal pool habitat and other aquatic and upland habitats to provide ecologically viable conservation areas in south Sacramento County for numerous species (Sacramento County 2012).

5.1.1 Site History and Overview

The ±1,367-acre site is located east of Excelsior Road, north of Jackson Highway and west of Eagles Nest Road in the Vineyard Community. The site is located within portions of Sections 23, 24, 25, and 26, Township 8 North, Range 6 East, Mount Diablo Baseline and Meridian, found on the USGS 7.5-minute series *Carmichael, California* topographic quadrangle (**Figure 1**). The site is currently being used for a variety of uses including cattle grazing, cropland, rural residential dwellings, and the Sacramento Raceway.

The majority of the site consists of open rangeland and irrigated pasture. The northwestern portion of the site was formerly used as a nursery and koi farm, which is evidenced by the presence of several large man-made impoundments for holding koi. The Sacramento Raceway occupies approximately 180 acres in the west central portion of the Plan Area. The raceway contains a drag strip, dirt track, motocross track, and associated infrastructure (lights, grandstands, parking etc.). The raceway dates from the mid-1960s.

Rural residences and associated out buildings within the site occur along Excelsior Road along Jackson Highway, and along Tree View Lane. Small areas of cropland (strawberry production) occur along Excelsior Road. The unimproved alignment of Kiefer Boulevard occurs along the northern boundary of the site. While the County has attempted to control access to this dirt road, significant trespass and litter dumping has occurred here. In addition, the portion of the Plan Area north of the Kiefer right-of-way receives significant use by off-road vehicles. There is abundant evidence of campfires, target practice, etc. in this area.

Land uses surrounding the site include open rangeland and residential subdivisions to the north, a large gravel pit and rural residential to the west, open rangeland and rural residential to the south and east.

5.1.2 Topography and Drainage

Moderate rolling hills and extensive flatlands characterize the topography of the site and the surrounding area. Slopes are dominantly convex and incised by shallow drainageways and depressions. Elevation ranges from 75 to 140 feet above mean sea level (MSL). Man-made aquatic features include irrigation and farm ponds, irrigation ditches, and abandoned Koi farm impoundments.

The hydrologic regime on the site is dominated by seasonal rainfall and storm water run-off, primarily between November and April. The site drains primarily to the west via four drainage features. These drainage features consist of a tributary to Morrison Creek, which passes through the northeast corner of the site, an ephemeral drainage within the northwest corner of the site that crosses beneath Excelsior Road and is ultimately

tributary to the mining pit west of Excelsior Road, and two riverine features in the southern half of the site that merge together and form a perennial marsh. From here the drainage flows toward the intersection of Jackson Highway and Excelsior Road. This riverine system forms the headwaters of Elder Creek.

The hydrology of the perennial marsh habitat on the site is largely dependent on nearby artificially irrigated pasture. The pastures are flood irrigated via three irrigation ditches. One of these ditches runs north to south and irrigates the pasture area immediately to the west, as well as directing irrigation water to another ditch that runs east-west and irrigates the pasture area to the south. These ditches are fed irrigation water from a pond via a valve gate. The pond is filled periodically with groundwater pumped from a nearby well. Another north-south running ditch occurs to west of the aforementioned ditch. This ditch irrigates pasture areas to the east and the west. Irrigation water for this ditch comes from groundwater pumped from another well located in the vicinity of this ditch.

5.1.3 Soils

The Natural Resources Conservation Service (NRCS) has mapped eight soil units within the Plan Area (**Figure 3**). The soil units that occur on the Plan Area include: **Hedge loam, 0 to 2 percent slopes**; **Hicksville gravelly loam, 0 to 2 percent slopes**, **occasionally flooded**; **Red Bluff loam, 0 to 2 percent slopes**; **Red Bluff loam, 2 to 5 percent slopes**; **Red Bluff-Redding complex, 0 to 5 percent slopes**; **Redding gravelly loam**, **0 to 8 percent slopes**; **San Joaquin silt loam, 0 to 3 percent slopes**; and **Xerarents-Redding Complex, 0 and 2 percent slopes** (NRCS 1993)**.** General characteristics associated with these soils types are described below.

- **Hedge loam, 0 to 2 percent slopes**: Hedge loam is a moderately deep, moderately well drained soil located on low terraces commonly adjacent to drainageways, on flood plains, and on low stream terraces. This soil formed in alluvium derived from granitic rocks. Permeability is moderately slow and available water capacity is low or moderate. Vegetation typically found on this soil unit consists of non-native annual grasses and herbaceous plant species (NRCS 1993). The hydric soils list for Sacramento County identifies one hydric inclusion within this soil type: Columbia, found on low floodplains (NRCS 2015).

- **Hicksville gravelly loam, 0 to 2 percent slopes, occasionally flooded**: Hicksville gravelly loam is a very deep, moderately well drained soil on low stream terraces and the alluvial flats adjacent to drainageways on high terraces and hills. This soil unit formed in alluvium derived from mixed rock sources. Permeability is moderately slow and the available water capacity is high. Vegetation typically found on this soil unit consists of non-native annual grasses and herbaceous plant species (NRCS 1993). The hydric soils list for Sacramento County identifies two hydric inclusions within this soil type: Cosumnes, found on low floodplains and Columbia, found on floodplains (NRCS 2015).

- **Red Bluff loam, 0 to 2 percent slopes**: Red Bluff loam is a very deep, well drained soil located on intermediate terraces. This soil unit formed in alluvium derived from

mixed rock sources. Permeability is moderately slow and available water capacity is high. Vegetation typically found on this soils unit consists of non-native annual grasses and herbaceous plant species (NRCS 1993). The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type (NRCS 2015).

- **Red Bluff loam, 2 to 5 percent slopes**: Red Bluff loam is a very deep, well drained soil located on high terraces. This soil unit formed in alluvium derived from mixed rock sources. Permeability is slow and available water capacity is high. Vegetation typically found on this soil unit consists of non-native annual grasses and herbaceous plant species (NRCS 1993). The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type (NRCS 2015).

- **Red Bluff-Redding complex, 0 to 5 percent slopes**: Red Bluff soil is a very deep and well drained soil formed in alluvium derived from mixed rock sources. Permeability is slow and available water capacity is high. Redding soil is a moderately deep, moderately well drained formed in gravel and cobble alluvium derived from mixed rock sources. Permeability is very slow and available water capacity is low. This complex is found on high terraces, and usually supports annual grasses and forbs (NRCS 1993). The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil complex (NRCS 2015).

- **Redding gravelly loam, 0 to 8 percent slopes**: Redding gravelly loam is a moderately deep, moderately well drained soil located on high terraces and terrace remnants. This soil unit formed in gravel and cobble alluvium derived from mixed rock sources. Permeability is very slow and available water capacity is low. Vegetation typically found on this soil unit consists of non-native annual grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type.

- **San Joaquin silt loam, 0 to 3 percent slopes**: San Joaquin silt loam is a moderately deep, moderately well drained soil located on low terraces. This soil formed in alluvium derived from dominantly granitic rocks. Permeability is very slow and available water capacity is low. Vegetation typically found on this soil unit consists of non-native annual grasses and forbs, and a few scattered native oaks (NRCS 1993). The hydric soils list for Sacramento County identifies one hydric inclusion within this soil type: Galt, found within depressions (NRCS 2015).

- **Xerarents-Redding complex, 0 to 2 percent slopes**: Xerarents is a moderately deep to very deep, well drained and altered soil formed in fill material mixed by leveling activities. This fill material is derived from nearby soils of mixed origin. Permeability is moderate to very slow and available water capacity is moderate or high. Redding soil is moderately deep and moderately well drained soil formed in gravel and cobble alluvium derived from mixed rock sources. Permeability is very slow and available water capacity is low. Vegetation typically found on this soil complex consists of irrigated pasture grasses and legumes (NRCS 1993). The hydric

soils list for Sacramento County identifies one hydric inclusion within this soil complex: Sailboat, found on low floodplains (NRCS 2015).

5.1.4 Habitats

Excelsior Estates

Annual Grassland

The biological community covering the majority of the Excelsior Estates property is annual grassland. Central Valley annual grassland communities are composed largely of non-native annual grasses and forbs. The dominant plant species observed in the annual grassland consists of soft brome (*Bromus hordeaceus*), wild oat *(Avena* sp.), medusa head (*Elymus caput-medusae*), long-beaked filaree (*Erodium botrys*), hawkbit (*Leontodon taraxacoides*), mouse-tail grass *(Vulpia myuros*), Spanish clover (*Acmispon americanus*), tarplant (*Holocarpha virgata*), Fitch's tarweed (*Centromadia fitchii*), barley (*Hordeum murinum* ssp. *leporinum*), and Italian ryegrass (*Festuca perennis*).

Annual grassland typically supports breeding, foraging, and shelter habitat for several species of wildlife including raptors and migratory birds. Wildlife species observed in the grasslands during site surveys include: western kingbird (*Tyrannus verticalis*), European starling (*Sturnus vulgaris*), Brewer's blackbird (*Euphagus cyanocephalus*), western meadowlark (*Sturnella neglecta*), killdeer *(Charadrius vociferous*), northern mockingbird (*Mimus polyglottos*), northern harrier (*Circus cyaneus*), turkey vulture (*Cathartes aura*), savannah sparrow (*Passerculus sandwichensis*), white-tailed kites (*Elanus leucurus*), red-tailed hawks (*Buteo jamaicensis),* California ground squirrel (*Spermophilus beecheyi*), cottontail *(Sylvilagus* sp.), and black-tailed jackrabbit (*Lepus californicus*).

Northern Hardpan Vernal Pools

The vernal pools on the Excelsior Estates property can be best characterized as Northern Hardpan Vernal Pool according to A Manual of California Vegetation (Sawyer and Keeler-Wolf, 1995). These pools occur on old, acidic, iron-silica cemented soils including Corning, Redding, and San Joaquin soils series (Sawyer and Keeler-Wolf, 1995). Northern hardpan vernal pools are seasonally flooded depressions found on soils with an impermeable hardpan layer. The impermeable layer allows the pools to retain water much longer than the surrounding uplands; nonetheless, the pools are shallow enough to dry up each season. Vernal pools are scattered throughout the site, with the highest density of pools occurring in the east – central portion. Some vernal pools on site are inter-connected by riverine seasonal wetland. This typically occurs where one pool overflows into another relatively regularly.

Whereas California grasslands now contain mostly non-native species, vernal pools typically support a predominance of native plants. Plant species observed within the vernal pools throughout the site are typical of species which are adapted to seasonally inundated conditions. Plant species observed within the vernal pool habitat on site include manna grass (*Glyceria declinata*), coyote thistle *(Eryngium vaseyi*), spikerush (*Eleocharis macrostachya*), hedge-hyssop (*Gratiola ebracteata*), white-headed navarretia

(*Navarretia leucocephala*), annual hairgrass (*Deschampsia danthonioides*), woolly marbles (*Psilocarphus* sp.), and popcorn flower (*Plagiobothrys stipitatus*).

Vernal pools play a valuable role in the food chain for a wide array of animals, including birds of prey, migratory waterfowl, shorebirds, frogs, toads, salamanders and pollinating insects. They are also home for listed vernal pool crustaceans.

Seasonal Wetlands

Seasonal wetland habitat is typically associated with shallow drainages and swales (riverine features) or depressions, that inundate long enough to support hydric soils and hydrophytic vegetation, but do not inundate sufficiently to support vernal pool species. Riverine seasonal wetlands are characterized by the seasonal flow of water induced by the onset of heavy rains. A depressional seasonal wetland is characterized by shallow land depressions that remain saturated for extended periods.

Dominant plant species observed within the seasonal wetland habitat on site include quaking grass (*Briza minor*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass, annual beard grass (*Polypogon monspeliensis*), annual hairgrass, toad rush, and curly dock (*Rumex crispus*).

Marsh

Both perennial and seasonal marsh habitat occur within the Excelsior Estates property. Aside from perennial marshes remaining inundated or saturated throughout the year, both support perennial herbaceous plant species that tolerate high soil moisture and seasonal to permanent soil saturation or inundation. For both aquatic habitat types, inundation/saturation persists well into the warm season.

Plant species observed within the marsh habitat on site include broad-leaved cattail (*T. latifolia*), narrow-leaved cattail (*T. angustifolia*), bulrush (*Scirpus* spp.), water primrose (*Ludwigia peploides*), pennyroyal (*Mentha pulegium*), nutsedge (*Cyperus eragrostis*), creeping spikerush (*Eleocharis macrostachya*), and four angled spikerush (*Eleocharis quadrangulata*). In addition, wildlife species observed within the marsh habitat include: black phoebe (*Sayornis nigricans*), Brewer's blackbird, red-winged blackbird, ring-necked pheasant, and song sparrow (*Melospiza melodia*).

Marshes provide shelter and foraging habitat for several species of wildlife on the site including resident and migratory bird species, amphibians, reptiles, aquatic invertebrates, and foraging mammals. Wildlife expected to occur in the marsh habitat on the site include: egret, heron, waterfowl, bullfrog, pacific tree frog, opossum *(Didelphis virginiana*), and raccoon (*Procyon lotor*). Most of the marsh habitats on site are supported by summer irrigation runoff.

Irrigated Pasture, Ditch, Drainages, and Farm Ponds

Irrigated pasture habitat is found mainly in the south-central portion of the Excelsior Estates property. Irrigated pasture vegetation is typically a mix of warm-season plants dependent on summer irrigation. The abundance of the vegetation can vary, according to

season and livestock stocking levels, from a few inches to a foot or more. Irrigation ditches and drainages occur on site in association with the pastures. Common species observed in this habitat include: Bermuda grass (*Cynodon dactylon*), nutsedge (*Cyperus eragrostis*), dallis grass (*Paspalum dilatatum*), cattails (*Typha* sp.) and canary grass (*Phalaris* sp.).

The irrigated pasture habitat on site supports breeding, foraging, and shelter habitat for species of wildlife similar to annual grassland habitat discussed above. The irrigation ditches also provide suitable foraging habitat for egrets and herons as well as breeding habitat for amphibians such as bullfrog (*Rana catesbiana*) and pacific tree frog (*Hyla regilla*). Species observed in this habitat during the site surveys include ring-necked pheasant (*Phasianus colchicus*), red-winged black bird *(Agelaius phoeniceus*), yellow-billed magpie (*Pica nuttallii*), phainopepla (*Phainopepla nitens*), and American robin (*Turdus migratorius*).

A number of farm ponds and other impoundments are found in the JTSPA, primarily associated with rural residences. These ponds were constructed by excavation, damming a drainage swale, or some combination of the two. Water supply is assumed to be derived from runoff, although groundwater pumping could also play a role in filling these ponds.

Irrigation Ponds

The largest pond in the Plan Area is found on the Excelsior Estates property. This pond serves as the irrigation water supply for irrigated pastures located in the south-central portion of the site. The pond is located at a relatively high elevation and appears to have been excavated solely for the purpose of irrigation supply.

Aquatic plant species observed in this pond habitat include: cattail, spikerush, meadow fescue (*Festuca pratensis*), hairy willow herb (*Epilobium ciliatum*), bird's-foot trefoil (*Lotus conriculatus*), and water primrose. Willow trees (*Salix* spp.) were observed along the banks of the irrigation pond.

Several species of bird and aquatic wildlife were observed using the irrigation pond, such as great egret, great blue heron, double-crested cormorant (*Phalacrocorax auritus*), green heron (*Butorides virescens*), common moorhen (*Gallinula chloropus*), white-tailed kite, Brewer's blackbird, mallard (*Anas platyrhynchos*), bullfrog, ground squirrel (burrows), and raccoon (tracks).

Rural Residential

A section of rural residential is located in the northwest portion of the Excelsior Estates property and several small areas are located throughout the southern portion of the site. This community consists largely of widely scattered residential houses, driveways, outbuildings, and open pasture and annual grassland. This community has been heavily disturbed by past construction activity and is largely limited to ruderal and annual grassland species, such as filaree, soft brome, hawkbit and pineapple weed (*Matricaria discoidea*).

Non-Participating Properties

Industrial/Commercial

The most extensive biological community in the non-participating properties is the industrial/commercial community, which surrounds the Sacramento Raceway, in the northwestern portion of the JTSPA. As mentioned above, this community consists of a drag strip, dirt track, motocross track, and associated infrastructure (lights, grandstands, parking etc.). As a result of these developments, soil disturbance has been extensive and plant species are largely limited to ruderal and annual grassland species, such as filaree, soft brome, hawkbit and pineapple weed. Wetland habitats are found within this community, but will be discussed separately below.

Due to past disturbance and current activities, wildlife in this community is also limited, consisting mostly of species found in the annual grassland habitat, such as European starling, Brewer's blackbird, California ground squirrel, and black-tailed jackrabbit (*Lepus californicus*).

Rural Residential

Most of the rural residential community is found in the non-participating properties, and consists largely of widely scattered residential houses, driveways, outbuildings, and open pasture and annual grassland. This community is also highly disturbed, and therefore plant and wildlife species are similar to those found in the industrial/commercial community.

Annual Grassland

The annual grassland community is commonly found throughout the non-participating properties in upland areas. Although these grasslands may experience more disturbances due to their proximity to residential and commercial development, these areas support most of the plant and animal species listed in the annual grassland description above under the discussion of Excelsior Estates.

Northern Hardpan Vernal Pools

Although not common in non-participating properties, vernal pools were documented at various locations along Jackson Highway and near the Sacramento Raceway. As discussed above, the northern hardpan vernal pool habitat is characterized by seasonally flooded depressions found on soils with an impermeable hardpan layer. Similar plant and animal species found in the Excelsior Estates vernal pools would be expected in non-participating properties as well.

Seasonal Wetlands

Seasonal wetlands are frequently found on non-participating properties, especially in the southwest and southeast corners of the JTSPA. These wetlands differ from vernal pools in that they are shallower drainages and swales or depressions that are inundated for a shorter time. Hence, seasonal wetlands support a different array of plant species, documented above under the discussion of Excelsior Estates, than do vernal pools.

Marsh

Perennial marsh in the non-participating properties is located along Jackson Highway in the lower middle boundary of the JTSPA. Perennial marshes remain inundated or saturated throughout the year, and support perennial herbaceous plant species that tolerate high soil moisture. Plant and wildlife species likely to be present in the marsh community are documented in the Excelsior Estates section above.

Irrigated Pasture, Ditch, Drainages, and Farm Ponds

Farm ponds are found within the non-participating properties south of the Sacramento Raceway and in the southeast corner of the JTSPA. Irrigated pasture, ditches and drainages may be found in various locations in the non-participating properties. Plant and wildlife species are discussed above.

5.1.5 Native and Non-Native Trees

Historically the JTSPA supported few or no trees, due to the presence of hardpan soils and the absence of summer water. Growth of trees within the Plan Area was promoted by the development of irrigation facilities, the establishment of rural residential uses, and tree planting. While the site is still mostly treeless, there are considerable areas of non-native tree species on site, mostly associated with rural residential parcels. Eucalyptus is probably the most common tree species within the Plan Area, but other typical landscape and ornamental species (mulberry, palm, etc.) are found as well. See **Appendix A** for a copy of the Arborist Report prepared specifically for the ±889-acre Excelsior Estates property within the JTSPA and the surrounding non-participating properties.

As detailed in the Arborist Report (**Appendix A**), five native oak trees, which are protected by the Sacramento County Tree Ordinance, were identified in the JTSPA. In addition, there are approximately 95 native trees of other species, most of which are found around the ponds and marsh areas and thus may be considered riparian trees. Approximately 700 landscape trees of various species are located in the JTSPA. Although not protected by the Sacramento County Tree Ordinance, removal of landscape trees is subject to General Plan Policy CO-145, which requires equal replacement of tree canopy.

5.1.6 Special-Status Species

Special-status species are plant and animal species that have been afforded special recognition by federal, State, or local resource agencies or organizations. Special-status species are defined as:

- Listed or proposed for listing under CESA and/or FESA;
- Protected under other regulations (e.g. Migratory Bird Treaty Act);
- Listed by CDFW as a Species of Special Concern;
- Ranked by CNPS as being rare (a ranking of 1A, 1B, or 2); or
- Any other species that would receive consideration according to the CEQA Guidelines.

Special-status species considered for this analysis are based on queries of the CNDDB for the *Carmichael* quadrangle, the USFWS Online Species List for the *Carmichael* quadrangle, and the CNPS Inventory of Rare and Endangered Plants List for the *Carmichael* quadrangle (online version) (**Appendix B**). **Appendix B** includes the common name and scientific name for each species, regulatory status (federal, State, local, CNPS), habitat descriptions, and potential for occurrence on the project site. **Figure 4** depicts the locations of special-status species recorded in the CNDDB within five miles of the Plan Area. The following set of criteria has been used to determine each species potential for occurrence on the site:

- **High**: Species is known to occur on or near the site (based on CNDDB records within 8 km or 5 mi, and/or based on professional expertise specific to the site or species) and there is suitable habitat on site.

- **Medium**: Species is known to occur in the vicinity of the site, and there is marginal habitat on site. -OR- Species is not known to occur in the vicinity of the site; however there is suitable habitat on site.

- **Low**: Species is not known to occur in the vicinity of the site and there is not suitable habitat for the species on site.

- **No**: Species was surveyed for during the appropriate season with negative results for the species occurrence on site. -OR- The site is out of the known range of the species.

Only those species that are known to be present or that have a medium to high to low potential for occurrence will be discussed further in this BRA.

Listed and Special-Status Plants

Excelsior Estates

As indicated in **Appendix B**, seven special-status plant species have a high potential to occur within both the Excelsior Estates and non-participating properties and include: Ahart's dwarf rush, Bogg's Lake hedge-hyssop, Dwarf downingia, Legenere, Sacramento orcutt grass, slender Orcutt grass, and Sanford's arrowhead. Focused surveys were performed only on Excelsior Estates for all of these species, which none of these species have been observed within the Excelsior Estates property (**Appendices C and D**). The special-status plant species that have a potential to occur on the site are discussed further in detail in the following paragraphs.

Ahart's Dwarf Rush

Ahart's dwarf rush is an annual herb that occurs primarily on the margins of vernal pools in areas that are sparsely vegetated. The vernal pools on site represent potential habitat for this species. There are thirteen reported occurrences of this species within California, one within five miles of the site. The nearest occurrence is less than a ¼ mile northeast of the site boundary (**Figure 4**) (CDFW 2013). Based on the presence of suitable habitat

and documented occurrences within the site vicinity, this species has a *medium* to *high* potential to occur on site.

Bogg's Lake Hedge-hyssop

Bogg's Lake hedge-hyssop is and annual herb that occurs in vernal pools primarily on saturated clay (adobe) soils and, at the Bogg's Lake Preserve, on shallow lake margins (CNPS 2013). The vernal pools on site represent potential habitat for this species. There are 93 reported occurrences of this species within California, one of which is within five miles of the site. The nearest occurrence is less than ¼ mile northeast of the site boundary (**Figure 4**) (CDFW 2013). Based on the presence of suitable habitat and documented occurrences within the vicinity, this species has a *high* potential to occur on site.

Dwarf Downingia

Dwarf downingia is an annual herb that occurs in vernal pools and swales. The vernal pools on site represent potential habitat for this species. There are 127 reported occurrences of this species within California, 11 of which are within Sacramento County (CDFW 2013). There are no reported occurrences of this species within five miles of the site, the presence of suitable habitat on site creates a *medium* potential for this species to occur there.

Legenere

Legenere is an annual herb that occurs in vernal pools and swales, seasonal marshes, artificial ponds, floodplains of intermittent streams, and other seasonally inundated habitats (CNPS 2013). The vernal pools and seasonal wetlands on site represent potential habitat for this species. There are 79 reported occurrences of this species within California, six of which are within five miles of the site (**Figure 4**) (CDFW 2013). The nearest occurrence borders the site to the north. Based on the presence of suitable habitat and documented occurrences within the vicinity, this species has a *high* potential to occur on site.

Sacramento and Slender Orcutt Grasses

Though Sacramento and slender Orcutt grasses have been documented within five miles of the site, surveys of the Excelsior Estates property for these species in 2006 and 2007 produced negative results (**Appendix C**). Although a portion of the JTSPA is within critical habitat for these two species, neither of these species has ever been observed with the JTSPA.

Sanford's Arrowhead

Sanford's arrowhead is a perennial herb that occurs in shallow, fresh-water conditions. The seasonal and perennial marshes represent habitat for this species. There are 93 reported occurrences of this species within California, five of which are within five miles

of the site (**Figure 4**) (CDFW 2013). The nearest occurrence is approximately 2 miles west of the site. Based on the presence of suitable habitat and documented occurrences within the vicinity this species has a *high* potential to occur on site.

Non-Participating Properties

As mentioned above, no focused surveys for potential special-status plant species were performed on the non-participating properties. However, because wetland habitat does occur in the non-participating properties, the special-status plant species listed above have the potential to occur within those properties.

Listed and Special-Status Animals

Excelsior Estates

As indicated in **Appendix B**, several special-status animal species have a *medium* to *high* potential to occur on both Excelsior Estates and non-participating properties. The special-status animal species that have a potential to occur on the Excelsior Estates site are discussed further in detail in the following paragraphs.

Listed Vernal Pool Crustaceans

Two species of listed vernal pool crustaceans, vernal pool fairy shrimp and vernal pool tadpole shrimp, occur on the Excelsior Estates property (**Figure 4**) (CDFW 2013). Vernal pools on the Excelsior Estates property represent potential habitat for these species, but marsh habitats and pond habitats do not support these species. Wet-season surveys for vernal pool crustaceans were performed during 2009-2010 on the Excelsior Estates property and are included in **Appendix E** of this report. These surveys indicated that both species exist in the vernal pools on the Excelsior Estates property.

Approximately 648 acres of the Excelsior Estates property is within an area designated as critical habitat for both vernal pool fairy shrimp and vernal pool tadpole shrimp (**Figure 5**).

Northwestern Pond Turtle

Northwestern pond turtle is associated with permanent or nearly permanent water in a variety of habitats. This species requires basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks (Zeiner *et. al.*, 1990). Nests are built in uplands in a variety of soil types with a relatively high humidity. Though there is suitable habitat on site and there is a reported occurrence in the vicinity, it is believed that there is a *low* potential for this species to occur on site due to the fact that there is no substantial hydrologic connection between the pond and known occupied habitat.

This species has not been observed on the Excelsior Estates property, during any of Foothill Associates' previous visits to that property.

Western Spadefoot Toad

Western spadefoot toad occurs throughout the Central Valley and adjacent foothills. Breeding and egg-laying occur almost exclusively in shallow, temporary pools that fill during winter rains (Zeiner *et. al.*, 1990). This activity occurs primarily from late winter to the end of March. This species spends the majority of the year in burrows that they construct themselves, though mammal burrows may also be used. The nearest CNDDB occurrence for this species is within a ¼ mile northeast of the site (**Figure 4**) (CDFW 2013). The vernal pools onsite represent potential habitat for this species, but the species has not been observed onsite during aquatic invertebrate surveys or spring rare-plant surveys. Based on the presence of suitable habitat and the proximity of a reported occurrence, it is believed that there is a *high* potential for this species to occur onsite.

Non-Participating Properties

No focused surveys for potential special-status wildlife species were performed on the non-participating properties. However, because wetland habitat does occur in the non-participating properties, the special-status animal species listed above have the potential to occur within those properties.

Approximately 131 acres of the non-participating properties are designated as critical habitat for both vernal pool fairy shrimp and vernal pool tadpole shrimp (**Figure 5**).

Listed and Special-Status Nesting Raptors/Other Birds

Excelsior Estates

Several special-status raptors and other bird species have a potential to occur on the Excelsior Estates property as indicated in **Appendix B**. Each of these species is discussed in detail in the following paragraphs. No focused surveys for nesting raptors or other birds were conducted for Excelsior Estates. However, sightings were recorded for various species, as documented below.

Loggerhead Shrike

Loggerhead shrikes are a common resident and winter visitor in lowlands and foothills throughout California. The trees surrounding the pond and the adjacent pasture and annual grassland represent potential nesting and foraging habitat for this species, respectively. Although this species has not been observed on the site, there is a *high* potential for this species to occur on the Excelsior Estates property.

Swainson's Hawk

Swainson's hawk is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert (Zeiner *et. al*., 1990). This species is known to occur in the Central Valley from March to September. They are known to breed in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. They forage in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Breeding occurs from late March to late August, peaking in late May through July (Zeiner *et. al*., 1990). Swainson's hawk begin

their migration to their wintering grounds during the months of September and October. The nearest reported CNDDB occurrence is about 2 miles south of the site. According to the CNDDB, there are several active nests within five to 10 miles of the site (**Figure 4**) (CDFW 2013). Nests are considered active when they have been actively used at least once in the preceding five years. The annual grassland areas of the site present potential foraging habitat for this species. The trees surrounding the pond and those adjacent to the site represent potential nesting habitat for this species. Although this species has not been observed on the site, there is a *high* potential for this species to occur on the Excelsior Estates property.

Tricolored Blackbird

Tricolored blackbirds are found throughout the Central Valley and in coastal districts from Sonoma County to the south. This species nests near fresh water, typically in emergent wetlands with tall, dense cattails or tules, and also in thickets of willow, blackberry, and wild rose (Zeiner *et. al*., 1990). They typically feed in flocks in grassland and cropland habitats. The CNDDB shows occurrences of this species within five miles of the site (**Figure 4**) (CDFW 2013). The marsh habitat and pasture and annual grasslands represent potential nesting and foraging habitat for this species, respectively. Although this species has not been observed on the site, there is a *high* potential for this species to occur on the Excelsior Estates property.

Western Burrowing Owl

Western burrowing owls are found primarily in grasslands and agricultural areas throughout California. Burrowing owls utilize mammal burrows for nesting and roosting, but may also use pipes, culverts, and nest boxes where burrows are not available (Zeiner *et. al*., 1990). This species typically nests in small colonies. The nearest reported CNDDB occurrence is approximately ½ mile from the site (**Figure 4**) (CDFW 2013). The annual grasslands represent potential nesting and foraging habitat for this species. Though not in very high densities, ground squirrel burrows were observed throughout the Excelsior Estates site. All burrow colonies observed were surveyed for signs of use by burrowing owls. Typical signs of use include: cast pellets, molted feathers, prey remains, eggshell fragments, or excrement at or near a burrow entrance. None of these indicators were observed in association with the burrow colonies occurring on site. A burrowing owl was observed on the Excelsior Estates property in the winter of 2010, but it was not observed occupying a burrow. Therefore, there is a *high* potential for this species to occur on the Excelsior Estates property.

White-tailed kite

White-tailed kites are found in grasslands and agricultural areas in valley and coastal lowlands. This species builds nest in dense stands of oaks, willows, or other tree species near open foraging areas (Zeiner *et. al*., 1990). The pasture and annual grassland areas of the site present potential foraging habitat for this species. The trees around the ponds and associated with residential uses represent potential nesting habitat for this species. During several site visits to Excelsior Estates, white-tailed kites were observed foraging

in the annual grassland areas of the site; however no nests sites for this species were observed. Therefore, there is a *high* potential for this species to nest on the Excelsior Estates property.

Other Raptor Species

Other raptor species forage and nest in a variety of habitats throughout Sacramento County. Raptor nests are protected under the MBTA and Section 3503.5 of the California Fish and Game Code, which makes it illegal to destroy any active raptor nest. Trees on site and in the vicinity of the site may provide potential nesting habitat for raptor species. In addition, potential foraging for raptors occurs within the pasture and annual grassland habitat on the site. Raptors observed in flight over the Excelsior Estates property include: northern harrier, red-tailed hawk, turkey vulture, and white-tailed kite. Therefore, there is a *high* potential for raptors to nest on the Excelsior Estates property and in the vicinity.

Non-Participating Properties

No focused surveys or sightings of nesting raptors or other birds were documented for the non-participating properties. However, all of the species listed above under the discussion of Excelsior Estates have the potential to occur in the non-participating properties.

Sensitive Habitats

Sensitive habitats are those habitats that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, or Section 404 of the Clean Water Act. Additionally, sensitive habitats are protected under the specific policies outlined in the Sacramento County General Plan.

Excelsior Estates

Sensitive habitats identified on Excelsior Estates include: native tree stands, Morrison Creek, vernal pools, marshes, and other potential waters of the U.S. (**Figure 6**). These sensitive resources represent potential habitat for several of the special-status species discussed above.

Potential Jurisdictional Waters

As described above in **Section 4.0**, **Regulatory Setting**, the term "waters of the United States" includes a variety of waters including navigable rivers, some tributaries to these rivers and certain wetlands adjacent to such navigable and non-navigable tributaries. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratories 1987). The majority of jurisdictional wetlands in the United States meet three wetland assessment criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Jurisdictional waters can also be defined by exhibiting a defined bed and bank and ordinary high water mark (OHWM). As discussed

in **Section 4.1.3**, jurisdictional waters of the U.S. are subject to Section 404 of CWA and are regulated by the Corps. Waters of the State, which may include waters not subject to federal jurisdiction, are regulated under Section 401 if the CWA and the Porter-Cologne Water Quality Control Act (see Sections 4.1.4 and 4.2.3). Taken together waters of the U.S. and state are considered jurisdictional waters.

Foothill Associates delineated jurisdictional waters on the Excelsior Estates property. The Corps concurred with Foothill's delineation and issued a Preliminary Jurisdictional Determination (PJD) for the Excelsior Estates property on November 6, 2015. A copy of this PJD is enclosed as **Appendix F** of this report. There are no waters that are subject to State jurisdiction which are not also subject to Federal jurisdiction. The acreages of potential jurisdictional waters are depicted on **Figure 7** and summarized in **Table 1** below.

Table 1 — Summary of Aquatic Features

Classification	Jurisdictional Waters (acres)	
	Excelsior Estates	**Non-Participating Properties**
Depressional Wetlands		
Seasonal Wetlands	4.41	0.44
Perennial Marsh	1.03	0.06
Vernal Pool	27.85	4.71
Riverine Wetlands		
Seasonal Wetland	3.70	7.06
Perennial Marsh	10.05	1.19
Other Waters of the U.S.		
Intermittent Drainage	1.19	0.30
Ephemeral Drainage	0.23	0.04
Pond	5.04	1.55
Ditch/Canal	0.31	0.00
TOTAL	**53.80**	**15.35**

Trees

The trees on the Excelsior Estates property were surveyed in 2015 as documented in the Arborist Report (**Appendix A**). There are 28 native trees and 147 landscape trees on the Excelsior Estates property (**Figure 6**). None of the trees on the Excelsior Estates property are Heritage trees or recommended for preservation as Landmark Trees.

Non-Participating Properties

Potential Jurisdictional Waters

Potential jurisdictional waters for non-participating properties were estimated through a combination of aerial photo interpretation and limited ground-truthing. The estimated extent of wetlands and other aquatic habitat were digitally mapped by observing aerial

photographs in different years/seasons, noting standing water, changes in vegetation patterns, and other markers of periodically inundated areas. Ground-truthing, consisting of observations conducted from participating properties and from public right-of-ways, was used to supplement and confirm aerial photo interpretation. Sensitive habitats identified on the non-participating properties include: vernal pools, marshes, and other potential waters of the U.S. (**Figure 7**). These sensitive resources represent potential habitat for several of the special-status species discussed above. The acreages of potential jurisdictional waters are summarized in **Table 1** above. Potential jurisdictional waters within the non-participating properties were digitized from existing aerial photography and total approximately 15.35 acres.

Trees

The trees on the non-participating properties were inventoried from participating properties and from public right-of-ways in 2015 as documented in the Arborist Report (**Appendix A**). There are estimated to be 628 trees on the non-participating properties, of which approximately 50 are native species (**Figure 6**). None of the trees on the non-participating properties are Heritage trees or recommended for preservation as Landmark Trees.

5.1.7 Existing Land Use Effects on Biological Resources

While the JTSPA is largely open rangeland, this rangeland shares considerable edge with various existing land uses that may impact the habitat and habitat quality of the biological resources occupying the site.

Rural Residences

Rural residences (non-participating properties) are common along the southern (Jackson Highway) and western (Excelsior Road) portions of the Plan Area. The density of houses in these areas is fairly low, but there are other elements present that reduce the biological resource value on and around these parcels.

While these parcels typically support natural plant communities and often contain aquatic habitat many residential parcels have tracts of cultivated plants, irrigated areas, outbuildings, livestock enclosures, paving and grading, and other improvements that reduce or alter biological communities.

Sacramento Raceway

The Sacramento Raceway property (non-participating) contains some aquatic habitat, including vernal pools. While the eastern end of the property is relatively undisturbed, the western 75% contains various improvements to support raceway activities including a drag strip, dirt track, motocross track, and associated infrastructure (lights, grandstands, parking etc.).

The northern tributary to Elder Creek flows across and through the raceway property. Various ditches and culverts are used to move water around and beneath the drag strip,

and periodic grading of firebreaks introduces sediment into the drainage ways and downstream wetlands.

Kiefer Boulevard

Kiefer Boulevard runs along the northern portion of the JTSPA. This right-of-way is currently unimproved and consists of a bare dirt track with numerous stretches of deep tire ruts. Vehicles drive across the Morrison Creek tributary at-grade, through the streambed.

There is typically open access on both ends of the right-of-way, although the County has attempted periodically to block off access. There is significant trash dumping occurring along this stretch of Kiefer Boulevard including construction rubble, electronics, furniture, etc. Dump sites are scattered along the right-of-way, including into the bed of the Morrison Creek tributary.

The frequent vehicle travel, especially in wet weather, has resulted in noticeable turbidity in downstream vernal pools within the JTSPA. **Figure 8** illustrates the extent of this turbidity.

6.0 DISCUSSION AND RECOMMENDATIONS

6.1 Summary

This BRA has documented the Jackson Township Specific Plan Area's physical features, biological communities, and sensitive habitats, and its potential to support special-status species. Known or potential biological constraints on the site include:

- Existing and potential habitat for special-status vernal pool plant and animal species, including federally-listed vernal pool species and their critical habitat;
- Potential habitat for other special-status aquatic plant and animal species;
- Potential foraging and nesting habitat for Swainson's hawk, a state-listed species;
- Potential foraging and nesting habitat for other special-status birds species;
- Sensitive habitats including: Morrison Creek, vernal pools, marshes, other potential waters of the U.S.; and
- Potential for protected trees.

6.2 Recommendations

If any future activity on the site would result in significant effects to the sensitive resources identified on site, measures should be taken to avoid, minimize, and/or mitigate for these effects. Section 15382 of the CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, …." (CELSOC, 2004). As referenced in **Section 4.2.1** of this BRA, a project would result in potential significant impacts to biological resources 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 CDFW or USFWS;
- 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 CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- 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; or

- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional or state habitat conservation plan.

6.2.1 Impacts to Special-Status Plants

Excelsior Estates

Impacts to Vernal Pool Plants

As discussed, several special-status vernal pool plants have the potential to occur on site (See **Section 5.1.6**). Botanical surveys for these species were conducted in May of 2014 in accordance with applicable protocols during the appropriate flowering periods for these species (**Appendix D**). No populations of any special-status plants were observed. The results of these surveys are typically valid for two years. If future surveys are conducted and populations of any of these species are identified on site, then the project proponent shall either avoid these plants or, if avoidance is not feasible, shall mitigate for potential impacts to these species. Mitigation of non-listed species could include propagation of special-status plants to suitable areas within the proposed on-site wetland preserve through seed or seedbank collection. If mitigation is required, a mitigation plan should be prepared that identifies avoidance and preservation measures, seed or plant harvesting procedures, locations where the plants will be transplanted in the on-site preserve, success criteria, and monitoring protocols. Additionally, since mitigation for impacts to vernal pool habitat (discussed in **Section 6.2.2** below) will also preserve and create potential habitat for rare vernal pool plant species, coordination between habitat and species mitigation is possible. Alternatively, if the SSHCP is adopted and the SSHCP covers the proposed project, then the project proponent may elect to compensate for unavoidable impacts through participation in the SSHCP.

If State or federally-listed plants (Bogg's Lake hedge hyssop, Sacramento Orcutt grass, slender Orcutt grass) are identified on site, then additional mitigation measures may be required by CDFW and the USFWS. These measures may include avoidance and minimization through the establishment of an on-site preserve managed in perpetuity and protected by a conservation easement, the salvage of a seed bank from vernal pools to be impacted for the re-establishment of the population at a nearby location (preferably on site), or the enhancement/restoration of habitat at known locations of populations of these species. Coordination with the appropriate agencies should be completed, if listed plants are found.

Impacts to Sanford's Arrowhead

Botanical surveys for Sanford's Arrowhead were conducted in June 2014 (**Appendix D**). No populations of Sanford's Arrowhead were observed. The results of this survey are valid for two years. If future botanical surveys for this species are conducted and populations of this species are identified on site, the project proponent shall either avoid these plants or, if avoidance is not feasible, the project proponent shall mitigate for potential impacts to these species. If mitigation is required, a mitigation plan should be prepared that identifies avoidance and preservation measures, seed or plant harvesting procedures, locations where the plants will be transplanted in the on-site preserve, success criteria, and monitoring protocols. Alternatively, if the SSHCP is adopted and the SSHCP covers the proposed project, then the project proponent may elect to compensate for unavoidable impacts through participation in the SSHCP.

Non-Participating Properties

As previously mentioned, the non-participating properties have vernal pool and marsh habitat, and therefore have the potential to contain special-status plants. Since Foothill Associates did not have authorization to access the non-participant properties, botanical surveys of these properties have not yet been conducted. Prior to the commencement of ground-disturbing activities within the non-participating properties, botanical surveys will be conducted within the appropriate flowering periods for these species. If special-status plant species are identified, the project proponent shall either avoid these plants or, if avoidance is not feasible, the project proponent shall mitigate for potential impacts to these species as described above.

6.2.2 Impacts to Special-Status Animals

Impacts to Vernal Pool Crustaceans

Excelsior Estates

As discussed, vernal pools and other wetlands on the site represent known and potential habitat for special-status crustacean species including vernal pool fairy shrimp and vernal pool tadpole shrimp. The USFWS typically considers vernal pool invertebrate habitat to be indirectly impacted by fill or development activities within 250 feet of the habitat. However, the 250 foot indirect impact area may be reduced based on site-specific information such as topography or hydrologic data indicating that activities can encroach closer than 250 feet without impacting those habitats.

For the Excelsior Estates portion of the JTSPA, the acreage of listed vernal pool crustacean habitat is shown in **Table 2**. This estimate generally excludes aquatic habitat that either has inappropriate hydrology (e.g. warm-season inundation), significant disturbance, or other factors that reduce or minimize habitat value for vernal pool crustaceans.

Table 2 — Vernal Pool Crustacean Habitat within Excelsior Estates

Classification	Acreage
Depressional Seasonal Wetland	4.41
Vernal Pool	27.85
Riverine Seasonal Wetland	3.70
Total	**35.96**

The development of Excelsior Estates, as proposed, will result in direct impacts to approximately 29.95 acres and preservation of ±6.02 acres of vernal pool crustacean habitat.

As mentioned above, listed vernal pool crustaceans (vernal pool fairy shrimp and vernal pool tadpole shrimp) have been found within several pools on the Excelsior Estates property. Accordingly, the project proponent will implement one or a combination of both of the following mitigation measures to address these impacts:

1. Total Avoidance: Unless a smaller buffer is approved through formal consultation with the USFWS, the project proponent will maintain a minimum 250 foot no disturbance buffer from all delineated vernal pools. If total avoidance is implemented for a pool, no further action is required for that pool.

2. Compensation: The project proponent will consult with the USFWS regarding any impacts to potential vernal pool crustacean habitat which cannot be avoided. The project proponent will compensate for unavoidable impacts in accordance with the Biological Opinion issued by USFWS and the Clean Water Act Section 404 Permit and/or RWQCB Waste Discharge Requirements obtained for the project. Typically, the USFWS requires compensatory mitigation for direct impacts to these species at a 3:1 ratio (2:1 preservation and 1:1 creation). Possible mitigation opportunities include on-site or off-site preservation and creation of vernal pools or purchase of vernal pool credits at a qualified mitigation bank. Alternatively, if the SSHCP is adopted and the SSHCP covers the proposed project, then the project proponent may elect to compensate for unavoidable impacts through participation in the SSHCP.

Non-Participating Properties

The non-participating properties contain wetlands which may represent habitat for vernal pool crustaceans. Since Foothill Associates was not able to access these properties, no focused surveys have been conducted in these areas. Prior to commencing work within suitable habitat, the non-participating property owners will conduct surveys to determine whether the wetlands contain protected vernal pool crustaceans. The owners may choose to assume that special-status crustaceans are present in-lieu of conducting these surveys. The owners will then address any impacts to protected species through the mitigation measures described above in the discussion of Excelsior Estates vernal pool crustacean impacts.

Impacts to Critical Habitat for Vernal Pool Species

Excelsior Estates

The JTPSA includes a portion of Vernal Pool Critical Habitat Subunit 11E. This subunit includes critical habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, Sacramento orcutt grass, and slender orcutt grass (multiple surveys for the latter two species on the Excelsior Estates property were negative). Approximately 779 acres (57%) of this subunit occurs within the JTSPA, 648 acres of which exist on the Excelsior Estates property. Approximately 258 acres of this critical habitat unit will be preserved as part of the JTSPA development.

As mentioned above, for projects where the Corps or another federal agency is issuing a federal permit or license, that agency must ensure that the effects of its permit do not "adversely modify" the critical habitat of a species protected by the FESA. The term "adverse modification" is defined as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." (50 C.F.R., § 402.02.) Guidance issued by USFWS provides that the adverse modification threshold is exceeded "when the proposed action will adversely affect the critical habitat's constituent elements or their management in a manner likely to appreciably diminish or preclude the role of that habitat in both the survival and recovery of the species" (USFWS, Section 7 Handbook at 4-39.), An analysis of adverse modification of critical habitat normally focuses on the entire critical habitat area designated and not just discrete units of critical habitat (*Id*.).

Development of the JTSPA is not expected to result in adverse modification of this Critical Habitat subunit for the following reasons:

1) Both Orcutt grass species have never been found in this subunit, and surveys covering a large portion of the subunit have not found these species. Additionally, the dense vegetation in the larger pools makes them unsuitable for both species of Orcutt grass.

2) Past and current disturbances (dry-season irrigation, erosion and sedimentation, contamination from certain land uses, adjacent land uses, etc.) impact portions of the critical habitat unit, primarily in the westernmost portions. Primary constituent elements (PCEs), while present in the overall subunit, are compromised in portions of the subunit affected by these existing conditions.

3) Protection of a significant portion of the critical habitat unit where all PCEs are present provides protection for the species and maintains a contiguous critical habitat unit that coordinates with potential future preserves on adjacent properties.

For impacts to designated critical habitat on the Excelsior Estates property, the project proponent will consult with the USFWS to ensure that its proposed development does not adversely modify critical habitat. The mitigation measures identified above for impacts to vernal pool crustaceans will ensure that adverse modification will not occur. Alternatively, if the SSHCP is adopted and the SSHCP covers the proposed project, then

the project proponent may elect to compensate for unavoidable impacts to critical habitat through participation in the SSHCP.

Non-Participating Properties

As mentioned previously, approximately 131 acres of the non-participating properties have been designated as critical habitat for vernal pool species. To ensure that development of these properties will not result in adverse modification of critical habitat, where a 404 permit is required for development of a property, the owner(s) of that property will consult with USFWS pursuant to Section 7 of the Endangered Species Act. The mitigation measures identified above in the discussion of mitigation for impacts to vernal pool crustaceans on Excelsior Estates will ensure that adverse modification will not occur.

Impacts to Northwestern Pond Turtle

Excelsior Estates

As discussed in **Section 6.2.2**, the pond on the Excelsior Estates property represents potential habitat for northwestern pond turtle and the surrounding uplands provide potential overwintering and breeding habitat. If the pond or surrounding uplands within 300 feet are to be impacted by any future activity it is recommended that surveys be conducted for this species no more than 30 days prior to construction. If western pond turtles are found, then the project biologist should conduct a pre-construction worker awareness training and be on-site to monitor construction during initial vegetation clearing and ground disturbance. If any western pond turtles or eggs must be relocated during the project, a relocation plan should be submitted to CDFW for approval prior to relocation. The relocation plan should establish western pond turtle handling procedures and identify suitable habitat where the western pond turtles will be released. Release sites should be suitable habitat located as close as possible to the project site. Alternatively, if the SSHCP is adopted and the SSHCP covers the proposed project, then the project proponent may elect to compensate for unavoidable impacts through participation in the SSHCP.

Non-Participating Properties

Ponds and the surrounding uplands on the non-participating properties may also provide habitat for the northwestern pond turtle. To ensure that development of these properties does not have an adverse effect on this species, the owner(s) will conduct preconstruction surveys and, if western pond turtles are found, implement mitigation as discussed above with respect to Excelsior Estates.

Impacts to Western Spadefoot

Excelsior Estates

Any impacts to vernal pools within the Excelsior Estates property could potentially impact western spadefoots. Prior to construction in or around vernal pools it is recommended that surveys be conducted for this species no more than 30 days prior to construction. If western spadefoots are found, then the project biologist should conduct a

pre-construction worker awareness training and be on-site to monitor construction during initial vegetation clearing and ground disturbance. If any western spadefoots must be relocated during the project, a relocation plan should be submitted to CDFW for approval prior to relocation. The relocation plan should establish western spadefoot handling procedures and identify suitable habitat where the western spadefoot will be released. Release sites should be suitable habitat located as close as possible to the project site.

Non-Participating Properties

Vernal pools and the surrounding uplands on the non-participating properties may also provide habitat for the western spadefoot. To ensure that development of these properties does not have an adverse effect on this species, the owner(s) will conduct preconstruction surveys and, if western spadefoots are found, implement mitigation as discussed above with respect to Excelsior Estates.

Impacts to Swainson's Hawk Foraging and Nesting Habitat

Excelsior Estates

At the time of preparation of this BRA there were no active Swainson's hawk nests within five miles of the site, however there are several within five to 10 miles of the site. Any impacts to the pasture and grasslands on site could impact potential foraging habitat for Swainson's hawk. If Sacramento County, in conjunction with CDFW, determines that impacts to Swainson's hawk foraging habitat will occur as a result of the project, these impacts can be mitigated through participation in the Sacramento County's Swainson's Hawk Mitigation Program or pursuant to CDFW's 1994 *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks* (*Buteo swainsoni*) *in the Central Valley of California* as described above in **Section 4.3.3**.

In addition, trees on and adjacent to the site represent potential nesting habitat for this species. All trees on site and within a ½ mile of the site should be surveyed for nesting Swainson's hawks. These surveys should be conducted prior to any intensive new disturbances associated with construction or other project-related activities that may cause nest abandonment or forced fledging between March 1 and September 15. If project related activities may cause nest abandonment or forced fledging, the nest site should be monitored by a qualified biologist.

If the SSHCP is adopted and the SSHCP covers the proposed project, then the project proponent may elect to compensate for unavoidable impacts to Swainson's hawk nesting and foraging habitat through participation in the SSHCP.

Non-Participating Properties

The annual grassland and trees on the non-participating properties also provides suitable Swainson's hawk foraging and nesting habitat. Prior to development of these properties, the owner(s) will consult with the County to determine whether impacts to Swainson's hawk foraging habitat will occur as a result of construction activities. With respect to the trees on the non-participating properties, the owners will conduct preconstruction surveys

and, if Swainson's hawks are found, implement mitigation as discussed above with respect to Excelsior Estates.

Impacts to Western Burrowing Owl

Excelsior Estates

Any impacts to the grasslands and associated ground squirrel burrow colonies could potentially impact western burrowing owls. Since burrowing owls have been observed on the site, but are not known to nest on the site, a protocol nesting survey is recommended during the nesting season prior to construction. Currently, CDFW's 2012 *Staff Report on Burrowing Owl Mitigation* recommends conducting four surveys of the project site and surrounding 500 feet, where accessible, during the breeding season: one survey between February 15 and April 15 and three between April 15 and July 15. If an active burrowing owl nest is determined to be present within 500 feet of the project site during the surveys, then an avoidance plan should be developed and approved by CDFW. The avoidance plan should identify measures to minimize impacts to burrowing owls, such as worker awareness training, buffer zones, work scheduling, and biological monitoring.

If no burrowing owls are identified during the breeding season surveys, a pre-construction survey for burrowing owls is recommended within 24 hours prior to the start of ground disturbance. If burrowing owls are found during the pre-construction survey, CDFW should be contacted to develop an avoidance plan, as described above.

Alternatively, if the SSHCP is adopted and the SSHCP covers the proposed project, then the project proponent may elect to compensate for unavoidable impacts to western burrowing owl through participation in the SSHCP.

Non-Participating Properties

The annual grassland on the non-participating properties also provides suitable burrowing owl habitat. To ensure that development of these properties does not have an adverse effect on this species, the owner(s) will conduct preconstruction surveys and, if western burrowing owls are found, implement mitigation as discussed above with respect to Excelsior Estates.

Impacts to Other Raptors and Migratory Birds

Excelsior Estates

As discussed earlier, the Excelsior Estates property represents potential foraging and nesting habitat for raptors. Raptors with a *high* potential to occur on site include: northern harrier, red-tailed hawk, and white-tailed kite. Additionally, suitable nesting habitat for migratory birds such as loggerhead shrike and tri-colored blackbird occurs on site. Active raptor nests are protected by the California Fish and Game Code Section 3503.5 and the MBTA. For this reason, if any project related activity or other disturbance is expected to occur during the nesting season (February through August), a pre-construction raptor survey is recommended to determine whether raptors are actively nesting on or within 500 feet of the site. The survey should be conducted by a qualified

biologist no more than 30 days from the onset of disturbance to the site. If the nests are found and considered to be active, project related disturbance should not occur within 500 feet of the nests until the young have fledged. If active migratory bird nests are found the CDFW should be consulted for mitigation measures that may be required. If construction activities are proposed to occur during non-breeding season (September through January), a pre-construction survey is not required and no further studies are necessary. Alternatively, if the SSHCP is adopted and the SSHCP covers the proposed project, then the project proponent may elect to compensate for unavoidable impacts to nesting and foraging habitat of raptors and migratory birds through participation in the SSHCP.

Non-Participating Properties

The non-participating properties have the potential to contain nesting raptors and other birds. Accordingly, prior to commencing ground disturbance or construction during the nesting season, the non-participating owner(s) shall conduct pre-construction surveys and implement mitigation, if needed, as described above.

6.2.3 Impacts to Sensitive Habitats

Impacts to Jurisdictional Waters

Excelsior Estates

Sensitive habitats identified include: Morrison Creek, vernal pools, marshes, and other potential jurisdictional waters. The site supports approximately 53.80 acres of jurisdictional waters (**Table 1 and Figure 7**). These areas are subject to regulation by the Corps pursuant to Section 404 of the Clean Water Act and the RWQCB pursuant to Section 401 of the Clean Water Act. Additionally, these areas are protected under the *Sacramento County General Plan*. Prior to discharging into waters of the U.S., the project proponent shall comply with Sections 401 and 404 of the Clean Water Act. Any waters of the U.S. that would be lost or disturbed should be replaced or restored on a "no-net-loss" basis in accordance with the Corps' current mitigation guidelines.

Non-Participating Properties

The non-participating properties support approximately 15.35 acres of wetlands and other potential jurisdictional waters. Prior to impacting the wetland resources on the non-participating properties, the non-participating owner(s) shall obtain a wetland delineation to determine whether the wetlands are subject to the jurisdiction of the Corps and/or the RWQCB. Depending on the results of the delineation, the non-participating owner(s) shall consult with the Corps and/or RWQCB, as appropriate, to determine whether permits are required for their proposed activities.

Impacts to Riparian Habitats

Excelsior Estates

The intermittent drainage on the northeastern corner of the Excelsior Estates property is expected to be subject to CDFW jurisdiction. Additionally, CDFW may exert

jurisdiction over the riverine seasonal marsh and wetlands. If project activities will affect the bed, bank or associated riparian vegetation of a stream or lake, the applicant shall notify the CDFW pursuant to Section 1600 of the Fish and Game Code before engaging in such activities. If appropriate, the project applicant shall enter into a Streambed Alteration Agreement with CDFW and coordinate with CDFW in developing appropriate mitigation, and should abide by the conditions of any executed agreements.

Non-Participating Properties

While it is unlikely that the riverine seasonal wetlands on the non-participating properties would be subject to CDFW jurisdiction, CDFW recommends that a 1600 Streambed Alteration Notification be submitted for all projects. If CDFW determines that they do not have jurisdiction, then the application fee will be refunded. Prior to impacting potential riparian habitat, the property owners will consult with CDFW to determine if a 1600 Streambed Alteration Agreement is required.

Impacts to Protected Trees

Excelsior Estates

A Tree Permit is required prior to removal of any native oak tree. Other native trees and landscape trees are protected by General Plan Policies CO-139 and CO-145, which require replacement of trees removed based on trunk diameter and canopy cover, respectively. Although on-site mitigation planting is preferred, other mitigation options, including off-site planting or payment to the County's Tree Preservation Fund, may be considered. A total of 175, consisting of 28 native trees and 147 landscape trees were mapped on the Excelsior Estates site. There is one native oak tree located in the northwest corner of the property, which will require a Tree Permit prior to removal or pruning. The trunk diameter of the native trees totals 1,004 inches. Per Policy CO-139, these trees should be replaced with like species. There is approximately 1.75 total acres of tree canopy on the Excelsior Estates site, which would need to be replaced in accordance with the General Plan Policy CO-145.

Once construction documents are prepared, impacts to protected trees should be evaluated and mitigation requirements calculated in accordance with applicable Sacramento County policies. The construction documents should be reviewed during the approval process to ensure that required mitigation measures are being met.

Non-Participating Properties

Prior to development on the non-participating properties, a tree survey should be completed by an ISA-Certified Arborist to identify the species and size of trees located on these properties. Removal of any trees must comply with the Sacramento County Tree Ordinance and General Plan.

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Participating Property ± 889 Acres

Non-Participating Property ± 478 Acres

38.536° N
-121.2924° W

38.511° N
-121.2669° W

EXCELSIOR ESTATES ± 889 Acres

JACKSON TOWNSHIP ± 1367 Acres

DETAIL AREA

Roseville Granite Bay Orangevale Rio Linda Citrus Heights Folsom North Highlands Fair Oaks Carmichael Gold River Arden-Arcade Sacramento Rancho Cordova Rosemont Rancho Murieta Florin Vineyard Elk Grove Laguna Wilton

Mather Airport
Mather Golf Course
Cordova Golf Course
Woodring Dr
McRoberts Dr
Morrison Creek
Kiefer Blvd
Bradshaw Rd
Mayhew Rd
Jackson Rd
Excelsior Rd
Eagles Nest Rd
Sunrise Blvd
Elder Creek Rd
Florin Rd
Jackson Highway
CA-16
CR-E2
Grant Line Rd
Mossy Stone Way

USGS 7.5 Min. Carmichael Quad
Township 8N, Range 6E, Portions of
Sections 23, 24, 25, & 26
Datum: NAD 83 State Plane CA Zone II
Approximate acreage: ± 1367 Acres

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SITE AND VICINITY

N

0 2500 5000
Scale in Feet
1 inch = 3,000 feet

Drawn By: MUB
Date: 08/10/2015

FIGURE 1

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PROJECT SITE
± 1367 Acres

Keifer Blvd

Jackson Highway

Excelsior Rd

Eagles Nest Rd

Jackson Highway

LEGEND

Participating Property ± 889 Acres

Non-Participating Property ± 478 Acres

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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PARTICIPATING AND NON-PARTICIPATING PROPERTY OWNERS

FOOTHILL ASSOCIATES
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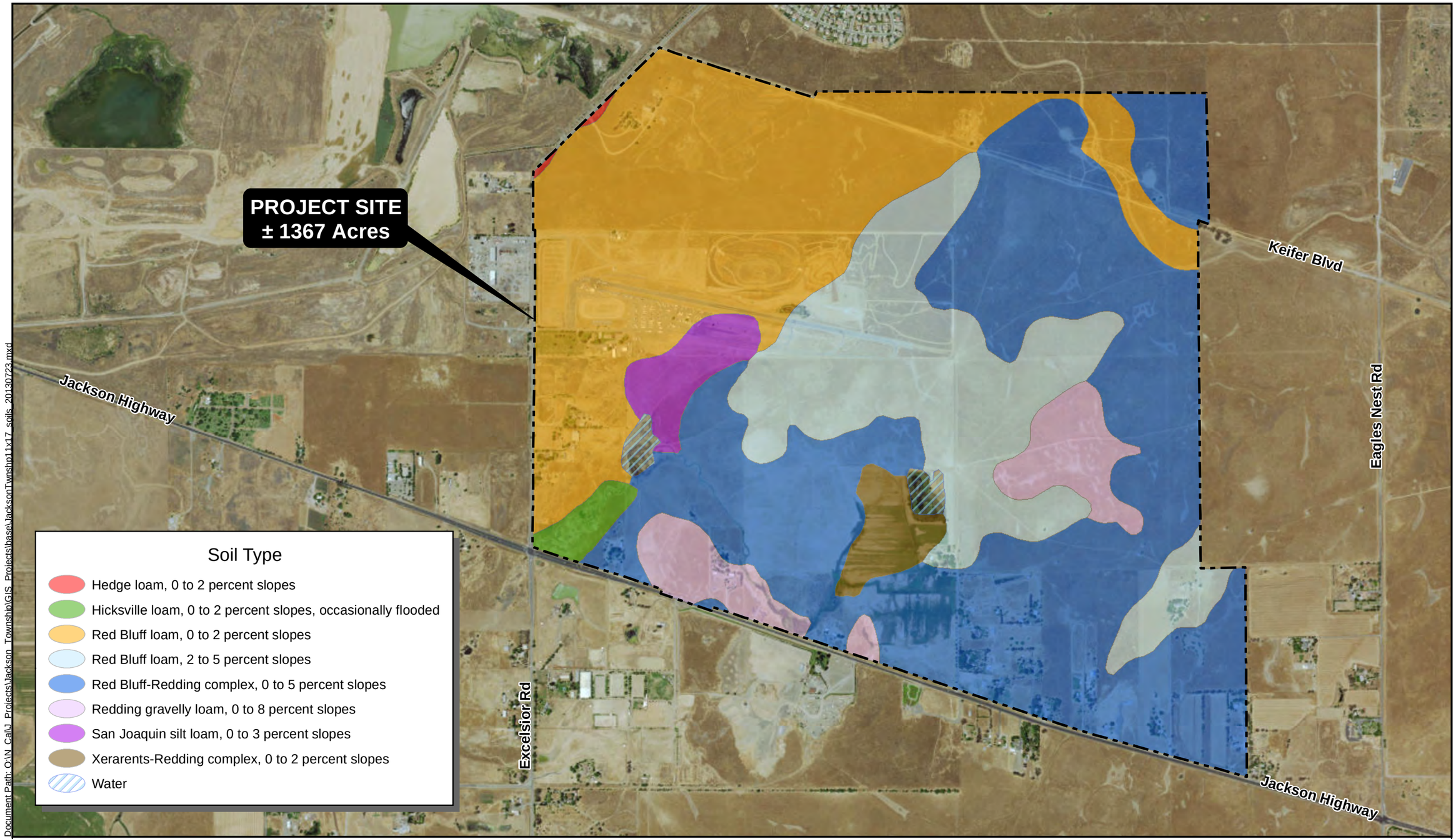
N

0 960 1920
Scale in Feet
1 inch = 1,500 feet

Drawn By: MUB
Date: 08/10/2015

FIGURE 2

Document Name: JacksonTwnshpParticipatingProperties_20131014



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SOILS

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N

0 1000 2000
Scale in Feet
1 inch = 1,500 feet

Drawn By: MUB
Date: 08/10/2015

FIGURE 3

JACKSON TOWNSHIP SPECIFIC PLAN AREA

Document Name: JacksonTwnshp11x17_soils_20130723

CNDDB
5 Mile Buffer

CNDDB

Common Name

- Ahart's dwarf rush
- Boggs Lake hedge-hyssop
- legenere
- Sacramento orcutt grass
- Sanford's arrowhead
- slender orcutt grass
- California linderiella
- midvalley fairy shrimp
- vernal pool tadpole shrimp
- vernal pool fairy shrimp
- Ricksecker's water scavenger beetle
- hairy water flea
- valley elderberry longhorn beetle
- western pond turtle
- western spadefoot
- American badger
- burrowing owl
- Cooper's hawk
- ferruginous hawk
- golden eagle
- great blue heron
- great egret
- Swainson's hawk
- tricolored blackbird
- white-tailed kite

Document Path: O:\N_Cal\J_Projects\Jackson_Township\GIS_Projects\base\JacksonTwnshp11x17_cnddb_20130723_new.mxd

CALIFORNIA NATURAL DIVERSITY DATABASE

FOOTHILL ASSOCIATES
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JACKSON TOWNSHIP

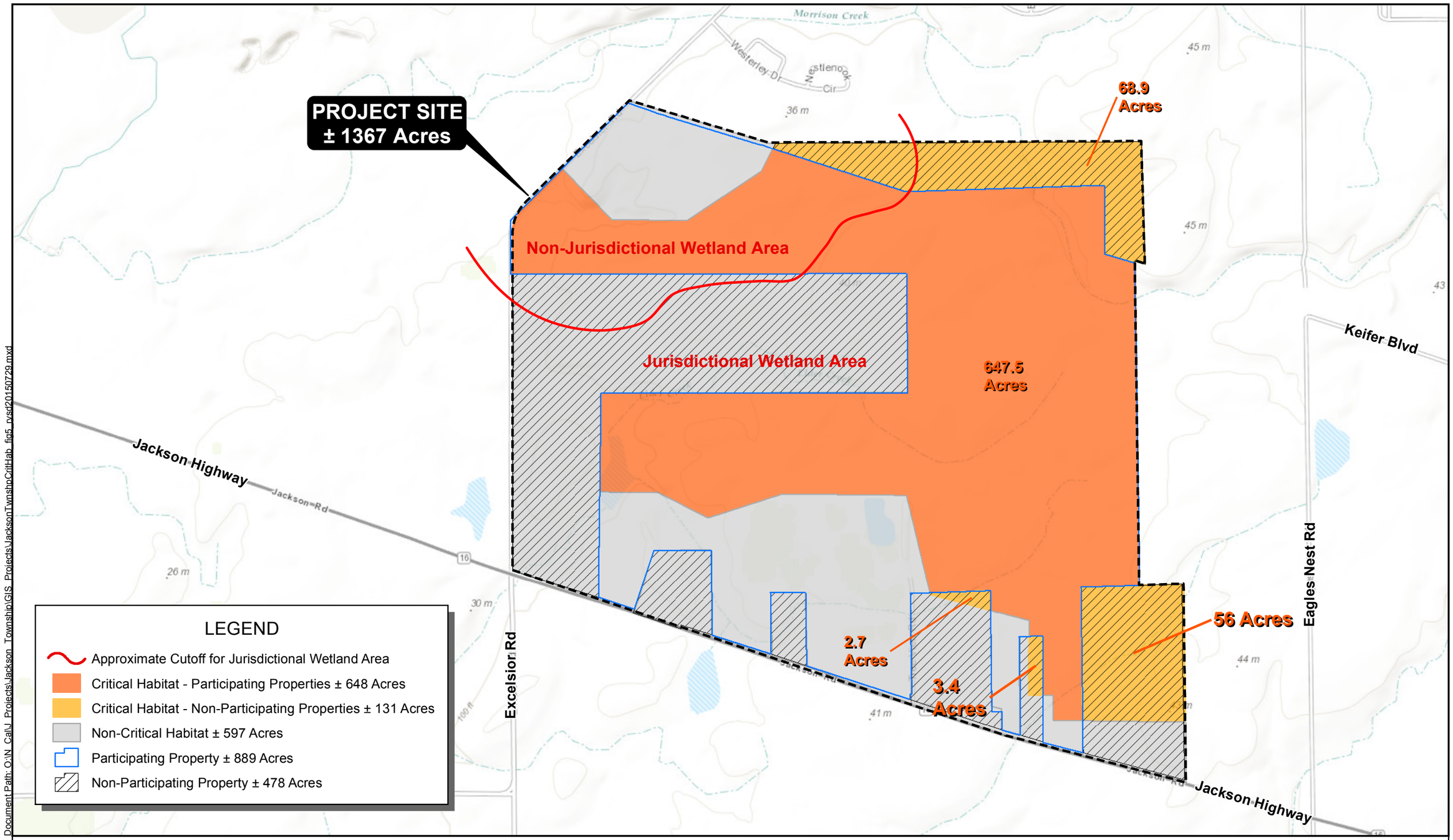
N

0 2 4
Scale in Miles
1 inch = 2 miles

Drawn By: MUB
Date: 08/10/2015

FIGURE 4

Document Name: JacksonTwnshp11x17_cnddb_20130723_new



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CRITICAL HABITAT

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N

0 800 1600
Scale in Feet
1 inch = 1,250 feet

Drawn By: MUB
Date: 08/10/2015

FIGURE 5

Document Name: JacksonTwnshpCritHab_fig5_rvsd20150729

PROJECT BOUNDARY
± 1367 Acres

Wetlands

- Depressional Perennial Marsh - 1.10 Acres
- Depressional Seasonal Wetland - 4.86 Acres
- Vernal Pool - 32.56 Acres
- Riverine Perennial Marsh - 11.24 Acres
- Riverine Seasonal Wetland - 10.75 Acres
- Ephemeral Drainage - 0.27 Acres
- Intermittent Drainage - 1.49 Acres
- Ditch - 0.31 Acres
- Pond - 6.58 Acres

Biological Communities

- Annual Grassland - 912.69 Acres
- Developed/Disturbed - 3.38 Acres
- Industrial / Commercial - 160.53 Acres
- Irrigated Pasture - 95.68 Acres
- Rural Residential - 125.80 Acres

Other Features

- Native Tree
- Landscape Tree
- Non-Participating Property
- Site Boundary - 1367 Acres

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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BIOLOGICAL COMMUNITIES
Jackson Township Specific Plan Area

N

0 500 1,000
SCALE IN FEET

FIGURE 6

Document Name: JxnTwnshp_bio_comms_20150729 : 10/23/2015 10:40:29 AM

WETLAND DELINEATION	PARTICIPATING PROPERTIES	NON-PARTICIPATING PROPERTIES	TOTAL
DEPRESSIONAL WETLANDS			
Depressional Seasonal Wetland	4.41	0.44	4.86
Depressional Perennial Marsh	1.03	0.06	1.10
Vernal Pool	27.85	4.71	32.56
RIVERINE WETLANDS			
Riverine Seasonal Wetland	3.70	7.06	10.75
Riverine Perennial Marsh	10.05	1.19	11.24
OTHER WATERS OF THE U.S.			
Intermittent Drainage	1.19	0.30	1.49
Ephemeral Drainage	0.23	0.04	0.27
Pond	5.04	1.55	6.58
Ditch/Canal	0.31	0.00	0.31
Total Acres:	53.80	15.35	69.16

OTHER FEATURES

- Culvert
- Data Point
- Topographic Contour
- Excelsior Estates Boundary
- Participating Property
- Non-Participating Property

N

0 300 600 1,200

Feet

1 inch = 300 feet

DELINEATED WATERS OF THE U.S.

JACKSON TOWNSHIP SPECIFIC PLAN AREA

FIGURE 7

FOOTHILL ASSOCIATES

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Drawn By: MUB
Date: 10/22/2015

JACKSON TOWNSHIP SPECIFIC PLAN AREA

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VERNAL POOL TURBIDITY FROM KIEFER BOULEVARD

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N

0 350 700
SCALE IN FEET

Drawn By: RJM
Date: 06/12/09

FIGURE 8

Appendix A — Arborist Report [for the] Jackson Township Specific Plan Area, Sacramento County, California, dated February 10, 2015

Arborist Report

Jackson Township Specific Plan Area
Sacramento County, California

Prepared for: Tsakopoulos Investments

Date: February 10, 2015

Submitted by:

FOOTHILL ASSOCIATES

Table of Contents

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1.0 INTRODUCTION

This report presents the results of a tree survey conducted for the approximately 1,391 acre Jackson Township Specific Plan Area (JTSPA) (Plan Area) (**Figure 1**). The largest owner within the JTSPA, Excelsior Estates LLC (Excelsior Estates), owns and/or controls approximately 866 acres (approximately 62%) within the Plan Area boundaries. The remainder of the JTSPA is owned by other, non-participating property owners.

The survey area is located within Sacramento County, north of Jackson Highway approximately four miles east of Sacramento City limits. The Excelsior Estates property is currently used for livestock grazing and includes two residences. The non-participating properties are mostly rural residential rangeland as well as a racetrack. Land uses surrounding the study area include rangeland, rural residential, and cropland. Habitat types occurring on Excelsior Estates property include annual grasslands, irrigated pasture and ditches, northern hardpan vernal pools, seasonal wetlands, marsh, irrigation ponds, and ephemeral drainages. The purpose of this report is to present information on the species, size, and condition of the trees located on the Excelsior Estates property and an estimate of protected trees occurring on the non-participating properties.

The County of Sacramento regulates removal and impacts of protected trees under the Tree Preservation Ordinance, Chapter 19.12 of the County Code. Under the Ordinance, all native oak trees, defined as valley oak (*Quercus lobata*), interior live oak (*Quercus wislizeni*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*), with at least one trunk of six inches or more in diameter at breast height or an aggregate diameter of ten inches or more for multi-trunk trees, are protected. The Ordinance also gives special consideration to Landmark Trees, which are prominent or stately trees of any species that are in good health and structural condition, and Heritage Trees, which are any native oak with a trunk diameter of 19 inches or larger.

In addition, as part of the environmental review process, the Sacramento County Community Development Department, Planning and Environmental Review considers both the removal of certain native and non-native trees and the encroachment of construction activities into the protected zones of these trees. Native trees are defined as native oaks Northern California black walnut (*Juglans hindsii*), California sycamore (*Platanus racemosa*), Oregon ash (*Fraxinus latifolia*), Goodding's black willow (*Salix gooddingii*), California box elder (*Acer negundo* var. *californicum*), California buckeye (*Aesculus californica*), and white alder (*Alnus rhombifolia*) with a trunk diameter of four inches or greater. The County's General Plan establishes a goal of protecting both oaks and other non-oak native species. Policy CO-139 provides that non-oak native trees which cannot be protected through preservation should be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed. For impacts to non-native trees, Policy CO-145 requires that removal of non-native tree canopy shall be mitigated by creating equivalent canopy on-site.

2.0 METHODS

The methods utilized by Foothill Associates' arborists in this survey vary depending on the property. Access was granted to the Excelsior Estates property, which was surveyed on foot. Non-participating properties were surveyed remotely, as described below.

2.1 Excelsior Estates Property

The Excelsior Estates property was surveyed by an International Society of Arboriculture (ISA) Certified Arborist on March 5 and 6, 2014. All existing trees were closely examined to determine their species type and diameter at breast height (DBH). A diameter tape or calipers was used to verify each trunk diameter at the industry standard of 54 inches above grade. All trees with trunks greater than four inches in diameter were inventoried, or otherwise described. The measurement from the trunk to the end of the longest lateral limb was used as the dripline radius (DLR). All of the inventoried trees have been numbered in the field with an aluminum tag, which corresponds to the numbering in **Appendix A**.

The health and structural condition of each tree was rated according to **Table 1** below. The health rating considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency, and insect infestation. The structural rating reflects the trunk and branch configuration; canopy balance; the presence of included bark and other structural defects such as decay; and the potential for structural failure. In cases where conditions fall between the Good, Fair, and Poor ratings, intermediate ratings Fair-Good and Poor-Fair were used.

2.2 Non-Participating Properties

The non-participating properties were visually surveyed from public roads by an International Society of Arboriculture (ISA) Certified Arborist on April 14, 2014. The non-participatory properties were subdivided into 21 areas (**Figure 2**). Trees in each area were identified by species and approximate size, as shown in **Appendix B**.

Table 1 — Tree Rating System

Rating	Tree Health
Good	There is an average or below-average amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density are typical for the species; buds are normal size, viable, abundant, and uniform throughout the canopy; current and past growth increments are generally average or better; any callusing is vigorous. This health rating indicates that there is very little, if any, evidence of stress, disease, nutrient deficiency, and/or insect infestation.
Fair	There is an above-average amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density may be below what is typically expected for the species; buds are normal size and viable, but slightly sparse throughout the canopy; current and past growth increments may be below average; tree may be slow to callus around old wounds. This health rating indicates that there is moderate evidence of stress, disease, nutrient deficiency, and/or insect infestation.
Poor	There is an extreme amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density are clearly compromised; very few viable buds are present throughout the canopy; current and past growth increments are meager; no evidence of callusing around old wounds. This health rating indicates that there is widespread evidence of stress, disease, nutrient deficiency, and/or insect infestation.
	Tree Structure
Good	No wounds, cavities, decay, or indication of hollowness are evident in the root crown, trunk, or primary and secondary limbs; no anchor roots are exposed; no codominant branching or multiple trunk attachments are present; very little included bark at branch attachments exists; no dead primary or secondary limbs are present in canopy; there have been no major limb failures; limbs are not overburdened; branching structure is appropriate for species; any decay is limited to small dead branches/stubs. This structure rating represents a low potential for failure.
Fair	With respect to the size of the tree, small to moderate wounds, cavities, decay, and indication of hollowness may be evident in the root crown, trunk, and/or primary and secondary limbs; some anchor roots may be exposed; codominant branching or multiple trunk attachments may be present, but included bark does not exist or is not well developed; minor to moderate amounts of included bark at branch attachments may exist; there may be small to moderate amounts of large dead limbs in canopy, but there is no evidence of large limb failures; limbs may be slightly overburdened; branching structure and/or canopy balance may be moderately altered by the tree's growing environment. This structure rating represents a moderate potential for failure.
Poor	With respect to the size of the tree, significant wounds, cavities, decay, and/or indication of hollowness may be evident in the root crown, trunk, and/or primary and secondary limbs; anchor roots may be exposed and/or the tree may have lost anchorage; codominant branching or multiple trunk attachments may be present; significant amounts of included bark may exist in trunk and branch attachments; there may be significant amounts of large dead limbs in the canopy; there may be evidence of trunk or large limb failures; limbs may be severely overburdened; branching structure and/or canopy balance may be drastically altered by the tree's growing environment. This structure rating represents a high potential for failure.

3.0 RESULTS AND DISCUSSION

3.1 Excelsior Estates Property

A total of 175 trees were inventoried on the Excelsior Estates property. Most trees were non-native trees planted near existing residences. Native willows and cottonwoods were observed in mesic sites. Native trees included: 25 black willow (*Salix gooddingii*), 13 black walnut (*Juglans hindsii*), 3 California sycamore (*Platanus racemosa*), 6 Fremont cottonwoods (*Populus fremontii*), and 1 interior live oak (*Quercus wislizeni*). Non-native trees inventoried on the site included 45 eucalyptus (*Eucalyptus* spp.), 8 pine (*Pinus* spp.), 24 black locust (*Robinia pseudoacacia*), 18 tree of heaven (*Ailanthus altissima*), 8 elm (*Ulmus* sp.), 3 plum (*Prunus* sp.), 1 Chinese pistache (*Pistacia chinensis*), 1 cork oak (*Quercus suber*), 3 edible fig (*Ficus carica*), 1 sweetgum (*Liquidambar styraciflua*), 1 southern magnolia (*Magnolia grandiflora*), 10 white mulberry (*Morus alba*), 3 willow (*Salix* spp.), and 1 Lombardy poplar (*Populus nigra*) (**Figure 2**). There are no Heritage Trees on the Excelsior Estates property and no trees are recommended for preservation as Landmark Trees.

Table 2 summarizes the surveyed trees by their health and structure ratings. **Appendix A** shows detailed tree data for all surveyed trees.

Table 2 — Excelsior Estates Protected Trees by Health and Structure Ratings

		Structure					
		Good	**Fair-Good**	**Fair**	**Poor-Fair**	**Poor**	**Total Trees**
Health	**Good**	40	23				63
	Fair-Good	7	15	3			25
	Fair	4	15	19	6		44
	Poor-Fair			9	13		22
	Poor			2	3	16	21
	Total Trees	**51**	**53**	**33**	**22**	**16**	**175**

As a whole, most of the trees are in relatively good condition. Seventy-five percent (132 out of 175) of all inventoried trees rated Fair or better in health, and 59 percent (104 out of 175) rated Fair or better in structure. Many of the black willows surrounding the large pond in the center of the site are old trees that are in Poor condition.

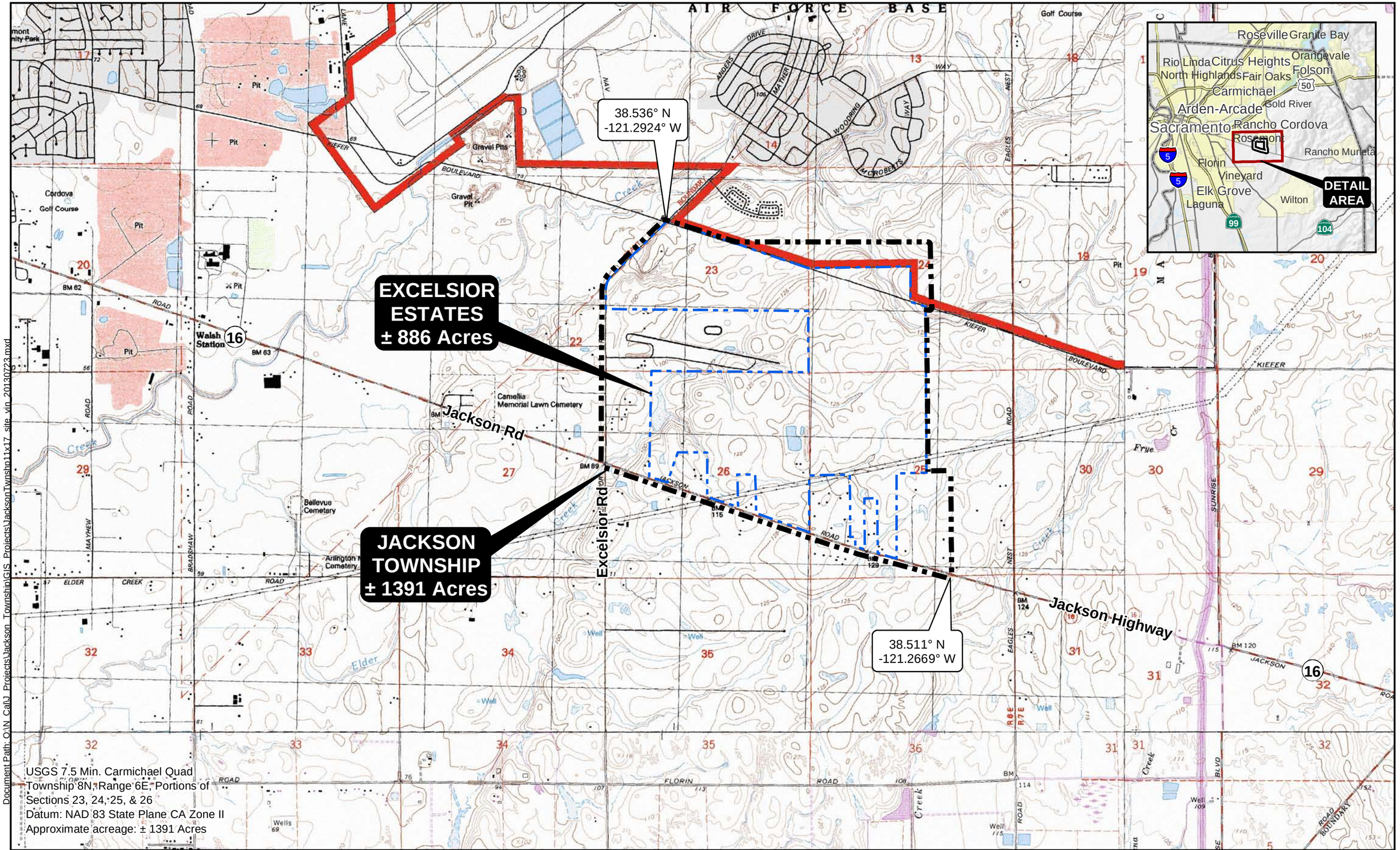
3.2 Non-Participating Properties

A total of 628 trees were recorded on the non-participating properties. Forty-eight native trees were identified, including 5 black walnut, 31 Fremont cottonwood, 2 interior live oak, 3 red willow (*Salix laevigata*), 5 California sycamore, and 2 valley oak (*Quercus lobata*). Non-native species identified on the non-participating properties included tree of

heaven, black locust, catalpa (*Catalpa* sp.), coast redwood (*Sequoia sempervirens*), cork oak, deodar cedar (*Cedrus deodara*), domestic almond (*Prunus dulcis*), elm, eucalyptus, Italian cypress (*Cupressus sempervirens*), sweetgum, Lombardy poplar, maple (*Acer* sp.), white mulberry, olive (*Olea europaea*), pine, plum, privet (*Ligustrum* sp.), red maple (*Acer rubrum*), silver wattle (*Acacia dealbata*), and willows. Most of these trees were planted as landscape trees around existing residences and appeared to be in Fair or better health. None of the native oaks appear large enough to be considered Heritage Trees. No trees are recommended for preservation as Landmark Trees. **Appendix B** includes estimated data for trees observed on the non-participating properties.

3.3 Environmental Review and Mitigation

In accordance with the Tree Preservation Ordinance, removal of the 3 interior live oaks and 2 valley oaks must be authorized as a condition of approval of the JTSPA entitlements (Sacramento County Code, Section 19.12.060). In addition, the impact of removing other native trees will be considered during the environmental review of the project during the California Environmental Quality Act (CEQA) process. As previously discussed, any native trees removed during development must be mitigated in-kind on an inch per inch basis as required by Policy CO-139. Policy CO-140 specifies the various methods for mitigating such impacts, including planting replacement trees on-site or off-site, or the payment of a sum equivalent to the replacement cost of the impacted trees into the County's Tree Preservation Fund or another appropriate tree preservation fund. Additionally, according to General Plan Policy CO-145, mitigation for the loss of non-native tree canopy may be required by the County as part of the project review and approval process. This mitigation would include creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. Although on-site mitigation is generally preferred, payment of in-lieu fees to the County's Tree Preservation Fund or the Greenprint Initiative may be considered (See Policy CO-146).



USGS 7.5 Min. Carmichael Quad
Township 8N, Range 6E, Portions of Sections 23, 24, 25, & 26
Datum: NAD 83 State Plane CA Zone II
Approximate acreage: ± 1391 Acres

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SITE AND VICINITY

N

0 2500 5000
Scale in Feet
1 inch = 3,000 feet

Drawn By: MUB
Date: 02/10/2015

FIGURE 1

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PROJECT BOUNDARY

Approximate Tree Locations

Tree Survey Area (Non-Participatory Areas)

Excelsior Estates Boundary (±886 Acres)

Jackson Township Boundary (±1391 Acres)

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Document Path: O:\N_Cal\J_Projects\Jackson_Township\GIS_Projects\JacksonTownship_Trees_20150210.mxd

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APPROXIMATE TREE LOCATIONS
JACKSON TOWNSHIP

N

0 500 1,000
SCALE IN FEET

FIGURE 2

JACKSON TOWNSHIP SPECIFIC PLAN AREA

Document Name: JacksonTownship_Trees_20150210 : 2/10/2015 1:06:36 PM

Appendix A — Excelsior Estates Tree Survey Data

Appendix A — Excelsior Estates
Tree Survey Data

Tree #	Species	# of Trunks	DBH (inches)	DLR (feet)	Health	Structure	Notes
301	Black Walnut	1	33	15	Poor	Fair	dead wood, rot
302	Black Willow	1	8	6	Fair	Poor-Fair	sprouts from old trunk
303	Black Willow	1	37	15	Fair-Good	Fair-Good	
304	Fremont Cottonwood	1	6	4	Poor	Poor	1 limb alive
305	Fremont Cottonwood	1	12	6	Poor-Fair	Fair	
306	Black Willow	1	27	10	Poor	Poor	dead top
307	Black Willow	1	15	6	Poor	Poor	dead top
308	Black Willow	1	8	3	Poor	Poor	
309	Black Willow	2	8,6	5	Poor-Fair	Poor-Fair	
310	Black Willow	1	21	10	Poor	Poor	
311	Black Willow	2	16,16	9	Poor-Fair	Poor-Fair	
312	Black Willow	1	16	5	Poor	Poor	nearly dead
313	Black Willow	3	14,9,7	10	Poor-Fair	Poor-Fair	
314	Black Willow	1	18	9	Fair	Poor-Fair	
315	Black Willow	1	20	15	Fair-Good	Fair-Good	
316	Black Willow	2	18,10	10	Poor-Fair	Poor-Fair	
317	Black Willow	5	10,9,8,7,7	10	Fair	Poor-Fair	
318	Black Willow	1	28	20	Fair	Fair	
319	Black Willow	3	18,18,15	15	Fair-Good	Fair-Good	
320	Black Willow	2	10,7	12	Poor-Fair	Poor-Fair	
321	Black Willow	1	35	25	Fair-Good	Fair-Good	
322	Black Willow	2	40,18	20	Poor-Fair	Poor-Fair	
323	Black Willow	2	16,5	8	Poor-Fair	Poor-Fair	
324	Black Willow	2	4,3	6	Fair	Fair	
325	Black Willow	2	15,4	8	Poor-Fair	Poor-Fair	
326	Black Willow	1	15	12	Poor-Fair	Poor-Fair	
327	Black Willow	1	16	6	Poor	Poor	
330	Pine	1	28	10	Good	Good	
331	Pine	1	32	12	Good	Good	
332	Pine	1	19	10	Good	Good	
333	Fremont Cottonwood	3	16,13,12	12	Fair	Fair	
334	California Sycamore	1	9	11	Good	Fair-Good	
335	California Sycamore	1	13	10	Good	Fair-Good	
336	California Sycamore	1	15	12	Good	Good	
337	Eucalyptus	4	12,12,9,5	12	Good	Good	
338	Fremont Cottonwood	5	12,12,12,10,10	12	Fair-Good	Fair-Good	
339	Sweetgum	1	6	5	Fair-Good	Fair-Good	
340	Interior Live Oak	3	6,6,6	8	Fair-Good	Fair-Good	
341	Fremont Cottonwood	1	6	4	Good	Fair-Good	
342	Fremont Cottonwood	1	4	5	Good	Fair-Good	
343	Elm	1	5	6	Good	Fair-Good	
345	Elm	1	8	8	Good	Good	
346	Plum	1	5	5	Good	Good	
347	Eucalyptus	2	7	16	Fair	Good	
348	Pine	5	12,6,6,8,8	6	Fair	Fair-Good	
349	Pine	1	16	8	Fair	Fair	
350	Pine	2	16,14	8	Fair	Fair	

Appendix A — Excelsior Estates
Tree Survey Data

Tree #	Species	# of Trunks	DBH (inches)	DLR (feet)	Health	Structure	Notes
351	Elm	1	14	10	Good	Good	
352	Eucalyptus	1	18	8	Good	Good	
353	Elm	2	8,8	5	Poor	Poor	
354	Eucalyptus	1	17	10	Good	Good	
355	Cork oak	1	17	10	Good	Good	
356	Eucalyptus	1	7	6	Good	Good	
357	Eucalyptus	1	6	5	Poor	Poor	
358	Eucalyptus	3	8,6,4	6	Poor-Fair	Fair	
359	Eucalyptus	4	12,6,8,6	8	Fair	Fair	
360	Eucalyptus	2	14,10	6	Good	Fair-Good	
361	Eucalyptus	1	7	6	Fair	Fair	
362	Eucalyptus	1	10	5	Poor-Fair	Poor-Fair	
363	Eucalyptus	2	10,6	5	Fair	Fair	
364	Eucalyptus	1	8	5	Fair	Fair	
365	Eucalyptus	3	12,10,10	8	Good	Good	
366	Eucalyptus	1	9	10	Good	Good	
367	Eucalyptus	1	10	10	Good	Good	
368	Eucalyptus	2	12,12	8	Fair-Good	Good	
369	Eucalyptus	1	9	6	Poor-Fair	Fair	
370	Eucalyptus	2	4,4	3	Poor-Fair	Poor-Fair	
371	Eucalyptus	1	9	4	Good	Fair-Good	
372	Eucalyptus	2	13,14	6	Good	Good	
373	Eucalyptus	1	9	6	Good	Good	
374	Eucalyptus	1	10	4	Good	Good	
375	Eucalyptus	4	8,6,6,6	8	Good	Good	
376	Eucalyptus	1	17	10	Fair-Good	Good	
377	Eucalyptus	1	12	6	Poor	Poor	
378	Eucalyptus	1	14	3	Poor	Poor	Nearly Dead
379	Eucalyptus	1	16	8	Fair	Fair	
380	Eucalyptus	1	16	6	Fair	Fair	
381	Eucalyptus	2	12,12	10	Good	Good	
382	Eucalyptus	1	13	8	Good	Good	
383	Eucalyptus	5	12,10,5,7,9	12	Fair-Good	Good	
384	Pine	1	14	10	Good	Good	
385	Elm	1	15	10	Good	Good	
386	Chinese Pistache	1	9	4	Poor	Poor	Dead Top
387	Eucalyptus	4	14,14,6,9	12	Good	Good	Nest
388	Willow	1	12	6	Fair	Fair	No tag, data estimated
389	Willow	1	12	6	Fair	Fair	No tag, data estimated
390	Willow	3	6,8,6	8	Fair	Poor-Fair	No tag, data estimated
3054	Black Locust	1	14	6	Fair	Fair-Good	
3055	Black Locust	1	9	4	Poor	Poor-Fair	
3056	Black Locust	1	5	5	Poor-Fair	Fair	
3057	Black Locust	1	7	5	Fair-Good	Fair-Good	
3058	Black Locust	2	5,3	6	Good	Fair-Good	
3059	Black Locust	1	11	12	Fair	Fair-Good	trunk wound
3060	Black Locust	3	6,5,5	8	Fair-Good	Fair-Good	

Appendix A — Excelsior Estates
Tree Survey Data

Tree #	Species	# of Trunks	DBH (inches)	DLR (feet)	Health	Structure	Notes
3061	Black Locust	1	4	5	Fair-Good	Fair	
3062	Black Locust	1	8	6	Good	Fair-Good	
3063	Black Locust	2	10,11	10	Fair	Fair-Good	
3064	Tree of Heaven	1	4	5	Poor-Fair	Fair	trunk wound
3065	Black Locust	2	8,5	6	Fair	Fair	
3066	Black Locust	1	7	4	Poor	Poor-Fair	
3067	Black Locust	3	9,9,8	4	Fair-Good	Fair-Good	
3068	Black Locust	1	9	6	Poor	Fair	
3069	Tree of Heaven	2	12,10	6	Good	Fair-Good	
3070	Tree of Heaven	1	13	12	Good	Fair-Good	
3071	Tree of Heaven	1	6	6	Fair-Good	Fair	
3072	Tree of Heaven	1	8	6	Good	Fair-Good	
3073	Tree of Heaven	1	5	3	Fair-Good	Fair-Good	
3074	Tree of Heaven	2	8,6	10	Good	Fair-Good	
3075	Tree of Heaven	2	20,15	25	Good	Good	tree house
3076	Tree of Heaven	2	8,8	12	Good	Good	
3077	Black Locust	1	26	15	Fair	Good	basal wound
3078	Tree of Heaven	1	11	12	Good	Fair-Good	
3079	Tree of Heaven	1	7	8	Good	Fair-Good	
3080	Tree of Heaven	4	8,7,7,6	10	Good	Fair-Good	
3081	Tree of Heaven	3	8,3,3	6	Good	Fair-Good	
3082	Tree of Heaven	1	5	8	Good	Fair-Good	
3083	Tree of Heaven	1	6	6	Good	Fair-Good	
3084	Tree of Heaven	1	8	6	Good	Fair-Good	
3085	Tree of Heaven	2	5,4	8	Good	Fair-Good	
3086	Tree of Heaven	2	5,5	5	Good	Fair-Good	
3087	Black Locust	1	8	5	Poor-Fair	Fair	
3088	Black Locust	1	14	10	Fair-Good	Fair-Good	
3089	Black Locust	1	11	6	Fair	Fair-Good	trunk wound
3090	Black Walnut	1	22	20	Good	Good	
3091	Black Walnut	1	23	15	Good	Good	
3092	Lombardy Popular	1	6	2	Fair	Fair	
3093	Black Walnut	1	6	5	Fair	Fair-Good	
3094	Black Walnut	2	8,7	6	Fair	Fair-Good	
4681	Black Walnut	1	8	6	Good	Fair-Good	
4682	Black Locust	1	17	10	Poor-Fair	Poor-Fair	trunk wound
4683	Black Walnut	1	7	8	Fair-Good	Fair-Good	
4684	Plum	1	6	6	Good	Good	
4685	Black Locust	1	19	12	Fair	Fair-Good	trunk wound
4686	Black Walnut	1	9	10	Good	Good	
4687	Black Locust	1	21	15	Fair-Good	Fair-Good	
4688	White Mulberry	1	19	12	Good	Good	
4689	White Mulberry	1	25	15	Poor-Fair	Fair	
4690	Black Walnut	1	30	25	Good	Good	
4691	Southern Magnolia	1	8	6	Fair	Poor-Fair	
4692	White Mulberry	1	22	15	Fair-Good	Good	
4693	Black Walnut	1	17	12	Fair	Fair	

Appendix A — Excelsior Estates
Tree Survey Data

Tree #	Species	# of Trunks	DBH (inches)	DLR (feet)	Health	Structure	Notes
4694	Elm	1	18	12	Fair	Fair-Good	trunk wound
4695	White Mulberry	1	25	20	Good	Good	
4696	White Mulberry	1	20	20	Good	Good	
4697	White Mulberry	1	27	20	Good	Good	
4698	Elm	1	12	10	Good	Good	
4699	White Mulberry	1	23	20	Fair-Good	Good	
4700	Edible Fig	1	37	12	Poor-Fair	Fair	trunk cavity
4701	Edible Fig	1	27	10	Fair	Fair	
4702	White Mulberry	1	23	20	Good	Good	
4703	White Mulberry	1	18	10	Fair-Good	Good	
4704	Black Walnut	1	14	10	Fair	Poor-Fair	prostrate
4705	Black Walnut	1	26	15	Fair-Good	Fair-Good	
4706	White Mulberry	1	26	20	Good	Good	
4707	Elm	2	15,14	20	Fair-Good	Good	
4708	Eucalyptus	4	72,12,12,6	40	Fair	Good	trunk wound
4709	Edible Fig	1	6	6	Fair	Fair	scars
4710	Pine	1	19	10	Fair-Good	Fair	
4711	Black Willow	2	25,12	12	Fair	Fair	
4712	Plum	4	6,9,6,6	9	Good	Good	
5705	Eucalyptus	1	39	30	Fair	Fair-Good	trunk wound, offsite
5706	Eucalyptus	1	36	25	Fair	Fair-Good	trunk wound, offsite
5707	Eucalyptus	1	24	10	Poor	Poor	trunk wound, offsite
5708	Eucalyptus	1	24	12	Poor-Fair	Poor-Fair	trunk wound dead branches, offsite
5709	Eucalyptus	1	29	15	Fair	Fair-Good	trunk wound, offsite
5710	Eucalyptus	1	23	25	Good	Good	offsite
5711	Eucalyptus	1	47	30	Fair	Good	trunk wound, offsite
5712	Eucalyptus	1	20	12	Poor	Poor	major trunk wound, offsite
5713	Eucalyptus	1	27	25	Fair	Fair-Good	trunk wound, offsite
5714	Eucalyptus	1	45	30	Fair	Fair-Good	trunk wound, offsite
5715	Eucalyptus	1	12	6	Poor	Poor-Fair	rot
5716	Black Locust	1	12	6	Poor	Poor	No tree tag
5717	Black Locust	1	15	8	Poor	Poor	No tree tag
5718	Black Locust	1	6	8	Fair	Fair-Good	No tree tag
5719	Black Walnut	1	28	12	Poor-Fair	Fair	No tree tag

Appendix B — Non-Participating Properties
Tree Survey Data

Appendix B — Non-Participating Properties
Tree Data

Map Area	Species	Native Tree	# of Trees	Estimated DBH (inches)
1	Eucalyptus		1	12
2	Eucalyptus		5	8
3	Elm		6	5
3	Eucalyptus		6	15
3	White Mulberry		3	8
3	White Mulberry		1	15
3	Pine		1	8
3	Pine		3	12
3	Pine		6	12
3	Plum		4	5
3	Red Maple		1	8
3	Silver Wattle		6	10
4	Catalpa		1	6
4	Pine		1	10
4	Privet		10	10
5	Elm		1	10
5	White Mulberry		1	12
5	Pine		11	18
6	Eucalyptus		9	10
6	Pine		1	15
6	Willow		5	8
7	Eucalyptus		22	18
7	White Mulberry		5	10
7	Pine		6	18
8	Fremont Cottonwood	Yes	1	20
8	Black Locust		4	10
8	Sweetgum		15	10
8	White Mulberry		4	10
9	Fremont Cottonwood	Yes	2	24
9	Sweetgum		4	10
9	Pine		10	12
9	Privet		3	12
10	Interior Live Oak	Yes	1	8
10	Tree of Heaven		1	15
10	Black Walnut	Yes	2	10
10	Silver Wattle		10	8
11	Black Locust		1	6
11	Black Locust		1	15
11	Black Walnut	Yes	1	18
11	Eucalyptus		10	12

Appendix B — Non-Participating Properties
Tree Data

Map Area	Species	Native Tree	# of Trees	Estimated DBH (inches)
11	Eucalyptus		1	8
11	Eucalyptus		4	14
11	White Mulberry		2	4
11	White Mulberry		4	8
11	Pine		3	6
12	Black Locust		9	15
12	Black Walnut	Yes	1	20
12	Coast Redwood		6	10
12	Eucalyptus		7	15
12	Eucalyptus		8	12
12	Pine		2	15
12	Pine		6	6
13	Fremont Cottonwood	Yes	6	18
13	Black Locust		1	24
13	Cork oak		12	10
13	Elm		12	8
13	Pine		2	18
13	Willow		20	15
14	Eucalyptus		30	18
14	Eucalyptus		45	15
14	White Mulberry		15	12
14	Pine		33	12
14	Pine		15	12
15	Interior Live Oak	Yes	1	15
15	Valley Oak	Yes	1	6
15	Black Locust		2	10
15	Domestic Almond		1	6
15	Olive		6	8
16	Coast Redwood		2	20
16	Deodar Cedar		1	18
16	Eucalyptus		7	15
16	Maple		4	10
16	White Mulberry		6	10
16	Pine		5	15
16	Silver Wattle		6	12
17	Fremont Cottonwood	Yes	1	12
17	Valley Oak	Yes	1	12
17	Black Locust		6	10
17	Black Locust		2	16
17	Black Walnut	Yes	1	10

Appendix B — Non-Participating Properties
Tree Data

Map Area	Species	Native Tree	# of Trees	Estimated DBH (inches)
17	Coast Redwood		2	18
17	Domestic Almond		4	8
17	Olive		2	12
18	California Sycamore	Yes	1	16
18	California Sycamore	Yes	1	12
18	Black Locust		3	12
18	Coast Redwood		2	12
18	Elm		1	12
18	Elm		20	20
18	Eucalyptus		2	20
18	Italian Cypress		8	6
18	White Mulberry		3	15
18	White Mulberry		4	10
18	Pine		1	15
18	Pine		1	12
19	Fremont Cottonwood	Yes	15	12
19	California Sycamore	Yes	3	10
19	Coast Redwood		30	6
19	Coast Redwood		6	10
19	Eucalyptus		5	12
19	Italian Cypress		10	8
19	Lombardy Popular		3	15
19	Pine		2	12
19	Willow		3	15
20	Fremont Cottonwood	Yes	6	18
20	Red Willow	Yes	3	20
20	Willow		3	10
21	White Mulberry		1	20

Appendix B — Special-Status Species Table Potentially Occurring on or in the Vicinity of the Jackson Township Specific Plan Area

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Plants				
Ahart's (dwarf) rush *Juncus leiospermus* var. *ahartii*	--; --; --; 1B.2	Ahart's dwarf rush is known to occur on vernal pool margins and mesic valley and foothill grassland areas at elevations of 100–330 feet above MSL.	Blooming period: March – May.	**High**; suitable habitat on the site.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	--; CE; --; 1B.2	Clay soils around the margins of marshes and swamps and in vernal pools.	Blooming period: April – August.	**High**; suitable habitat on the site.
Dwarf downingia *Downingia pusilla*	--; --; --; 2.2	Dwarf downingia is known to occur in vernal pools and mesic valley and foothill grassland areas at elevations of 3-1500 feet above MSL.	Blooming period: March – May.	**Medium**; there is marginal habitat on the site.
Legenere *Legenere limosa*	--; CT; --; 1B.1	Legenere is known to occur in vernal pools at elevations of 3- 3,000 feet above mean sea level.	Blooming period: April – June.	**High**; suitable habitat on the site.
Sacramento Orcutt grass *Orcuttia viscicla*	FE; CE; --; 1B.1	Sacramento Orcutt grass is known to occur in large, relatively deep vernal pools within Sacramento county. This species will occur at elevations of 100-330 feet above MSL.	Blooming period: April – July.	**No**; focused survey conducted in 2006 and 2007 found no Sacramento Orcutt grass present on site. Critical habitat on the site.
Slender Orcutt grass *Orcuttia tenuis*	FT; CE; --; 1B.1	Slender Orcutt grass is known to occur in large, relatively deep vernal pools and the margins of stock ponds in elevations of 115 -5,700 feet above MSL.	Blooming period: May – July.	**No**; focused survey conducted in 2006 and 2007 found no slender Orcutt grass present on site. Critical habitat on the site.
Sanford's arrowhead *Sagittaria sanfordii*	--; --; --; 1B.2	Sanford's arrowhead is known to occur in shallow, standing, fresh water and sluggish waterways within marshes, ponds, vernal pools, ditches, canals, and streams. This species will occur in elevations of 0-2200 feet above MSL.	Blooming period: May – October.	**High**; suitable habitat on the site.
Wildlife				
Invertebrates				
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT; --; --; --	Complete life cycle associated with its host plant, elderberry shrubs (*Sambucus* sp.).	Adults emerge in spring until June. Exit holes visible year-round.	**Low**; no elderberry shrubs were observed on Excelsior Estates, potential in balance of Plan Area.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.	Wet season.	**High**; found on site. Critical habitat on the site.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.	Wet season.	**High**; found on site. Critical habitat on the site.
Fish				
Delta smelt *Hypomesus transpacificus*	FT; CE; --; --	Lower and middle reaches of Sacramento-San Joaquin Delta. Spawning takes place within side channels and sloughs in the middle reaches of the Delta.	Year-round.	**No**; no suitable habitat on the site.
Central Valley steelhead *Oncorhynchus mykiss*	FT; --; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year-round.	**No**; no suitable habitat on the site.
Central Valley fall/late fall-run chinook salmon *Oncorhynchus tshawytscha*	FE; CE; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year-round.	**No**; no suitable habitat on the site.
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	FT; CT; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year-round.	**No**; no suitable habitat on the site.
Winter-run Chinook salmon *Oncorhynchus tshawytscha*	FE; CE; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year-round.	**No**; no suitable habitat on the site.
Amphibians/Reptiles				
California red-legged frog *Rana aurara draytonii*	FT; CSC; --; --	Requires a permanent water source and is typically found in deep pools (greater than 2½ feet) along quiet slow moving streams, ponds, or marsh communities with emergent vegetation.	Aquatic surveys of breeding sites: February 25 – April 30.	**No**; no substantiated historic records for the Sacramento Valley exist. In addition, the high density of bull frogs in the on site pond would make it less likely that this species occurs there.
California tiger salamander *Ambystoma californiense*	FT; CT; --; --	Breeds in temporary rain pools and permanent waters of grassland and open woodland of low hills and valleys. Require mammal burrows within the adjacent uplands for summer refugia.	Drift fence studies during fall and winter for upland habitats.	**No**; no substantiated historic records for the project vicinity exist. In addition, the high density of bull frogs in the on site pond would make it less likely that this species occurs there.
Giant garter snake *Thamnophis gigas*	FT; CT; --; --	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands.	Optimal detection early spring through mid fall (about mid March-early November) during their active period.	**No**; outside of historic range.
Northwestern western pond turtle *Actinemys marmorata*	--; CSC; --; --	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland.	Active outside of dormancy period November – February	**Low**; there is suitable habitat for this species on site but no known occurrences within 5 miles of the site.
Western spadefoot toad *Spea hammondii*	--; CSC; --; --	Open grasslands and woodlands. Requires vernal pools or seasonal wetlands for breeding.	Year-round.	**High**; suitable habitat on the site.
Birds				
Bank swallow *Riparia riparia*	--; CT; --; -- (Nesting)	Nests in large colonies, excavating nest burrows in steep riverbank cliffs, gravel pits, and highway cuts.	Spring - Fall	**No**; no suitable nesting habitat occurs on the site.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Loggerhead shrike *Lanius ludovicianus*	--; CSC; --; -- (Nesting)	Open habitats with scattered shrubs, trees, posts, fences and utility lines for perches. Nests in densely foliaged tree or shrub.	Spring - Fall	**High**; suitable habitat on the site.
Swainson's hawk *Buteo swainsoni*	--; CT; --; -- (nesting)	Breeding resident in the Central Valley. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Forage in adjacent grasslands or suitable grain fields and pastures.	Nesting: early March-early September.	**High**; suitable habitat on the site.
Tricolored blackbird *Agelaius tricolor*	--; CSC; --; -- (nesting colony)	Nests in dense thickets of blackberry, cattails, willow, or wild rose within emergent wetland habitats within the Central Valley and surrounding foothills.	Nesting: mid-April - late July.	**High**; suitable habitat on the site.
Western burrowing owl *Athene cunicularia hypugaea*	--; CSC; --; -- (burrow sites and some wintering sites)	Nests in burrows in the ground, often in old ground squirrel burrows or badger, within open dry grassland and desert habitat.	Year-round.	**High**; ground-squirrel burrows found on site.
White-tailed kite *Elanus leucurus*	--; CFP; --; -- (nesting)	Nests in isolated trees or woodland areas with suitable open foraging habitat.	Year-round.	**High**; observed foraging and roosting, no nests were observed.
Other Raptors (Hawks, Owls and Vultures)	MBTA and §3503.5 Department of Fish and Game Code	Nests in a variety of communities including oak woodland, mixed coniferous forest, chaparral, montane meadow, riparian, and urban.	February – September.	**High**; raptors observed foraging and roosting, no nests were observed.
Mammals				
American Badger *Taxidea taxus*	--; CSC; --; --	Occurs primarily in grasslands, parklands, farms, and other treeless areas with friable soils and a supply of rodent prey. Also found in meadows, marshes, and brushy areas at elevations ranging up to 12,00o feet above MSL.	Year-round.	**Low**; potential habitat but no known occurrences.
Special-status bat species	--; CSC; --; --	Typically roost in crevices in rocks, caves, or manmade structures. Occasionally roost in hollow trees or shrubs.	Year-round.	**Low**; there is limited suitable habitat for some species and no known occurrences within 5 miles of the project site.

Federally Listed Species:

FE = federal endangered

FT = federal threatened

FC = candidate

PT = proposed threatened

FPD = proposed for delisting

FD = delisted

California State Listed Species:

CE = California state endangered

CT = California state threatened

CR = California state rare

CSC = California Species of Special Concern

CSC = California Species of Special Concern

CFP = California Fully Protected

CNPS* Rank Categories:

1A = plants presumed extinct in California

1B = plants rare, threatened, or endangered in California and elsewhere

2 = plants rare, threatened, or endangered in California, but common elsewhere

3 = plants about which we need more information

4 = plants of limited distribution

Other Special-Status Listing:

SLC = species of local or regional concern or conservation significance

Source: *Foothill Associates*

Appendix C — 2006 and 2007 Orcutt Grass Survey on the ±866- Acre Excelsior Estates Site, Sacramento County, California

July 20, 2006

Angelo Tsakopoulos
Tsakopoulos Real Estate Investments
7423 Fair Oaks Boulevard, Suite 10
Carmichael, CA 95608

Subject: Results of a Focused Survey for Sacramento Orcutt grass (*Orcuttia viscida*) and Slender Orcutt grass (*Orcuttia tenuis*) on the Excelsior Estates ±866.3-Acre Site.

Dear Angelo:

This report summarizes the results of a focused survey for Sacramento Orcutt grass (*Orcuttia viscida*) and slender Orcutt grass (*Orcuttia tenuis*). The purpose of this focused survey was to determine the presence or absence of these federally listed Orcutt grass species on the Excelsior Estates site located in Sacramento County, California. The ±866.3 site is located in an unincorporated area of Sacramento County immediately south of the City of Rancho Cordova, north of Jackson Highway (Highway 16), east of Excelsior Road, and bound on the north by the undeveloped Kiefer Boulevard right-of-way. The site is located within portions of Sections 23, 24, 25, and 26, Township 8 North, Range 6 East, Mount Diablo Baseline and Meridian, on the USGS 7.5-minute series "Carmichael, CA" topographic quadrangle (**Figure 1**).

The site is currently being used for cattle grazing and is occupied by two rural residences. The majority of the site consists of open rangeland. A small area in the southwestern portion of the site is composed of irrigated pasture. The northwestern portion of the site was formerly used as a nursery and Koi farm, which is evidenced by the presence of several large man-made ponds that saturate seasonally. Two rural residences and associated out buildings occur within the site along Excelsior Boulevard near the northwest corner of the site and at the terminus of Tree View Road in the southern-central portion of the site. These two sites are artificially irrigated and vegetated with large ornamental trees and shrubs. Additionally, the ±175-acre Sacramento Raceway Park occurs along the central-western boundary. This facility hosts vehicle and motorcycle races throughout the year.

Land uses surrounding the site include open rangeland and residential subdivisions to the north, a large gravel pit and rural residential developments to the west, as well as open rangeland and rural residential developments to the south and east.

Regulatory Framework

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA)

to help protect the ecosystems upon which endangered and threatened species depend. FESA prohibits the "take" of endangered or threatened wildlife species. "The term "take" means to harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3).

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to FESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Game (CDFG) when preparing CEQA documents. The purpose is to ensure that the lead agency's actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code §2080). CESA directs agencies to consult with CDFG on projects or actions that could affect listed species, directs CDFG to determine whether jeopardy would occur and allows CDFG to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows CDFG to authorize exceptions to the state's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code § 2081).

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- List 1A: Plants presumed Extinct in California
- List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere
- List 3: Plants about which we need more information – A Review List
- List 4: Plants of limited distribution – A Watch List

Species Description, Distribution and Habitat

Sacramento Orcutt Grass

Sacramento Orcutt grass (endangered (FE), state endangered (SE), CNPS list 1B) is endemic to southeastern Sacramento Valley and has always been restricted to Sacramento County. Sacramento Orcutt grass occurs in Northern Hardpan and Northern Volcanic Mudflow vernal pools within blue oak woodland and annual grassland. Occupied pools

are located on high terrace sites at elevations between 150 to 270 feet above mean sea level (MSL). Prior to 1998 and through examination of the known occurrences of Sacramento Orcutt grass at that time, it has been determined that this species occurs in pools that range from 0.25 to 2.03 acres in size, with a median size of 0.69 acre.

Sacramento Orcutt grass is an annual species that typically blooms between May and July. Like all members of the grass tribe Orcuttieae, this species is sticky and aromatic. This species is densely tufted, bluish green in color and densely hairy-glandular. Stems are erect or spreading and do not branch. The inflorescence occupies the upper one-third to one-half of the stem and consists of 5-15 spikelets. The spikelets are closely spaced and arranged in two opposing rows oriented towards one side of the inflorescence.

Slender Orcutt Grass

Slender Orcutt grass (FE, SE, CNPS list 1B) is found in Lake, Lassen, Plumas, Sacramento, Shasta, Siskiyou and Tehama counties. Slender Orcutt grass is typically found in vernal pools on remnant alluvial fans and high stream terraces and recent basalt flows that occur in valley grassland and blue oak woodland habitats, ranging in elevations from approximately 115 to 5,774 feet above MSL.

Slender Orcutt grass is a slender annual grass, which typically blooms between May and July. This species has branches that extend from the upper nodes and generally has several stems 2-6 inches tall, that end in a elongated inflorescence of relatively evenly spaced spikelets. Like all members of the grass tribe Orcuttieae, this species is sticky and aromatic. The foliage is grayish with sparse hairs. The lemmas are deeply cleft, of equal length, and have distinct teeth that are sharp-pointed or short-awned.

Methods

Foothill Associates' biologists conducted a focused survey for Orcutt grasses on June 28, 2006. Prior to the survey, soil data describing types of soils occurring on the site (**Figure 2**) was reviewed, as well as, a CNDDB records search for Orcutt grasses within five miles of the site (**Figure 3**). The survey was conducted during June when these species are flowering, for optimal identification. Prior to surveying for the Orcutt grasses, Sacramento Orcutt grass was observed immediately prior to the survey at the *Phoenix Field Ecological Preserve* located in Sacramento County, in order to review the condition and flowering status of this target species. This reference population of Sacramento Orcutt grass was photographed on June 28, 2006 and was in good condition and readily identifiable (**Figure 4**).

In accordance with the CNPS Botanical Survey Guidelines, the survey was conducted by personnel with the following qualifications: experience with conducting floristic surveys; intimate knowledge of plant taxonomy and plant community ecology and classification; familiarity with the plants of the area, including special-status and locally significant plants; familiarity with the appropriate state and federal statutes related to plants and plant collecting, and experience with analyzing impacts of project activities on native plants and plant communities.

The following available information pertaining to the natural resources of the region was reviewed for the survey and preparation of this report.

- Hickman, James C. (Ed). 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley California;
- Mason, Herbert L. 1957. *A Flora of the Marshes of California*. University of California Press, Berkeley, CA;
- Nakamura, G. and Nelson, J. Eds). 2001. *Selected Rare Plants of Northern California*. University of California Agricultural and Natural Resources, Oakland, CA; and
- U.S. Geological Survey. 1992. *Carmichael, California 7.5-minute series topographic quadrangle*. United States Department of the Interior.

The site was surveyed on foot to provide 100% search coverage. Particular attention was given to the vernal pools and depressional seasonal wetlands on the site which represent potential habitat for the special-status plant species of concern. While conducting the survey, a comprehensive botanical survey species list of all plant species observed on the site was compiled (**Appendix A**).

Results

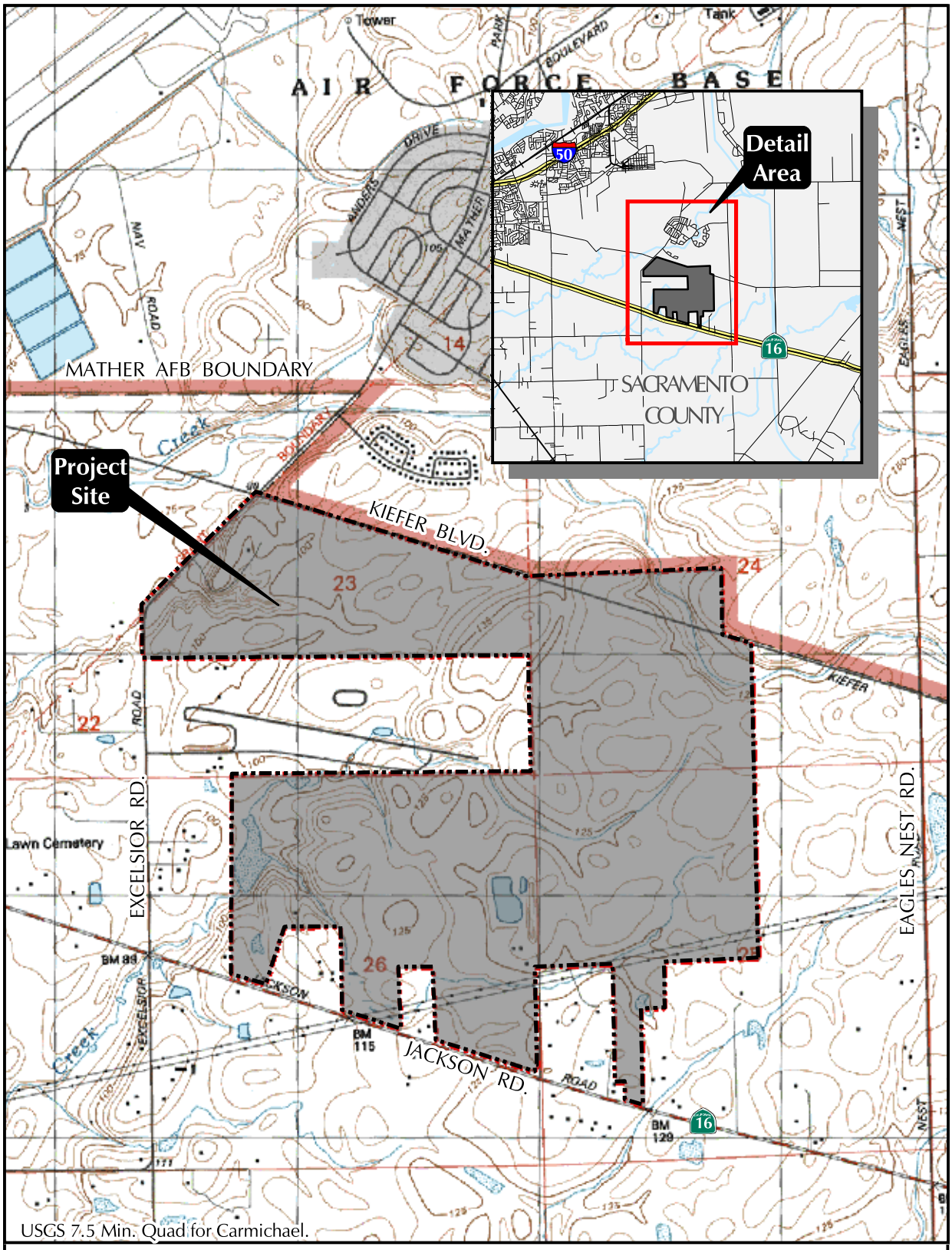
The site was thoroughly searched for Sacramento Orcutt grass and slender Orcutt grass. These species were not found during this focused survey.

Sincerely,

Carie Sears
Biologist

Enclosures:

Figure 1 — Site and Vicinity
Figure 2 — Soils
Figure 3 — CNDDB
Figure 4 — Sacramento Orcutt grass
Appendix A — Botanical Survey Species List



USGS 7.5 Min. Quad for Carmichael.

SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING
LANDSCAPE ARCHITECTURE

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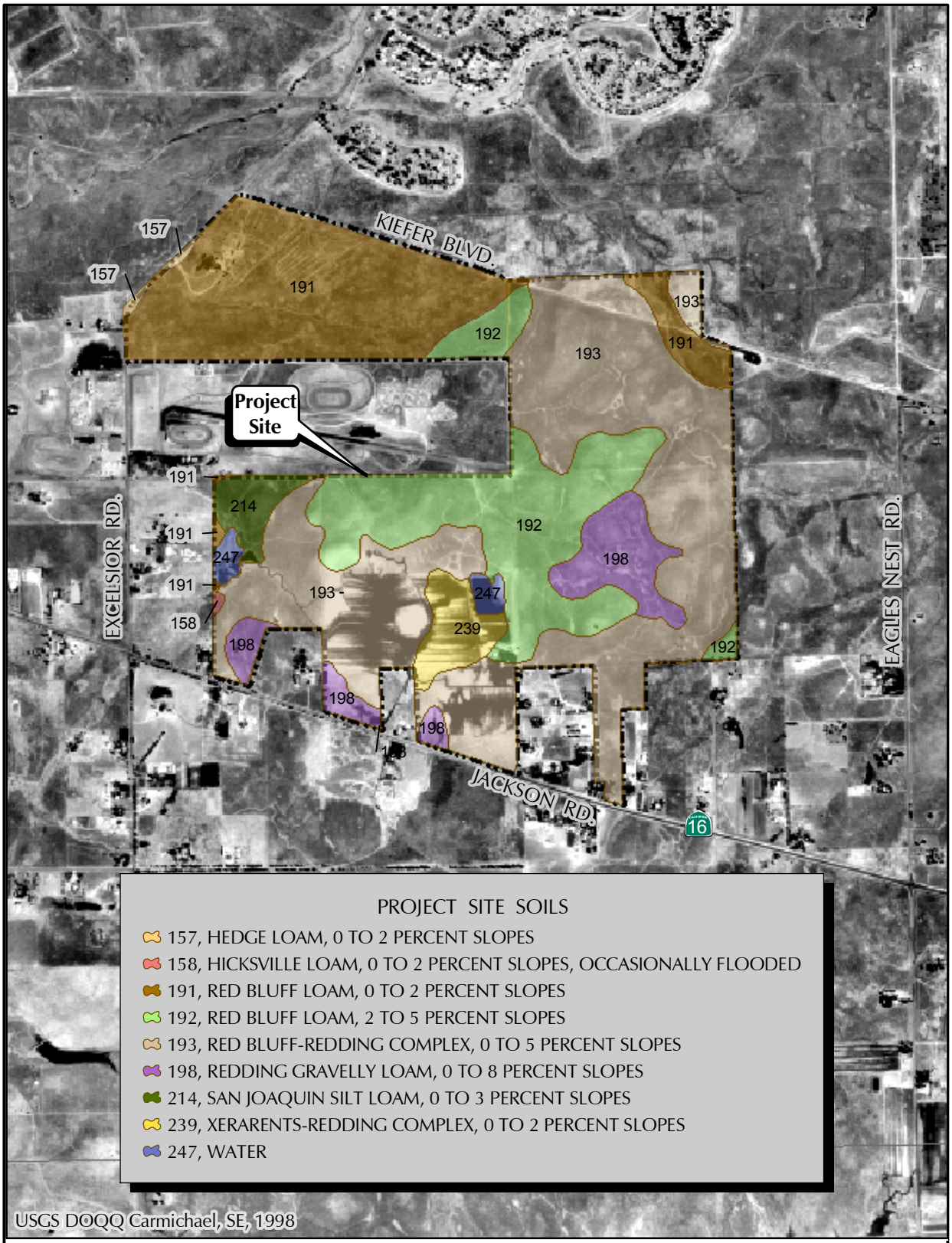
SCALE IN FEET

Drawn By: MMJ
Date: 07/07/04

FIGURE 1

EXCELSIOR ESTATES

site_and_vicinity.mxd



SOILS

FOOTHILL ASSOCIATES
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LANDSCAPE ARCHITECTURE

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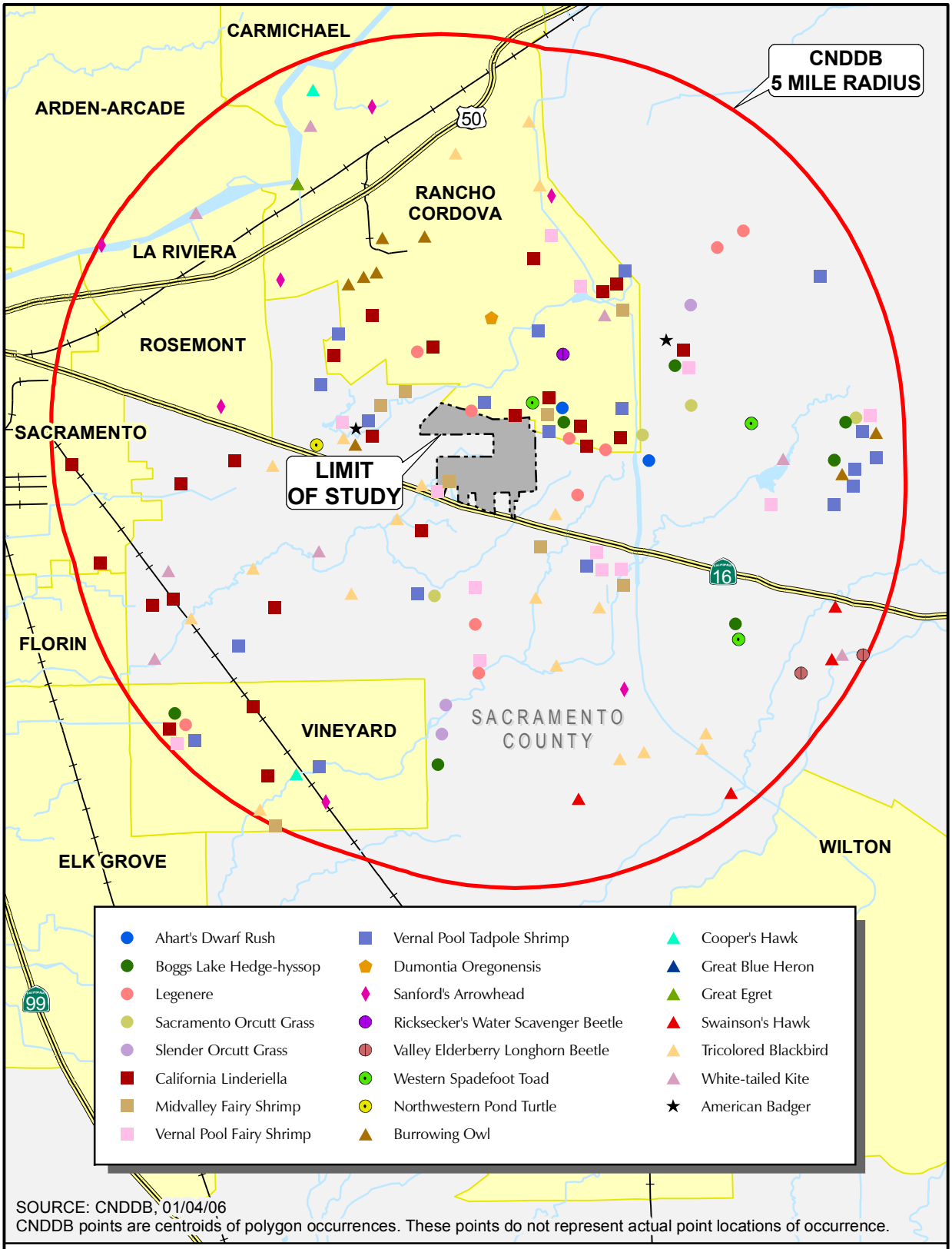
SCALE IN FEET

Drawn By: MMJ
Date: 07/07/04

FIGURE 2

EXCELSIOR ESTATES

soil.mxd



SOURCE: CNDDB, 01/04/06
CNDDB points are centroids of polygon occurrences. These points do not represent actual point locations of occurrence.

CNDDB

FOOTHILL ASSOCIATES
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N

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SCALE IN MILES

Drawn By: AH
Date: 06/29/06

FIGURE 3

EXCELSIOR ESTATES

cnddb.mxd

Sacramento Orcutt grass (*Orcuttia viscida*) at Phoenix Park
Photo Date: 06/28/06

SACRAMETO ORCUTT GRASS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

Figure 4

Appendix A — Botanical Survey Species List

Scientific Name	Common Name
Agoseris heterophylla	Annual false dandelion
Amsinkia menziesii var. intermedia	Fiddleneck
Avena sp.	Wild oats
Brassica nigra	Black mustard
Briza minor	Rattlesnake grass
Bromus diandrus	Ripgut brome
B. hordeaceus	Soft chess
Calamagrostis sp.	Reed grass
Carduus pycnocephalus	Italian thistle
Castilleja attenuata	Valley tassels
Centaurea solstitialis	Yellow star-thistle
Centromadia fitchii	Fitch's tarplant
Cichorium intybus	Chicory
Convolvulus arvensis	Bindweed
Cotula coronopifolia	Brass buttons
Cuscuta sp.	Dodder
Cynodon dactylon	Bermudagrass
Cyperus eragrostis	Nutsedge
Deschampsia danthonioides	Annual hairgrass
Dianthus sp.	Pink
Digitaria ischaemum	Smooth crabgrass
Downingia bicornuta	Downingia
Eleocharis macrostachya	Spikerush
Eremocarpus setigerus	Doveweed
Eryngium vaseyi	Coyote thistle
Eucalyptus camaldulensis	Red gum
Glyceria occidentalis	Western mannagrass
Hemizonia fitchii	Spikeweed
Holocarpha virgata	Sticky tarweed
Hordeum marinum ssp. gussoneanum	Mediterranean barley
H. murinum	Barley
Hypochaeris glabra	Smooth cat's ear
H. radicata	Rough cat's ear
Juncus bufonius	Common toad rush
J. mexicanus	Mexican spikerush
Lasthenia fremontii	Goldfields
Leontodon taraxacoides	Hawkbit
Lepidium sp.	Peppergrass
Lolium perenne	Italian ryegrass
Lotus sp.	Lotus

Scientific Name	Common Name
Ludwigia peploides	Water primrose
Lythrum hyssopifolia	Loosestrife
Mentha pulegium	Pennyroyal
Navarretia leucocephala	White-headed navarretia
Paspalum dilatatum	Dallis grass
Plagiobothrys stipitatus	Vernal pool allocarya
Plantago lanceolata	English plantain
Pogogyne zizyphoroides	Mesamint
Polygonum sp.	Smartweed
P. monspeliensis	Rabbitsfoot grass
Populus fremontii	Fremont's cottonwood
Psilocarphus brevissimus	Wooly marbles
Ranunculus bonariensis	Vernal pool buttercup
Raphanus sativus	Field mustard
Rubus discolor	Himalyan blackberry
Rumex crispus	Curly dock
R. pulcher	Fiddle dock
Salix gooddingii	Black willow
Scirpus californicus	Bulrush
Taeniatherum caput-medusae	Medusa head grass
Taraxacum officianalis	Common dandelion
Trichostema lanceolatum	Vinegar weed
Trifolium hirtum	Rose clover
Triteleia laxa	Ithuriels's spear
Typha sp.	Cattail
Vulpia myruros	Foxtail fescue
Xanthium strumarium	Cocklebur

FOOTHILL ASSOCIATES

ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

July 25, 2007

Angelo G. Tsakopoulos
Tsakopoulos Real Estate Investments
7423 Fair Oaks Boulevard, Suite 10
Carmichael, CA 95608

Subject: **Orcutt Grass Survey on the ±866-Acre Excelsior Estates Site, Sacramento County, California**

Dear Angelo:

This report summarizes the results of a focused survey for Sacramento Orcutt grass (*Orcuttia viscida*) and slender Orcutt grass (*Orcuttia tenuis*). The purpose of this focused survey was to determine the presence or absence of these federally listed Orcutt grass species on the site.

The ±866-acre site is located in an unincorporated area of Sacramento County, just south of the City of Rancho Cordova. The site is irregularly shaped and bounded partially on the south by Jackson Road (Highway 16), on the west by Excelsior Road, and on the north by the unimproved Kiefer Boulevard right-of-way. The site occupies portions of Sections 23, 24, 25, and 26, Township 8 North, Range 6 East, Mount Diablo Baseline and Meridian, on the USGS 7.5-minute series *Carmichael, CA* topographic quadrangle (**Figure 1**).

The site is predominantly composed of open rangeland and is currently being used for cattle grazing. A small area in the southwestern portion of the site is composed of irrigated pasture. The northwestern portion of the site was formerly used as a nursery and Koi farm, and still supports several large man-made ponds that saturate seasonally. Two rural residences and associated outbuildings occur within the site along Excelsior Road near the northwest corner of the site and at the terminus of Tree View Road in the southern-central portion of the site. These two areas are artificially irrigated and vegetated with ornamental trees and shrubs. Additionally, the ±175-acre Sacramento Raceway Park occurs along the western-central boundary. This facility hosts vehicle races throughout the year.

Species Description, Distribution and Habitat

Sacramento Orcutt Grass

Sacramento Orcutt grass (endangered (FE), state endangered (SE), CNPS list 1B) is endemic to southeastern Sacramento Valley and has always been restricted to Sacramento

County. Sacramento Orcutt grass occurs in Northern Hardpan and Northern Volcanic Mudflow vernal pools within blue oak woodland and annual grassland. Occupied pools are located on high terrace sites at elevations between 150 to 270 feet above mean sea level (MSL). Prior to 1998 and through examination of the known occurrences of Sacramento Orcutt grass at that time, it has been determined that this species occurs in pools that range from 0.25 to 2.03 acres in size, with a median size of 0.69 acre.

Sacramento Orcutt grass is an annual species that typically blooms between May and July. Like all members of the grass tribe Orcuttieae, this species is sticky and aromatic. This species is densely tufted, bluish green in color and densely hairy-glandular. Stems are erect or spreading and do not branch. The inflorescence occupies the upper one-third to one-half of the stem and consists of 5-15 spikelets. The spikelets are closely spaced and arranged in two opposing rows oriented towards one side of the inflorescence.

Slender Orcutt Grass

Slender Orcutt grass (FE, SE, CNPS list 1B) is found in Butte, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou and Tehama counties. Slender Orcutt grass is typically found in vernal pools on remnant alluvial fans and high stream terraces and recent basalt flows that occur in valley grassland and blue oak woodland habitats, ranging in elevations from approximately 115 to 5,774 feet above MSL.

Slender Orcutt grass is a slender annual grass, which typically blooms between May and July. This species has branches that extend from the upper nodes and generally has several stems 2-6 inches tall, that end in a elongated inflorescence of relatively evenly spaced spikelets. Like all members of the grass tribe Orcuttieae, this species is sticky and aromatic. The foliage is grayish with sparse hairs. The lemmas are deeply cleft, of equal length, and have distinct teeth that are sharp-pointed or short-awned.

Methods

The focused survey for Orcutt grasses was conducted by Foothill Associates biologists on July 18, 2007. Immediately prior to surveying for the Orcutt grasses, Sacramento Orcutt grass was observed at the *Phoenix Field Ecological Preserve* and *Anatolia Preserve* located in Sacramento County, in order to review the condition and flowering status of this target species. Both reference populations of Sacramento Orcutt grass were photographed on July 18, 2007 and were in good condition and readily identifiable (**Figure 2**). It should be noted that this survey followed a June 8, 2007 site visit with Justin Cutler of the U.S. Fish and Wildlife Service, where the large vernal pools on the site were inspected for Orcutt grasses.

In accordance with the CNPS Botanical Survey Guidelines, the survey was conducted by personnel with the following qualifications: experience with conducting floristic surveys; intimate knowledge of plant taxonomy and plant community ecology and classification; familiarity with the plants of the area, including special-status and locally significant plants; familiarity with the appropriate state and federal statutes related to plants and plant collecting, and experience with analyzing impacts of project activities on native plants and plant communities.

The following available information pertaining to the natural resources of the region was reviewed for the survey and preparation of this report.

- Hickman, James C. (Ed). 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley California.

- Mason, Herbert L. 1957. *A Flora of the Marshes of California*. University of California Press, Berkeley, CA.

The site was surveyed on foot to provide total search coverage. Particular attention was given to the vernal pools and other seasonal wetland habitats, which represent potential habitat for *Orcuttia* species. While conducting the survey, a comprehensive botanical survey species list of all plant species observed was compiled (**Appendix A**).

Results

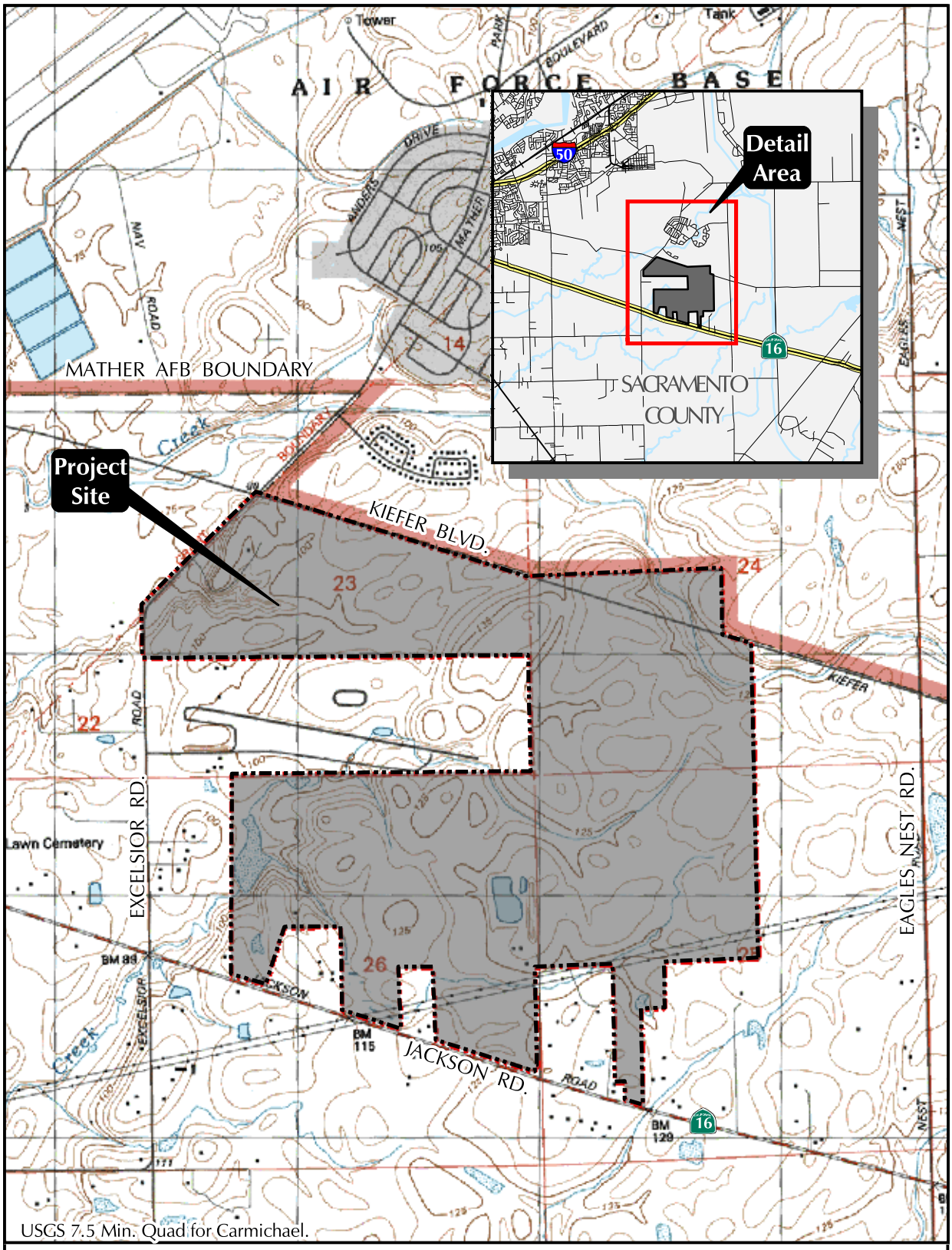
The site was thoroughly searched for Sacramento Orcutt grass and slender Orcutt grass. These species were not found during this focused survey.

Feel free to contact me if you have any questions or require additional information.

Sincerely,

Michael J. Farmer
Senior Biologist

Enclosures:
Figure 1 — Site and Vicinity
Figure 2 — Sacramento Orcutt Grass
Appendix A — Plant Species Observed on the Excelsior Estates Site



USGS 7.5 Min. Quad for Carmichael.

SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING
LANDSCAPE ARCHITECTURE

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SCALE IN FEET

Drawn By: MMJ
Date: 07/07/04

FIGURE 1

EXCELSIOR ESTATES

site_and_vicinity.mxd

Sacramento Orcutt grass (*Orcuttia viscida*) at *Phoenix Field Ecological Preserve*
Photo Date: July 18, 2007

Sacramento Orcutt grass (*Orcuttia viscida*) at *Anatolia Preserve*
Photo Date: July 18, 2007

SACRAMENTO ORCUTT GRASS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

Figure 2

Appendix A — Plant Species Observed on the Excelsior Estates Site

Scientific Name	Common Name
Agoseris heterophylla	Annual false dandelion
Amsinkia menziesii var. intermedia	Fiddleneck
Avena sp.	Wild oats
Brassica nigra	Black mustard
Briza minor	Rattlesnake grass
Bromus diandrus	Ripgut brome
B. hordeaceus	Soft chess
Calamagrostis sp.	Reed grass
Carduus pycnocephalus	Italian thistle
Castilleja attenuata	Valley tassels
Centaurea solstitialis	Yellow star-thistle
Centromadia fitchii	Fitch's tarplant
Cichorium intybus	Chicory
Convolvulus arvensis	Bindweed
Cotula coronopifolia	Brass buttons
Cuscuta sp.	Dodder
Cynodon dactylon	Bermudagrass
Cyperus eragrostis	Nutsedge
Deschampsia danthonioides	Annual hairgrass
Dianthus sp.	Pink
Digitaria ischaemum	Smooth crabgrass
Downingia bicornuta	Downingia
Eleocharis macrostachya	Spikerush
Eremocarpus setigerus	Doveweed
Eryngium vaseyi	Coyote thistle
Eucalyptus camaldulensis	Red gum
Glyceria occidentalis	Western mannagrass
Hemizonia fitchii	Spikeweed
Holocarpha virgata	Sticky tarweed
Hordeum marinum ssp. gussoneanum	Mediterranean barley
H. murinum	Barley
Hypochaeris glabra	Smooth cat's ear
H. radicata	Rough cat's ear
Juncus bufonius	Common toad rush
J. mexicanus	Mexican spikerush
Juglans hindsii	Northern California black walnut
Lasthenia fremontii	Goldfields
Leontodon taraxacoides	Hawkbit
Lepidium sp.	Peppergrass
Lolium perenne	Italian ryegrass

Scientific Name	Common Name
Lotus sp.	Lotus
Ludwigia peploides	Water primrose
Lythrum hyssopifolia	Loosestrife
Maclura pomifera	Osage orange
Mentha pulegium	Pennyroyal
Morus alba	Mulberry
Navarretia leucocephala	White-headed navarretia
Paspalum dilatatum	Dallis grass
Pistachia sp.	Pistache
Plagiobothrys stipitatus	Vernal pool allocarya
Plantago lanceolata	English plantain
Pogogyne zizyphoroides	Mesamint
Polygonum sp.	Smartweed
P. monspeliensis	Rabbitsfoot grass
Populus fremontii	Fremont's cottonwood
Psilocarphus brevissimus	Wooly marbles
Pyracantha sp.	Firethorn
Ranunculus bonariensis	Vernal pool buttercup
Raphanus sativus	Field mustard
Rubus discolor	Himalyan blackberry
Rumex crispus	Curly dock
R. pulcher	Fiddle dock
Salix gooddingii	Black willow
Scirpus californicus	Bulrush
Taeniatherum caput-medusae	Medusa head grass
Taraxacum officianalis	Common dandelion
Trichostema lanceolatum	Vinegar weed
Trifolium hirtum	Rose clover
Triteleia laxa	Ithuriels's spear
Typha sp.	Cattail
Vulpia myruros	Foxtail fescue
Xanthium strumarium	Cocklebur

Appendix D — Final Excelsior Estates Special-Status Species Plant Survey, dated August 5, 2014

August 5, 2014

Angelo G. Tsakopoulos
Tsakopoulos Real Estate Investments
7423 Fair Oaks Boulevard, Suite 10
Carmichael, CA 95608

RE: Special-Status Plant Surveys on the ±886-Acre Excelsior Estates Site, Sacramento County, California

Dear Mr. Tsakopoulos:

This report summarizes the results of two special-status plant surveys. The first survey focused on species blooming between March and June including: Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Bogg's Lake hedgehyssop (*Gratiola heterosepala*), dwarf downingia (*Downingia pusilla*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* ssp. *myersii*), and Sanford's arrowhead (*Sagittaria sanfordii*). The second survey focused on later blooming species, specifically Sacramento Orcutt grass (*Orcuttia viscida*) and slender Orcutt grass (*Orcuttia tenuis*). Sanford's arrowhead was also included in the second survey, as it blooms in late spring through late summer. The purpose of this survey was to determine the presence or absence of these listed species on the project site.

The ±866-acre project site is located in an unincorporated area of Sacramento County, just south of the City of Rancho Cordova. The site is irregularly shaped and bounded partially on the south by Jackson Road (Highway 16), on the west by Excelsior Road, and on the north by the unimproved Kiefer Boulevard right-of-way. The site occupies portions of Sections 23, 24, 25, and 26, Township 8 North, Range 6 East, Mount Diablo Baseline and Meridian, on the USGS 7.5-minute series *Carmichael, CA* topographic quadrangle (**Figure 1**).

The site is predominantly composed of open rangeland and is currently being used for cattle grazing. A small area in the southwestern portion of the site is composed of irrigated pasture. The northwestern portion of the site was formerly used as a nursery and koi farm, and still supports several large man-made ponds that saturate seasonally. Two rural residences and associated outbuildings occur within the site along Excelsior Road near the northwest corner of the site and at the terminus of Tree View Road in the southern-central portion of the site. These two areas are artificially irrigated and vegetated with ornamental trees and shrubs. Additionally, the ±175-acre Sacramento Raceway Park is located along the western-central boundary. This facility hosts vehicle races throughout the year.

The surveys were conducted by a Foothill Associate's biologist on May 2, 5 and 6, and June 5 and 6, 2014. The survey was conducted by personnel with the following qualifications:

experience with conducting floristic surveys; intimate knowledge of plant taxonomy and plant community ecology and classification; familiarity with the plants of the area, including special-status and locally significant plants; familiarity with the appropriate state and federal statutes related to plants and plant collecting, and experience with analyzing impacts of project activities on native plants and plant communities.

The site was surveyed on foot to provide total search coverage. All species occur in vernal pool and other seasonal wetland habitats. Therefore, all surveys were focused within these habitats. The June surveys were focused on the larger, deeper vernal pool and marshy habitats. While conducting the surveys, a comprehensive botanical survey species list of all plant species observed was compiled (Appendix A).

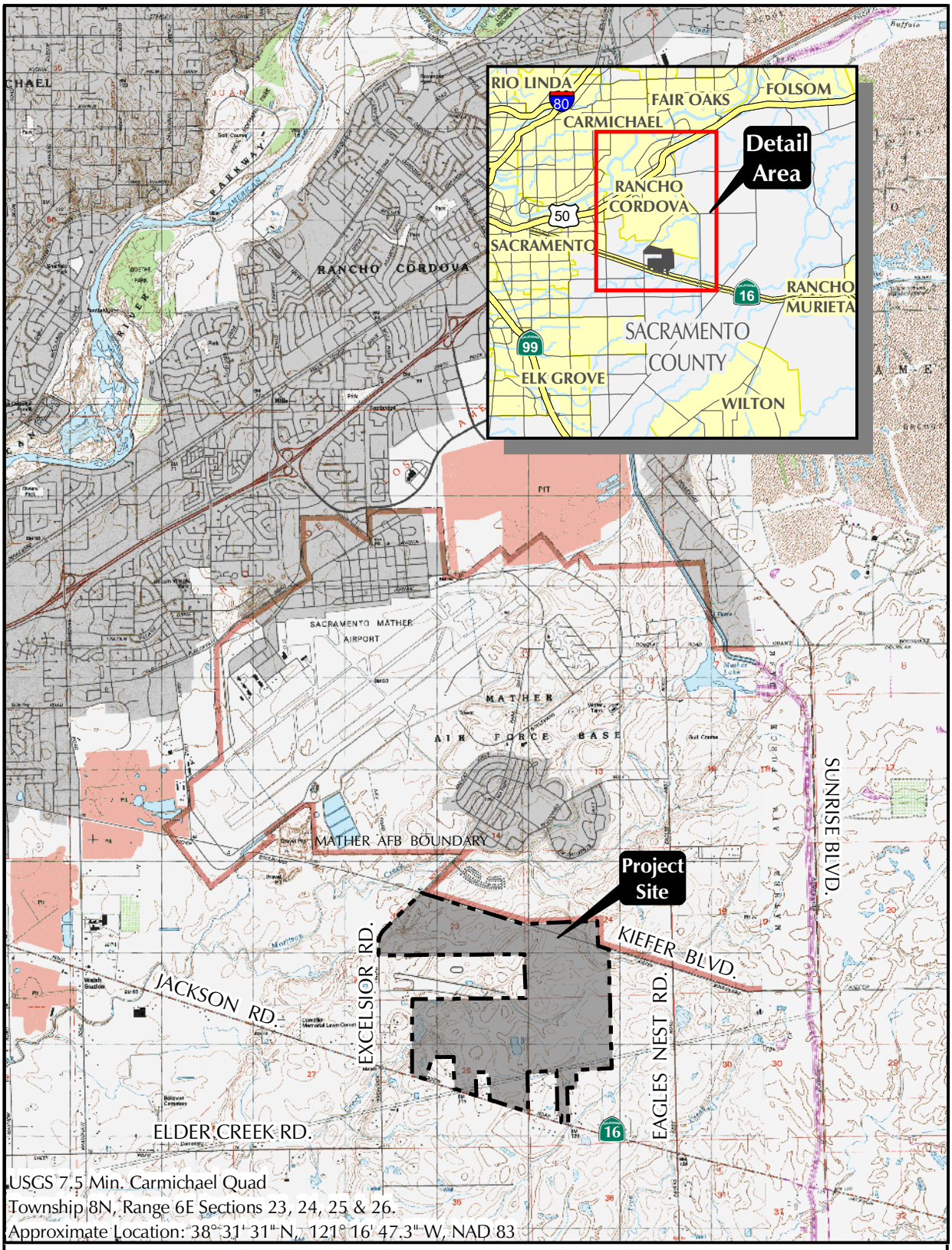
Although the site has potential habitat for several of these special-status plant species, no special-status plant species were observed.

If you have any questions please contact me at your earliest convenience at (916) 435-1202 or email kvail@foothill.com.

Sincerely,

Kirk Vail
Biologist

Enclosures: Figure 1 — Site and Vicinity
Appendix A — Plant Species Observed on the Project Site



USGS 7.5 Min. Carmichael Quad
Township 8N, Range 6E Sections 23, 24, 25 & 26.
Approximate Location: 38° 31' 31" N, 121° 16' 47.3" W, NAD 83

PROJECT SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

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SCALE IN MILES

Drawn By: MMJ, RJM
Date: 03/17/09

FIGURE 1

EXCELSIOR ESTATES

site_and_vicinity_2009.mxd

Appendix A — Plant Species Observed on the Project Site

Scientific Name	Common Name
Agoseris heterophylla	Annual false dandelion
Amsinkia menziesii var. intermedia	Fiddleneck
Avena sp.	Wild oats
Brassica nigra	Black mustard
Briza minor	Rattlesnake grass
Bromus diandrus	Ripgut brome
B. hordeaceus	Soft chess
Calamagrostis sp.	Reed grass
Carduus pycnocephalus	Italian thistle
Castilleja attenuata	Valley tassels
Centaurea solstitialis	Yellow star-thistle
Centromadia fitchii	Fitch's tarplant
Cichorium intybus	Chicory
Convolvulus arvensis	Bindweed
Conyza canadensis	Horseweed
Croton setigerus	Dove weed
Cotula coronopifolia	Brass buttons
Cuscuta sp.	Dodder
Cynodon dactylon	Bermudagrass
Cyperus eragrostis	Nutsedge
Deschampsia danthonioides	Annual hairgrass
Dianthus sp.	Pink
Digitaria ischaemum	Smooth crabgrass
Downingia bicornuta	Downingia
Echinochloa crus-galli	Barnyard grass
Eleocharis macrostachya	Spikerush
Elymus caput-medusae	Medusa head grass
Eryngium vaseyi	Coyote thistle
Eucalyptus camaldulensis	Red gum
Festuca perennis	Italian ryegrass
Glyceria occidentalis	Western mannagrass
Holocarpha virgata	Sticky tarweed
Holcus lanatus	Velvet grass

Scientific Name	Common Name
Hordeum marinum ssp. gussoneanum	Mediterranean barley
H. murinum	Barley
Hypochaeris glabra	Smooth cat's ear
H. radicata	Rough cat's ear
Juncus bufonius	Common toad rush
J. effusus	Common rush
J. mexicanus	Mexican spikerush
Juglans hindsii	Northern California black walnut
Lactuca serriola	Prickly lettuce
Lasthenia fremontii	Goldfields
Leontodon taraxacoides	Hawkbit
Lepidium sp.	Peppergrass
Lotus corniculatus	Bird's foot trefoil
Ludwigia peploides	Water primrose
Lythrum hyssopifolia	Loosestrife
Maclura pomifera	Osage orange
Mentha pulegium	Pennyroyal
Morus alba	Mulberry
Navarretia leucocephala	White-headed navarretia
Paspalum dilatatum	Dallis grass
Paspalum distichum	Knotgrass
Pistachia sp.	Pistache
Plagiobothrys stipitatus	Vernal pool allocarya
Plantago lanceolata	English plantain
Pogogyne zizyphoroides	Mesamint
Polygonum sp.	Smartweed
P. monspeliensis	Rabbitsfoot grass
Populus fremontii	Fremont's cottonwood
Psilocarphus brevissimus	Wooly marbles
Pyracantha sp.	Firethorn
Ranunculus bonariensis	Vernal pool buttercup
Raphanus sativus	Field mustard
Rubus armeniacus	Himalayan blackberry
Rumex crispus	Curly dock
R. pulcher	Fiddle dock
Salix gooddingii	Black willow

Scientific Name	Common Name
Scirpus californicus	Bulrush
Taraxacum officianalis	Common dandelion
Trichostema lanceolatum	Vinegar weed
Trifolium hirtum	Rose clover
Triteleia laxa	Ithuriels's spear
Typha angustifolia.	Cattail
Veronica anagallis-aquatica	Water speedwell
Vulpia myruros	Foxtail fescue
Xanthium strumarium	Cocklebur

Appendix E — 90-Day 2009-2010 Wet-Season Survey for Listed Vernal Pool Branchiopods, Excelsior Estates, Sacramento County, California

90-Day Report
2009-2010 Wet-Season Survey for Listed Vernal Pool Branchiopods

Excelsior Estates
Sacramento County, California

Prepared for: Tsakopoulos Investments

July 23, 2010

Submitted by:

FOOTHILL ASSOCIATES

SACRAMENTO COUNTY
EXCELSIOR ESTATES

90-Day Report

Prepared for:

Tsakopoulos Investments

Data Collection and Report Preparation by:

Foothill Associates
590 Menlo Drive, Suite 1
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Permit TE810380-4

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

David Bise

Meredith Branstad

Eric Christensen

July 23, 2010

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1.0 EXECUTIVE SUMMARY

This report presents the results of the 2009-2010 wet-season survey for listed vernal pool branchiopods conducted on the Excelsior Estates site located in Sacramento County, California. The purpose of this survey was to determine the presence of listed vernal pool branchiopods within historic pools on the site. Surveys focused on pools in the potential preserve area, although pools from throughout the site were randomly sampled.

A total of 290 wetlands on the site were surveyed between December 2009 and March 2010. Monitoring occurred on December 21, 2009, January 7, January 8, January 20, January 21, January 22, January 25, February 3, February 18, February 19, March 4, and March 5, 2010. Populations of vernal pool branchiopods were found in 137 of the sampled pools. The federally listed vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*) were observed throughout the site in 36 and 81 wetlands respectively. California linderiella (*Linderiella occidentalis*), a former federal species of concern, was also observed in 125 wetlands. All three species coexisted in 26 of the sampled pools. Forty-four pools had populations of tadpole shrimp and California linderiella only. Vernal pool fairy shrimp and California linderiella were found together without tadpole shrimp in nine pools.

2.0 INTRODUCTION

This report presents the results of the 2009-2010 wet-season survey for listed vernal pool branchiopods conducted on the Excelsior Estates site (site). The site is located north of Jackson Highway, State Route 16, approximately four miles east of the Sacramento city limits within Township 8 North, Range 6 East, Sections 23, 24, 25 and 26 of the *Carmichael* 7.5 minute USGS Quadrangle (**Figure 1**). A total of 286 vernal pools and 140 depressional seasonal wetlands occur on the site (**Figure 2**).

3.0 METHODS

Wet-season surveys for listed vernal pool branchiopods were conducted on the site on December 21, 2009, January 7, January 8, January 20, January 21, January 22, January 25, February 3, February 4, February 18, February 19, March 4, and March 5, 2010. Pools in the proposed preserve area were sampled, if inundated, on every site visit. A minimum of ten randomly chosen pools outside of the proposed preserve are were sampled during each survey.

The surveys were conducted in accordance with the U.S. Fish and Wildlife Service (USFWS) protocol survey for listed vernal pool branchiopods, as outlined in 1996 *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. Wetlands were sampled by pulling a D-frame, 150-micron aquatic dip-net through the water column. The dip-net was undulated up and down through the water column to ensure a representative sample from each wetland sampled. A minimum of three, five-foot passes were made with the dip-net per wetland sampled.

The number of listed branchiopods was estimated to be in the 10s, 100s, and 1,000s depending on the number of shrimp that were netted and the amount of inundation within the wetland during the survey. This estimated population data along with the presence of common invertebrates, insects, and other wildlife species within the wetland were indicated on the data sheets. In sampling some pools, only female vernal pool fairy shrimp were observed and no males were found. In such situations, female vernal pool fairy shrimp were identified as such based on the morphology of the brood sac and overall body size compared to identified males of the same species in other wetlands. If vernal pool fairy shrimp were identified from female individuals only in a pool, it was noted on the field survey data sheets by the presence of a female sign (♀) following the number of individuals estimated to be in the wetland. In pools where vernal pool tadpole shrimp carapaces were observed but no live shrimp were captured in the net the population was assumed to be in the 10s and 'carapace only' was noted on the data sheets. Other data collected during each sampling included the wetland number, water depth, estimated maximum depth, surface area of each wetland at time of sampling, estimated maximum surface area of wetland, water temperature, if a voucher specimen was collected, and habitat and weather conditions. The species were easily identifiable in the field; therefore no voucher specimens were collected. Representative site photographs were taken with a digital camera during the surveys.

4.0 RESULTS

4.1 Biological Community Description

The vernal pools on the site are surrounded by annual grassland habitat that supports numerous grasses and herbaceous species. Dominants include soft brome (*Bromus hordeaceus*), wild oat (*Avena* sp.), medusa head (*Taeniatherum caput-medusae*), long-beaked filaree (*Erodium botrys*), hawkbit (*Leontodon taraxacoides*), foxtail grass (*Vulpia myuros*), Spanish clover (*Lotus purshianus*), tarplant (*Holocarpha virgata*), Fitch's tarweed (*Centromadia fitchii*), foxtail barley (*Hordeum murinum*), and Italian ryegrass (*Lolium multiflorum*).

Dominant plant species observed in vernal pool habitat included waxy manna grass (*Glyceria declinata*), coyote thistle (*Eryngium vaseyi*), spikerush (*Eleocharis macrostachya*), and vernal pool buttercup (*Ranunculus bonariensis*).

4.2 Sampling Results

Invertebrate data were collected from 290 wetlands on the site. As shown in **Table 1**, vernal pool branchiopods were present in approximately half of the sampled pools. Populations of vernal pool fairy shrimp were identified in a total of 36 individual pools. Populations of vernal pool tadpole shrimp were identified in 81 separate pools. California linderiella was found in 125 pools. Vernal pool tadpole shrimp and California linderiella were found together in a total of 70 pools. Vernal pool fairy shrimp and California linderiella were found together in a total of 35 pools. The three species co-existed in 26 pools. Vernal pool tadpole shrimp and vernal pool fairy shrimp were never found in the same feature without California linderiella also being present. The number of pools with populations of branchiopods on each sampling date is shown in **Table 2**. **Figure 3** shows the locations of all populations of vernal pool fairy shrimp and vernal pool tadpole shrimp identified on the site. CNDDB reports have been submitted to the California Department of Fish and Game and are included as **Appendix C** of this report.

Table 1 — Frequency of Populations of Vernal Pool Branchiopods

Branchiopod Species Found (exclusive of other categories)	Number of Pools	Percent of Total Pools Sampled
All Three Species	26	9.0%
Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp	0	0%
Vernal Pool Tadpole Shrimp and California Linderiella	44	15.2%
Vernal Pool Fairy Shrimp and California Linderiella	9	3.1%
Vernal Pool Fairy Shrimp Only	1	0.3%
Vernal Pool Tadpole Shrimp Only	11	3.8%
California Linderiella Only	46	15.9%
No Branchiopod Species	153	52.7%

Table 2 — Populations of Vernal Pool Branchiopods by Sampling Date

Sampling Date	Number of Pools Sampled	Number of Pools with Populations		
		Branchinecta lynchi	***Lepidurus packardi***	***Linderiella occidentalis***
12/21/2009	13	0	0	2
1/7/2010	21	3	1	9
1/8/2010	14	1	0	9
1/20/2010	6	0	0	4
1/21/2010	73	4	2	9
1/22/2010	85	0	0	1
1/25/2010	92	0	0	1
2/3/2010	50	13	30	19
2/4/2010	46	14	28	33
2/18/2010	63	13	39	44
2/19/2010	48	9	23	33
3/4/2010	74	0	37	30
3/5/2010	70	2	21	29

Other non-listed aquatic invertebrates found during the survey included water fleas (cladocera), copepods (copepoda), seed shrimp (ostracoda), and flatworms (planaria), diving water beetles (dytiscidae), crawling water beetles (haliplidae), midges (chironomidae), and backswimmers (notonectidae). Bullfrog larvae (*Rana catesbiana*) and both larval and adult pacific tree frogs (*Hyla regilla*) were also found in the sampled

wetlands on the site. Ground-level photographs of the site and the field survey data sheets are included in **Appendix A** and **Appendix B**, respectively.

4.3 Site Conditions

During our survey, the site was found to be in good condition. There were cattle tracks and bovine fecal matter in many of the vernal pools and surrounding landscape, resulting in high variability of conditions between individual vernal pools. Some pools had little or no evidence of cattle presence and exhibited relatively clear water, while other pools had obvious signs of high cattle traffic and typically had turbid, foul-smelling water. Overall, there were no significant problems with trash dumping, off-road vehicle use, or other signs of disturbance on the majority of the site. Trash dumping and off-road vehicle damage was observed in portions of the site within and north of the decommissioned section of Kiefer Boulevard. Additionally, small pieces of trash that had likely been blown onto the site from the nearby road littered the southern edge of the site.

5.0 CONCLUSIONS

As discussed, populations of the federally listed vernal pool fairy shrimp and vernal pool tadpole shrimp were observed in approximately 12% (36) and 28% (81) of the total wetland features sampled, respectively. Many of the wetlands on the site provide suitable habitat for listed vernal pool branchiopods.

6.0 REFERENCES

Borror, D.J. and R.E. White. 1970. *Peterson Field Guides: Insects*. Houghton Mifflin Company: Boston;

California Department of Fish and Game. 2008. *State and Federally Listed Endangered and Threatened Animals of California*;

Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas.* Mad River Press, Inc., Eureka;

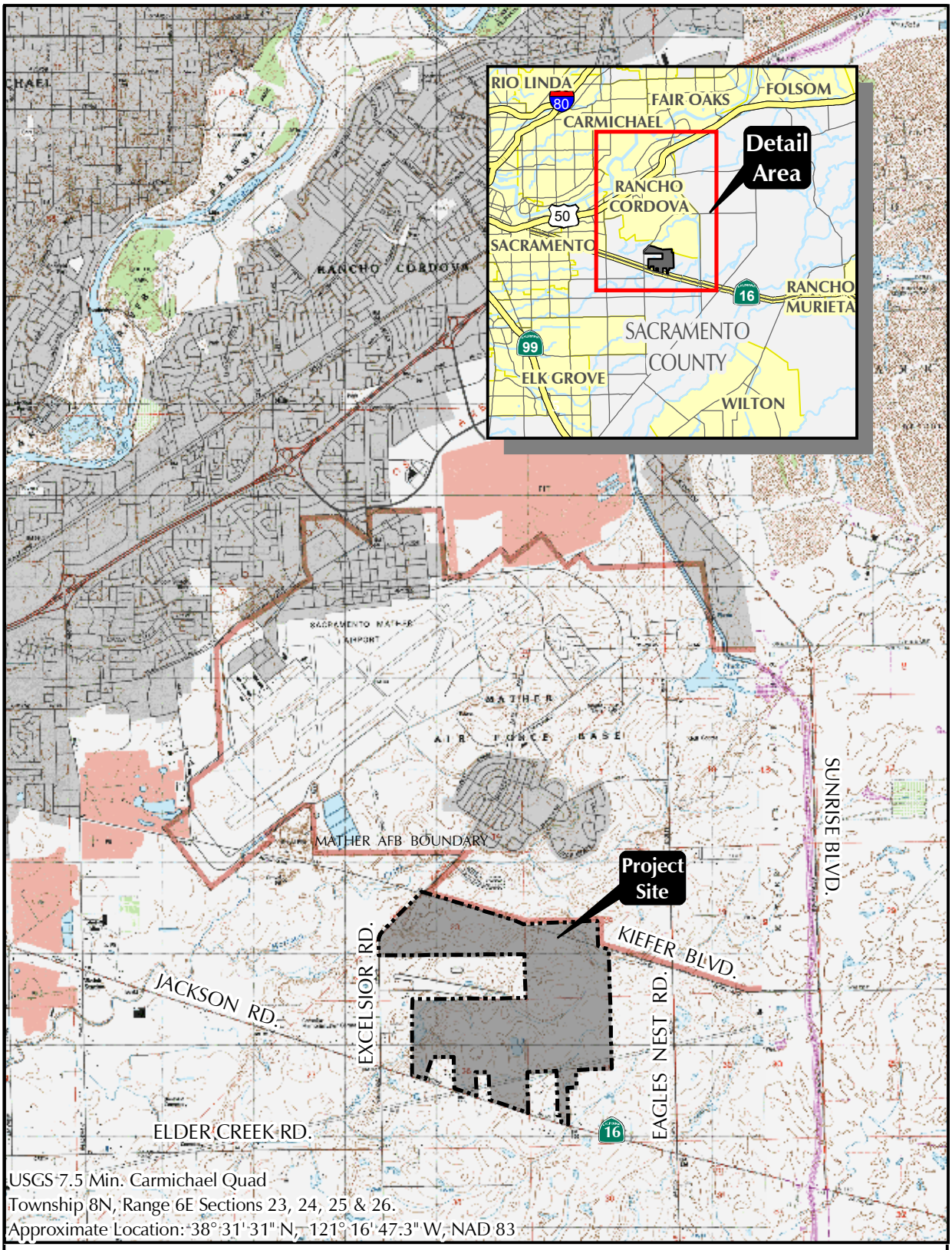
Hickman, James C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkley/ Los Angeles, California;

Pennak, R.W. 1989. *Fresh-Water Invertebrates of the United States.* John Wiley & Sons, Inc.: New York;

Reed, P.B., Jr. 1988. National List of Plant Species That Occur in Wetlands: California (Region 0). U.S. Fish and Wildlife Service. *Biological Report 88(26.10)*;

Skenfield, Michael W. 2000. *Revised Vernal Pool Mitigation, Management and Monitoring Plan*. Merced County Highway 59 Landfill Expansion Project; and

U.S. Fish and Wildlife Service. 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for Listed Vernal Pool Branchiopods*.



USGS 7.5 Min. Carmichael Quad
Township 8N, Range 6E Sections 23, 24, 25 & 26.
Approximate Location: 38° 31' 31" N, 121° 16' 47.3" W, NAD 83

SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

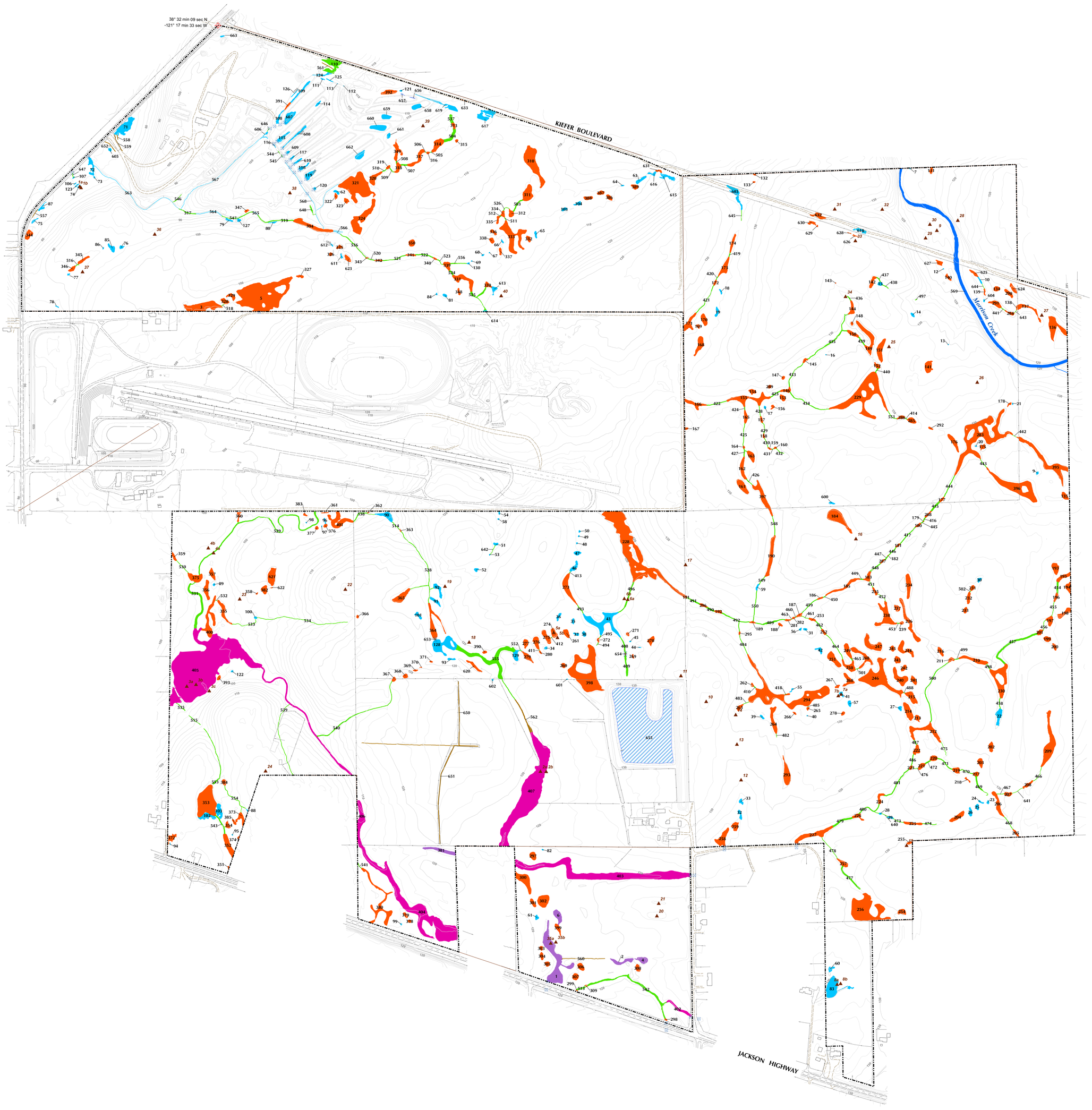
0 0.5 1
SCALE IN MILES

Drawn By: MMJ
Date: 07/24/07

FIGURE 1

EXCELSIOR ESTATES

site_and_vicinity_2007.mxd



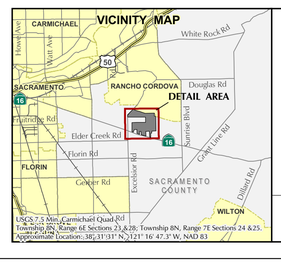
WATERS OF THE U. S.	
CLASSIFICATION	ACREAGE
DEPRESSIONAL WETLANDS	
Seasonal Wetland	4.35
Perennial Marsh	1.03
Vernal Pool	27.78
RIVERINE WETLANDS	
Seasonal Wetland	3.45
Perennial Marsh	10.05
OTHER WATERS OF THE U.S.	
Ephemeral Drainage	0.23
Intermittent Drainage	1.19
Pond	5.04
Ditch	0.32
TOTAL	53.44

OTHER FEATURES

- Data Points
- Culverts
- Site Boundary

NOTES

- Wetland delineation verified by U.S. Army Corps of Engineers verification, 8/11/2009 (SPK-2004-00791).
- Digital base data provided by G.C. Wallace. Base data was moved and rotated to GPS reference points. Contour interval is 2 foot.
- The Hyrologic Unit Code for this site is 18020109
- This wetland delineation utilizes the Corps' 1987 three-parameter methodology and the Rapanos Guidance to delineate jurisdictional waters of the U.S.
- Wetlands and other waters of the U.S. were mapped using a Trimble GPS (Global Positioning System).



0 300 600
SCALE IN FEET

FIGURE 2

DELINEATED WATERS OF THE U. S.

EXCELSIOR ESTATES

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DATE: 09/01/04
REVISION: 05/05/05, 07/19/07, 12/13/07, 04/23/09, 05/12/09

FILE NAME: Delineation_Waters_of_the_US_20090421.MXD
DRAWN BY: MMJ, RJM
DELINEATED BY: CJS, JAH, RHB - 2004, MJF, BB - 2007

VERIFIED

PROJECT NAME: Excelsior Estates FILE NAME: Dineated Waters_of_the_US_20090421.MXD DATE: 09/01/04 RVSD: 05/05/05, 07/19/07, 12/13/07, 04/23/09, 05/12/09

LEGEND

- Seasonal Wetland (DSW)
- Vernal Pool (VP)
- Perennial Marsh (DPM)
- Seasonal Wetland (RSW)
- Perennial Marsh (RPM)
- Ephemeral Drainage (ED)
- Intermittent Drainage (ID)
- Ditch/Canal
- Ditch/Canal
- Pond

- *Branchinecta lynchi*
- *Lepidurus packardi*
- *Branchinecta lynchi & Lepidurus packardi*

- Site Boundary

FIGURE 3 - LISTED VERNAL POOL BRANCHIOPOD OCCURENCES

0 300 600

SCALE IN FEET

EXCELSIOR ESTATES

FOOTHILL ASSOCIATES

ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

DATE:	03/24/10	FILE NAME:	2010_VP_Monitoring.MXD
		DRAWN BY:	MMJ, ACL
		DELINEATED BY:	CJS, JAH, RHB - 2004, MJF, BB - 2007

Appendix A — Ground-Level Photographs

Excelsior Estates
General Landscape
12/21/2009 Photographer: EMC

Excelsior Estates
General Landscape
3/4/2010 Photographer: BVDZ

GROUND-LEVEL PHOTOGRAPHS

Excelsior Estates
Vernal Pool 277
12/21/2009 Photographer: EMC

Excelsior Estates
Seasonal Wetland 115
1/8/2010 Photographer: EMC

Excelsior Estates
Seasonal Wetland 43
1/20/2010 Photographer: EMC

Excelsior Estates
Vernal Pool 390
1/21/2010 Photographer: EMC

GROUND-LEVEL PHOTOGRAPHS

Excelsior Estates
Seasonal Wetland 32 (foreground), Vernal Pools 259 (background left) and 258 (background right)
2/18/2010 Photographer: EMC

Excelsior Estates
Vernal Pool 193
3/4/2010 Photographer: BVDZ

GROUND-LEVEL PHOTOGRAPHS

Appendix B — Invertebrate Sampling Data Sheets

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: December 21, 2009
Collectors: David Bise, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00-11:00am
Section: 23, 24, 25, and 26
Temp: 50-65°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
36		1000s					X	X					
260												X	
261						X							mosquito larva
274		100s						X					
300						X	X						
301				X		X						X	
352													
353						X							waterboatman
365						X		X				X	waterboatman
375				X									
380						X		X			X		waterboatman
398						X		X					waterboatman
401						X		X		X		X	waterboatman

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
36	yes	9	12	509	1,017	45	no	cattle tracks	cool, overcast, light wind
260	yes	5	7	501	1,001	44	no	cattle tracks	cool, overcast, light wind
261	yes	5	8	1,086	2,171	44	no	cattle tracks	cool, overcast, light wind
274	yes	12	14	1,484	2,474	44	no	cattle tracks	cool, overcast, light wind
300	yes	14	16	7,963	8,848	44	no	cattle tracks	cool, overcast, light wind
301	yes	6	10	967	1,612	45	no	cattle tracks	cool, overcast, light wind
352	yes	3	12	1,941	6,470	45	no	cattle tracks	cool, overcast, light wind
353	yes	10	13	8,216	27,387	45	no	cattle tracks	cool, overcast, light wind
365	yes	10	14	4,304	6,149	44	no	cattle tracks	cool, overcast, light wind
375	yes	13	16	3,926	5,609	43	no	cattle tracks	cool, overcast, light wind
380	yes	12	14	9,172	13,102	45	no	cattle tracks	cool, overcast, light wind
398	yes	5	10	12,612	42,041	43	no	cattle tracks	cool, overcast, light wind
401	yes	11	14	6,777	9,682	43	no	cattle tracks	cool, overcast, light wind

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 7, 2010
Collectors: Eric Christensen, Meredith Branstad
Range: 6 East

Quad: Carmichael
Time: 8:30-4:00
Section: 23, 24, 25, and 26
Temp: 50-65°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
43		1000s	10s	X		X	X	X					waterfowl feathers, water boatman
83				X		X		X	X				Hyla tadpoles in egg sack
127						X			X			X	
129	10s	100s		X		X		X					
198						X						X	water boatman
270		1000s		X		X	X	X					
277	100s	10s		X		X	X						
300	10s			X		X	X	X	X			X	geese
302		100s		X		X	X	X				X	
308		10s		X		X	X						Hyla tadpoles
353				X		X		X	X			X	
360						X		X	X				
365		100s		X		X	X	X					water boatman, waterfowl feathers
375				X		X	X	X					
378						X		X				X	
379						X	X	X					
380						X		X	X				dragonfly larva
394		1000s		X		X	X	X				X	
398		100s		X		X	X						water boatman, waterfowl feathers
399				X		X			X				snails, scuds
401				X		X		X	X				

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
43	yes	12	20	12,006	17,152	41	no	cattle tracks	misty, cool, overcast, light wind
83	yes	3	6	10,067	12,583	44	no	cattle tracks	misty, cool, overcast, light wind
127	yes	13	48	543	638	44	no	cattle tracks	misty, cool, overcast, light wind
129	yes	10	14	2,284	2,688	41	no	cattle tracks	misty, cool, overcast, light wind
198	yes	2	5	678	3,388	44	no	cattle tracks	misty, cool, overcast, light wind
270	yes	5	15	1,837	2,161	42	no	cattle tracks	misty, cool, overcast, light wind
277	yes	8	15	1,355	1,935	41	no	cattle tracks	misty, cool, overcast, light wind
300	yes	14+	24+	7,963	8,848	44	no	cattle tracks, deep	misty, cool, overcast, light wind
302	yes	4	12	2,781	6,953	44	no	cattle tracks	misty, cool, overcast, light wind
308	yes	3	16	478	1,594	44	no	cattle tracks	misty, cool, overcast, light wind
353	yes	8	36	8,216	27,387	41	no	cattle tracks	misty, cool, overcast, light wind
360	yes	7	7	1,127	1,127	41	no	cattle tracks, eroding	misty, cool, overcast, light wind
365	yes	7	12	5,534	6,149	41	no	cattle tracks	misty, cool, overcast, light wind
375	yes	10	11	4,487	5,609	41	no	cattle tracks	misty, cool, overcast, light wind
378	no	8	12	468	520	44	no	cattle tracks	misty, cool, overcast, light wind
379	yes	10	13	794	935	44	no	cattle tracks	misty, cool, overcast, light wind
380	yes	12	16	10,482	13,102	41	no	cattle tracks, foul smelling	misty, cool, overcast, light wind
394	yes	9	13	7,602	8,943	44	no	cattle tracks	misty, cool, overcast, light wind
398	no	6	18	6,306	42,041	41	no	cattle tracks	misty, cool, overcast, light wind
399	yes	9	13	1,758	1,954	44	no	cattle tracks, marshy	misty, cool, overcast, light wind
401	yes	3	6	1,452	9,682	41	no	cattle tracks	misty, cool, overcast, light wind

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 8, 2010
Collectors: Eric Christensen, Meredith Branstad
Range: 6 East

Quad: Carmichael
Time: 8:30-1:00
Section: 23, 24, 25, and 26
Temp: 50-65°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
5				X		X	X	X	X			X	
110						X		X					
115		10s		X			X	X					water boatman
117		100s				X	X	X	X			X	
118	10s	100s				X	X	X	X			X	
339		10s				X	X	X					water boatman
603		10s		X		X		X	X				
617		10s		X								X	
618						X			X				water boatman
619		100s					X	X	X				water boatman, snail
632						X		X					
656		1000s				X	X	X	X				water boatman
658		10s				X	X	X	X				
659						X	X	X	X				

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
5	yes	7	14	13,201	66,006	41	no	cattle tracks	cool, overcast, light wind
110	yes	14	15	7,845	8,258	41	no	degraded, turbid, in road	cool, overcast, light wind
115	yes	5	8	1,469	2,449	41	no	old pond	cool, overcast, light wind
117	yes	4	8	464	515	41	no	old pond	cool, overcast, light wind
118	yes	4	16	845	1,409	41	no	old pond	cool, overcast, light wind
339	yes	3	12	721	2,403	41	no	cattle tracks	cool, overcast, light wind
603	yes	16	20	4,605	5,117	41	no	degraded, in road	cool, overcast, light wind
617	no	14	16	4,571	6,530	41	no	cattle tracks	cool, overcast, light wind
618	yes	14	17	1,634	1,720	41	no	degraded, in road	cool, overcast, light wind
619	yes	6	7	4,333	4,562	41	no	cattle tracks	cool, overcast, light wind
632	yes	24	28	2,482	2,757	41	no	degraded, in road	cool, overcast, light wind
656	yes	6	10	51	102	41	no	old pond	cool, overcast, light wind
658	yes	4	7	1,934	2,418	41	no	old pond	cool, overcast, light wind
659	yes	3	6	1,356	2,260	41	no	old pond	cool, overcast, light wind

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 20, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45-10:15am
Section: 23, 24, 25, and 26
Temp: 45-60°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
43		1000s			X	X	X	X					
47						X		X					
228						X	X	X					
270		100s				X	X	X					
271		10s				X	X						
273		10s				X	X	X					

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
43	yes	15	17	16,809	17,152	40	no	cattle tracks	Cold, windy (~20-50mph), constant rain
47	yes	4	6	1,143	1,345	40	no	cattle tracks	Cold, windy (~20-50mph), constant rain
228	yes	15	20	33,900	67,801	40	no	cattle tracks	Cold, windy (~20-50mph), constant rain
270	yes	12	14	2,118	2,161	40	no	cattle tracks	Cold, windy (~20-50mph), constant rain
271	yes	3	6	469	521	40	no	cattle tracks	Cold, windy (~20-50mph), constant rain
273	yes	13	16	7,472	7,624	40	no	cattle tracks	Cold, windy (~20-50mph), constant rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 21, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45am - 4:00pm
Section: 23, 24, 25, and 26
Temp: 45-60°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
37						X	X			X			grub
51						X	X	X				X	
52								X					grubs
54													no life observed
58								X				X	spider
61							X	X		X			grub, spider
82						X		X		X		X	
88							X	X		X		X	
90												X	
91						X		X					
92						X		X					
93							X	X					
96							X					X	spider
97							X					X	
99						X		X				X	scud
128				X		X	X	X					spider, waterfowl feathers
129	10s ♀	1000s				X	X			X			
260		10s				X	X						waterfowl feathers
261							X			X			spiders
274							X	X					
275							X	X	X			X	
276				X		X							spider, grub
277	1000s	1000s				X	X			X			scud
279		1000s			X	X	X						spider, grub
280							X			X			grub

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
37	yes	2	5	548	685	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
51	yes	4	6	542	602	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
52	yes	4	6	538	672	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
54	yes	4	6	186	190	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
58	yes	2	3	111	124	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
61	yes	6	7	721	759	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
82	yes	3	4	109	109	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
88	yes	4	5	151	167	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
90	yes	4	7	2,755	4,238	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
91	yes	3	7	741	1,853	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
92	yes	3	5	2,396	2,818	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
93	yes	7	8	634	704	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
96	yes	4	4	330	330	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
97	yes	4	4	58	58	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
99	yes	5	6	133	135	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
128	yes	14	14	13,786	13,786	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
129	yes	11	14	2,634	2,688	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
260	no	10	15	981	1,001	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
261	yes	5	8	1,954	2,171	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
274	yes	3	7	1,484	2,474	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
275	yes	5	8	2,413	3,713	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
276	yes	7	9	2,683	3,157	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
277	yes	12	12	1,935	1,935	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
279	yes	12	14	2,758	2,814	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
280	yes	3	5	263	309	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 21, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45am - 4:00pm
Section: 23, 24, 25, and 26
Temp: 45-60°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
298						X		X	X			X	
299									X			X	scud
300				X		X	X		X		X		scud, grub
301							X						grub
302		100s		X		X	X	X	X			X	scud
303									X				
304									X				
305						X			X	X			
306						X		X		X		X	
307								X	X				
308						X	X	X	X				grub
309								X	X				scud
351						X	X	X				X	
352				X		X	X	X		X		X	
353		100s	100s	X		X	X	X		X	X	X	spider, Hyla tadpole
354						X		X					grubs
356							X						spider
357						X				X			spider
359							X	X				X	grub
360						X	X	X	X				
361							X						
363								X				X	
364						X	X	X					grubs, spiders, waterfowl feathers
365	10s	100s	10s	X	X	X	X	X		X			
367								X		X			grub

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
298	yes	4	4	254	254	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
299	yes	8	8	130	130	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
300	yes	18	24	8,405	8,848	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
301	yes	10	12	1,580	1,612	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
302	yes	15	15	6,953	6,953	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
303	yes	7	8	665	665	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
304	yes	6	7	1,139	1,199	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
305	yes	8	8	1,100	1,100	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
306	yes	11	11	2,188	2,188	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
307	yes	8	8	1,987	1,987	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
308	yes	13	13	1,594	1,594	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
309	yes	6	6	297	297	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
351	yes	3	4	232	244	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
352	yes	11	14	6,146	6,470	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
353	yes	14	24	20,541	27,387	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
354	yes	9	10	1,327	1,397	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
356	yes	9	15	3,754	3,952	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
357	yes	7	13	1,377	2,294	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
359	yes	3	7	665	1,108	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
360	yes	7	7	1,127	1,127	42	no	eroding	Cold, windy (~10 mph), intermittent rain
361	yes	6	6	263	263	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
363	yes	9	9	184	184	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
364	yes	13	15	7,901	8,317	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
365	yes	13	13	6,149	6,149	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
367	yes	7	10	723	803	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 21, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45am - 4:00pm
Section: 23, 24, 25, and 26
Temp: 45-60°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
368							X	X					grub
369								X		X			grub
370								X					grub
371							X			X			
373							X	X	X			X	
374							X	X				X	
375				X		X	X	X				X	
376							X	X					
377						X		X					spider
378		10s				X	X	X					scud
379						X	X	X	X				scud
380				X		X	X	X			X	X	
383												X	spider
384								X			X		
385						X		X		X		X	spider
390						X	X			X			grub
393								X					spider
398		100s	100s			X	X	X					spider
399						X	X		X		X		scud, snail
401						X	X	X		X		X	
538								X				X	
620						X	X	X					spider
621												X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
368	yes	6	7	1,006	1,027	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
369	yes	6	8	322	358	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
370	yes	3	5	47	78	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
371	yes	4	5	232	258	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
373	yes	5	8	2,689	2,988	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
374	yes	6	10	249	276	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
375	yes	10	10	5,609	5,609	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
376	yes	9	9	650	650	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
377	yes	8	8	531	531	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
378	yes	12	12	520	520	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
379	yes	15	15	935	935	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
380	yes	15	15	13,102	13,102	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
383	yes	7	7	412	412	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
384	yes	6	10	1,053	1,170	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
385	yes	5	7	587	652	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
390	yes	8	9	566	577	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
393	yes	10	10	746	746	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
398	yes	9	18	35,735	42,041	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
399	yes	15	15	1,954	1,954	42	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
401	yes	14	24	9,488	9,682	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
538	yes	9	9	791	791	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
620	yes	10	10	2,273	2,273	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain
621	yes	2	14	2,627	6,567	40	no	cattle tracks	Cold, windy (~10 mph), intermittent rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 22, 2009
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am - 4:00 pm
Section: 23, 24, 25, and 26
Temp: 45°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
9										X			
23												X	
27							X	X		X			Spider
28								X		X			
31									X				
32								X		X			
56									X	X			
60								X					
83						X	X	X	X	X		X	Hyla tads, Slug
135								X					
181								X		X			Grub
183						X	X		X	X		X	
184								X		X		X	Spiders, Grub
185									X	X			
186										X			
187									X				
188										X			Spider
189								X		X			
190							X	X	X	X		X	Spiders, Grub
192								X		X			Grub
193				X				X	X				Spiders
194									X	X			Spiders
195							X	X		X		X	Spiders
196								X	X	X			Spiders
197							X	X		X			Spider

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
9	60	3	5	291	343	39	No	Cattle tracks	Cold, Windy (10mph), Raining
23	34	3	4	359	378	39	No	Cattle tracks	Cold, Windy (10mph), Raining
27	21	5	7	698	775	39	No	Cattle tracks	Cold, Windy (10mph), Raining
28	11	3	4	234	260	39	No	Cattle tracks	Cold, Windy (10mph), Raining
31	86	3	4	382	425	39	No	Cattle tracks	Cold, Windy (10mph), Raining
32	3	3	4	1,119	1,243	39	No	Cattle tracks	Cold, Windy (10mph), Raining
56	87	4	4	283	283	39	No	Cattle tracks	Cold, Windy (10mph), Raining
60	9	4	5	1,048	1,165	39	No	Cattle tracks	Cold, Windy (10mph), Raining
83	8	10	12	11,954	12,583	39	No	Cattle tracks	Cold, Windy (10mph), Raining
135	58	8	10	1,821	2,023	39	No	Cattle tracks	Cold, Windy (10mph), Raining
181	63	3	4	448	527	39	No	Cattle tracks	Cold, Windy (10mph), Raining
183	65	10	10	2,192	2,215	39	No	Cattle tracks	Cold, Windy (10mph), Raining
184	72	8	12	10,148	12,685	39	No	Cattle tracks	Cold, Windy (10mph), Raining
185	83	6	7	4,073	4,525	39	No	Cattle tracks	Cold, Windy (10mph), Raining
186	82	3	3	508	508	39	No	Cattle tracks	Cold, Windy (10mph), Raining
187	81	6	6	907	907	39	No	Cattle tracks	Cold, Windy (10mph), Raining
188	78	4	4	563	563	39	No	Cattle tracks	Cold, Windy (10mph), Raining
189	74	4	4	525	525	39	No	Cattle tracks	Cold, Windy (10mph), Raining
190	73	13	14	7,493	8,326	39	No	Cattle tracks	Cold, Windy (10mph), Raining
192	75	6	6	1,087	1,087	39	No	Cattle tracks	Cold, Windy (10mph), Raining
193	49	10	10	3,657	3,657	39	No	Cattle tracks	Cold, Windy (10mph), Raining
194	51	12	12	2,561	2,561	39	No	Cattle tracks	Cold, Windy (10mph), Raining
195	50	8	8	3,039	3,039	39	No	Cattle tracks	Cold, Windy (10mph), Raining
196	52	7	7	1,400	1,400	39	No	Cattle tracks	Cold, Windy (10mph), Raining
197	54	8	8	2,673	2,673	39	No	Cattle tracks	Cold, Windy (10mph), Raining

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 22, 2009
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am - 4:00 pm
Section: 23, 24, 25, and 26
Temp: 45°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
198						X	X	X		X	X		Spider
199							X	X	X	X			
200									X			X	
201										X		X	
202								X		X		X	
203													Spiders
204										X		X	
205												X	
206							X		X	X			
207										X		X	Spiders
208								X		X			
209							X	X	X	X			Spiders
210									X	X		X	Spiders
211								X					Spiders
212							X	X		X		X	
213									X	X			
214							X	X	X	X			Waterfowl Feathers
215								X		X			Spider
216								X		X			
217								X		X		X	
218										X			
219										X		X	Spiders
220								X		X			
221										X			
222							X	X		X			

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
198	53	9	15	2,541	3,388	39	No	Cattle tracks	Cold, Windy (10mph), Raining
199	56	7	8	1,779	1,873	39	No	Cattle tracks	Cold, Windy (10mph), Raining
200	57	6	7	1,054	1,110	39	No	Cattle tracks	Cold, Windy (10mph), Raining
201	55	6	6	1,395	1,395	39	No	Cattle tracks	Cold, Windy (10mph), Raining
202	40	4	7	1,949	2,165	39	No	Cattle tracks	Cold, Windy (10mph), Raining
203	39	10	12	2,006	2,111	39	No	Cattle tracks	Cold, Windy (10mph), Raining
204	35	5	12	2,601	3,715	39	No	Cattle tracks	Cold, Windy (10mph), Raining
205	33	7	7	903	903	39	No	Cattle tracks	Cold, Windy (10mph), Raining
206	32	10	13	4,006	5,008	39	No	Cattle tracks	Cold, Windy (10mph), Raining
207	31	3	5	1,337	1,574	39	No	Cattle tracks	Cold, Windy (10mph), Raining
208	30	3	5	1,376	1,619	39	No	Cattle tracks	Cold, Windy (10mph), Raining
209	29	8	12	14,500	17,059	39	No	Cattle tracks	Cold, Windy (10mph), Raining
210	42/43	12	12	5,418	5,418	39	No	Cattle tracks	Cold, Windy (10mph), Raining
211	44	9	9	1,182	1,182	39	No	Cattle tracks	Cold, Windy (10mph), Raining
212	14	8	9	9,144	9,626	39	No	Cattle tracks	Cold, Windy (10mph), Raining
213	19	6	8	1,325	1,394	39	No	Cattle tracks	Cold, Windy (10mph), Raining
214	20	9	10	5,583	5,877	39	No	Cattle tracks	Cold, Windy (10mph), Raining
215	22	9	9	4,711	4,711	39	No	Cattle tracks	Cold, Windy (10mph), Raining
216	45	7	8	1,726	1,817	39	No	Cattle tracks	Cold, Windy (10mph), Raining
217	38	5	5	1,224	1,224	39	No	Cattle tracks	Cold, Windy (10mph), Raining
218	36	4	6	401	471	39	No	Cattle tracks	Cold, Windy (10mph), Raining
219	37	10	10	2,029	2,029	39	No	Cattle tracks	Cold, Windy (10mph), Raining
220	15	8	8	2,034	2,034	39	No	Cattle tracks	Cold, Windy (10mph), Raining
221	16	8	8	1,822	1,822	39	No	Cattle tracks	Cold, Windy (10mph), Raining
222	18	7	7	2,575	2,575	39	No	Cattle tracks	Cold, Windy (10mph), Raining

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 22, 2009
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am - 4:00 pm
Section: 23, 24, 25, and 26
Temp: 45°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
223								X		X		X	
224									X	X			Spider
225										X			
226								X	X	X			
227						X	X	X		X			Spider, Grubs
230									X	X		X	Spiders
231								X	X	X		X	
232										X		X	
233										X			
234						X	X	X		X		X	Spiders
235							X			X		X	Spiders
236						X			X	X		X	Spiders, Waterfowl Feathers
237								X	X	X		X	
238							X	X	X	X			Spider, Snail
239								X					Spider
240							X	X		X			Waterfowl Feathers
242								X		X			
243										X			
244								X					
245							X			X			
246						X	X	X	X	X			Waterfowl Feathers
252									X				
253									X	X			
256						X	X	X		X			Snail, Waterfowl Feathers
257								X		X			

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
223	17	6	6	600	600	39	No	Cattle tracks	Cold, Windy (10mph), Raining
224	13	9	9	2,005	2,005	39	No	Cattle tracks	Cold, Windy (10mph), Raining
225	12	3	6	681	2,272	39	No	Cattle tracks	Cold, Windy (10mph), Raining
226	10	7	8	2,016	2,036	39	No	Cattle tracks	Cold, Windy (10mph), Raining
227	4	14	16	8,991	9,464	39	No	Cattle tracks	Cold, Windy (10mph), Raining
230	41	12	16	11,895	13,994	39	No	Cattle tracks	Cold, Windy (10mph), Raining
231	46	6	7	964	1,014	39	No	Cattle tracks	Cold, Windy (10mph), Raining
232	47	4	8	1,378	1,969	39	No	Cattle tracks	Cold, Windy (10mph), Raining
233	48	4	6	839	1,048	39	No	Cattle tracks	Cold, Windy (10mph), Raining
234	71	14	15	5,136	5,406	39	No	Cattle tracks	Cold, Windy (10mph), Raining
235	66	4	4	1,014	1,024	39	No	Cattle tracks	Cold, Windy (10mph), Raining
236	69	10	12	7,726	8,584	39	No	Cattle tracks	Cold, Windy (10mph), Raining
237	70	7	7	1,634	1,667	39	No	Cattle tracks	Cold, Windy (10mph), Raining
238	67	12	14	9,936	10,459	39	No	Cattle tracks	Cold, Windy (10mph), Raining
239	68	6	6	571	571	39	No	Cattle tracks	Cold, Windy (10mph), Raining
240	24	9	12	6,638	6,988	39	No	Cattle tracks	Cold, Windy (10mph), Raining
242	26	8	9	1,245	1,311	39	No	Cattle tracks	Cold, Windy (10mph), Raining
243	25	10	12	1,957	2,060	39	No	Cattle tracks	Cold, Windy (10mph), Raining
244	27	8	9	5,131	5,401	39	No	Cattle tracks	Cold, Windy (10mph), Raining
245	28	8	9	1,066	1,122	39	No	Cattle tracks	Cold, Windy (10mph), Raining
246	23	12	16	26,288	27,671	39	No	Cattle tracks	Cold, Windy (10mph), Raining
252	86	5	5	798	798	39	No	Cattle tracks	Cold, Windy (10mph), Raining
253	84	6	6	857	857	39	No	Cattle tracks	Cold, Windy (10mph), Raining
256	6	14	14	33,626	33,626	39	No	Cattle tracks	Cold, Windy (10mph), Raining
257	5	10	12	2,396	2,522	39	No	Cattle tracks	Cold, Windy (10mph), Raining

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 22, 2009
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am - 4:00 pm
Section: 23, 24, 25, and 26
Temp: 45°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
258						X	X	X	X	X			
259						X							
262										X			
281										X			
282										X			
287										X			
288							X			X			
295								X					
395		100s				X	X	X	X	X	X		
396						X	X	X	X	X		X	Spiders

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
258	1	14	18	5,281	6,601	39	No	Cattle tracks	Cold, Windy (10mph), Raining
259	2	3	4	2,477	2,607	39	No	Cattle tracks	Cold, Windy (10mph), Raining
262	76	3	3	496	496	39	No	Cattle tracks	Cold, Windy (10mph), Raining
281	79	4	4	588	588	39	No	Cattle tracks	Cold, Windy (10mph), Raining
282	80	6	6	374	374	39	No	Cattle tracks	Cold, Windy (10mph), Raining
287	64	4	4	447	452	39	No	Cattle tracks	Cold, Windy (10mph), Raining
288	62	4	5	676	751	39	No	Cattle tracks	Cold, Windy (10mph), Raining
295	77	4	4	268	268	39	No	Cattle tracks	Cold, Windy (10mph), Raining
395	59	13	15	17,010	17,906	39	No	Cattle tracks	Cold, Windy (10mph), Raining
396	61	13	17	21,686	24,095	39	No	Cattle tracks	Cold, Windy (10mph), Raining

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 25, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45 AM-4:15 PM
Section: 23, 24, 25, and 26
Temp: 55°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
10								X				X	Spider
12													
14										X			
15								X					
17								X		X			
18						X				X		X	
19				X				X		X		X	Spider
20										X		X	
21								X		X		X	
39										X			
41													
42													
55												X	Grub, Waterfowl Feathers
57										X			
131								X		X			
132								X					
133						X		X		X			
134								X		X		X	
136								X		X		X	Spiders
137								X		X		X	
139								X		X		X	
140													
141								X	X			X	
142								X		X			
144				X				X		X		X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
10	10	6	6	519	519	42	No	Cattle Tracks	Intermittent rain
12	7	3	3	48	48	42	No	Cattle Tracks	Intermittent rain
14		4	4	607	607	42	No	Cattle Tracks	Intermittent rain
15	28	4	4	883	883	42	No	Cattle Tracks	Intermittent rain
17	19	4	5	287	303	42	No	Cattle Tracks	Intermittent rain
18	33	3	3	411	411	42	No	Cattle Tracks	Intermittent rain
19	32	7	7	1,224	1,249	42	No	Cattle Tracks	Intermittent rain
20	26	3	4	121	127	42	No	Cattle Tracks	Intermittent rain
21	29	4	4	88	88	42	No	Cattle Tracks	Intermittent rain
39	5	6	6	556	556	42	No	Cattle Tracks	Intermittent rain
41	11	5	5	825	825	42	No	Cattle Tracks	Intermittent rain
42	No	8	8	1,148	1,148	42	No	Cattle Tracks	Intermittent rain
55	9	5	6	244	271	42	No	Cattle Tracks	Intermittent rain
57	12	6	6	1,001	1,001	42	No	Cattle Tracks	Intermittent rain
131	6	13	13	973	973	42	No		Intermittent rain
132	4	6	6	225	225	42	No		Intermittent rain
133	5	6	6	201	201	42	No		Intermittent rain
134	15	12	12	1,494	1,494	42	No	Cattle Tracks	Intermittent rain
136	19	11	20	6,528	10,881	42	No	Cattle Tracks	Intermittent rain
137	18	12	12	3,796	3,796	42	No	Cattle Tracks	Intermittent rain
139	11	8	8	448	448	42	No	Cattle Tracks	Intermittent rain
140		6	6	976	976	42	No	Cattle Tracks	Intermittent rain
141	6	13	13	4,419	4,419	42	No	Cattle Tracks	Intermittent rain
142	27	6	6	2,123	2,167	42	No	Cattle Tracks	Intermittent rain
144	25	10	12	2,458	2,588	42	No	Cattle Tracks	Intermittent rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 25, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45 AM-4:15 PM
Section: 23, 24, 25, and 26
Temp: 55°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
145								X		X		X	
146								X		X			
147						X		X		X			
148								X				X	
149				X			X	X		X			Spider
150													None
151				X				X		X			Spider
152										X			Grub
153								X		X		X	
154								X		X			Spider
155				X				X	X	X			Waterfowl Feathers
156								X				X	
157								X					
158								X		X		X	
159								X				X	
160								X		X		X	
161				X			X	X		X		X	Waterfowl Feathers
162							X			X			
163				X				X		X			Waterfowl Feathers
164								X		X			Waterfowl Feathers, Spider
165				X						X		X	Grub
166				X				X		X		X	
167									X	X		X	
168						X		X		X		X	
169								X		X		X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
145	15	6	6	774	774	42	No	Cattle tracks	Intermittent rain
146	16	9	9	1,841	1,841	42	No	Cattle tracks	Intermittent rain
147	14	5	5	520	520	42	No	Cattle tracks	Intermittent rain
148	23	3	4	385	428	42	No	Cattle tracks	Intermittent rain
149	22	13	13	8,899	8,899	42	No	Cattle tracks	Intermittent rain
150	24	8	8	2,237	2,237	42	No	Cattle tracks	Intermittent rain
151	21	14	14	6,233	6,233	42	No	Cattle tracks	Intermittent rain
152	20	5	5	1,357	1,357	42	No	Cattle tracks	Intermittent rain
153	17	13	13	1,566	1,566	42	No	Cattle tracks	Intermittent rain
154	12	11	11	1,549	1,549	42	No	Cattle tracks	Intermittent rain
155	11	12	12	11,265	11,265	42	No	Cattle tracks	Intermittent rain
156	18	5	5	620	620	42	No	Cattle tracks	Intermittent rain
157	9	6	7	703	740	42	No	Cattle tracks	Intermittent rain
158	8	4	4	429	429	42	No	Cattle tracks	Intermittent rain
159	7	7	7	322	322	42	No	Cattle tracks	Intermittent rain
160	6	4	5	283	298	42	No	Cattle tracks	Intermittent rain
161	1	12	14	5,197	5,471	42	No	Cattle tracks	Intermittent rain
162	2	10	10	4,115	4,115	42	No	Cattle tracks	Intermittent rain
163	4	9	9	3,186	3,186	42	No	Cattle tracks	Intermittent rain
164	5	5	5	288	288	42	No	Cattle tracks	Intermittent rain
165	10	9	9	2,054	2,054	42	No	Cattle tracks	Intermittent rain
166	31	12	12	4,131	4,131	42	No	Cattle tracks	Intermittent rain
167	30	9	9	417	417	42	No	Cattle tracks	Intermittent rain
168	40	9	9	4,985	4,985	42	No	Cattle tracks	Intermittent rain
169	39	8	9	620	652	42	No	Cattle tracks	Intermittent rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 25, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45 AM-4:15 PM
Section: 23, 24, 25, and 26
Temp: 46°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
170								X	X	X		X	
171								X		X		X	Slug, Snail
172								X				X	
173				X				X		X		X	Snail
174								X		X		X	
175								X				X	
176								X		X		X	
177								X		X			
178								X	X	X		X	
229				X		X	X	X	X	X		X	Waterfowl Feathers, Spider
248								X					
249						X		X		X			
250						X	X	X		X			
251								X		X			
262													
263										X		X	
264				X		X	X	X		X		X	Hyla (male)
265										X			Grub
266									X	X		X	
267										X			
268				X				X		X			
278								X		X			
283				X				X	X	X		X	Spider
284										X		X	Spider
285				X								X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
170	38	9	10	3,000	3,158	42	No	Cattle tracks	Intermittent rain
171	37	15	15	4,753	4,753	42	No	Cattle tracks	Intermittent rain
172	34	6	6	639	639	42	No	Cattle tracks	Intermittent rain
173	35	11	11	4,678	4,678	42	No	Cattle tracks	Intermittent rain
174	36	7	7	2,187	2,187	42	No	Cattle tracks	Intermittent rain
175	27	7	8	1,151	1,212	42	No	Cattle tracks	Intermittent rain
176	24	10	11	3,757	3,954	42	No	Cattle tracks	Intermittent rain
177		3	4	738	753	42	No	Cattle tracks	Intermittent rain
178	28	6	6	446	446	42	No	Cattle tracks	Intermittent rain
229	26	15	15	40,491	40,491	42	No	Cattle tracks	Intermittent rain
248	18	12	12	6,214	6,214	42	No	Cattle tracks	Intermittent rain
249	17	13	13	3,609	3,609	42	No	Cattle tracks	Intermittent rain
250	16	13	13	4,547	4,547	42	No	Cattle tracks	Intermittent rain
251	15	12	12	5,650	5,650	42	No	Cattle tracks	Intermittent rain
262	7	6	6	496	496	42	No	Cattle tracks	Intermittent rain
263	8	6	6	1,328	1,328	42	No	Cattle tracks	Intermittent rain
264	4	10	10	5,436	5,436	42	No	Cattle tracks	Intermittent rain
265	3	8	8	403	403	42	No	Cattle tracks	Intermittent rain
266	2	5	6	287	319	42	No	Cattle tracks	Intermittent rain
267	10	5	5	624	624	42	No	Cattle tracks	Intermittent rain
268	14	10	10	3,763	3,763	42	No	Cattle tracks	Intermittent rain
278	13	6	6	628	628	42	No	Cattle tracks	Intermittent rain
283	25	13	13	46,582	46,582	42	No	Cattle tracks	Intermittent rain
284	14	8	8	1,077	1,077	42	No	Cattle tracks	Intermittent rain
285	21	9	9	2,239	2,239	42	No	Cattle tracks	Intermittent rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: January 25, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45 AM-4:15 PM
Section: 23, 24, 25, and 26
Temp: 46°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
286				X				X				X	
289								X	X	X			
290								X		X			
291								X		X		X	Spider, Snail
292								X		X			
293						X	X	X					Spider
294				X		X		X		X		X	Snail, Waterfowl Feathers
397								X		X			
603								X			X		
604						X		X		X		X	Spider
618		10s		X		X	X				X		
624						X						X	
625													
626								X					
627								X		X			
628												X	
632						X	X	X					

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
286	22	8	8	1,109	1,109	42	No	Cattle tracks	Intermittent rain
289	13	4	6	553	582	42	No	Cattle tracks	Intermittent rain
290	16	13	13	1,843	1,843	42	No	Cattle tracks	Intermittent rain
291	13	7	7	2,861	2,861	42	No	Cattle tracks	Intermittent rain
292	23	4	4	457	457	42	No	Cattle tracks	Intermittent rain
293	1	8	14	5,414	7,219	42	No	Cattle tracks	Intermittent rain
294	6	14	14	47,382	47,382	42	No	Cattle tracks	Intermittent rain
397	3	13	13	8,732	8,732	42	No	Cattle tracks	Intermittent rain
603	3	36	40	4,605	5,117	42	No	In road bed	Intermittent rain
604	12	6	6	210	210	42	No	Cattle tracks	Intermittent rain
618	1	20	20	1,720	1,720	42	No	In road bed	Intermittent rain
624	17	9	9	1,896	1,896	42	No	Cattle tracks	Intermittent rain
625	9	6	7	1,213	1,277	42	No	Cattle tracks	Intermittent rain
626	30	5	6	302	308	42	No	Cattle tracks	Intermittent rain
627	8	4	4	1,332	1,332	42	No	Cattle tracks	Intermittent rain
628	29	9	9	97	97	42	No	Cattle tracks	Intermittent rain
632	2	36	36	2,757	2,757	42	No	In road bed	Intermittent rain

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 3, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am – 4:00pm
Section: 23, 24, 25, and 26
Temp: 64°F – 68°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
27								X					
39		10s				X		X				X	
40													
41								X					
42		10s								X			
55								X					Spider
57													
135		100s	10s	X		X	X	X		X			
179		10s				X							
180		10s				X							Waterfowl feathers
181		10s				X		X					
183		10s	10s			X			X			X	
185		10s				X		X		X			Waterfowl Feathers
186						X		X		X			Waterfowl Feathers
187		10s				X		X		X			
188				X		X		X		X			
189								X	X	X			
192				X		X		X				X	
193		10s	10s	X		X	X			X			
194		100s	10s	X		X		X		X		X	
195			10s	X		X		X	X			X	
196		10s	10s	X		X		X		X			Mosquito
197		10s	10s	X		X		X				X	
198			10s	X		X		X				X	
199		100s	10s	X		X		X		X			

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
27	yes	3	4	388	775	52	No	Cattle tracks	Clear, Slight Breeze
39	yes	4	4	556	556	49	No	Cattle tracks	Sunny, Slight Clouds
40	yes	2	2	50	50	49	No	Cattle tracks	Sunny, Slight Clouds
41	yes	2	4	660	825	49	No	Cattle tracks	Sunny, Slight Clouds
42	yes	2	5	115	1,148	49	No	Cattle tracks	Sunny, Slight Clouds
55	yes	3	3	271	271	49	No	Cattle tracks	Sunny, Slight Clouds
57	yes	2	4	851	1,001	49	No	Cattle tracks	Sunny, Slight Clouds
135	yes	12	12	2,023	2,023	55	No	Cattle tracks	Clear, Slight Breeze
179	yes	3	3	79	79	55	No	Cattle tracks	Clear, Slight Breeze
180	yes	5	5	697	697	55	No	Cattle tracks	Clear, Slight Breeze
181	yes	5	5	527	527	52	No	Cattle tracks	Clear, Slight Breeze
183	yes	10	10	2,215	2,215	52	No	Cattle tracks	Clear, Slight Breeze
185	yes	5	5	4,525	4,525	52	No	Cattle tracks	Clear, Slight Breeze
186	yes	5	5	508	508	52	No	Cattle tracks	Clear, Slight Breeze
187	yes	6	6	907	907	49	No	Cattle tracks	Sunny, Slight Clouds
188	yes	5	5	563	563	52	No	Cattle tracks	Clear, Slight Breeze
189	yes	4	4	525	525	52	No	Cattle tracks	Clear, Slight Breeze
192	yes	6	6	1,087	1,087	49	No	Cattle tracks	Sunny, Slight Clouds
193	yes	11	11	3,657	3,657	55	No	Cattle tracks	Clear, Slight Breeze
194	yes	13	14	2,433	2,561	55	No	Cattle tracks	Clear, Slight Breeze
195	yes	5	5	3,039	3,039	55	No	Cattle tracks	Clear, Slight Breeze
196	yes	6	6	1,400	1,400	55	No	Cattle tracks	Clear, Slight Breeze
197	yes	10	11	2,620	2,673	55	No	Cattle tracks	Clear, Slight Breeze
198	yes	10	11	3,218	3,388	55	No	Cattle tracks	Clear, Slight Breeze
199	yes	7	7	1,835	1,873	55	No	Cattle tracks	Clear, Slight Breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 3, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am – 1:00pm
Section: 23, 24, 25, and 26
Temp: 64°F – 68°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
200		100s		X		X		X		X			
201			10s	X				X	X	X		X	
210			10s	X		X		X					
211			10s	X		X		X	X				
213		10s	10s	X				X					Grubs
214		1000s	10s	X		X		X				X	
215	10s	1000s	10s	X		X		X					
216	10s	100s	10s	X		X		X		X			
230		100s	100s	X		X		X		X		X	egg sac with 1 egg
231		10s		X		X		X					
232		10s				X		X		X			Mosquito
233						X	X	X		X		X	
234		100s	100s	X		X		X		X			Mosquitos
235	10s	10s				X		X		X			Grubs
236	10s	1000s	10s	X		X		X		X			
237	100s	100s	10s	X		X		X		X			Spider
238		100s	1000s	X		X		X		X			
239		10s						X					
240		100s	100s	X		X		X					
241	10s	100s	10s			X		X		X			
242	100s	1000s				X		X					Grubs
243	100s	100s				X		X					
244	10s	100s				X		X		X			
245	100s	10s						X					
246		100s	100s	X		X		X		X		X	Waterfowl feathers

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
200	yes	5	5	1,088	1,110	55	No	Cattle tracks	Clear, Slight Breeze
201	yes	6	6	1,395	1,395	55	No	Cattle tracks	Clear, Slight Breeze
210	yes	10	10	5,418	5,418	55	No	Cattle tracks	Clear, Slight Breeze
211	yes	9	9	1,182	1,182	55	No	Cattle tracks	Clear, Slight Breeze
213	yes	6	8	1,115	1,394	52	No	Cattle tracks	Clear, Slight Breeze
214	yes	15	16	5,583	5,877	52	No	Cattle tracks	Clear, Slight Breeze
215	yes	11	11	4,711	4,711	52	No	Cattle tracks	Clear, Slight Breeze
216	yes	7	10	1,272	1,817	55	No	Cattle tracks	Clear, Slight Breeze
230	yes	13	14	13,294	13,994	55	No	Cattle tracks	Clear, Slight Breeze
231	yes	7	7	994	1,014	55	No	Cattle tracks	Clear, Slight Breeze
232	yes	5	7	1,673	1,969	55	No	Cattle tracks	Clear, Slight Breeze
233	yes	3	6	419	1,048	55	No	Cattle tracks	Clear, Slight Breeze
234	yes	14	14	5,406	5,406	52	No	Cattle tracks	Clear, Slight Breeze
235	yes	4	4	1,024	1,024	52	No	Cattle tracks	Clear, Slight Breeze
236	yes	13	14	8,412	8,584	52	No	Cattle tracks	Clear, Slight Breeze
237	yes	9	10	1,634	1,667	52	No	Cattle tracks	Clear, Slight Breeze
238	yes	14	15	9,936	10,459	52	No	Cattle tracks	Clear, Slight Breeze
239	yes	6	6	571	571	52	No	Cattle tracks	Clear, Slight Breeze
240	yes	14	14	6,988	6,988	52	No	Cattle tracks	Clear, Slight Breeze
241	yes	10	12	1,856	2,063	52	No	Cattle tracks	Clear, Slight Breeze
242	yes	7	9	1,180	1,311	52	No	Cattle tracks	Clear, Slight Breeze
243	yes	8	10	1,648	2,060	52	No	Cattle tracks	Clear, Slight Breeze
244	yes	7	9	4,051	5,401	52	No	Cattle tracks	Clear, Slight Breeze
245	yes	5	7	897	1,122	52	No	Cattle tracks	Clear, Slight Breeze
246	yes	16	18	26,288	27,671	55	No	Cattle tracks	Clear, Slight Breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 3, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am – 1:00pm
Section: 23, 24, 25, and 26
Temp: 64°F – 68°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
247	10s	1000s	10s	X		X	X	X		X			
248	10s	1000s	10s	X		X	X	X		X			Waterfowl Feathers
249	100s	1000s	10s	X		X		X					
250	10s ♀	1000s	100s	X		X		X		X			Waterfowl Feathers
251	10s	1000s	100s	X		X		X		X			
252													
253		10s						X		X		X	
262						X				X			
263		100s		X		X		X	X	X			Grubs
264		1000s	10s	X		X		X		X		X	Grubs
265				X		X		X					
266								X	X			X	
267		100s									X		Waterfowl Feathers
268		1000s	10s	X		X	X	X					Grub, Waterfowl Feathers
278								X				X	
281		10s				X		X		X		X	
282						X				X		X	
287													
288		10s								X		X	
294		100s	100s	X		X		X	X	X	X	X	Snails, Waterfowl Feathers
295						X	X	X					
296						X		X	X	X		X	
395		100s	100s	X		X		X	X	X		X	
396		100s	10s	X		X		X	X		X	X	Waterfowl feathers

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
247	yes	12	14	7,878	8,292	55	No	Cattle tracks	Clear, Slight Breeze
248	yes	12	13	6,090	6,214	49	No	Cattle tracks	Sunny, Slight Clouds
249	yes	14	14	3,609	3,609	49	No	Cattle tracks	Sunny, Slight Clouds
250	yes	14	14	4,547	4,547	49	No	Cattle tracks	Sunny, Slight Clouds
251	yes	13	13	5,650	5,650	49	No	Cattle tracks	Sunny, Slight Clouds
252	yes	5	5	798	798	49	No	Cattle tracks	Sunny, Slight Clouds
253	yes	5	5	857	857	49	No	Cattle tracks	Sunny, Slight Clouds
262	yes	6	6	496	496	49	No	Cattle tracks	Sunny, Slight Clouds
263	yes	8	8	1,328	1,328	49	No	Cattle tracks	Sunny, Slight Clouds
264	yes	12	12	5,436	5,436	49	No	Cattle tracks	Sunny, Slight Clouds
265	yes	9	9	403	403	49	No	Cattle tracks	Sunny, Slight Clouds
266	yes	4	4	319	319	49	No	Cattle tracks	Sunny, Slight Clouds
267	yes	3	4	593	624	49	No	Cattle tracks	Sunny, Slight Clouds
268	yes	10	11	3,687	3,763	49	No	Cattle tracks	Sunny, Slight Clouds
278	yes	5	6	596	628	49	No	Cattle tracks	Sunny, Slight Clouds
281	yes	6	6	588	588	52	No	Cattle tracks	Clear, Slight Breeze
282	yes	5	5	374	374	52	No	Cattle tracks	Clear, Slight Breeze
287	yes	4	4	452	452	52	No	Cattle tracks	Clear, Slight Breeze
288	yes	6	6	751	751	55	No	Cattle tracks	Clear, Slight Breeze
294	yes	14	17	45,013	47,382	49	No	Cattle tracks	Sunny, Slight Clouds
295	yes	4	4	268	268	49	No	Cattle tracks	Sunny, Slight Clouds
296	yes	4	4	964	964	49	No	Cattle tracks	Sunny, Slight Clouds
395	yes	15	16	17,010	17,906	55	No	Cattle tracks	Clear, Slight Breeze
396	yes	16	18	22,891	24,095	55	No	Cattle tracks	Clear, Slight Breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 4, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am – 1:00pm
Section: 23, 24, 25, and 26
Temp: 50°F – 62°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
33				X				X					
83		10s		X		X		X	X	X		X	hyla and western toad tads, scud
134	10s	100s	10s	X		X		X	X				
136	10s	100s	10s	X		X		X		X	X	X	
137	100s	100s	10s	X		X		X		X			
139	10s	10s				X		X					
151		100s	10s	X		X	X	X		X	X	X	
163		100s	10s	X		X	X	X		X			waterfowl feathers
174		100s	10s	X		X		X		X			
175	10s	10s	10s	X		X		X					
176	10s	100s	10s	X		X		X					
177		100s				X		X					
202	10s	100s		X		X		X					
203		100s	10s	X		X		X		X			
204		10s	10s	X		X				X			
205				X		X		X		X		X	
206			10s	X		X				X		X	
207			10s	X		X		X		X		X	
209		100s	10s	X		X		X		X		X	
212		100s	10s	X		X		X	X	X		X	
217				X		X		X					
219			10s	X		X		X		X		X	
220			10s	X		X		X				X	
221			10s	X		X		X					
222		10s	10s	X		X		X				X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
33	yes	2	3	813	856	48	No	Cattle tracks	windy from SE and overcast
83	yes	12	14	11,954	12,583	48	No	Cattle tracks	windy from SE and overcast
134	yes	12	13	1,419	1,494	50	No	Cattle tracks	windy from SE and overcast
136	yes	12	18	9,248	10,881	50	No	Cattle tracks	windy from SE and overcast
137	yes	10	11	3,720	3,796	50	No	Cattle tracks	windy from SE and overcast
139	yes	5	9	314	448	50	No	Cattle tracks	windy from SE and overcast
151	yes	12	13	6,109	6,233	50	No	Cattle tracks	windy from SE and overcast
163	yes	8	9	3,026	3,186	50	No	Cattle tracks	windy from SE and overcast
174	yes	8	8	2,144	2,187	50	No	Cattle tracks	windy from SE and overcast
175	yes	6	7	969	1,212	50	No	Cattle tracks	windy from SE and overcast
176	yes	12	13	3,757	3,954	50	No	Cattle tracks	windy from SE and overcast
177	yes	5	5	753	753	50	No	Cattle tracks	windy from SE and overcast
202	yes	7	9	1,732	2,165	48	No	Cattle tracks	windy from SE and overcast
203	yes	14	16	2,006	2,111	48	No	Cattle tracks	windy from SE and overcast
204	yes	4	8	2,229	3,715	48	No	Cattle tracks	windy from SE and overcast
205	yes	7	9	813	903	48	No	Cattle tracks	windy from SE and overcast
206	yes	12	15	3,756	5,008	48	No	Cattle tracks	windy from SE and overcast
207	yes	4	8	1,259	1,574	48	No	Cattle tracks	windy from SE and overcast
209	yes	10	12	14,500	17,059	48	No	Cattle tracks	windy from SE and overcast
212	yes	7	12	6,257	9,626	48	No	Cattle tracks	windy from SE and overcast
217	yes	6	7	1,040	1,224	48	No	Cattle tracks	windy from SE and overcast
219	yes	8	9	1,826	2,029	48	No	Cattle tracks	windy from SE and overcast
220	yes	6	7	1,830	2,034	48	No	Cattle tracks	windy from SE and overcast
221	yes	8	9	1,731	1,822	48	No	Cattle tracks	windy from SE and overcast
222	yes	8	9	2,447	2,575	48	No	Cattle tracks	windy from SE and overcast

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 4, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:00am – 1:00pm
Section: 23, 24, 25, and 26
Temp: 50°F – 62°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
223				X		X	X					X	
224			10s	X		X		X		X			
225						X		X		X			
226		10s	10s			X		X		X		X	grubs
227			10s			X		X		X		X	mosquito fish, scud
228		1000s	100s	X		X	X	X	X	X	X	X	
254		10s				X		X					
256	10s	100s	10s	X		X		X	X	X			
257						X		X		X		X	
258		1000s		X		X		X	X	X		X	
259		1000s				X		X		X	X	X	
276	100s	10s		X		X		X	X	X			waterfowl feathers
277	100s	100s		X	X	X	X	X	X		X		cow back scratcher
279		100s				X	X	X	X				
283		1000s	100s	X		X		X	X	X	X	X	waterfowl feathers
284	10s	100s		X		X		X		X			
290	100s	1000s		X		X		X					
291	10s	100s	10s	X		X		X		X	X	X	
293		100s	10s	X		X		X				X	
396		100s	100s	X		X		X		X			
624	100s	100s	10s			X	X	X					

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
223	yes	4	4	570	600	48	No	Cattle tracks	windy from SE and overcast
224	yes	6	9	1,805	2,005	48	No	Cattle tracks	windy from SE and overcast
225	yes	4	7	681	2,272	48	No	Cattle tracks	windy from SE and overcast
226	yes	6	9	1,527	2,036	48	No	Cattle tracks	windy from SE and overcast
227	yes	13	16	7,571	9,464	48	No	Cattle tracks	windy from SE and overcast
228	yes	14	15	64,411	67,801	50	No	Cattle tracks	windy from SE and overcast
254	yes	6	8	1,687	2,109	48	No	Cattle tracks	windy from SE and overcast
256	yes	14	16	31,945	33,626	48	No	Cattle tracks	windy from SE and overcast
257	yes	10	11	2,471	2,522	48	No	Cattle tracks	windy from SE and overcast
258	yes	14	14	6,601	6,601	48	No	Cattle tracks	windy from SE and overcast
259	yes	10	10	2,607	2,607	48	No	Cattle tracks	windy from SE and overcast
276	yes	10	11	3,093	3,157	50	No	Cattle tracks	windy from SE and overcast
277	yes	14	14	1,896	1,935	50	No	Cattle tracks	windy from SE and overcast
279	yes	12	12	2,758	2,814	50	No	Cattle tracks	windy from SE and overcast
283	yes	14	15	45,650	46,582	50	No	Cattle tracks	windy from SE and overcast
284	yes	8	9	1,056	1,077	50	No	Cattle tracks	windy from SE and overcast
290	yes	13	14	1,806	1,843	50	No	Cattle tracks	windy from SE and overcast
291	yes	13	14	2,804	2,861	50	No	Cattle tracks	windy from SE and overcast
293	yes	7	15	4,692	7,219	48	No	Cattle tracks	windy from SE and overcast
396	yes	12	12	24,095	24,095	50	No	Cattle tracks	windy from SE and overcast
624	yes	6	7	1,858	1,896	50	No	Cattle tracks	windy from SE and overcast

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 18, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:15 am - 4:30 pm
Section: 23, 24, 25, and 26
Temp: 64°F - 68°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
25						X		X					
26		10s				X	X	X		X			
32						X	X	X					scuds
33						X							
83		100s				X	X	X	X	X		X	hyla tads, waterfowl feathers
135	10s	100s	100s	X		X	X	X	X				
180		100s				X		X	X				foamy
181						X		X					green beetle sp.?, foamy
183		100s	10s	X		X	X	X	X				
193		10s	10s	X		X		X	X	X		X	
194	10s	1000s	100s	X		X		X				X	
195		10s	10s	X		X		X		X		X	
196		10s				X		X					
197		10s	10s	X		X		X					
198			10s			X		X	X				
199		100s	10s			X		X		X			
200		100s	10s	X		X		X	X				
201		10s	10s	X		X		X	X				
202	100s	100s	10s			X	X	X					
203		100s	100s	X		X	X	X				X	
206			10s	X		X		X				X	hyla regilla
207			10s	X		X	X	X					
209		10s	100s	X		X	X	X	X	X		X	beetle sp.?
210			100s	X		X		X		X			
211			10s	X		X	X	X					scud

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
25	yes	5	7	873	970	59	No	Cattle tracks	Clear and warm, slight breeze
26	yes	6	7	1,235	1,372	59	No	Cattle tracks	Clear and warm, slight breeze
32	yes	2	4	746	1,243	49	No	Cattle tracks	Clear and warm, slight breeze
33	yes	3	4	770	856	49	No	Cattle tracks	Clear and warm, slight breeze
83	yes	12	14	11,954	12,583	51	No	Cattle tracks	Clear and warm, slight breeze
135	yes	10	12	1,922	2,023	62	No	Cattle tracks	Clear and warm, slight breeze
180	yes	6	7	683	697	62	No	Cattle tracks	Clear and warm, slight breeze
181	yes	6	7	517	527	62	No	Cattle tracks	Clear and warm, slight breeze
183	yes	9	10	2,170	2,215	62	No	Cattle tracks	Clear and warm, slight breeze
193	yes	10	11	3,474	3,657	62	No	Cattle tracks	Clear and warm, slight breeze
194	yes	11	12	2,433	2,561	62	No	Cattle tracks	Clear and warm, slight breeze
195	yes	5	6	2,887	3,039	62	No	Cattle tracks	Clear and warm, slight breeze
196	yes	6	7	1,372	1,400	62	No	Cattle tracks	Clear and warm, slight breeze
197	yes	7	9	2,540	2,673	62	No	Cattle tracks	Clear and warm, slight breeze
198	yes	13	15	3,049	3,388	62	No	Cattle tracks	Clear and warm, slight breeze
199	yes	9	11	1,686	1,873	60	No	Cattle tracks	Clear and warm, slight breeze
200	yes	8	10	999	1,110	60	No	Cattle tracks	Clear and warm, slight breeze
201	yes	6	7	1,367	1,395	60	No	Cattle tracks	Clear and warm, slight breeze
202	yes	5	8	1,840	2,165	59	No	Cattle tracks	Clear and warm, slight breeze
203	yes	15	18	2,069	2,111	59	No	Cattle tracks	Clear and warm, slight breeze
206	yes	11	14	4,006	5,008	59	No	Cattle tracks	Clear and warm, slight breeze
207	yes	9	11	1,495	1,574	59	No	Cattle tracks	Clear and warm, slight breeze
209	yes	12	14	15,353	17,059	59	No	Cattle tracks	Clear and warm, slight breeze
210	yes	12	13	4,876	5,418	60	No	Cattle tracks	Clear and warm, slight breeze
211	yes	7	7	1,158	1,182	60	No	Cattle tracks	Clear and warm, slight breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 18, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:15 am - 4:30 pm
Section: 23, 24, 25, and 26
Temp: 64°F - 68°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
212		100s	10s	X		X	X	X	X				
213		10s		X		X		X					
214		100s	10s	X		X	X	X	X				green beetle sp?, waterfowl feathers
215	10s	1000s	10s	X		X	X	X				X	
216	10s	10s		X		X		X				X	
217				X		X	X	X					
219			10s	X		X	X	X	X				hyla egg mass
220			10s	X		X	X	X					
221			10s			X		X	X				
222		10s	10s	X		X	X	X	X			X	
223				X		X	X	X	X				
224			10s			X		X	X	X			dragonfly larvae
225		10s	10s	X		X		X		X		X	
226		10s	10s	X		X		X	X	X		X	scud
227			100s			X		X	X			X	large bullfrog tad (5")
230		100s	1000s	X		X		X	X	X		X	
231		10s		X		X		X					
232		10s		X		X		X	X				
234		100s	100s	X		X	X		X				waterfowl feathers
236	10s	1000s	1000s	X		X	X	X	X	X		X	waterfowl feathers
237	100s	100s				X	X	X		X			waterfowl feathers
238		1000s	100s	X		X	X	X		X			
239						X		X					
241	10s	100s	10s			X	X	X				X	
242	10s	100s				X	X	X				X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
212	yes	9	11	8,663	9,626	59	No	Cattle tracks	Clear and warm, slight breeze
213	yes	5	7	1,185	1,394	64	No	Cattle tracks	Clear and warm, slight breeze
214	yes	13	14	5,583	5,877	64	No	Cattle tracks	Clear and warm, slight breeze
215	yes	9	11	4,475	4,711	64	No	Cattle tracks	Clear and warm, slight breeze
216	yes	6	8	1,636	1,817	60	No	Cattle tracks	Clear and warm, slight breeze
217	yes	6	7	1,102	1,224	59	No	Cattle tracks	Clear and warm, slight breeze
219	yes	11	12	1,927	2,029	59	No	Cattle tracks	Clear and warm, slight breeze
220	yes	6	7	1,932	2,034	59	No	Cattle tracks	Clear and warm, slight breeze
221	yes	5	6	1,731	1,822	58	No	Cattle tracks	Clear and warm, slight breeze
222	yes	5	7	2,447	2,575	59	No	Cattle tracks	Clear and warm, slight breeze
223	yes	3	4	510	600	58	No	Cattle tracks	Clear and warm, slight breeze
224	yes	6	8	1,805	2,005	51	No	Cattle tracks	Clear and warm, slight breeze
225	yes	8	9	2,044	2,272	51	No	Cattle tracks	Clear and warm, slight breeze
226	yes	6	8	1,629	2,036	51	No	Cattle tracks	Clear and warm, slight breeze
227	yes	14	15	8,517	9,464	51	No	Cattle tracks	Clear and warm, slight breeze
230	yes	12	14	12,595	13,994	60	No	Cattle tracks	Clear and warm, slight breeze
231	yes	6	8	964	1,014	62	No	Cattle tracks	Clear and warm, slight breeze
232	yes	6	8	1,673	1,969	62	No	Cattle tracks	Clear and warm, slight breeze
234	yes	12	14	5,136	5,406	64	No	Cattle tracks	Clear and warm, slight breeze
236	yes	8	9	6,867	8,584	64	No	Cattle tracks	Clear and warm, slight breeze
237	yes	7	9	1,334	1,667	64	No	Cattle tracks	Clear and warm, slight breeze
238	yes	12	13	10,250	10,459	62	No	Cattle tracks	Clear and warm, slight breeze
239	yes	3	4	560	571	62	No	Cattle tracks	Clear and warm, slight breeze
241	yes	11	13	1,856	2,063	64	No	Cattle tracks	Clear and warm, slight breeze
242	yes	6	8	917	1,311	64	No	Cattle tracks	Clear and warm, slight breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 18, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 9:15 am - 4:30 pm
Section: 23, 24, 25, and 26
Temp: 64°F - 68°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
243	100s	100s		X		X		X				X	
244	10s	100s		X		X	X		X			X	waterfowl feathers
245	100s	10s				X		X				X	
254		100s	10s	X		X		X	X				
256	10s	100s	10s	X		X	X	X	X	X		X	hyla tads, bullfrog
257			10s			X		X	X	X		X	waterfowl feathers
258		1000s				X		X	X			X	scud
259		1000s				X		X	X				scud
287						X							foamy
288		100s		X		X		X		X			
293		1000s	100s	X		X		X	X			X	waterfowl feathers
395		100s	100s	X		X		X	X	X		X	cow hip bone
396		1000s	1000s	X		X	X	X	X	X	X	X	hyla tadpoles, waterfowl feathers

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
243	yes	6	8	1,442	2,060	64	No	Cattle tracks	Clear and warm, slight breeze
244	yes	9	11	2,700	5,401	64	No	Cattle tracks	Clear and warm, slight breeze
245	yes	4	8	561	1,122	64	No	Cattle tracks	Clear and warm, slight breeze
254	yes	6	8	1,687	2,109	51	No	Cattle tracks	Clear and warm, slight breeze
256	yes	15	16	31,945	33,626	51	No	Cattle tracks	Clear and warm, slight breeze
257	yes	10	11	2,270	2,522	51	No	Cattle tracks	Clear and warm, slight breeze
258	yes	16	16	6,469	6,601	51	No	Cattle tracks	Clear and warm, slight breeze
259	yes	8	8	2,607	2,607	51	No	Cattle tracks	Clear and warm, slight breeze
287	yes	3	4	443	452	62	No	Cattle tracks	Clear and warm, slight breeze
288	yes	6	7	736	751	62	No	Cattle tracks	Clear and warm, slight breeze
293	yes	12	18	5,775	7,219	51	No	Cattle tracks	Clear and warm, slight breeze
395	yes	10	13	17,010	17,906	62	No	Cattle tracks	Clear and warm, slight breeze
396	yes	14	16+	22,891	24,095	62	No	Cattle tracks	Clear and warm, slight breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 19, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45 AM - 4:00 PM
Section: 23, 24, 25, and 26
Temp: 54°F - 64°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
134	10s	100s	10s			X	X	X	X				
136		1000s	10s			X	X	X	X	X		X	
137	10s	100s	10s			X	X	X	X				
141		1000s	10s	X		X	X	X	X			X	waterfowl feathers
154		100s	10s	X		X	X	X	X			X	
175		100s	10s			X	X	X	X	X		X	
176	10s	1000s	10s	X		X		X	X				
177						X		X				X	earthworm
185		10s				X		X	X				
186						X	X						
187						X		X				X	
188						X	X		X				
189						X			X				
190	10s	100s	100s	X	X	X		X	X	X		X	waterfowl feathers
192						X	X		X				
240		1000s	10s	X		X		X	X			X	
246		10s	100s	X		X	X	X	X	X		X	hyla tadpoles
247	10s	100	10s	X		X		X	X			X	waterfowl feathers
248		100s	10s	X		X		X	X			X	*L.p.* carapaces only
249	10s	1000s	10s	X		X		X	X			X	waterfowl feathers
250		100s	10s	X		X	X	X	X			X	
251		1000s	10s	X		X		X	X			X	
252						X		X					
253		10s					X						
260		100s		X	X	X	X		X				

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
134	yes	8	10	1,419	1,494	56	No	Cattle tracks	overcast, cool, slight breeze
136	yes	12	15	9,248	10,881	56	No	Cattle tracks	overcast, cool, slight breeze
137	yes	11	12	3,607	3,796	56	No	Cattle tracks	overcast, cool, slight breeze
141	yes	10	12	3,977	4,419	57	No	Cattle tracks	overcast, cool, slight breeze
154	yes	7	9	1,316	1,549	56	No	Cattle tracks	overcast, cool, slight breeze
175	yes	6	8	1,090	1,212	57	No	Cattle tracks	overcast, cool, slight breeze
176	yes	9	11	3,757	3,954	57	No	Cattle tracks	overcast, cool, slight breeze
177	yes	6	8	716	753	57	No	Cattle tracks	overcast, cool, slight breeze
185	yes	6	7	4,299	4,525	51	No	Cattle tracks	overcast, cool, slight breeze
186	yes	3	4	498	508	51	No	Cattle tracks	overcast, cool, slight breeze
187	yes	4	4	907	907	51	No	Cattle tracks	overcast, cool, slight breeze
188	yes	4	6	506	563	51	No	Cattle tracks	overcast, cool, slight breeze
189	yes	4	5	515	525	51	No	Cattle tracks	overcast, cool, slight breeze
190	yes	13	14	7,910	8,326	57	No	Cattle tracks	overcast, cool, slight breeze
192	yes	5	5	1,065	1,087	51	No	Cattle tracks	overcast, cool, slight breeze
240	yes	12	13	6,638	6,988	51	No	Cattle tracks	overcast, cool, slight breeze
246	yes	14	16	27,118	27,671	51	No	Cattle tracks	overcast, cool, slight breeze
247	yes	12	14	7,878	8,292	51	No	Cattle tracks	overcast, cool, slight breeze
248	yes	10	12	5,904	6,214	51	No	Cattle tracks	overcast, cool, slight breeze
249	yes	11	13	3,429	3,609	51	No	Cattle tracks	overcast, cool, slight breeze
250	yes	11	13	4,320	4,547	51	No	Cattle tracks	overcast, cool, slight breeze
251	yes	12	13	5,537	5,650	51	No	Cattle tracks	overcast, cool, slight breeze
252	yes	6	6	798	798	51	No	Cattle tracks	overcast, cool, slight breeze
253	yes	4	5	814	857	51	No	Cattle tracks	overcast, cool, slight breeze
260	yes	10	11	951	1,001	57	No	Cattle tracks	overcast, cool, slight breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: February 19, 2010
Collectors: Meredith Branstad, Eric Christensen
Range: 6 East

Quad: Carmichael
Time: 8:45 AM - 4:00 PM
Section: 23, 24, 25, and 26
Temp: 54°F - 64°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawing Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
262		10s				X		X	X				
263			10s	X		X		X					
264		100s	10s	X		X	X	X	X			X	hyla tad
265				X		X		X					
266									X	X			
268		1000s	10s	X		X		X	X			X	*L.p* . carapaces only
281		10s				X	X		X	X		X	
282						X	X		X				
283		1000s	1000s	X		X	X	X	X	X	X	X	hyta eggmass, waterfowl feathers
284	10s	100s				X		X				X	
290		100s		X		X		X	X	X	X		
291	10s	1000s	10s	X		X	X	X	X				
294		100s	100s	X	X	X	X	X	X	X	X	X	waterfowl feathers
295						X			X				
296						X		X	X				
297		100s			X	X	X	X	X				worms, scud
312		100s				X	X		X				
314		10s		X		X		X	X				
320		100s		X		X	X	X	X	X			
350		100s		X		X	X		X				
386							X	X	X				
624	10s	100s	10s	X		X	X	X	X	X			

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
262	yes	7	8	471	496	51	No	Cattle tracks	overcast, cool, slight breeze
263	yes	7	8	1,262	1,328	51	No	Cattle tracks	overcast, cool, slight breeze
264	yes	12	14	5,164	5,436	52	No	Cattle tracks	overcast, cool, slight breeze
265	yes	7	8	363	403	51	No	Cattle tracks	overcast, cool, slight breeze
266	yes	3	5	191	319	51	No	Cattle tracks	overcast, cool, slight breeze
268	yes	8	10	3,198	3,763	51	No	Cattle tracks	overcast, cool, slight breeze
281	yes	4	4	588	588	51	No	Cattle tracks	overcast, cool, slight breeze
282	yes	3	3	374	374	51	No	Cattle tracks	overcast, cool, slight breeze
283	yes	15	18	44,252	46,582	57	No	Cattle tracks	overcast, cool, slight breeze
284	yes	6	10	862	1,077	57	No	Cattle tracks	overcast, cool, slight breeze
290	yes	12	15	1,659	1,843	56	No	Cattle tracks	overcast, cool, slight breeze
291	yes	10	14	2,718	2,861	57	No	Cattle tracks	overcast, cool, slight breeze
294	yes	13	15	42,644	47,382	51	No	Cattle tracks	overcast, cool, slight breeze
295	yes	2	4	107	268	51	No	Cattle tracks	overcast, cool, slight breeze
296	yes	3	4	944	964	51	No	Cattle tracks	overcast, cool, slight breeze
297	yes	13	13	2,518	2,518	57	No	Cattle tracks	overcast, cool, slight breeze
312	yes	6	10	1,051	1,751	58	No	Cattle tracks	overcast, cool, slight breeze
314	yes	10	12	3,894	5,191	60	No	Cattle tracks	overcast, cool, slight breeze
320	yes	12	13	3,760	4,178	60	No	Cattle tracks	overcast, cool, slight breeze
350	yes	9	12	1,838	2,042	58	No	Cattle tracks	overcast, cool, slight breeze
386	yes	4	7	846	1,302	58	No	Cattle tracks	overcast, cool, slight breeze
624	yes	5	7	1,706	1,896	59	No	Cattle tracks	overcast, cool, slight breeze

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: March 4, 2010
Collectors: Meredith Branstad, Bart van der Zeeuw
Range: 6 East

Quad: Carmichael
Time: 9:00 am - 2:30 pm
Section: 23, 24, 25, and 26
Temp: 50°F - 65°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
9										X			
23						X	X	X		X			
24							X	X		X			
25							X	X					
26		10s					X	X					
28							X	X					
29				X		X	X	X		X			
30							X			X			
32						X				X			
33													
60							X	X		X			
83				X		X		X	X			X	hyla tadpole, scud
135		1000s	10s			X		X	X			X	good linderiella pool
179						X			X				
180		10s							X				sludge
181						X			X				
183			10s	X				X				X	
193		100s	100s			X		X	X			X	
194		100s	10s				X	X	X			X	spider, feature thru fence
195			10s	X				X	X			X	
196			10s					X		X			
197			100s	X		X		X				X	
198				X		X		X				X	
199		10s	10s	X		X		X	X				
200		100s	10s	X		X		X					

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
9	yes	7	7	343	343	56	No	Cattle tracks	Clear, sunny, and warm
23	yes	4	4	378	378	50	No	Cattle tracks	Clear, sunny, and warm
24	yes	5	5	431	431	50	No	Cattle tracks	Clear, sunny, and warm
25	yes	7	7	970	970	50	No	Cattle tracks	Clear, sunny, and warm
26	yes	8	8	1,372	1,372	50	No	Cattle tracks	Clear, sunny, and warm
28	yes	5	5	260	260	50	No	Cattle tracks	Clear, sunny, and warm
29	yes	5	5	666	666	50	No	Cattle tracks	Clear, sunny, and warm
30	yes	4	4	723	723	56	No	Cattle tracks	Clear, sunny, and warm
32	yes	4	4	1,243	1,243	48	No	Cattle tracks	Clear, sunny, and warm
35	yes	5	5	617	617	48	No	Cattle tracks	Clear, sunny, and warm
60	yes	4	4	1,165	1,165	46	No	Cattle tracks	Clear, sunny, and warm
83	yes	9	9	12,583	12,583	46	No	Cattle tracks	Clear, sunny, and warm
135	yes	11	11	2,023	2,023	56	No	Cattle tracks	Clear, sunny, and warm
179	yes	6	6	79	79	56	No	Cattle tracks	Clear, sunny, and warm
180	yes	7	7	697	697	56	No	Cattle tracks	Clear, sunny, and warm
181	yes	7	7	527	527	56	No	Cattle tracks	Clear, sunny, and warm
183	yes	10	10	2,215	2,215	56	No	Cattle tracks	Clear, sunny, and warm
190	yes	6	10	6,661	8,326	56	No	Cattle tracks	Clear, sunny, and warm
193	yes	10	10	3,657	3,657	56	No	Cattle tracks	Clear, sunny, and warm
194	yes	12	12	2,561	2,561	56	No	Cattle tracks	Clear, sunny, and warm
195	yes	8	8	3,039	3,039	56	No	Cattle tracks	Clear, sunny, and warm
196	yes	8	8	1,400	1,400	56	No	Cattle tracks	Clear, sunny, and warm
197	yes	10	12	2,620	2,673	56	No	Cattle tracks	Clear, sunny, and warm
199	yes	10	12	1,835	1,873	56	No	Cattle tracks	Clear, sunny, and warm
200	yes	10	12	1,088	1,110	56	No	Cattle tracks	Clear, sunny, and warm

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: March 4, 2010
Collectors: Meredith Branstad, Bart van der Zeeuw
Range: 6 East

Quad: Carmichael
Time: 9:00 am - 4:00 pm
Section: 23, 24, 25, and 26
Temp: 50°F - 65°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
201				X				X	X				
202		100s	10s	X		X		X	X				
203		100s	10s	X		X		X	X			X	
204		100s	100s	X		X		X				X	scud
205				X		X		X				X	
206			10s	X		X			X			X	
207			10s	X		X		X	X	X			
208				X		X		X					
209		100s	1000s	X		X		X	X				mosquito, hyla tadpole
210			100s	X		X		X	X			X	scud
211			10s	X		X		X	X			X	
212		10s	100s	X		X		X	X			X	
216		10s	100s	X				X				X	
217						X	X		X			X	
218							X			X			
219			10s	X		X		X	X				
220						X		X	X	X		X	
221			10s			X		X	X			X	
222			10s	X		X	X	X	X			X	
223				X		X	X						
224			10s	X		X		X				X	
225				X		X	X	X	X				
226				X		X		X	X			X	
227				X		X		X	X				hyla tadpole
230		100s	1000s	X		X		X	X			X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
201	yes	10	10	1,395	1,395	56	No	Cattle tracks	Clear, sunny, and warm
202	yes	10	10	2,165	2,165	50	No	Cattle tracks	Clear, sunny, and warm
203	yes	12	12	2,111	2,111	50	No	Cattle tracks	Clear, sunny, and warm
204	yes	10	12	3,529	3,715	50	No	Cattle tracks	Clear, sunny, and warm
205	yes	7	7	903	903	50	No	Cattle tracks	Clear, sunny, and warm
206	yes	8	9	4,758	5,008	50	No	Cattle tracks	Clear, sunny, and warm
207	yes	9	9	1,574	1,574	56	No	Cattle tracks	Clear, sunny, and warm
208	yes	6	6	1,619	1,619	56	No	Cattle tracks	Clear, sunny, and warm
209	yes	10	12	16,206	17,059	56	No	Cattle tracks	Clear, sunny, and warm
210	yes	10	10	5,418	5,418	56	No	Cattle tracks	Clear, sunny, and warm
211	yes	10	10	1,182	1,182	56	No	Cattle tracks	Clear, sunny, and warm
212	yes	10	10	9,626	9,626	50	No	Cattle tracks	Clear, sunny, and warm
216	yes	10	10	1,817	1,817	56	No	Cattle tracks	Clear, sunny, and warm
217	yes	8	8	1,224	1,224	50	No	Cattle tracks	Clear, sunny, and warm
218	yes	5	5	471	471	50	No	Cattle tracks	Clear, sunny, and warm
219	yes	10	12	1,927	2,029	50	No	Cattle tracks	Clear, sunny, and warm
220	yes	9	9	2,034	2,034	46	No	Cattle tracks	Clear, sunny, and warm
221	yes	9	9	1,822	1,822	46	No	Cattle tracks	Clear, sunny, and warm
222	yes	10	10	2,575	2,575	46	No	Cattle tracks	Clear, sunny, and warm
223	yes	7	7	600	600	46	No	Cattle tracks	Clear, sunny, and warm
224	yes	8	9	1,965	2,005	50	No	Cattle tracks	Clear, sunny, and warm
225	yes	8	8	2,272	2,272	50	No	Cattle tracks	Clear, sunny, and warm
226	yes	11	11	2,036	2,036	46	No	Cattle tracks	Clear, sunny, and warm
227	yes	16	16	9,464	9,464	46	No	Cattle tracks	Clear, sunny, and warm
230	yes	12	12	13,994	13,994	56	No	Cattle tracks	Clear, sunny, and warm

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: March 4, 2010
Collectors: Meredith Branstad, Bart van der Zeeuw
Range: 6 East

Quad: Carmichael
Time: 9:00 am - 2:30 pm
Section: 23, 24, 25, and 26
Temp: 50°F - 65°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
231		10s	10s	X				X		X		X	
232								X	X	X			
233							X	X					
234		100s	100s	X		X		X	X			X	
235				X		X		X				X	
236		100s	100s	X		X		X				X	
237		10s	10s	X		X		X	X			X	photo with factory in background
238		10s	10s			X			X				
239						X			X			X	
242		10s	10s	X		X	X	X	X				worm
243		10s	10s	X		X		X				X	
244		100s		X		X		X		X			
245		10s	10s	X				X	X				
254		100s	100s	X		X		X				X	
255				X					X				clear
256		100s	10s	X		X	X	X	X	X	X	X	hyla tadpole, *L.p* . carapace only
257			10s	X		X	X			X		X	hyla tadpole
258		100s				X			X	X		X	
259		100s		X		X			X			X	scud
287									X				
288								X					
293		100s		X		X			X			X	
395		10s	10s	X		X		X	X	X		X	
396		100s	1000s	X		X			X	X		X	

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
231	yes	8	8	1,014	1,014	56	No	Cattle tracks	Clear, sunny, and warm
232	yes	6	6	1,969	1,969	56	No	Cattle tracks	Clear, sunny, and warm
233	yes	7	7	1,048	1,048	56	No	Cattle tracks	Clear, sunny, and warm
234	yes	12	12	5,406	5,406	56	No	Cattle tracks	Clear, sunny, and warm
235	yes	5	5	1,024	1,024	56	No	Cattle tracks	Clear, sunny, and warm
236	yes	8	8	8,584	8,584	56	No	Cattle tracks	Clear, sunny, and warm
237	yes	10	10	1,667	1,667	56	No	Cattle tracks	Clear, sunny, and warm
238	yes	12	12	10,459	10,459	56	No	Cattle tracks	Clear, sunny, and warm
239	yes	5	5	571	571	56	No	Cattle tracks	Clear, sunny, and warm
242	yes	6	6	1,311	1,311	56	No	Cattle tracks	Clear, sunny, and warm
243	yes	11	11	2,060	2,060	56	No	Cattle tracks	Clear, sunny, and warm
244	yes	7	7	5,401	5,401	56	No	Cattle tracks	Clear, sunny, and warm
245	yes	10	10	1,122	1,122	56	No	Cattle tracks	Clear, sunny, and warm
254	yes	10	10	2,109	2,109	46	No	Cattle tracks	Clear, sunny, and warm
255	yes	7	7	727	727	50	No	Cattle tracks	Clear, sunny, and warm
256	yes	12	12	33,626	33,626	46	No	Cattle tracks	Clear, sunny, and warm
257	yes	9	12	2,522	2,522	46	No	Cattle tracks	Clear, sunny, and warm
258	yes	14	14	6,601	6,601	46	No	Cattle tracks	Clear, sunny, and warm
259	yes	10	10	2,607	2,607	46	No	Cattle tracks	Clear, sunny, and warm
287	yes	6	6	452	452	56	No	Cattle tracks	Clear, sunny, and warm
288	yes	6	6	751	751	56	No	Cattle tracks	Clear, sunny, and warm
293	yes	13	13	7,219	7,219	46	No	Cattle tracks	Clear, sunny, and warm
395	yes	12	12	17,906	17,906	56	No	Cattle tracks	Clear, sunny, and warm
396	yes	16	16	24,095	24,095	56	No	Cattle tracks	Clear, sunny, and warm

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: March 5, 2010
Collectors: Meredith Branstad, Bard van der Zeeuw
Range: 6 East

Quad: Carmichael
Time: 8:45 am - 1:15 pm
Section: 23, 24, 25, and 26
Temp: 50°F - 66°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
10						X	X		X	X		X	
20							X						
21							X			X			
27						X		X				X	
31							X			X			
39							X	X	X	X		X	
40							X						
41							X			X			
42						X	X			X			
55							X			X			
56				X			X	X					
57							X	X				X	
134		100s	100s	X		X		X	X				
136		1000s	100s			X	X		X			X	
137	10s ♀	10s		X			X	X	X				
139		10s				X	X		X				
142		100s	10s	X		X		X	X				mosquito larvae
168		100s	10s	X		X		X				X	*L.p.* carapaces only
170		100s		X		X		X	X				
175		10s	10s	X		X		X					
176		100s	100s	X		X	X						
177				X		X	X	X				X	
178						X	X			X			
185			10s			X	X	X	X				
186								X					waterfowl feathers

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
10	yes	6	6	519	519	60	No	Cattle tracks	Clear, sunny, and warm
20	yes	3	3	127	127	54	No	Cattle tracks	Clear, sunny, and warm
21	yes	3	3	88	88	54	No	Cattle tracks	Clear, sunny, and warm
27	yes	5	5	775	775	42	No	Cattle tracks	Clear, sunny, and warm
31	yes	3	3	425	425	42	No	Cattle tracks	Clear, sunny, and warm
39	yes	4	4	556	556	48	No	Cattle tracks	Clear, sunny, and warm
40	yes	2	2	50	50	48	No	Cattle tracks	Clear, sunny, and warm
41	yes	4	4	825	825	48	No	Cattle tracks	Clear, sunny, and warm
42	yes	7	7	1,148	1,148	42	No	Cattle tracks	Clear, sunny, and warm
55	yes	3	3	271	271	48	No	Cattle tracks	Clear, sunny, and warm
56	yes	4	4	283	283	42	No	Cattle tracks	Clear, sunny, and warm
57	yes	5	5	1,001	1,001	48	No	Cattle tracks	Clear, sunny, and warm
134	yes	12	12	1,494	1,494	60	No	Cattle tracks	Clear, sunny, and warm
136	yes	16	16	10,881	10,881	60	No	Cattle tracks	Clear, sunny, and warm
137	yes	11	11	3,796	3,796	60	No	Cattle tracks	Clear, sunny, and warm
139	yes	8	8	448	448	54	No	Cattle tracks	Clear, sunny, and warm
142	yes	5	5	2,167	2,167	60	No	Cattle tracks	Clear, sunny, and warm
168	yes	12	12	4,985	4,985	60	No	Cattle tracks	Clear, sunny, and warm
170	yes	13	13	3,158	3,158	60	No	Cattle tracks	Clear, sunny, and warm
175	yes	8	8	1,212	1,212	54	No	Cattle tracks	Clear, sunny, and warm
176	yes	10	10	3,954	3,954	48	No	Cattle tracks	Clear, sunny, and warm
177	yes	6	6	753	753	54	No	Cattle tracks	Clear, sunny, and warm
178	yes	4	4	446	446	54	No	Cattle tracks	Clear, sunny, and warm
185	yes	8	8	4,525	4,525	42	No	Cattle tracks	Clear, sunny, and warm
186	yes	4	4	508	508	42	No	Cattle tracks	Clear, sunny, and warm

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: March 5, 2010
Collectors: Meredith Branstad, Bard van der Zeeuw
Range: 6 East

Quad: Carmichael
Time: 8:45 am - 1:15 pm
Section: 23, 24, 25, and 26
Temp: 50°F - 66°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
187				X			X		X			X	
188				X		X		X					
189				X		X		X					mosquito larvae
192				X		X	X	X	X			X	
213			10s	X		X		X	X				*L.p.* carapaces only
214		100s	100s	X		X		X				X	
215		100s	10s	X		X		X	X				*L.p.* carapaces only
240		100s	10s	X		X		X	X			X	
241	10s	10s	10s	X		X		X					
246		100s		X		X		X	X		X	X	large/deep, Hyla tadpole
247		100s	10s	X		X		X	X			X	*L.p.* carapaces only
248		100s	10s	X					X			X	
249		100s	10s	X		X	X	X	X	X			*L.p.* carapaces only
250		100s	10s	X		X			X			X	
251		100s		X		X		X	X				
252				X		X		X	X				
253		10s							X				
262				X		X			X				mosquito larvae
263						X		X	X	X			
264		10s				X		X	X			X	
265				X		X							
266				X		X		X					
267				X				X					
268		1000s	100s	X		X		X	X				
278							X		X				

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
187	yes	7	7	907	907	42	No	Cattle tracks	Clear, sunny, and warm
188	yes	4	4	563	563	42	No	Cattle tracks	Clear, sunny, and warm
189	yes	5	5	525	525	42	No	Cattle tracks	Clear, sunny, and warm
192	yes	7	7	1,087	1,087	48	No	Cattle tracks	Clear, sunny, and warm
213	yes	8	8	1,394	1,394	42	No	Cattle tracks	Clear, sunny, and warm
214	yes	12	12	5,877	5,877	42	No	Cattle tracks	Clear, sunny, and warm
215	yes	9	9	4,711	4,711	42	No	Cattle tracks	Clear, sunny, and warm
240	yes	11	11	6,988	6,988	42	No	Cattle tracks	Clear, sunny, and warm
241	yes	10	10	2,063	2,063	42	No	Cattle tracks	Clear, sunny, and warm
246	yes	18	18+	27,671	27,671	42	No	Cattle tracks	Clear, sunny, and warm
247	yes	12	12	8,292	8,292	42	No	Cattle tracks	Clear, sunny, and warm
248	yes	9	9	6,214	6,214	42	No	Cattle tracks	Clear, sunny, and warm
249	yes	10	10	3,609	3,609	42	No	Cattle tracks	Clear, sunny, and warm
250	yes	10	10	4,547	4,547	42	No	Cattle tracks	Clear, sunny, and warm
251	yes	12	12	5,650	5,650	42	No	Cattle tracks	Clear, sunny, and warm
252	yes	6	6	798	798	42	No	Cattle tracks	Clear, sunny, and warm
253	yes	6	6	857	857	42	No	Cattle tracks	Clear, sunny, and warm
262	yes	7	7	496	496	48	No	Cattle tracks	Clear, sunny, and warm
263	yes	9	9	1,328	1,328	48	No	Cattle tracks	Clear, sunny, and warm
264	yes	9	9	5,436	5,436	48	No	Cattle tracks	Clear, sunny, and warm
265	yes	8	8	403	403	48	No	Cattle tracks	Clear, sunny, and warm
266	yes	4	4	319	319	48	No	Cattle tracks	Clear, sunny, and warm
267	yes	5	5	624	624	48	No	Cattle tracks	Clear, sunny, and warm
268	yes	8	8	3,763	3,763	48	No	Cattle tracks	Clear, sunny, and warm
278	yes	7	7	628	628	48	No	Cattle tracks	Clear, sunny, and warm

N/I = No Inundation

Invertebrate Sampling Data

Project Site: Excelsior Estates
County: Sacramento
Township: 8 North
Permit #: TE-810380-4

Date: March 5, 2010
Collectors: Meredith Branstad, Bard van der Zeeuw
Range: 6 East

Quad: Carmichael
Time: 8:45 am - 1:15 pm
Section: 23, 24, 25, and 26
Temp: 50°F - 66°F

Vernal Pool Number	Crustacea							Turbellaria	Insecta				Incidental Observations
	Anostraca		Notostraca	Cladocera	Conchostraca	Copepoda	Ostracoda		Coleoptera	Coleoptera	Hemiptera	Diptera	
	Vernal Pool Fairy Shrimp (B. lynchi)	California Linderiella	Vernal Pool Tadpole Shrimp	Water Fleas	Clam Shrimps	Copepods	Seed Shrimp	Flatworms	Dytiscidae (Diving Water Beetles)	Haliplidae (Crawling Water Beetles)	Notonectidae (Backswimmers)	Chironomidae (Midge)	
281				X		X			X			X	
282				X									
283		1000s	1000s	X		X		X	X		X	X	hyla tadpoles
284		10s		X				X	X			X	
290		10s		X	X	X		X		X		X	hyla tadpole
291		1000s	100s			X		X		X			
294		100s	10s	X		X		X	X	X	X	X	waterfowl feathers, *L.p.* carapaces only
295						X		X				X	
296				X				X	X			X	
353				X	X	X	X	X		X			water fowl feathers, hyla tadpole
354				X		X	X	X				X	mosquito larvae
355						X		X				X	
368						X							dark, mucky
377				X		X		X	X			X	
393						X			X	X			dark
401				X		X		X	X			X	
604		10s				X	X	X		X			
621		100s				X	X	X					
624			100s				X		X				
625							X			X			

N/I = No Inundation

Invertebrate Sampling Data

Vernal Pool Number	Photos	Water Depth (inches)	Estimated Maximum Depth (inches)	Surface Area at time of sampling (ft^2)	Estimated Maximum Surface Area (ft^2)	Water Temperature (°F)	Voucher Specimens	Habitat Conditions	Weather Conditions/ Comments
281	yes	7	7	588	588	42	No	Cattle tracks	Clear, sunny, and warm
282	yes	7	7	374	374	42	No	Cattle tracks	Clear, sunny, and warm
283	yes	6	6	46,582	46,582	54	No	Cattle tracks	Clear, sunny, and warm
284	yes	11	11	1,077	1,077	60	No	Cattle tracks	Clear, sunny, and warm
290	yes	12	12	1,843	1,843	60	No	Cattle tracks	Clear, sunny, and warm
291	yes	12	12	2,861	2,861	60	No	Cattle tracks	Clear, sunny, and warm
294	yes	16	16+	47,382	47,382	48	No	Cattle tracks	Clear, sunny, and warm
295	yes	4	4	268	268	42	No	Cattle tracks	Clear, sunny, and warm
296	yes	6	6	964	964	48	No	Cattle tracks	Clear, sunny, and warm
353	yes	24	24	27,387	27,387	60	No	Cattle tracks	Clear, sunny, and warm
354	yes	6	6	1,397	1,397	60	No	Cattle tracks	Clear, sunny, and warm
355	yes	8	8	4,241	4,241	60	No	Cattle tracks	Clear, sunny, and warm
368	yes	9	9	1,027	1,027	60	No	Cattle tracks	Clear, sunny, and warm
377	yes	8	8	531	531	60	No	Cattle tracks	Clear, sunny, and warm
393	yes	11	11	746	746	60	No	Cattle tracks	Clear, sunny, and warm
401	yes	17	17	9,682	9,682	60	No	Cattle tracks	Clear, sunny, and warm
604	yes	6	6	210	210	54	No	Cattle tracks	Clear, sunny, and warm
621	yes	14	14	6,567	6,567	60	No	Cattle tracks	Clear, sunny, and warm
624	yes	9	9	1,896	1,896	60	No	Cattle tracks	Clear, sunny, and warm
625	yes	6	6	1,277	1,277	60	No	Cattle tracks	Clear, sunny, and warm

N/I = No Inundation

Appendix C — CNDDB Reports

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 01/10 to 03/10

For Office Use Only

Source Code _____ Quad Code _____

Elm Code _____ Occ. No. _____

EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepiderus packardi*

Common Name: Vernal Pool Tadpole Shrimp

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 10,000s Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Meredith Branstad and Eric Christensen

Address: 590 Menlo Drive, Suite 1
Rocklin, CA 95765

E-mail Address: meredith@foothill.com

Phone: (916) 435-1202

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

10,000	10,000			10,000
# adults	# juveniles	# larvae	# egg masses	# unknown

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☑ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Sacramento Landowner / Mgr.: Private

Quad Name: Carmichael, 7.5 minute quad Elevation: _____

T 8N R 6E Sec 23-, 26 ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GIS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: 38d 31' 31"N, 121d 16"47.3"W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*

Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Populations found in a number of natural vernal pools within non-native annual grassland currently being used as rangeland. Observations made during 8 site visits over the course of 3 months.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Rangeland used for cattle grazing. Surrounded by agricultural, residential, and commercial (race track) uses

Visible disturbances: Cattle are actively grazing the area

Threats: Off-road vehicle use and trash dumping within decommissioned portion of Kiefer Blvd. and immediately to the north.

Comments:

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☑ Compared with photo / drawing in: Belk and Ericsen, 1999
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 01/10 to 03/10

For Office Use Only

Source Code _____ Quad Code _____

Elm Code _____ Occ. No. _____

EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Branchinecta lynchi*

Common Name: Vernal Pool Fairy Shrimp

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1000s Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Meredith Branstad and Eric Christensen

Address: 590 Menlo Drive, Suite 1
Rocklin, CA 95765

E-mail Address: meredith@foothill.com

Phone: (916) 435-1202

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1,000	1,000			1,000
# adults	# juveniles	# larvae	# egg masses	# unknown

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☑ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Sacramento Landowner / Mgr.: Private

Quad Name: Carmichael, 7.5 minute quad Elevation: _____

T 8N R 6E Sec 23-, 26 ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GIS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: 38d 31' 31"N, 121d 16"47.3"W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*

Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Populations found in a number of natural vernal pools within non-native annual grassland currently being used as rangeland. Observations made during 8 site visits over the course of 3 months.

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Rangeland used for cattle grazing. Surrounded by agricultural, residential, and commercial (race track) uses

Visible disturbances: Cattle are actively grazing the area

Threats: Off-road vehicle use and trash dumping within decommissioned portion of Kiefer Blvd. and immediately to the north.

Comments:

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☑ Compared with photo / drawing in: Belk and Ericsen, 1999
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Appendix F — Corps Jurisdictional Determination for the Jackson Township Project (formerly Excelsior Estates), November 6, 2015

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

November 6, 2015

Regulatory Division SPK-2004-00791

Tsakopoulos Investments
Attn: Mr. Angelo G. Tsakopoulos
7423 Fair Oaks Boulevard, Suite 10
Carmichael, California 95608

Dear Mr. Tsakopoulos:

We are writing in regards to the revised delineation of aquatic resources on the Jackson Township 900 (formerly Excelsior Estates) site. The approximately 862-acre site is located in unincorporated eastern Sacramento County, and is bordered on the north by Keifer Boulevard, on the south by Jackson Highway and on the west by Excelsior Road, Latitude 38.52393° North, Longitude 121.27833° West.

Based on available information, **we concur with the amount and location of aquatic resources on the site as depicted on the enclosed revised October 29, 2015, *Delineated Waters of the U.S. Excelsior Estates Specific Plan Area, Figure 1*, prepared by Foothill Associates**. The approximately 53.81 acres of aquatic resources, consisting of 4.41 acre of depressional seasonal wetlands, 1.03 acres of depressional perennial marsh, 27.85 acres of vernal pools, 3.70 acres of riverine seasonal wetlands, 10.05 acres of riverine perennial marsh, 1.19 acres of intermittent drainage, 0.23 acre of ephemeral drainage, 5.04 acres of ponds, and 0.31 acre of ditch canal, present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water. This preliminary jurisdictional determination supersedes our August 27, 2015, preliminary jurisdictional determination.

We have enclosed a copy of the *Preliminary Jurisdictional Determination Form* for this site. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for Appeal form is enclosed to notify you of your options with this determination. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2004-00791 in any correspondence concerning this project. If you have any questions, please contact me at 1325 J Street, Room 1350, Sacramento, California 95814, by email at *Lisa.M.Gibson2@usace.army.mil*, or telephone at 916-557-5288. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

Lisa M Gibson

Lisa M. Gibson
Regulatory Permit Specialist
Regulatory Division

Enclosures

cc: (w/o encls)

Ms. Kate Wheatley, Taylor & Wiley, kwheatley@taylor-wiley.com
Mr. Ken Whitney, Foothill Associates, kwhitney@foothill.com
Ms. Leana Rosetti, U.S. Environmental Protection Agency, Rosetti.Leana@epa.gov
Ms. Tina Bartlett, California Department of Fish and Wildlife, Tina.bartlett@wildlife.ca.gov
Ms. Elizabeth Lee, Central Valley Regional Water Quality Control Board, Elizabeth.Lee@waterboards.ca.gov
Ms. Kellie Berry, Sacramento Valley Branch, Endangered Species Division, U.S. Fish and Wildlife Service, Kellie_Berry@fws.gov

PRELIMINARY JURISDICTIONAL DETERMINATION FORM
Sacramento District

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Regulatory Branch: **Sacramento District** File/ORM #: **SPK-2004-00791** PJD Date: **November 6, 2015**

State: **CA** City/County: **Sacramento County**
Nearest Waterbody: **Elder Creek, Morrison Creek**
Location (Lat/Long): **38.52509° North, 121.28180° West**
Size of Review Area: **862** acres

Name/Address Of Property Owner/ Potential Applicant: **Tsakopoulos Investments**
Attn: Mr. Angelo G. Tsakopoulos
7423 Fair Oaks Boulevard, Suite 10
Carmichael, California 95608

Identify (Estimate) Amount of Waters in the Review Area
Non-Wetland Waters:
linear feet ft wide **6.77** acre(s)
Stream Flow: **Mixed**

Wetlands: **47.04** acre(s)
Cowardin Class: **Palustrine, emergent**

Name of any Water Bodies on the site identified as Section 10 Waters: Tidal: Non-Tidal:

☐ Office (Desk) Determination
☐ Field Determination:
Date(s) of Site Visit(s):

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply – checked items should be included in case file and, where checked and requested, appropriately reference sources below)

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: **Revised 10/29/2015, Delineated Waters of the U.S., Excelsior Estates Specific Plan Area, drawing prepared by Foothill Associates, Inc**
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Data sheets prepared by the Corps.
☐ Corps navigable waters' study.
☐ U.S. Geological Survey Hydrologic Atlas:
  ☐ USGS NHD data.
  ☐ USGS HUC maps.
☐ U.S. Geological Survey map(s). Cite scale & quad name: **1:24K; CA-CARMICHAEL**
☐ USDA Natural Resources Conservation Service Soil Survey.
☐ National wetlands inventory map(s).
☐ State/Local wetland inventory map(s).
☐ FEMA/FIRM maps.
☐ 100-year Floodplain Elevation (if known):
☒ Photographs: ☐ Aerial ☐ Other
☒ Previous determination(s). File no. and date of response letter: **SPK-2004-00791, August 11, 2009, August 27, 2015**
☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

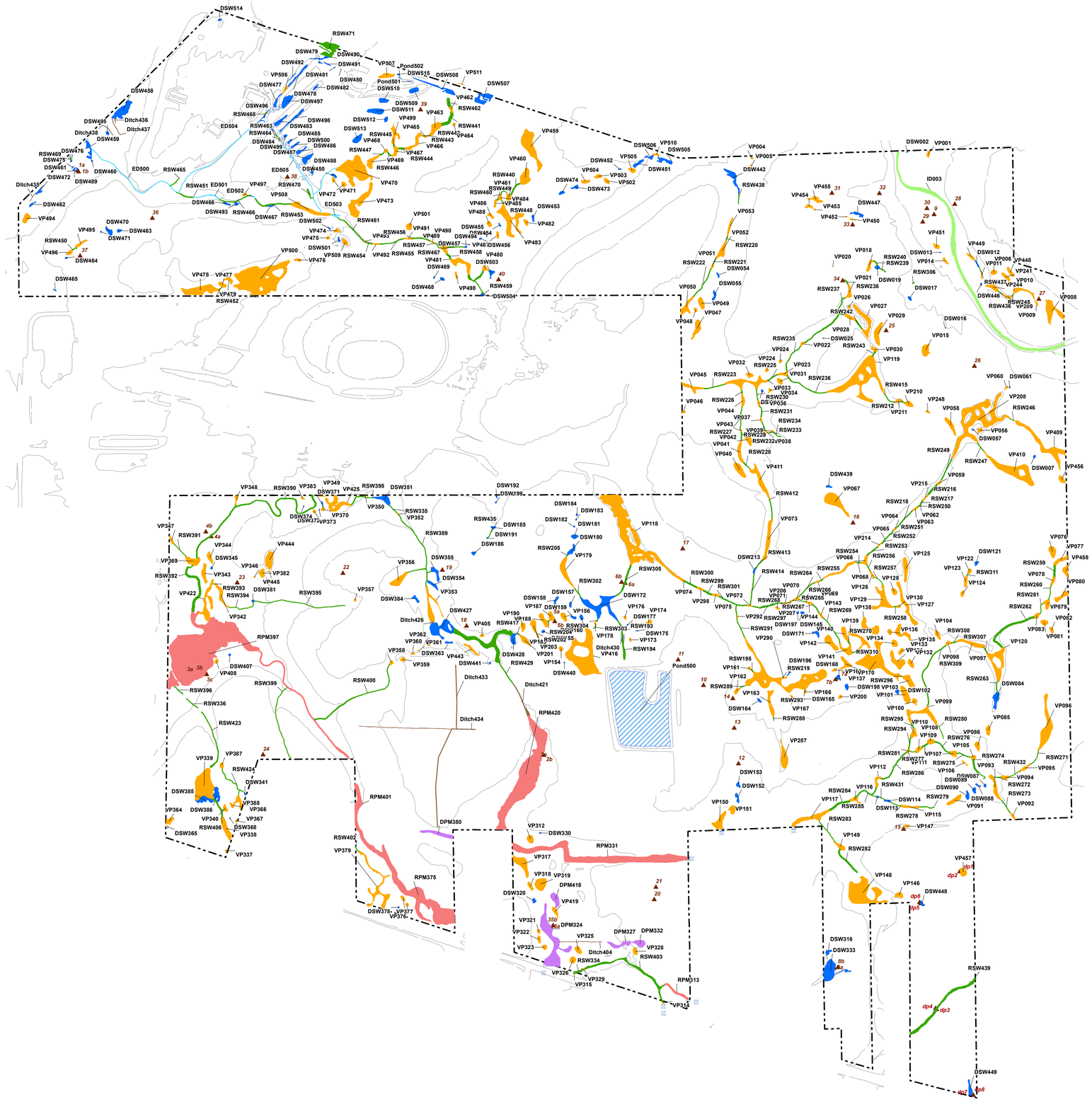
Noam Gibson 11/6/15
Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.



JURISDICTIONAL AQUATIC FEATURES

Depressional Seasonal Wetland

Label	Acres
DSW002	0.002
DSW007	0.008
DSW012	0.012
DSW013	0.001
DSW016	0.001
DSW017	0.014
DSW019	0.020
DSW025	0.001
DSW035	0.007
DSW054	0.009
DSW055	0.029
DSW057	0.003
DSW061	0.002
DSW084	0.089
DSW087	0.009
DSW088	0.010
DSW089	0.022
DSW090	0.032
DSW102	0.018
DSW113	0.006
DSW114	0.015
DSW121	0.017
DSW145	0.010
DSW152	0.029
DSW153	0.020
DSW155	0.010
DSW157	0.014
DSW158	0.023
DSW159	0.016
DSW160	0.020
DSW164	0.013
DSW165	0.001
DSW168	0.019
DSW171	0.026
DSW172	0.394
DSW175	0.002
DSW177	0.002
DSW180	0.051
DSW181	0.031
DSW182	0.002
DSW183	0.002
DSW184	0.005
DSW185	0.014
DSW186	0.015
DSW191	0.002
DSW192	0.004
DSW196	0.006
DSW197	0.006
DSW198	0.023
DSW199	0.003
DSW213	0.015
DSW316	0.027
DSW320	0.017
DSW330	0.003
DSW333	0.289
DSW341	0.004
DSW345	0.006
DSW351	0.097
DSW354	0.043
DSW355	0.065
DSW363	0.016
DSW365	0.001
DSW368	0.002
DSW371	0.008
DSW372	0.001
DSW374	0.001
DSW378	0.003
DSW381	0.008
DSW384	0.028
DSW385	0.086
DSW386	0.090
DSW407	0.005
DSW427	0.316
DSW428	0.062
DSW439	0.014
DSW440	0.001
DSW441	0.004
DSW442	0.117
DSW446	0.005
DSW447	0.039
DSW448	0.018
DSW449	0.053
DSW450	0.018
DSW451	0.041
DSW452	0.004
DSW453	0.017
DSW454	0.006
DSW455	0.001
DSW456	0.004
DSW457	0.001
DSW458	0.220
DSW459	0.072
DSW460	0.004
DSW461	0.005
DSW462	0.014
DSW463	0.015
DSW464	0.005
DSW465	0.004
DSW466	0.017
DSW467	0.011
DSW468	0.014
DSW469	0.003
DSW470	0.042
DSW471	0.002
DSW472	0.023
DSW473	0.023
DSW474	0.019
DSW475	0.002
DSW476	0.003
DSW477	0.033
DSW478	0.052
DSW479	0.006
DSW480	0.001
DSW481	0.001
DSW482	0.015

Cont. in next column

Depressional Seasonal Wetland (Cont.)

Label	Acres
DSW483	0.056
DSW484	0.002
DSW485	0.012
DSW486	0.032
DSW487	0.072
DSW488	0.009
DSW489	0.006
DSW490	0.027
DSW491	0.007
DSW492	0.006
DSW493	0.015
DSW494	0.005
DSW495	0.012
DSW496	0.012
DSW497	0.113
DSW498	0.060
DSW499	0.011
DSW500	0.022
DSW501	0.009
DSW502	0.005
DSW503	0.031
DSW504	0.008
DSW505	0.062
DSW506	0.023
DSW507	0.150
DSW508	0.105
DSW509	0.055
DSW510	0.052
DSW511	0.101
DSW512	0.021
DSW513	0.071
DSW514	0.008
DSW515	0.004
Subtotal:	**4.41**

Depressional Perennial Marsh

Label	Acres
DPM324	0.650
DPM327	0.088
DPM332	0.074
DPM380	0.122
DPM418	0.100
Subtotal:	**1.03**

Vernal Pool

Label	Acres
VP001	0.022
VP004	0.005
VP005	0.005
VP006	0.034
VP008	0.250
VP009	0.087
VP010	0.004
VP011	0.010
VP014	0.022
VP015	0.101
VP018	0.050
VP020	0.001
VP021	0.059
VP022	0.018
VP023	0.042
VP024	0.012
VP026	0.010
VP027	0.204
VP028	0.051
VP029	0.143
VP030	0.031
VP031	0.036
VP032	0.036
VP033	0.259
VP034	0.014
VP036	0.017
VP037	0.010
VP038	0.007
VP039	0.007
VP040	0.126
VP041	0.094
VP042	0.073
VP043	0.007
VP044	0.047
VP045	0.095
VP046	0.010
VP047	0.114
VP048	0.015
VP049	0.072
VP050	0.109
VP051	0.015
VP052	0.107
VP053	0.050
VP056	0.028
VP058	0.091
VP059	0.017
VP060	0.010
VP062	0.002
VP063	0.016
VP064	0.012
VP065	0.001
VP066	0.051
VP067	0.291
VP068	0.104
VP069	0.012
VP070	0.021
VP071	0.013
VP072	0.012
VP073	0.191
VP074	0.006
VP075	0.025
VP076	0.084
VP077	0.070
VP078	0.032
VP079	0.061
VP080	0.078
VP081	0.043
VP082	0.025

Cont. in next column

Vernal Pool (Cont.)

Label	Acres
VP083	0.032
VP085	0.050
VP086	0.048
VP091	0.085
VP092	0.020
VP093	0.115
VP094	0.036
VP095	0.037
VP096	0.392
VP097	0.124
VP098	0.027
VP099	0.221
VP100	0.032
VP101	0.135
VP103	0.108
VP104	0.042
VP105	0.028
VP106	0.011
VP107	0.047
VP108	0.047
VP109	0.042
VP110	0.059
VP111	0.014
VP112	0.046
VP115	0.052
VP116	0.047
VP117	0.217
VP118	1.556
VP119	0.930
VP120	0.321
VP122	0.023
VP123	0.045
VP124	0.024
VP125	0.124
VP126	0.024
VP127	0.197
VP128	0.038
VP129	0.240
VP130	0.013
VP131	0.160
VP132	0.047
VP133	0.030
VP134	0.047
VP135	0.124
VP136	0.026
VP137	0.635
VP138	0.190
VP139	0.143
VP140	0.083
VP141	0.104
VP142	0.130
VP143	0.018
VP144	0.020
VP146	0.048
VP147	0.017
VP148	0.772
VP149	0.058
VP150	0.152
VP151	0.060
VP154	0.023
VP156	0.050
VP161	0.011
VP162	0.030
VP163	0.125
VP166	0.009
VP167	0.007
VP169	0.014
VP170	0.086
VP173	0.008
VP174	0.050
VP176	0.012
VP178	0.009
VP179	0.175
VP187	0.057
VP188	0.085
VP189	0.072
VP190	0.044
VP200	0.014
VP201	0.065
VP203	0.007
VP206	0.014
VP207	0.009
VP208	1.069
VP209	0.025
VP210	0.051
VP211	0.025
VP214	0.010
VP215	0.017
VP224	0.013
VP241	0.042
VP244	0.066
VP248	0.010
VP287	0.166
VP290	1.088
VP292	0.006
VP298	0.022
VP312	0.058
VP314	0.006
VP315	0.003
VP317	0.203
VP318	0.037
VP319	0.160
VP321	0.015
VP322	0.028
VP323	0.025
VP325	0.050
VP326	0.046
VP328	0.037
VP329	0.007
VP337	0.006
VP338	0.148
VP339	0.629
VP340	0.032
VP342	0.097
VP343	0.091

Cont. in next column

Vernal Pool (Cont.)

Label	Acres
VP344	0.053
VP346	0.003
VP347	0.025
VP348	0.026
VP349	0.006
VP350	0.002
VP352	0.004
VP353	0.191
VP356	0.141
VP357	0.008
VP358	0.018
VP359	0.024
VP360	0.008
VP361	0.002
VP362	0.006
VP364	0.053
VP366	0.068
VP367	0.006
VP369	0.129
VP370	0.015
VP373	0.012
VP376	0.012
VP377	0.021
VP379	0.301
VP382	0.053
VP383	0.009
VP387	0.027
VP388	0.015
VP405	0.013
VP408	0.017
VP409	0.411
VP410	0.553
VP411	0.200
VP416	0.965
VP419	0.045
VP422	0.252
VP425	0.222
VP445	0.052
VP448	0.044
VP449	0.029
VP450	0.007
VP451	0.031
VP452	0.002
VP453	0.003
VP454	0.025
VP455	0.063
VP456	0.046
VP457	0.065
VP458	0.059
VP459	0.435
VP460	0.167
VP461	0.040
VP462	0.023
VP463	0.119
VP464	0.010
VP465	0.008
VP466	0.102
VP467	0.051
VP468	0.015
VP469	0.096
VP470	0.716
VP471	0.018
VP472	0.026
VP473	0.351
VP474	0.022
VP475	0.012
VP476	0.021
VP477	0.043
VP478	0.339
VP479	0.040
VP480	0.033
VP481	0.161
VP482	0.027
VP483	0.384
VP484	0.026
VP485	0.022
VP486	0.026
VP487	0.021
VP488	0.028
VP489	0.055
VP490	0.008
VP491	0.019
VP493	0.005
VP494	0.069
VP495	0.042
VP496	0.031
VP497	0.013
VP498	0.017
VP499	0.098
VP500	1.515
VP501	0.047
VP502	0.030
VP503	0.032
VP504	0.036
VP505	0.035
VP506	0.018
VP507	0.074
VP508	0.205
VP509	0.036
VP510	0.014
VP511	0.002
Subtotal:	**27.85**

Riverine Seasonal Wetland

Label	Acres
RSW193	0.024
RSW194	0.047
RSW195	0.003
RSW202	0.001
RSW204	0.001
RSW205	0.001

Cont. in next column

Riverine Seasonal Wetland (Cont.)

Label	Acres
RSW212	0.002
RSW216	0.026
RSW217	0.005
RSW218	0.020
RSW219	0.001
RSW220	0.004
RSW221	0.003
RSW222	0.024
RSW223	0.015
RSW225	0.012
RSW226	0.003
RSW227	0.012
RSW228	0.006
RSW229	0.010
RSW230	0.006
RSW231	0.008
RSW232	0.005
RSW233	0.001
RSW234	0.005
RSW235	0.023
RSW236	0.034
RSW237	0.076
RSW238	0.006
RSW239	0.006
RSW240	0.005
RSW242	0.013
RSW243	0.006
RSW245	0.003
RSW246	0.001
RSW247	0.006
RSW249	0.021
RSW250	0.003
RSW251	0.010
RSW252	0.006
RSW253	0.014
RSW254	0.004
RSW255	0.002
RSW256	0.004
RSW257	0.002
RSW258	0.002
RSW259	0.024
RSW260	0.006
RSW261	0.004
RSW262	0.129
RSW263	0.008
RSW264	0.015
RSW265	0.001
RSW266	0.003
RSW267	0.009
RSW268	0.001
RSW269	0.017
RSW270	0.003
RSW271	0.006
RSW272	0.003
RSW273	0.008
RSW274	0.033
RSW275	0.010
RSW276	0.021
RSW277	0.009
RSW278	0.004
RSW279	0.008
RSW280	0.003
RSW281	0.002
RSW282	0.056
RSW283	0.010
RSW284	0.047
RSW285	0.033
RSW286	0.043
RSW287	0.001
RSW288	0.001
RSW289	0.002
RSW291	0.012
RSW293	0.000
RSW294	0.011
RSW295	0.006
RSW296	0.001
RSW297	0.039
RSW299	0.015
RSW300	0.022
RSW301	0.037
RSW302	0.007
RSW303	0.002
RSW304	0.002
RSW305	0.055
RSW306	0.002
RSW307	0.006
RSW308	0.003
RSW309	0.064
RSW310	0.002
RSW311	0.001
RSW334	0.020
RSW335	0.006
RSW389	0.057
RSW390	0.007
RSW391	0.256
RSW392	0.006
RSW393	0.153
RSW394	0.000
RSW395	0.010
RSW396	0.034
RSW398	0.007
RSW399	0.018
RSW400	0.029
RSW402	0.084
RSW403	0.003
RSW404	0.207
RSW406	0.032
RSW412	0.014
RSW413	0.007
RSW414	0.022
RSW415	0.007
RSW417	0.002
RSW423	0.048
RSW424	0.020
RSW429	0.451
RSW431	0.003
RSW432	0.271
RSW435	0.002
RSW436	0.001
RSW437	0.001
RSW438	0.004
RSW439	0.242
RSW440	0.024
RSW441	0.068
RSW442	0.001
RSW443	0.001
RSW444	0.012
RSW445	0.004
RSW446	0.007
RSW447	0.005
RSW448	0.003
RSW449	0.003
RSW450	0.003
RSW451	0.018
RSW452	0.002
RSW453	0.044
RSW454	0.008
RSW455	0.019
RSW456	0.019
RSW457	0.006
RSW458	0.011
RSW459	0.051
RSW460	0.004
RSW461	0.030
RSW462	0.031
RSW463	0.002
RSW464	0.002
RSW465	0.007
RSW466	0.024
RSW467	0.013
RSW470	0.015
Subtotal:	**3.70**

Riverine Perennial Marsh

Label	Acres
RPM313	0.089
RPM331	1.578
RPM375	1.500
RPM397	4.480
RPM401	0.346
RPM420	2.053
Subtotal:	**10.05**

Ephemeral Drainage

Label	Acres
ED500	0.061
ED501	0.026
ED502	0.004
ED503	0.020
ED504	0.059
ED505	0.061
Subtotal:	**0.23**

Intermittent Drainage

Label	Acres
ID003	1.186
Subtotal:	**1.19**

Pond

Label	Acres
Pond500	5.029
Pond501	0.002
Pond502	0.004
Subtotal:	**5.04**

Ditch/Canal

Label	Acres
Ditch404	0.016
Ditch421	0.057
Ditch426	0.003
Ditch430	0.003
Ditch433	0.058
Ditch434	0.147
Ditch435	0.004
Ditch436	0.003
Ditch437	0.010
Ditch438	0.008
Subtotal:	**0.31**

TOTAL:	**53.80**

WETLAND DELINEATION

JURISDICTIONAL AQUATIC FEATURES

DEPRESSIONAL WETLANDS		
	Depressional Seasonal Wetland	4.41
	Depressional Perennial Marsh	1.03
	Vernal Pool	27.85
RIVERINE WETLANDS		
	Riverine Seasonal Wetland	3.70
	Riverine Perennial Marsh	10.05
OTHER WATERS OF THE U.S.		
	Intermittent Drainage	1.19
	Ephemeral Drainage	0.23
	Pond	5.04
	Ditch/Canal	0.31
	Total Acres:	53.80

N

0 800 1,600

Feet

1 inch = 400 feet

OTHER FEATURES

- Culvert
- Data Point
- Topographic Contour
- Excelsior Estates Boundary

DELINEATED WATERS OF THE U.S.

EXCELSIOR ESTATES SPECIFIC PLAN AREA

FIGURE 1

FOOTHILL ASSOCIATES

ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

Drawn By: MUB
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