

## INITIAL STUDY

***The Department of Toxic Substances Control (DTSC) has completed the following Initial Study for this project in accordance with the California Environmental Quality Act (subsection 21000 et seq., California Public Resources Code) and implementing Guidelines (subsection 15000 et seq., Title 14. California Code of Regulations).***

### **I. PROJECT INFORMATION**

**Project Name:** Tyco Electronics Corporation

**Site Address:** 300 Constitution Drive

**City:** Menlo Park    **State:** California    **Zip Code:** 94025    **County:** San Mateo

**Company Contact Person:** Spencer Leslie

**Address:** 304 Constitution Drive

**City:** Menlo Park    **State:** California    **Zip Code:** 94025    **County:** San Mateo

**Telephone Number:** (650) 361-3426

### **Project Description:**

California Department of Toxic Substances Control (DTSC) is approving the remedies for the on-site soil and groundwater contamination at the Tyco Electronics Corporation (Tyco) located at 300 Constitution Drive in Menlo Park, California (Figure 1). The remedies are described in the Draft Corrective Measures Study and Implementation Plan for the Tyco facility dated June 2006

### **Background:**

The Tyco site, formerly Raychem Corporation, consisting of 81 acres, currently contains an existing industrial facility and office space (Figure 2). The project site was developed in the mid-1960s by Raychem which later merged with Tyco Electronics Corporation (Tyco, Facility, or Site). The project site was used to make products for the aerospace, automotive, construction, electronics, electrical power, process, and telecommunications industries. The project site is bordered on the north by Bayfront Expressway, on the south by an easement for a railroad line, on the west by Chilco Street, and on the east by Willow Road.

Tyco, formerly Raychem Corporation, was permitted to manage its hazardous waste in containers, tanks, and the Omega Wastewater Treatment Systems, the Hazardous Waste Storage Yard, and the Potassium Ferrocyanide Tank Farm (all located in the eastern end of the site). The hazardous waste management units were certified closed in 1997. As a condition of the permit, Tyco was required to investigate and address all historic releases of hazardous waste and materials that may have occurred at the facility. In 1989 DTSC conducted a facility release assessment pursuant to the federal Resources Conservation and Recovery Act (RCRA). The RCRA Facility Assessment (RFA) identified solid waste management units that need further investigation. The site was divided into six areas, Areas 1 through 6 (Figure 2) for the purpose of site investigation.

The results of these investigations revealed the presence of soil impacted with chemicals such as polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dioxins, dibenzofurans, Total Recoverable Petroleum Hydrocarbons (TRPH), and metals (aluminum, antimony, boron, lead, titanium, and zinc) and further investigation and corrective actions were needed. Raychem entered into a Corrective Action Consent Agreement with DTSC in 1996 (modified in September 2000). As part of the 1996 agreement, the following are required:

- RCRA Facility Investigation (RFI)
- Interim Remedial Measures (IRMs)
- Corrective Measures Study (CMS)
- Remedy Selection
- Corrective Measures Implementation (CMI)

RFI reports documented that the past manufacturing activities had caused releases into soil (some chemicals also eventually reached groundwater). The contaminants were PCBs, VOCs, SVOCs, dioxins, dibenzofurans, Total Recoverable Petroleum Hydrocarbons and metals. Tyco has submitted the Corrective Measures Study and Implementation Plan (CMS/IP) and DTSC has determined it to be technically complete. The final approval of the CMS/IP and remedy selection is subject to the California Environmental Quality Act.

From May 2000 through November 2004, several Interim Remedial Measures (IRMs) were conducted at the site to address soil impacted by various chemicals of potential concern (COPCs) such as VOCs, SVOCs, metals, Total Recoverable Petroleum Hydrocarbons (TRPH), PCBs, dioxins and dibenzofurans (Figure 3). These IRM activities included excavation and removal of a total of approximately 4,615 cubic yards of contaminated soil and backfilling the excavations with clean imported fill. Confirmation samples collected after the IRM activities indicated that the remaining concentrations of the COPCs met their respective IRM goals, such as PCB at or below 10 ppm (except in groundwater below the engineered cap area), as presented in the DTSC-approved workplans. Subsequent to the PCB removal, clean imported fill was placed in much of the eastern portion of the site.

Tyco installed an engineered multi-media cap in the eastern portion of the site over an area of 4,200 sq feet (0.1 acre). The depth to the residual elevated PCBs in soil below the engineered cap area is 9.5 to 10.5 ft. The capped area is within a larger designated restricted area of 11,437 sq feet (0.26 acre), where high levels of PCBs remain in the saturated soil. The first groundwater beneath the Site is found at relatively shallow depths, generally within 9 to 14 feet of the surface and it rises to within a few feet (8 to 10 feet) below ground surface.

Tyco's groundwater investigation documented that the predominance of the low-permeability clayey estuarine deposits has generally restricted the subsurface migration of chemicals released at the site. The water-bearing zones are characterized by hyper-saline water (more saline than sea water) because most of the site is in close proximity to the commercial saltwater evaporation ponds that border San Francisco Bay. The Regional Water Quality Control Board (RWQCB) in a letter dated August 13, 2002, stated: "...that the quality of the shallow groundwater underlying the Tyco site is such that it is not considered as a potential source of drinking water, based on the high Total Dissolved Solids (TDS) in the shallow aquifer zone."

HydroFocus Inc., Tyco's consultant, presented the groundwater flow and fate and transport model for the site in a November 21, 2003 report entitled *Groundwater-flow System Description and Simulated Constituent Transport* for the site. The report, presented to DTSC, provides information on the groundwater flow regime and chemical plumes. The report presented projections of chemicals in the groundwater for a 70-year simulation period. Generally, the modeling showed decreasing concentrations of chemicals over time for the VOCs, e.g., Chlorobenzene and 1,1 Dichloroethene (1,1 DCE), with minimal movement of PCBs in the groundwater.

Tyco also investigated off-site soil contamination south of the site that included a drainage swale along the railroad. Tyco conducted soil removal from the railroad right-of-way and there is no further action for the area.

### **Project Activities:**

DTSC is approving the following proposed remedies:

- Installing five new groundwater monitoring wells near the engineered capped area (Figure 4) and abandoning one well according to the Regional Water Quality Control Board standards. The groundwater monitoring well network will have a total of 45 wells.
- Entering a land-use covenant for the entire site with special restrictions for the 11,437 sq. ft. engineered cap area, and conducting annual inspection of the site to ensure the land use remains unchanged (Figure 3).
- Conducting periodic groundwater monitoring. Groundwater monitoring will include annual measurements of water level (gauge for depth) to confirm flow direction and gradient, and field chemistry testing, including pH, conductivity, salinity, and oxidation-reduction potential. Any field test deviation result that is greater than 50% of the previous sampling event will trigger one round of groundwater analytical sampling and laboratory analysis at that well to determine if the chemical (VOCs and PCBs) concentrations have significantly changed. The new five wells will be sampled and analyzed for VOCs and PCBs annually for the first five years, then every five years for 15 years, a total of 20 years. The existing 40 wells will be sampled and analyzed for VOCs and PCBs at a frequency of every 5 years for 20 years. Out of the 45 wells, 16 wells will be monitored for PCBs for additional 30 years, a total of 50 years.

The long term groundwater monitoring program is designed to confirm the groundwater model developed for the site by HydroFocus, and to monitor the movement and natural degradation of target chemical constituents in the shallow water-bearing zones.

This is based on that:

- 1) IRM soil removal activities have successfully removed hot-spot contamination and removed the source of contamination;
- 2) portions of the site have been raised and capped with new clean compacted fill materials for hydrological flood purposes;
- 3) the groundwater beneath the site is not considered to be a potential source of drinking water (Beneficial Use);

- 4) The results of groundwater flow and fate-and-transport modeling indicate PCBs will not affect off-site groundwater above detectable levels.
- 5) Human Health Risk assessments (HHRAs) were conducted for the Tyco Menlo Park site. The HHRA reports presented risk estimates for the following exposure scenarios: onsite commercial/industrial worker, onsite construction/utility worker, offsite commercial/industrial worker, offsite resident, and hypothetical future onsite resident. Based on the findings of the HHRAs, the Site does not pose a human health risk in its current condition nor would it pose a risk in the future if the site continues to be used as a commercial/industrial property and the engineered soil cap remains in place. The proposed remedy includes property-use restrictions that will limit future use of the site to commercial/industrial (non-residential). Further, the engineered soil cap will be maintained as a permanent feature at the Site and a Land-Use Covenant protecting the engineered soil cap from disturbances is part of the corrective measures for the Site. However, further action may be required to protect human health if the site were developed as a residential property or for other land uses not included in the HHRA.

## **II. DISCRETIONARY APPROVAL ACTION BEING CONSIDERED BY DTSC**

- Initial Permit Issuance     Closure Plan     Removal Action Workplan
- Permit Renewal     Regulations     Interim Removal
- Permit Modification     Remedial Action Plan     Other (Specify): Remedy Selection

**Program / Region Approving Project:** DTSC Berkeley

**DTSC Contact Person:** Wei-Wei Chui

**Address:** 700 Heinz Avenue, Suite 300

**City:** Berkeley    **State:** California    **Zip Code:** 94710    **Phone Number:** (510) 540-3975

## **III. ENVIRONMENTAL RESOURCES POTENTIALLY AFFECTED**

The boxes checked below identify environmental resources in the following ENVIRONMENTAL SETTING / IMPACT ANALYSIS section found to be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact.”

- None Identified     Aesthetics     Agricultural Resources
- Air Quality     Biological Resources     Cultural Resources
- Geology and Soils     Hazards and Hazardous Materials     Hydrology and Water Quality
- Land Use and Planning     Mineral Resources     Noise
- Population and Housing     Public Services     Recreation
- Transportation and Traffic     Utilities and Service Systems

## **IV. ENVIRONMENTAL IMPACT ANALYSIS**

The following pages provide a brief description of the physical environmental resources that exist within the area affected by the proposed project and an analysis of whether or not those resources will be potentially impacted by the proposed project. Preparation of this section follows guidance provided in DTSC's California Environmental Quality Act Initial Study Workbook (Workbook). A list of references is provided as Attachment A; within each section below, the references number and page number in the reference is identified.

Mitigation measures which are made a part of the project (e.g. permit condition) or which are required under a separate Mitigation Measure Monitoring or Reporting Plan which either avoid or reduce impacts to a level of insignificance are identified in the analysis within each section.

### **1. Aesthetics**

***Project activities likely to create an impact:*** None.

***Description of Environmental Setting:*** The project site is within an area of nearly flat topography surrounded by roads and other industrial uses; no scenic values of the site have been identified. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. Entering into a land-use covenant and conducting periodic groundwater monitoring sampling will not cause any aesthetics impact, or affect any scenic vista. The proposed actions are very limited and, visually, will be almost inconspicuous. No scenic resources including trees, rock outcroppings, and historic buildings, etc. will be damaged during the proposed project. The existing uses and conditions relating to the proposed actions will be unchanged. Additionally, the site is not located within a scenic vista. There are no scenic resources on or immediately adjacent to the site. The adjacent thoroughfares are not designed as scenic corridors and the site visibility is restricted by perimeter vegetation. Therefore no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Have a substantial adverse effect on a scenic vista.
- b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway.
- c. Substantially degrade the existing visual character or quality of the site and its surroundings.
- d. Create a new source of substantial light of glare that would adversely affect day or nighttime views in the area.

Specific References: 16 (page 5), 20 (pages P-1 to P-5 Volume I, Figures 4, 5, 6, Volume II), 24 (page 6).

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **2. Agricultural Resources**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** The project site is currently zoned for industrial/commercial use. There are presently no agricultural uses on or around the project site. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. Entering a land use covenant and conducting groundwater monitoring will not involve other changes in the existing environment that would lead to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to non-agricultural use; will not lead to any conflicts with existing zoning, agriculture use, or Williamson Act contract (no property in the area is under the Williamson Act contract).

The project will not have any impact on the agricultural resources and there is no need for further analysis on this resource.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.***
- b. Conflict with existing zoning or agriculture use, or Williamson Act contract.***
- c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural uses.***

Specific References: 10 (personal communications, documented), 29 (pages 21 and 22, Appendix A, Areas 1-5 Site Photographs), 30 (pages 21 to 23, Appendix A, Area 6 – Site Photographs), 34 (page 4, Appendix B, Restricted Use Easement Documentation), 35 (quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **3. Air Quality**

***Project activities likely to create an impact:*** None

**Description of Environmental Settings:** The project site is located in the Bay Area Air Quality Management District. The City of Menlo Park is currently designated a non-attainment area for ozone. Ozone (O<sub>3</sub>) is a nearly colorless gas that irritates the lungs and damages materials and vegetation. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. No air or odor emissions are expected during well installation. Entering a land use covenant and conducting groundwater monitoring will not create odors affecting and/or offending nearby populations. Tyco has a Synthetic Minor Operating Permit (A0272). This permit is required per Bay Area Air Quality Management District (BAAQMD) Regulation 2, Rule 6-230 (Synthetic Minor Facility) and Regulation 2, Rule 6-231 (Synthetic Minor Operating Permit). However, the proposed action will not affect this permit, or impact air quality, therefore, no further analysis is needed.

**Analysis of Potential Impacts. Describe to what extent project activities would:**

- a. **Conflict with or obstruct implementation of the applicable air quality plan.**
- b. **Violate any air quality standard or contribute substantially to an existing or projected air quality violation.**
- c. **Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**
- d. **Expose sensitive receptors to substantial pollutant concentrations.**
- e. **Create objectionable odors affecting a substantial number of people.**
- f. **Result in human exposure to Naturally Occurring Asbestos (see also Geology and Soils).**

Specific References: 1 (website citing regulations), 34 (description of the corrective actions, pages 1 to 26), 36 (USGS quadrangle map for Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

#### **4. Biological Resources**

**Project activities likely to create an impact:** None

**Description of Environmental Settings:** The project site is highly industrialized with numerous buildings and some vegetation in the landscaped areas. A RareFind Report which lists protected plants and animals in the general geographic area is attached as a reference

(Attachment B). A site reconnaissance and biological survey was conducted on July 30, 2002 as a component of a scoping ecological risk assessment. No rare, threatened or endangered species of plants or animals were sighted during the site reconnaissance.

The ecological screening concluded that the site poses very little threat to plant or animals from the areas contaminated with hazardous substances due to lack of complete exposure pathways. Contaminated areas are paved over and are isolated from biota by man-made barriers.

The saltwater evaporation ponds located north of the site and the wetland-mitigation area located east of the site are separated from the Tyco site by Bayfront Expressway and Willow Road. Both roadways experience heavy traffic. For the same reason that onsite plant and animals would not be negatively impacted by the proposed project, it is highly unlikely that the wetland mitigation area, and the plants and animals that reside in the area, would be impacted by the proposed project activities.

Tyco will obtain well installation permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. Entering into a land-use covenant and conducting periodic groundwater monitoring and sampling do not include any soil movement or any construction.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.***

The proposed actions only include entering into a land-use covenant and periodic groundwater monitoring and sampling; they do not include any soil movement or any construction. The project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.***

The proposed project site does not contain any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. As a result, no habitat will be lost by implementing the proposed project.

- c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.***

No wetlands are present on the project site. However, approximately 150 feet east of the site, separated by a major roadway (Willow Road) is a recently created wetland. This created wetland was a mitigation measure implemented by the California Department of

Transportation (Caltrans) for the recently completed project of widening Bayfront Expressway. This created wetland area has been graded and prepared for wetland development. Because of the distance and the separation of the wetland by Willow Road, it will not be impacted by the proposed project. The proposed project will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act.

***d. 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.***

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. Subsequently, the proposed project will not interfere 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.

***e. Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.***

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain well installation permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. Subsequently, the proposed project will not conflict with any local policies or ordinances protecting biological resources, such as a tree-preservation policy ordinance.

***f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.***

The site is not subject to any Habitat Conservation Plan or Natural Community Conservation Plan. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project.

Specific References: 4, 8, 20 (pages 6 to 12, Appendix H, Additional Geologic and Hydrogeologic Information), 24 (pages 8 to 11), 29 (pages 14 to 29), 30 (pages 13 to 27), 35 (USGS quadrangle map for Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **5. Cultural Resources**

***Project activities likely to create an impact:*** None

**Description of Environmental Settings:** A record search of historic and archaeological resources for the project area conducted in June 2005 did not identify any historic resources in the area. Additionally, the site was not developed until the mid-1960s; therefore, the buildings would not typically qualify for historical significance. The entire project site has been previously disturbed by construction activities. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. DTSC does not expect that the project will impact the cultural resources, and no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5.***
- b. Cause a substantial adverse change in the significance of an archeological resource pursuant to 15064.5.***
- c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.***
- d. Disturb any human remains, including those interred outside of formal cemeteries.***

Specific References: 24 (page 12), 31, 35 (USGS quadrangle map for Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **6. Geology and Soils**

***Project activities likely to create an impact:*** None

**Description of Environmental Settings:** Soil and groundwater investigations and Interim Remedial Measures (IRMs) have been completed. The investigations documented that the site soil was contaminated with PCBs, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dioxins, dibenzofurans, and metals (aluminum, antimony, boron, lead, titanium, and zinc). In 1989, the highest concentration of PCBs, 20,000 ppm (parts per million), was discovered under the former Therminol circulating pumps at approximately 7 feet below the ground surface (subsequently the soil has been removed under an IRM). Tyco conducted several other interim soil removal actions to reduce the source of the contamination which resulted in the removal and disposal of approximately 4,615 cubic yards of contaminated soil. The residual PCBs concentration on site is 10 ppm or less except the clay zone which is now under an engineered cap (11,437 square feet). The engineered cap consists of four discrete media listed below in ascending order:

- Synthetic granulated clay liner (GCL) component;
- High-density polyethylene liner component (40-mil thick);
- Geonet protective drainage cover; and
- Protective layers (4.5 to 6 feet thick) of compacted, select soil material.

Based on the Health Risk Assessment (HRA), the residual concentration in soil is acceptable for industrial/commercial workers (for HRA details see Hazards and Hazardous Materials below)

The offsite, railroad right-of-way, south of the site also had soil impacted with PCBs, where the highest concentration was 20 mg/Kg at 1.0 foot below ground surface. The contaminated PCB soil off-site has been removed to less than one (1) ppm and no further action is needed.

The project is to approve the final remedies that include entering into a land-use covenant and periodic groundwater monitoring and sampling; the project does not include any additional soil movement or any construction.

**Analysis of Potential Impacts. Describe to what extent project activities would:**

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**
  - **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. (Refer to Division of Mines and Geology Special Publication 42).**
  - **Strong Seismic Ground Shaking.**
  - **Seismic-related ground failure, including liquefaction.**
  - **Landslides.**

The site lies on relatively flat to gently sloping land and accordingly, there are no slope stability issues for this site (a slope stability study was performed for the slopes of the on-site, Fire-Water Reservoir and it was concluded that slope stability was not a significant concern). The site is not in an Alquist-Priolo Earthquake Fault Zone. The potential for earthquake-induced strong to severe ground shaking at the site is

considered to be moderate to high by various publications of the U. S. Geological Survey and California Geological Survey. The site is located in the San Francisco Bay Area, an area that is seismically active. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation will have minimal soil disturbance. After well installation and abandonment, no further soil movement or any construction is planned for this project.

**b. *Result in substantial soil erosion or the loss of topsoil.***

The site lies on relatively flat to gently sloping land. Various structures and pavement/hard surfaces cover most of the site, accordingly, there is no potential for soil erosion or the loss of topsoil on these areas. However, bare soil temporarily covers areas in the eastern portion but the relatively flat nature of the area will not create the potential for substantial erosion or loss of topsoil. Once the site is redeveloped, it is anticipated that this area will also be paved or covered.

**c. *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.***

The site lies on relatively flat to gently sloping land and accordingly the project will not cause a geologic unit or soil to become unstable. In a magnitude 6.7 or higher earthquake (there is a 63 percent likelihood of a 6.7 or higher earthquake occurring in the SF Bay Area in the next 30 years) ground shaking of this intensity could result in moderate damage, such as collapsing chimneys and falling plaster. Seismic shaking of this intensity can trigger ground failures such as liquefaction, potentially resulting in foundation damages, disruption of utility service and roadway damage.

The term "liquefaction" describes a phenomenon in which a saturated cohesionless soil loses strength and acquires a degree of mobility as a result of strong ground shaking during an earthquake. The major factors known to influence liquefaction potential include soil type and depth, grain size/percentage of fines, plasticity, relative density, ground water level, degree of saturation, and both intensity and duration of ground shaking. In the past, two Bay Area geotechnical firms (Cooper-Clark, 1974 and URS, 1987 & 1990) evaluated this facility for liquefaction vulnerability. Their conclusions are consistent; that damage due to soil liquefaction from strong ground motion would not be significant.

**d. *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.***

The project site is not located on highly expansive soil and thus should not create substantial risk to life or property.

**e. *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of water.***

This is not applicable to the proposed actions. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. The installation of five new groundwater monitoring wells will use direct push techniques and will only have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. There are no septic tanks within the project area and septic tanks will not be installed as part of this project.

**f. *Be located in an area containing naturally occurring asbestos (see also Air Quality)***

Outcrops of naturally-occurring asbestos are not found on the site.

Specific References: 9a, 17 (figures 2, 20 to 29), 22, 24 (pages 13 to 16), 34 (page 21, Appendix B), 34a (references 9a and 34a provide liquefaction information)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **7. Hazards and Hazardous Materials**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** Soil and groundwater investigations and Interim Remedial Measures (IRMs) have been completed. The investigations documented that site soils were contaminated with PCBs, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dioxins, dibenzofurans, and metals. The highest concentration of PCBs (20,000 parts per million) was discovered under the former Therminol circulating pumps at approximately 7 feet below the ground surface. The contaminated soil has been removed (pursuant to a DTSC-approved Workplan) under an IRM. Tyco conducted several other interim soil removal actions to reduce the source of the contamination which resulted in the removal and disposal of approximately 4,615 cubic yards of contaminated soil. The maximum concentration of residual PCBs in soil on site is 10 ppm or less except for an area which is now under an engineered cap (11,437 square feet or 0.26 acre). The engineered cap consists of four discrete media listed below in ascending order:

- Synthetic granulated clay liner (GCL) component;
- High-density polyethylene liner component (40-mil thick);
- Geonet protective drainage cover; and
- Protective layers (4.5 -6 feet thick) of compacted, select soil material.

Based on the Health Risk Assessment (HRA), the residual concentration of all contaminants in the soil is acceptable for industrial/commercial workers (for HRA details see Hazards and Hazardous Materials below)

The offsite, railroad right-of-way, south of the site also had PCB contamination, where the highest concentration was 20 mg/Kg at 1.0 foot below ground surface. The contaminated PCB soil off-site has been removed to less than one (1) ppm and no further action is needed.

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has determined that the shallow groundwater at the Site is not considered to be a potential source for drinking water (Beneficial Use) per California State Water Resources Control Board Resolution (SWRCB) No. 88-63.

The groundwater investigations and the years of groundwater sample results show that contaminants such as VOCs detected underneath the site are declining in plume size and concentrations. The groundwater gradient has been shown to be consistently to the east, groundwater movement is slow, and groundwater modeling showed that off-site migration is not a significant concern.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.***

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned as part of this project. Contaminated soil is left in place beneath a protective engineered cap, subject to a land use covenant.

Human Health Risk Assessments (HHRAs) were conducted for the Tyco Menlo Park site. The HHRA assumed the presence of residual contaminants, primarily PCBs, and examined the risk estimates for the following exposure scenarios: onsite commercial/industrial worker, onsite construction/utility worker, offsite commercial/industrial worker, offsite resident, and hypothetical future onsite resident. Based on the findings of the HHRAs, the site does not pose a human health risk in its current condition nor would it pose a risk in the future if the site continues to be used as a commercial/industrial property and the engineered soil cap remains in place. The proposed remedy includes property-use restrictions that will limit future use of the site to commercial/industrial (non-residential). Further, the engineered soil cap will be maintained as a permanent feature at the Site with a Land-Use Covenant protecting the engineered soil cap from disturbances. However, if the site were developed as a residential property or for other land uses not included in the HHRA, further action may be required to protect human health.

The concentrations of chemicals of concern in the groundwater are low and do not pose a significant risk per the health risk assessment reports. The periodic groundwater monitoring samples and purged groundwater will be handled properly in compliance with local, state, and federal regulations. The purged groundwater generated during groundwater sampling will be placed in drums for disposal (following receipt of lab results) by licensed-waste management contractor per the Standard Operating Procedures (SOP) GWM2 (May 2003) "Low Flow/Micro-Purge Sampling in Groundwater

Monitoring Wells.” Refer to Section 8, Hydrology and Water Quality for additional discussion of potential impacts to groundwater.

**b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.**

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. The installation of five new groundwater monitoring wells will use direct push techniques and will only have minimal soil disturbance. After well installation, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling do not include any soil movement or any construction. Groundwater is not pumped for use at the site; the only groundwater removal is for periodic groundwater monitoring. The periodic groundwater monitoring samples and purged groundwater will be handled properly in compliance with local, state, and federal regulations. The concentrations of chemicals of concern in the groundwater are low and do not pose a significant risk per the health risk assessment reports. Should any releases from the groundwater samples or drummed purged water occur, the releases will be contained and will not create significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions.

The engineered cap is constructed of strong, flexible materials which are covered by 4.5 to 6 feet of compacted fill. This protective cover is not subject to damage from earthquake-related ground motion.

**c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or wastes within one-quarter mile of an existing or proposed school.**

There are several schools located within ¼-mile (1,320 feet) of the site. Beechwood Elementary School is located about 190 feet southwest of the western portion of the Tyco site. Flood Elementary School is located about 750 feet southwest of the western portion of the Tyco site. Belle Haven Elementary School is located about 700 feet south of the central property line of the Tyco site. The proposed actions only include entering into a land-use covenant and periodic groundwater monitoring and sampling; they do not include any soil movement or any construction. The proposed project will not emit hazardous emissions or handle hazardous materials/wastes. The HHRAs, discussed above in the response to subsection “a.”, found that the site does not pose a hazard to human health risk if the site continues to be used as commercial/industrial property.

**d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to public or the environment.**

The project site is not listed on the Cortese List.

**e. Impair Implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.**

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling.

Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The project will not impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Specific References: 8, 14, 15, 16 (pages 16 to 67), 17 (Volume 1), 18 (pages 16 to 28), 19, 20, 21, 22, 24 (pages 17 to 18), 30 (pages 3 to 26), 31, 32, 33, 34 (pages 4 to 37), 35 (USGS quadrangle map of Palo Alto), 36 (map of the Palo Alto area)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **8. Hydrology and Water Quality**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** The San Francisco Bay Regional Water Quality Control Board (RWQCB) determined that the shallow groundwater at the Site is not considered to be a potential source for drinking water (Beneficial Use) per California State Water Resources Control Board Resolution (SWRCB) No. 88-63.

Site investigation results documented that the depth to the first groundwater underneath the site is about 9 to 14 feet and it rises to within several feet (8 to 10 feet) below ground surface (bgs). The predominance of the low-permeability clayey estuarine deposits has generally restricted the subsurface migration of chemicals released at the site. The upper water-bearing zone is divided into an Upper Alpha unit (up to depths of 25 feet), and Lower Alpha unit (25 to 37 feet deep). A Beta water-bearing zone is present starting below 37 to 43 feet bgs and extends to approximately 100 feet bgs. The Beta zones and the next deeper water-bearing zone are separated by low permeability clayey materials that are tens of feet thick. The Alpha and Beta water-bearing zone are characterized by hyper-saline water (more saline than sea water) for most of the site due to its close proximity to the commercial saltwater evaporation ponds that border San Francisco Bay.

The contaminants in the groundwater underneath the site are primarily VOCs. Groundwater monitoring since the 1980s indicates that the groundwater flow is slow and the concentrations of chemicals of concern are decreasing because of natural attenuation, etc. A regional groundwater modeling effort was initiated by the US Geological Survey and site-specific groundwater modeling was performed for Tyco by a consulting company, HydroFocus Inc. HydroFocus presented the groundwater model to DTSC in a report entitled *Groundwater-flow System Description and Simulated Constituent Transport* dated November 21, 2003. The report provides information on the groundwater flow regime and chemical plumes. The report presented projections of chemicals in the groundwater for a 70-year simulation period. Generally, the modeling showed decreasing concentrations of chemicals over time for the VOCs, Chlorobenzene and 1,1 Dichloroethene (1,1 DCE) with minimal movement of PCBs in the groundwater.

**Analysis of Potential Impacts. Describe to what extent project activities would:****a. Violate any water quality standards or waste discharge requirements.**

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The San Francisco Bay Regional Water Quality Control Board (RWQCB) determined that the shallow groundwater at the Site is not considered to be a potential source for drinking water (Beneficial Use) per California State Water Resources Control Board Resolution (SWRCB) No. 88-63.

The *Draft Corrective Measures Study and Implementation Plan* proposes a net work of 45 groundwater monitoring wells to be monitored for VOCs and PCBs for 20 years. Out of the 45 wells, 16 wells will be monitored for PCBs for additional 30 years. The groundwater monitoring program is designed to continue checking the groundwater model developed for the site by HydroFocus and monitor the movement and any natural degradation of target chemical constituents in the shallow water-bearing zones. The groundwater monitoring programs includes annual measurements of depth to water (for gradient determination) and groundwater parameters (pH, temperature, salinity). The five new groundwater monitoring wells will be sampled and analyzed annually for the first five years. After that, all wells will be sampled every five years. The groundwater monitoring program will follow the Standard Operating Procedures (SOPs) as described in the DTSC-approved RFI Workplan with subsequent modifications for utilization of low-flow purging techniques. The purged groundwater will be drummed and analyzed and disposed properly, and will not need additional wastewater treatment. The project will not violate any water quality standards or waste discharge requirements,

**b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).**

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. During groundwater sampling low-flow purging methods will be used, therefore there is no significant dewatering occurring during the sampling. The project would not deplete the groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site.**

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The proposed project will not substantially alter the existing drainage pattern of the site because no construction or soil movement is planned. No stream or river is located near the site. A seasonal drainage swale is located south of the site, saltwater evaporation ponds are located a few hundred feet north of the site, and the nearest slough is located a few hundred feet northeast of the site. When the eastern portion of the site is re-developed, the drainage pattern on site will be designed according to engineering standards with review by local agencies. Redevelopment of the site will be a separate project, subject to its own CEQA compliance.

- d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site.**

Refer to response “c.”

- e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.**

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned that may increase run-off. Residual soil contamination is contained beneath an engineered cap limiting the migration of contaminants, the potential source of polluted runoff.

- f. Otherwise substantially degrade water quality.**

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has determined that the shallow groundwater at the Site is not considered to be a potential source for drinking water (Beneficial Use) per California State Water Resources Control Board Resolution (SWRCB) No. 88-63. The downward migration of contaminants from soil to groundwater will not substantially degrade water quality because the vast majority of contamination in soil was removed and residual contamination in the soil is contained either under an engineered cap or under clean fill (1.5 to several feet thick). The groundwater modeling, for a 70-year simulation period,

concluded that concentrations of VOCs (e.g., chlorobenzene and 1,1 DCE) in groundwater would decrease over time with minimal movement of PCBs in the groundwater. The 2004 groundwater sampling reported PCBs at non-detect in all groundwater samples collected and analyzed. Therefore, the project will not substantially degrade water quality.

**g. *Place within a 100-year flood hazard area structures which would impede or redirect flood flows.***

The site is identified within the 100-year flood hazard area as designated by the Federal Emergency Management Agency (FEMA). However, the proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. Therefore the proposed actions will not place any structures which would impede or redirect flood flows.

**h. *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.***

The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. Therefore the project will not expose people or structures to a significant risk of loss, injury or death as a result of flooding, including flooding due to failure of a levee or dam.

**i. *Inundation by seiche, tsunami or mudflow.***

The project area is at an elevation of 5 to 10 feet above mean sea level and is not located near open ocean coastal water. Subsequently, the project would not be subject to tsunami or seiche conditions. The site topography and surrounding areas are flat and would not be subject to mudflows.

Specific References: 6 (general reference relating to CEQA Initial Study), 11 (FEMA panel map), 15 (pages 6 to 32), 17 (pages 6 to 16, 22, 74 to 78), 18 (pages 5 to 13, 22, 32 to 62), 20 (pages 6 to 16, 19, 34 to 46), 21, 22, 23, 24 (pages 18 to 27)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **9. Land Use and Planning**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** Currently, the project site is zoned for industrial/commercial use (M2). The land east and west of the Site, is also zoned for industrial/commercial use. Land south of the Site is planned for Dumbarton Rail Corridor, R3 (multi-unit residential), M1 (light industrial), and C2S (neighborhood commercial). Property farther to the south is primarily zoned for single-family urban residential/commercial. Land north of the Site is used for salt concentration in evaporation ponds. The General Plan for the City of Menlo Park designates the Site as an area to be zoned for light industrial/commercial use. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The land-use covenant will restrict the site to industrial and commercial use only and is consistent with the existing land use and planning. As a result, DTSC does not expect the project will have significant impacts to land use and planning, therefore no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.***
- b. Conflict with any applicable habitat conservation plan or natural community conservation plan.***

The proposed project is not subject to any habitat conservation plans or natural community conservation plans.

Specific References: 3, 9, 10, 20 (page 5, 17), 24 (page 27), 29 (page 30), 30 (pages 3 and 4), 31, 34 (pages 34 to 36, Appendix B, Restricted Use Easement documentation), 35 (USGS quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **10. Mineral Resources**

***Project activities likely to create an impact:*** None.

***Description of Environmental Settings:*** Currently the site does not have any known mineral deposits. No aggregate materials were observed nor would any be mined on this site because

of surrounding urban uses. The area is classified by the California Geological Survey as MRZ-1, a Mineral Resource Zone for which there is adequate information to indicate there are no aggregate mineral resources present. This project will not involve any excavation that could result in the removal of any undiscovered mineral resources. As a result, DTSC does not expect the project will have any significant impact to potential mineral resources, therefore no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Result in the loss of availability of a known mineral resources that would be of value to the region and the residents of the state.***
- b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.***

Specific References: 2, 22, 24 (page 28), 35 (USGS quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **11. Noise**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:***

The site is located in an industrial area and is bordered on the north by Bayfront Expressway, on the south by an easement for a railroad line, on the west by Chilco Street, and on the east by Willow Road. The traffic traveling along these streets is a source of constant background noise. Tyco's manufacturing processes generate noises that are in compliance with the noise ordinance that is enforced by the City's Police Department. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance and noise. After well installation, no further soil movement or any construction is planned for this project. Therefore the project should not have any impact on noise and no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.***
- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.***

- c. A substantial permanent increase in ambient noise levels in the vicinity above levels existing without the project.**
- e. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Specific References: 24 (pages 28 and 29), 32, 33, 35 (USGS quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **12. Population and Housing**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** The site is located in an industrial area containing manufacturing and office buildings. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. There is no housing element associated with the project. The project will not have an impact on population and housing; no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Induce substantial population growth in area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).**
- b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.**
- c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.**

Specific References: 24 (pages 29 and 30), 34 (project description of corrective actions, pages 27 to 34), 35 (USGS quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated

- Less Than Significant Impact
- No Impact

### **13. Public Services**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** The project is located within an existing facility in an industrial area of the City of Menlo Park. The public service infrastructure, including fire, police, emergency services, and utilities are in place for use as necessary within the project site. The Menlo Park City Fire Department provides paramedic-level emergency medical dispatch, fire prevention and suppression. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The project will not impact the existing public services, and no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:***

- ***Fire Protection***
- ***Police Protection***
- ***Schools***
- ***Parks***
- ***Other Public Facilities***

Specific References: 9, 22, 24 (page 30), 35 (USGS quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

### **14. Recreation**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** The site is located in an industrial area and there are no public parks, or recreational areas or activities in the project site or areas immediately adjacent to the site. The proposed actions only include installing five groundwater monitoring

wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The project will not have an impact on recreation facilities and no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.***
- b. Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment.***

Specific References: 9, 24 (pages 30 and 31), 34 (corrective action description, pages 27 to 34), 35 (USGS quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **15. Transportation and Traffic**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** Highway 84 is a principal highway that connects the site via Bayfront Expressway. The main routes of traffic to and from the project site are Constitution Drive and Bayfront Expressway. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The vehicle usage during groundwater sampling is one to two cars per day per event. Annual inspection will add up to two vehicle trips per year. The site has plenty of parking spaces to allow the sampling vehicles parking. The project will not have any impacts on transportation and traffic, and no further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).***

- b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designed roads or highway.**
- c. Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incomplete uses (e.g., farm equipment).**
- d. Result in inadequate emergency access.**
- e. Result in inadequate parking capacity.**
- f. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).**

Specific References: 3, 22, 34 (corrective action description, pages 27 to 34), 35 (USGS quadrangle map of Palo Alto)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **16. Utilities and Service Systems**

***Project activities likely to create an impact:*** None

***Description of Environmental Settings:*** The project is located within an existing facility in an industrial area of the City of Menlo Park, and in an urbanized area of the San Francisco Bay area. Public utilities are available throughout the region. PG&E provides electricity and gas for the Tyco facility. The San Francisco Public Utilities Commission (Hetch-Hetchy) primarily provides water for fire protection and water for the general population and business in the City of Menlo Park. The site has a storm water management plan. The proposed actions only include installing five groundwater monitoring wells, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. Tyco will obtain permits from the San Mateo County to install five new groundwater monitoring wells, abandon one well, and will follow the Regional Water Quality Control Board standards. The well installation and abandonment will have minimal soil disturbance. After well installation, no further soil movement or any construction is planned for this project. The purged groundwater will be drummed and analyzed and disposed properly, and will not need additional wastewater treatment. The project will not require additional utilities or service systems to be established and will not have impacts on the existing utilities and service system. No further analysis is needed.

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.**

- b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.**
- c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.**
- d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.**
- e. Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments.**
- f. Be served by a landfill with sufficiently permitted capacity to accommodate the projects solid waste disposal needs.**
- g. Comply with federal, state, and local statutes and regulations related to solid waste.**

Specific References: 9, 22, 34 (corrective action descriptions, pages 27 to 34)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

## **17. Mandatory Findings of Significance**

***Analysis of Potential Impacts. Describe to what extent project activities would:***

- a. Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.***

The project is to approve the final remedies for the soil and groundwater, which include installing five groundwater monitoring wells, abandoning one well, entering into a land-use covenant and conducting periodic groundwater monitoring and sampling. The major sources of contaminants have been removed, and the clean fill and the engineered cap will minimize further migration of residual contamination in soil down to groundwater. The groundwater gradient is to the east, at a slow velocity. The groundwater modeling concluded that chemicals in the groundwater for a 70-year simulation period showed decreasing concentrations over time for VOCs (e.g. Chlorobenzene and 1,1-DCE) with minimal movement of PCBs in the groundwater. The 2004 groundwater sampling reported PCBs as non-detected in all groundwater samples

collected and analyzed. The proposed actions will not substantially degrade water quality. The site is paved and there are no rare or endangered plants or animals at the project site. The project site has no historic structures hence no artifacts of California history or pre-history will be affected. The project activities will not have the potential to degrade the quality of the environment or substantially reduce the habitat of a fish or wildlife species, or cause a fish or wildlife population to drop below self-sustaining levels. The project will not threaten to eliminate a plant or animal community or reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or pre-history. Proper groundwater sampling procedures and an annual land-use inspection program will help ensure that the protective structures (multi-layered engineered cap) remain in place and that there is no significant spread of contamination. No wastes are discharged from this facility into the air or on to the land.

- b. *Have impacts that are individually limited but cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.***

The impacts on the individual resources were examined and discussed in this Initial Study. The approval of remedies at the existing Tyco site is not expected to result in public controversy over its environmental effects. No construction, no soil removal except for installing five new groundwater monitoring wells, or no new technology will be needed for any aspect of remedies. The project will not have impacts that are individually limited but cumulatively considerable. Proper groundwater sampling procedures and an annual land-use inspection program will be adequate to monitor the existing groundwater and contaminants such as VOCs,(e.g. Chlorobenzene and 1,1 Dichloroethene ).

- c. *Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.***

Risks to human health were examined in HHRAs which concluded that the site does not pose a human health risk in its current condition nor would it pose a risk in the future if the site continues to be used as a commercial/industrial property. However, if the site were developed as a residential property or for other land uses not included in the HHRA, further action may be required to protect human health. Therefore, the proposed remedy includes property-use restrictions that will limit future use of the site to commercial/industrial (non-residential). Further, the engineered soil cap will be maintained as a permanent feature at the Site with a Land-Use Covenant protecting the engineered soil cap from disturbances.

Groundwater monitoring since the 1980s indicate that the groundwater flow is slow and the concentrations of chemicals of concern are decreasing because of natural attenuation. Groundwater modeling, for a 70-year simulation period, concluded that concentrations of VOCs (e.g. chlorobenzene, and 1,1 DCE) in groundwater would decrease over time with minimal movement of PCBs in the groundwater. Proper groundwater sampling procedures will be used to monitor the groundwater and an annual land-use inspection program will be used to monitor continued compliance with the land-use covenant.

Approval of the project will ensure that the facility will monitor groundwater to confirm that contaminant migration will not pose a significant threat to human health or the environment, either directly or indirectly. The project activities will not have environmental impacts that will cause substantial adverse effects on human beings, either directly or indirectly.

Specific References: 9, 18, 20, 21, 23, 29 (page 29, conclusions), 30 (page 27, conclusions), 31, 34 (pages 34 to 37)

Findings of Significance:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

#### ***V. FINDINGS OF DE MINIMIS IMPACT TO FISH, WILDLIFE AND HABITAT (Optional)***

Prepared only if a Finding of De Minimis Impact to fish, wildlife and habitat is proposed in lieu of payment of the Department of Fish and Game Notice of Determination filing fee required pursuant to section 711.4 of the Fish and Game Code.

#### **Instructions**

A finding of “no potential adverse effect” must be made to satisfy the requirements for the Findings of De Minimis Impact as required by Title 14, California Code of Regulations, Section 753.5. “No potential adverse effect” is a higher standard than “no significant impact” and the information requested to provide substantial evidence in support of a “no potential adverse effect” is not identical in either its standard or content to that in other parts of the Initial Study.

In the *Explanation and Supporting Evidence* section below, provide substantial evidence as to how the project will have no potential adverse effect on the following resources:

- a) Riparian land, rivers, streams, watercourse, and wetlands under state and Federal jurisdiction.
- b) Native and non-native plant life and the soil required to sustain habitat for fish and wildlife.
- c) Rare and unique plant life and ecological community’s dependent on plant life.
- d) Listed threatened and endangered plant and animals and the habitat in which they are believed to reside.
- e) All species of plant or animals as listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, the Water Code, or regulation adopted there under.

- f) **All marine and terrestrial species subject to the jurisdiction of the Department of Fish and Game and the ecological communities in which they reside.**
- g) **All air and water resources, the degradation of which will individually or cumulatively result in a loss of biological diversity among the plants and animals residing in that air and water.**

### **Explanation and Supporting Evidence**

The proposed project consists of installation of five groundwater monitoring wells, abandonment of one existing well, imposition of a land use covenant, and conducting groundwater monitoring. The only physical change to the environment will be the installation and abandonment of the groundwater monitoring wells. Installation of the five new wells will use standard hollow stem auger techniques and comply with the Regional Water Quality Control Board standards, resulting in minimal soil disturbance.

The project site is highly industrialized. No State or Federally protected riparian land, rivers, streams, watercourse or wetlands exist on the site. No rare, threatened or endangered species of plant or animals are located at the site. An ecological risk assessment concluded that the site poses very little threat to plant or animals from areas contaminated with hazardous substances due to the lack of complete exposure pathways. Contaminated areas are paved over and are isolated from biota by man-made barriers.

Saltwater evaporation ponds located north of the site and the wetland-mitigation area located east of the site are separated from the project site by Bayfront Expressway and Willow Road. Both roadways experience heavy traffic. For the same reason that onsite plant and animals will not be negatively impacted by the proposed project, it is highly unlikely that the wetland mitigation area, and the plants and animals that reside in the area, would be impacted by the proposed project.

See Environmental Setting and Impact Analysis for Biological Resources #4.

### **Finding**

Based on the explanation and supporting evidence provided above, DTSC finds that the project will have no potential for adverse effect, either individually or cumulatively on fish and wildlife, or the habitat on which it depends, as defined by section 711.2 of the Fish and Game Code.

## ***VI. DETERMINATION OF APPROPRIATE ENVIRONMENTAL DOCUMENT***

**On the basis of this Initial Study:**

- x **I find that the proposed project COULD NOT have a significant effect on the environmental. A NEGATIVE DECLARATION will be prepared.**
- **I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED DECLARATION will be prepared.**

- I find that the proposed project MAY HAVE a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.

<b>DTSC Project Manager Signature</b>		<b>Date</b>
<b>Chui, Wei-Wei</b>	<b>Section Chief</b>	<b>510-540-3975</b>

<b>DTSC Project Manager Name</b>	<b>DTSC Project Manager Title</b>	<b>Phone #</b>
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<b>DTSC Branch/Unit Chief Signature</b>		<b>Date</b>
<b>Mohinder Sandhu</b>	<b>Branch Chief</b>	<b>510-540-3974</b>

<b>DTSC Branch/Unit Chief Name</b>	<b>DTSC Branch/Unit Chief Title</b>	<b>Phone #</b>
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Figure 1 – Site Location

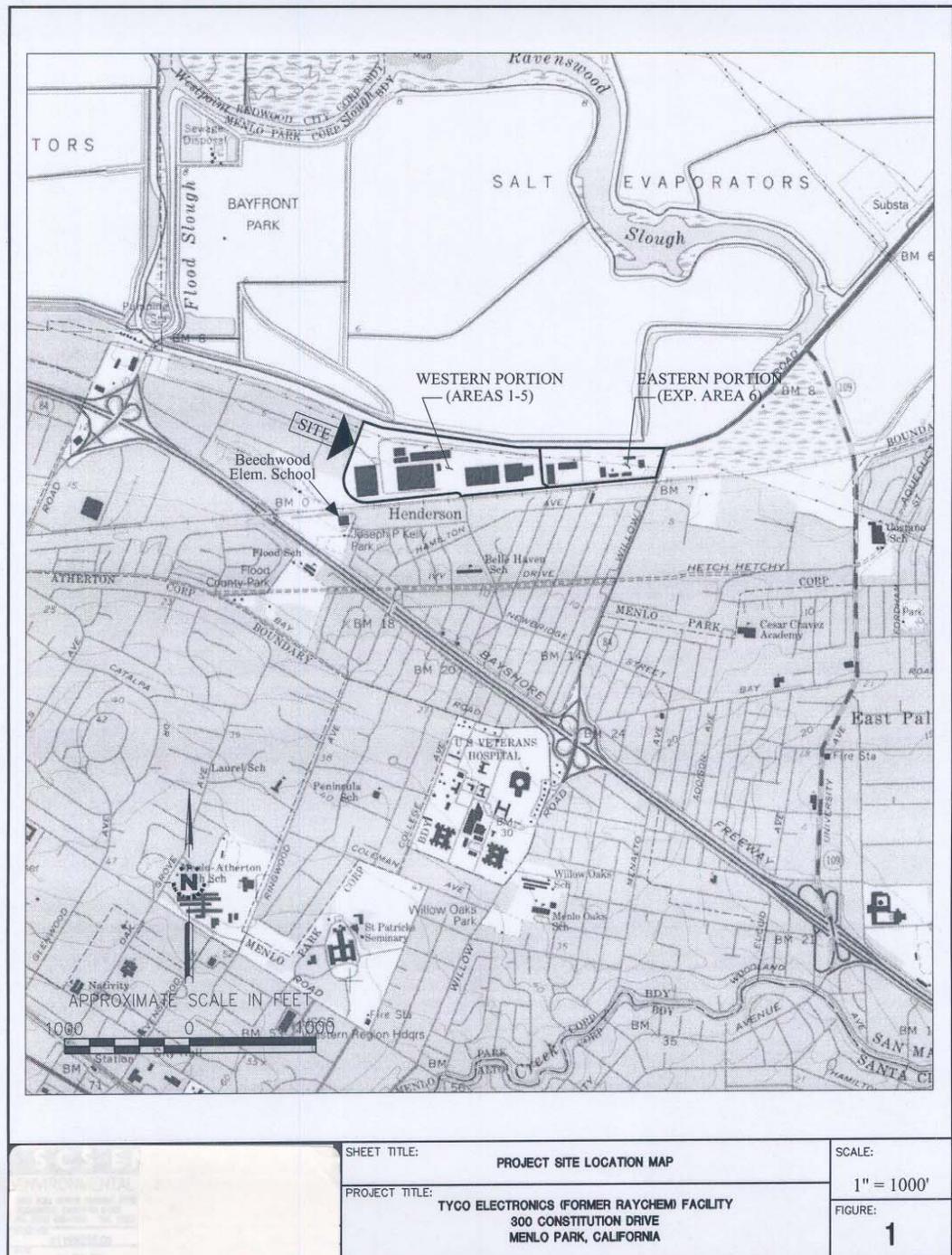


Figure 2 – Site Layout



Figure 3 - Site Map Showing Excavation Areas and the Area of the Engineered Cap

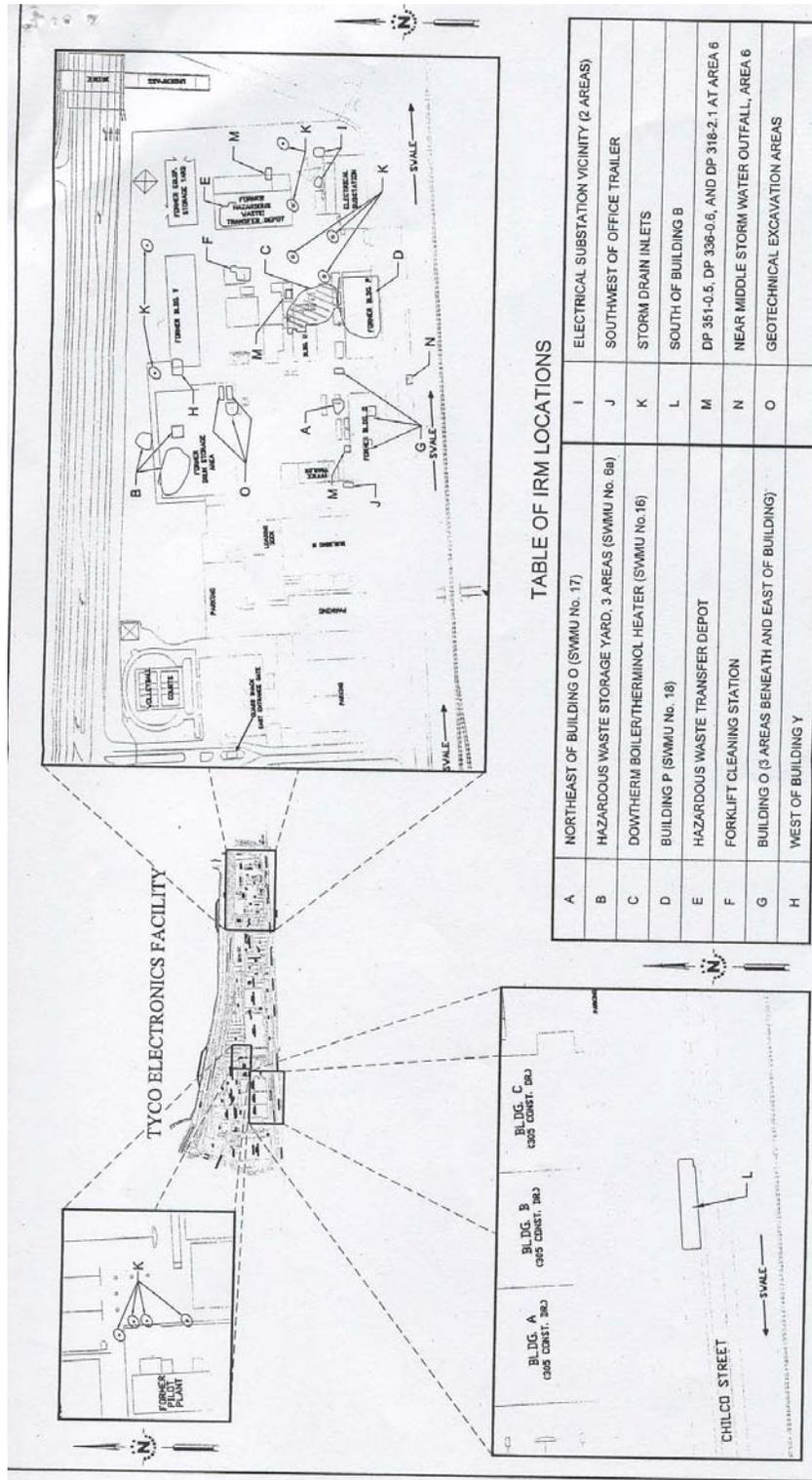
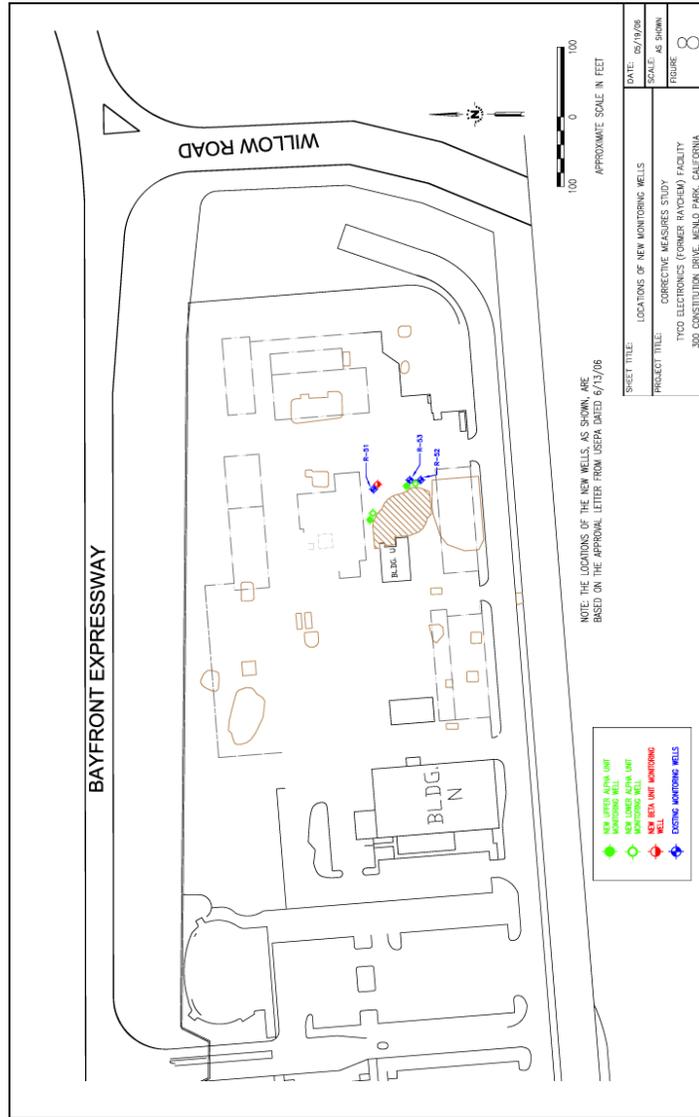


Figure 4 – Site Map showing Locations of Five New Groundwater Monitoring Wells



## ATTACHMENT A

## INITIAL STUDY REFERENCE LIST

## Remedy Selections for Soil and Groundwater

Tyco Corporation, Inc.,  
300 Constitution Drive  
Menlo Park, California

1. Bay Area Air Quality Management District website: <http://www.baaqmd.gov/>
2. California Division of Mines and Geology, 1983, Mineral Land Classification: Aggregate Materials in the San Francisco – Monterey Bay Area, Special Report 146.
3. California Department of Transportation, August 19, 2003, Site Investigation Report, Ravenswood Triangle Wetland Mitigation Project, San Mateo County, California, prepared by IT Corporation, Sacramento.
4. California Environmental Protection Agency / Department of Toxic Substances Control, June 26, 1996, Corrective Action Consent Agreement in the Matter of Raychem Corporation, Menlo Park, California, Docket No. HWCA 3NCB 95/96-003, modified September 14, 2000.
5. California Environmental Protection Agency / Department of Toxic Substances Control, Fact Sheet Cleanup and Corrective Action Update for Tyco Electronics Facility, 300-314 Constitution Drive, Menlo Park, California,” November 2003.
6. California Environmental Protection Agency / Department of Toxic Substances Control, February 2004, California Environmental Quality Act / Initial Study Workplan.
7. California Regional Water Quality Control Board, San Francisco Bay Region, August 13, 2002, Letter, Concurrence that Shallow Ground Water at Tyco Electronics, Menlo Park, Meets the Exemption Criteria in the SWRCB Sources of Drinking Water Policy, Resolution No. 88-6
8. Charlton International, 1996, Preliminary Review and Discussion of the Hydraulic Relationship Between the Deep and Shallow Aquifers, Atherton, Menlo Park, and East Palo Alto Study Area, San Mateo County, California; an unpublished report prepared for Raychem Corporation.
9. Charlton International, August 1999, Revised Final Workplan for Phase I of RCRA Facility Investigation, Raychem Corporation, 300 Constitution Drive, Menlo Park, CA, three volumes.
- 9a. Cooper, Clark & Associates, November 11, 1974, Addendum to Report: Soil and Earthquake Engineering Studies to Facilitate Master Planning for the Raychem Industrial Complex, Menlo Park, California, for the Raychem Corporation.

10. County of San Mateo Assessor's Information (personal communications between Kathy LeVack, San Mateo County Clerk Assessor's Office and Caroleen Toyama of Shaw Environmental, Inc., November 9, 2005).
11. FEMA, map revised April 21, 1999, panel map 060321 0004 D.
12. GRA Associates, Inc., November 2000, Report Ground Water Monitoring, June and September 2000, Raychem/Tyco Electronics, 300 Constitution Drive, Menlo Park, California, GRA Project No. 2151-25.
13. GRA Associates, Inc., and Enviro-Sciences, Inc., January 2002, Report, Evaluation of Beneficial Uses of Ground Water in the Shallow Water-Bearing Zone, Raychem/Tyco Electronics, 300-314 Constitution drive, Menlo Park, California, EPA ID No. CAD 009125527.
14. GRA Associates, Inc., and SCS Engineers, August 2000, Report, Slope Stability Analysis, Fire-Water Reservoir, Tyco Electronics Facility, 300 Constitution Drive, Menlo Park, CA.
15. GRA Associates, Inc., February 2002 (Revised), Report, Ground Water Monitoring (March, June, and September 2001) and Isotope Analytical Results of Surface and Ground Water Samples, Raychem/Tyco Electronics, 300 to 314 Constitution Drive, Menlo Park, California, EPA ID No. CAD 009125527.
16. GRA Associates, Inc., March 2002, RFI Report (Final), Soil Investigation, Raychem/Tyco Facility – Expanded Area 6 (Eastern Portion of Site), 300 Constitution Drive, Menlo Park, California 94025, EPA ID No. CAD 009125527.
17. GRA Associates, Inc., Revised June 2002, RFI Report – Soil Investigation (Final) Volume I (Text), Areas 1 through 5 (Western Portion), Raychem/Tyco Facility, 300 Constitution Drive, Menlo Park, California.
18. GRA Associates, Inc., November 2002, RFI Ground Water Report, Volume I (Text), Raychem/Tyco Facility, 300 Constitution Drive, Menlo Park, California.
19. GRA Associates, Inc., April 2003, Report, Ground Water Monitoring and Preliminary Assessment of Bioattenuation, Raychem/Tyco Electronics, 300 Constitution Drive, Menlo Park, California, EPA ID No. CAD 009125527.
20. GRA Associates, Inc., September 2003, Report – Assessment of Off-Site Soils, Sediments, and Surface Water, Volumes I and II, Raychem/Tyco Facility, 300 Constitution Drive, Menlo Park, California.
21. GRA Associates, Inc., December 2003, Report, Limited Ground Water Sampling (Sentry wells – September 2003) and Ground Water Monitoring (June and September 2003), Raychem/Tyco Electronics, 300 Constitution Drive, Menlo Park, California, EPA ID No. CAD 009125527.
22. GRA Associates, Inc., Site Reconnaissance and Photos (October 2005); Site Survey; Site Observations; Information based on groundwater sampling work.

23. HydroFocus, Inc., November 2003, Groundwater – Flow System, Description and Simulated Constituent Transport, Raychem/Tyco Electronics Site, 300 – 314 Constitution Drive, Menlo Park, California.
24. Independence/Constitution, June 27, 2005, General Plan Amendment and Rezoning Project Initial Study prepared for the City of Menlo Park, Community Development Department, prepared by EIP Associates.
25. Jones, E. Timothy, Researcher II, Northwest Information Center, Sonoma State University, June 10, 2005 letter in EIP Associates (San Francisco), June 27, 2005, Initial Study, Independence/Constitution General Plan Amendment and Rezoning Project (Proposed Bohannon General Plan Amendment).
26. SCS Engineers, February 2001, Interim Measures Implementation and Buildings P & Y Demolition Report – Area 6.
27. SCS Engineers, April 2002, Interim Remedial Measures Addendum #4, Implementation Summary – Area 6.
28. SCS Engineers, May 2003, Implementation Report, Interim Remedial Measures, Addendum #5, Soil Removal, South of Building B, Area 1.
29. SCS Engineers, July 2003, Scoping Ecological Risk Assessment, East End of Site – Expanded Area 6, Tyco Electronics, 300 Constitution Drive, Menlo Park, California.
30. SCS Engineers, November 2003, Scoping Ecological Risk Assessment, Areas 1 – 5, Tyco Electronics, 300 Constitution Drive, Menlo Park, California.
31. SCS Engineers, December 2004, Closure Report, Soil Removal/Disposal, Off-Site Storm Water Swale Area, Railroad Right-of-Way South of Tyco Facility's East End.
32. SCS Engineers, April 2005, Baseline Human Health Risk Assessment, Western Portion (Areas 1 through 5), Tyco Electronics (Former Raychem) Facility, Menlo Park, California.
33. SCS Engineers, July 2005, Baseline Human Health Risk Assessment, Eastern Portion (Expanded Area 6), Tyco Electronics (Former Raychem) Facility, Menlo Park, California.
34. SCS Engineers, June 2006, Corrective Measures Study and Implementation Plan, Final Draft, Tyco Electronics Corporation, 300 Constitution Drive, Menlo Park, California.
- 34a. URS/Blume, March 1990, Evaluation of Liquefaction Potential at Raychem Facility in Menlo Park, California, for the Raychem Corporation.
35. US Geological Survey, 1991, 7.5-Minute Quadrangle Map for Palo Alto.
36. US Geological Survey, 2000, A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos, Map scale 1:1,100,000, Open-File Report 2000-19.

Attachment B – Rare Find (Palo Alto Quad)

**Acanthomintha duttonii**

San Mateo thorn-mint

Element Code: PDLAM01040

**Status**

Federal: Endangered  
 State: Endangered

**NDDB Element Ranks**

Global: G1  
 State: S1.1

**Other Lists**

CNPS List: 1B  
 R-E-D Code: 3-3-3

**Habitat Associations**

General: CHAPARRAL, VALLEY AND Foothill GRASSLAND, COASTAL SCRUB.

Micro: EXTANT POPULATIONS ONLY KNOWN FROM VERY UNCOMMON SERPENTINITE VERTISOL CLAYS; IN RELATIVELY OPEN AREAS. 50-200M.

Occurrence No. 2      Map Index: 09268      EO Index: 18112      Dates Last Seen  
 Occ Rank: None      Element: 1915-05-29  
 Origin: Natural/Native occurrence      Site: 1915-05-29  
 Presence: Extirpated  
 Trend: Unknown      Record Last Updated: 1997-02-06  
 Main Source: DUTTON & WALKER #3819 UCLA (HERB)

Quad Summary: PALO ALTO (3712242/428B), WOODSIDE (3712243/429A)  
 County Summary: SAN MATEO

Lat/Long: 37.44826° / -122.23747°      Township: 05S  
 UTM: Zone-10 N4144874 E567446      Range: 03W  
 Radius: 1 mile      Mapping Precision: NON-SPECIFIC      Section: 31      Qtr: XX  
 Elevation: 170 ft      Symbol Type: POINT      Meridian: M

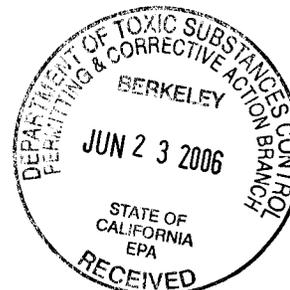
Location: NEAR THE MENLO GOLF CLUB (MENLO COUNTRY CLUB).  
 Ecological: SMALL AREA OF SANDY SOIL ON A HILLSIDE SLOPING TO THE SOUTH.  
 General: URBANIZATION EXTIRPATED THIS OCCURRENCE.  
 Owner/Manager: PVT

Occurrence No. 3      Map Index: 09217      EO Index: 18110      Dates Last Seen  
 Occ Rank: None      Element: 1940-05-15  
 Origin: Natural/Native occurrence      Site: 1940-05-15  
 Presence: Extirpated  
 Trend: Unknown      Record Last Updated: 1995-11-15  
 Main Source: ROSE, L. #36303 CAS (HERB)

Quad Summary: PALO ALTO (3712242/428B), WOODSIDE (3712243/429A)  
 County Summary: SAN MATEO

Lat/Long: 37.45938° / -122.26192°      Township: 05S  
 UTM: Zone-10 N4146090 E565275      Range: 04W  
 Radius: 1 mile      Mapping Precision: NON-SPECIFIC      Section: 35      Qtr: XX  
 Elevation: 480 ft      Symbol Type: POINT      Meridian: M

Location: EMERALD LAKE WEST OF REDWOOD CITY.  
 Ecological: DRY RAIN POOL ON SERPENTINE BALD AT EDGE OF CHAPARRAL.  
 General: EXTIRPATED ACCORDING TO SUSAN SOMMERS, 1979.  
 Owner/Manager: PVT



**Allium peninsulare var. franciscanum**

Franciscan onion

Element Code: PMLIL021R1

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G5T2	CNPS List: 1B
State: None	State: S2.2	R-E-D Code: 2-2-3

**Habitat Associations**  
 General: CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.  
 Micro: CLAY SOILS; OFTEN ON SERPENTINE. DRY HILLSIDES. 100-300M.

<b>Occurrence No.</b> 1	<b>Map Index:</b> 09283	<b>EO Index:</b> 45119	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1968-06-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1968-06-XX
<b>Presence:</b> Presumed Extant			<b>Record Last Updated:</b> 2001-03-23
<b>Trend:</b> Unknown			
<b>Main Source:</b> RAVEN SN WS (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.40465° / -122.22857°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4140042 E568274	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 18
<b>Elevation:</b> 5,800 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** JASPER RIDGE EXPERIMENTAL AREA, NEAR SAND HILL CAVES.  
**Location Detail:** TWO COLLECTIONS MAPPED TOGETHER TO INCLUDE JASPER RIDGE BY CNDDDB.  
**General:** TYPE LOCATION.  
**Owner/Manager:** STANFORD UNIVERSITY

<b>Occurrence No.</b> 2	<b>Map Index:</b> 45120	<b>EO Index:</b> 45120	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1895-05-09
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1895-05-09
<b>Presence:</b> Presumed Extant			<b>Record Last Updated:</b> 2001-03-26
<b>Trend:</b> Unknown			
<b>Main Source:</b> APPLGATE #720 DS (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA

<b>Lat/Long:</b> 37.39279° / -122.16321°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4138776 E574070	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 23
<b>Elevation:</b> 280 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** PAGE MILL CREEK, ABOVE STANFORD UNIVERSITY.  
**Location Detail:** EXACT LOCATION UNKNOWN MAPPED TO INCLUDE CREEK ALONG PAGE MILL ROAD ABOVE STANFORD UNIVERSITY BY CNDDDB.  
**General:** INTERPRETED 'PAGE MILL CREEK' AS MATADERO CREEK. NEEDS FIELDWORK.  
**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 3	<b>Map Index:</b> 45121	<b>EO Index:</b> 45121	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1902-05-04
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1902-05-04
<b>Presence:</b> Presumed Extant			<b>Record Last Updated:</b> 2001-03-26
<b>Trend:</b> Unknown			
<b>Main Source:</b> ABRAMS #2411 DS, NY (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B), WOODSIDE (3712243/429A)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.43043° / -122.25261°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4142885 E566123	<b>Range:</b> 04W
<b>Radius:</b> 1 mile	<b>Section:</b> 12
<b>Elevation:</b> 380 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** WOODSIDE.  
**General:** NEEDS FIELDWORK.  
**Owner/Manager:** UNKNOWN

**Ambystoma californiense**

California tiger salamander

Element Code: AAAAA01180

Status

NDDB Element Ranks

Other Lists

Federal: Threatened

Global: G2G3

CDFG Status: SC

State: None

State: S2S3

Habitat Associations

General: CENTRAL VALLY DPS LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTY DPS LISTED AS ENDANGERED.

Micro: NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING

Occurrence No. 63

Map Index: 33818

EO Index: 6256

Dates Last Seen

Occ Rank: Good

Element: 2005-01-26

Origin: Natural/Native occurrence

Site: 2005-01-26

Presence: Presumed Extant

Trend: Stable

Record Last Updated: 2005-06-10

Main Source: LAUNER, A. E. 1998 (OBS)

Quad Summary: PALO ALTO (3712242/428B)

County Summary: SANTA CLARA

Lat/Long: 37.42248° / -122.17790°

Township: 06S

UTM: Zone-10 N4142058 E572740

Range: 03W

Area: 156.2 ac

Mapping Precision: NON-SPECIFIC

Section: 10

Qtr: XX

Elevation: 150 ft

Symbol Type: POLYGON

Meridian: M

Location: LAKE LAGUNITA AND SURROUNDING AREAS ON STANFORD UNIVERSITY CAMPUS, PALO ALTO

Location Detail: MAINLY LAKE LAGUNITA IS USED FOR BREEDING, ALTHOUGH SMALL PONDS SOUTH OF JUNIPERO SERRA ARE ALSO USED. SURROUNDING UPLAND USED DURING NON-BREEDING PERIODS.

Ecological: HABITAT CONSISTS OF A SEASONAL RESERVOIR AT THE BOUNDARY BETWEEN THE STANFORD UNIVERSITY CAMPUS AND SURROUNDING UNDEVELOPED FOOTHILLS, CONSISTING OF NON-NATIVE GRASSLAND, OAK WOODLAND SAVANNA & LANDSCAPED AREAS.

Threat: THREATS INCLUDE LAKE DRAINAGE, CONSTRUCTION, NON-NATIVE PLANTS & PREDATORS, BIOCIDES, FERAL CATS, TRAFFIC, ORV'S.

General: CAS, MVZ, UCD & SU. OBS TO 1929. CAS#: 15242 (11/14/53); 16953 (12/19/55); 20274, 20275 (7/9/55). 8/1992: CAS-SU (AMP) 75, LARVA. 1992: 2. ADULTS AND LARVAE OBS, 1997-2002. RESERVOIR NOT FILLED IN 2001-02; NO LARVAE. 100'S OF EGGS 1/26/05

Owner/Manager: STANFORD UNIVERSITY

Occurrence No. 77

Map Index: 32819

EO Index: 32896

Dates Last Seen

Occ Rank: Unknown

Element: 2002-XX-XX

Origin: Natural/Native occurrence

Site: 2002-XX-XX

Presence: Presumed Extant

Trend: Unknown

Record Last Updated: 2003-09-04

Main Source: BRODE, J. 1986 (PERS)

Quad Summary: PALO ALTO (3712242/428B)

County Summary: SANTA CLARA, SAN MATEO

Lat/Long: 37.42861° / -122.18985°

Township: 06S

UTM: Zone-10 N4142729 E571678

Range: 03W

Area: 273.0 ac

Mapping Precision: NON-SPECIFIC

Section: 09

Qtr: XX

Elevation: 100 ft

Symbol Type: POLYGON

Meridian: M

Location: SAN FRANCISQUITO CREEK, SAN MATEO COUNTY

Location Detail: THIS HISTORIC COLLECTION WAS SNAPPED TO AN EXISTING OCCURRENCE ON SAN FRANCISQUITO CREEK. THE EXACT LOCATION OF THIS COLLECTION IS UNKNOWN.

General: MUSEUM SPECIMEN SU #3725 COLLECTED ON 3 JAN 1938. JENNINGS CONSIDERED THIS SITE EXTIRPATED. 6 ADULTS FOUND TRAPPED IN A CISTERN JUST WEST OF THE CREEK IN 2002; RELEASED AT LAKE LAGUNITA DURING THE WET SEASON.

Owner/Manager: UNKNOWN

**Ambystoma californiense**

California tiger salamander

Element Code: AAAAA01180

<b>Status</b>	<b>NDBB Element Ranks</b>	<b>Other Lists</b>
Federal: Threatened	Global: G2G3	CDFG Status: SC
State: None	State: S2S3	

**Habitat Associations**

**General:** CENTRAL VALLY DPS LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTY DPS LISTED AS ENDANGERED.  
**Micro:** NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING

<b>Occurrence No.</b> 416	<b>Map Index:</b> 28024	<b>EO Index:</b> 33385	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> None			<b>Element:</b> 1893-11-11	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1893-11-11	
<b>Presence:</b> Extirpated				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2001-11-14	
<b>Main Source:</b> BRODE, J. 1986 (PERS)				

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.44682° / -122.15910°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4144773 E574380	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 2
<b>Elevation:</b> 50 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** PALO ALTO.

**General:** MUSEUM RECORDS SU# 221-223, 225-227, 229-30, & 232-33 FROM 29 APRIL 1892; SU# 23 FROM 15 APRIL 1893; AND SU# 138-42 FROM 11 NOV 1893. JENNINGS CONSIDERS THIS SITE EXTIRPATED.

**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 621	<b>Map Index:</b> 46516	<b>EO Index:</b> 46516	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> None			<b>Element:</b> 1900-03-03	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1900-03-03	
<b>Presence:</b> Extirpated				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2001-11-14	
<b>Main Source:</b> JENNINGS, M. & M. HAYES 1994 (PERS)				

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA

<b>Lat/Long:</b> 37.42066° / -122.14683°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4141880 E575492	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 12
<b>Elevation:</b>	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** NEAR MAYFIELD, VICINITY OF STANFORD UNIVERSITY AND PALO ALTO.

**General:** MCZ #2344. JENNINGS CONSIDERS THIS POPULATION EXTIRPATED.

**Owner/Manager:** UNKNOWN

***Arctostaphylos regismontana***

Kings Mountain manzanita

Element Code: PDERI041C0

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G2	CNPS List: 1B
State: None	State: S2.2	R-E-D Code: 2-2-3

**Habitat Associations**

**General:** BROADLEAVED UPLAND FOREST, CHAPARRAL, NORTH COAST CONIFEROUS FOREST.  
**Micro:** GRANITIC OR SANDSTONE OUTCROPS. 305-730M.

<b>Occurrence No.:</b> 9	<b>Map Index:</b> 45121	<b>EO Index:</b> 56350	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1919-08-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1919-08-XX
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2004-08-06
<b>Main Source:</b> WALTHER, E. SN UNK HERB (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B), WOODSIDE (3712243/429A)

**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.43043° / -122.25261°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4142885 E566123	<b>Range:</b> 04W
<b>Radius:</b> 1 mile	<b>Section:</b> 12
<b>Elevation:</b> 380 ft	<b>Meridian:</b> M
	<b>Qtr:</b> XX
	<b>Mapping Precision:</b> NON-SPECIFIC
	<b>Symbol Type:</b> POINT

**Location:** WOODSIDE.

**Location Detail:** EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDb, IN THE VICINITY OF WOODSIDE, SOUTH OF REDWOOD CITY AND HWY 280.

**General:** ONLY INFORMATION FOR THIS SITE IS REFERENCE TO WALTHER'S COLLECTION IN 1933 LEAFLETS OF WESTERN BOTANY. UNKNOWN NUMBER OF PLANTS SEEN IN 1919. NEEDS FIELDWORK.

**Owner/Manager:** UNKNOWN

***Centromadia parryi ssp. congonii***

Congdon's tarplant

Element Code: PDAST4R0P1

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G4T3	CNPS List: 1B
State: None	State: S3.2	R-E-D Code: 2-2-3

**Habitat Associations**

**General:** VALLEY AND FOOTHILL GRASSLAND.  
**Micro:** ALKALINE SOILS, SOMETIMES DESCRIBED AS HEAVY WHITE CLAY. 1-230M.

<b>Occurrence No.:</b> 54	<b>Map Index:</b> 49063	<b>EO Index:</b> 42360	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Fair			<b>Element:</b> 2001-09-20
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2001-09-20
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2006-01-23
<b>Main Source:</b> KNIGHT, W. & E. POLK 2001 (OBS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.48223° / -122.13249°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4148723 E576698	<b>Range:</b> 02W
<b>Area:</b> 2.3 ac	<b>Section:</b> 19
<b>Elevation:</b> 2 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b> SW
<b>Symbol Type:</b> POLYGON	

**Location:** RAVENSWOOD AREA OF EAST PALO ALTO, 0.6 AIR MLES SW OF JUNCTION OF HWY 109 AND HWY 84, WEST OF THE SAN FRANCISCO BAY.  
**Location Detail:** IN AREA SOUTH OF RAILROAD TRACKS, WEST OF SALT MARSH, AND EAST OF HIGH DENSITY RESIDENTIAL AREA.  
**Ecological:** OCCURS IN A FLAT, RUDERAL GRASSLAND AREA ADJACENT TO PICKLEWEED SALT MARSH. ASSOCIATES INCLUDE: FRANKENIA SALINA, CIRSIUM VULGARE, ANNUAL GRASSES, CENTAUREA SOLSTITIALIS, CARDUUS AND SALICORNIA.  
**Threat:** THREATENED BY DISKING, DEVELOPMENT, NON-NATIVE INVASIVE PLANTS, AND THE HISTORIC USE OF SALT EVAPORATORS.  
**General:** 17 PLANTS OBSERVED IN 2001. 1908 COLLECTION BY MCMURPHY FROM COOLEY LANDING ATTRIBUTED TO THIS OCCURRENCE. 1998 SURVEY DIRECTLY AT THE SITE OF COOLEY LANDING FAILED TO LOCATE ANY PLANTS. INCLUDES FORMER OCCURRENCE #57.  
**Owner/Manager:** PVT

**Charadrius alexandrinus nivosus**

western snowy plover

Element Code: ABNNB03031

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: Threatened	Global: G4T3	CDFG Status: SC
State: None	State: S2	

**Habitat Associations**  
 General: (NESTING) FEDERAL LISTING APPLIES ONLY TO THE PACIFIC COASTAL POPULATION.  
 Micro: SANDY BEACHES, SALT POND LEVEES & SHORES OF LARGE ALKALI LAKES. NEEDS SANDY, GRAVELLY OR FRIABLE SOILS FOR NESTING.

Occurrence No. 88	Map Index: 09304	EO Index: 25730	<b>Dates Last Seen</b>
<b>Occ Rank:</b> None			<b>Element:</b> 1919-XX-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1978-XX-XX
<b>Presence:</b> Possibly Extirpated			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1989-08-10
<b>Main Source:</b> PAGE, G. & L. STENZEL 1981 (LIT)			

**Quad Summary:** PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.50609° / -122.22644°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4151297 E568370	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 7
<b>Elevation:</b> 5 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** REDWOOD CITY, SOUTH SAN FRANCISCO BAY.  
**General:** ONE MUSEUM EGG SET COLLECTED IN 1919; 19 ADULTS OBSERVED DURING 1978 STUDY IN SAN MATEO COUNTY PORTION OF THE SOUTH BAY (UNKNOWN WHETHER ANY BIRDS WERE NESTING AT THIS LOCATION).  
**Owner/Manager:** UNKNOWN

***Cirsium praeteriens***

lost thistle

Element Code: PDAST2E2B0

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: GX	CNPS List: 1A
State: None	State: SX	R-E-D Code: *

**Habitat Associations**

**General:** LITTLE INFORMATION EXISTS ON THIS PLANT; IT WAS COLLECTED FROM THE PALO ALTO AREA AT THE TURN OF THE 20TH CENTURY.  
**Micro:** ALTHOUGH NOT SEEN SINCE 1901, THIS CIRSIUM IS THOUGHT TO BE QUITE DISTINCT FROM OTHER CIRSIUMS ACC. TO D. KEIL. 0-100M.

<b>Occurrence No.:</b> 1	<b>Map Index:</b> 28024	<b>EO Index:</b> 27370	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1901-07-07
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1901-07-07
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1997-01-02
<b>Main Source:</b> CONGDON #6 GH (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.44682° / -122.15910°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4144773 E574380	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 2
<b>Elevation:</b> 50 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** PALO ALTO.

**Location Detail:** UNSURE OF EXACT LOCATION; "PALO ALTO" IS NOT ENOUGH INFO TO MAP WELL. MAPPED AT PALO ALTO P.O. ON TOPO.

**General:** ONLY SOURCES OF INFORMATION FOR THIS SITE ARE 1897 AND 1901 COLLECTIONS BY CONGDON. THIS PLANT DETERMINED TO BE RARE AFTER IT APPARENTLY WENT EXTINCT.

**Owner/Manager:** UNKNOWN

***Collinsia multicolor***

San Francisco collinsia

Element Code: PDSCR0H0B0

Status

NDDB Element Ranks

Other Lists

Federal: None

Global: G2

CNPS List: 1B

State: None

State: S2.2

R-E-D Code: 2-2-3

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, COASTAL SCRUB.

Micro: ON DECOMPOSED SHALE (MUDSTONE) MIXED WITH HUMUS. 30-250M.

Occurrence No. 9

Map Index: 56848

EO Index: 56864

Dates Last Seen

Occ Rank: Unknown

Element: 1903-04-XX

Origin: Natural/Native occurrence

Site: 1903-04-XX

Presence: Presumed Extant

Trend: Unknown

Record Last Updated: 2004-09-20

Main Source: ELMER, A. #5050 UC (HERB)

Quad Summary: PALO ALTO (3712242/428B)

County Summary: SANTA CLARA, SAN MATEO

Lat/Long: 37.42924° / -122.17038°

Township: 06S

UTM: Zone-10 N4142814 E573399

Range: 03W

Radius: 1 mile

Mapping Precision: NON-SPECIFIC

Section: 10

Qtr: XX

Elevation: 100 ft

Symbol Type: POINT

Meridian: M

Location: STANFORD UNIVERSITY, PALO ALTO.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDb, IN THE VICINITY OF STANFORD UNIVERSITY.

General: 1894 COLLECTION BY CANNON "STANFORD HEIGHTS", AND 1899 COLL. BY CANNON "STANFORD HEIGHTS". REFERENCED IN HOWELL'S 1958 "A FLORA OF SAN FRANCISCO" ATTRIBUTED TO THIS SITE. UNKNOWN NUMBER OF PLANTS SEEN. NEEDS FIELDWORK.

Owner/Manager: STANFORD UNIVERSITY

**Dipodomys venustus venustus**

Santa Cruz kangaroo rat

Element Code: AMAFD03042

Status: \_\_\_\_\_ NDDB Element Ranks: \_\_\_\_\_ Other Lists: \_\_\_\_\_  
 Federal: None Global: G4T1 CDFG Status:  
 State: None State: S1

Habitat Associations

General: SILVERLEAF MANZANITA MIXED CHAPARRAL IN THE ZAYANTE SAND HILLS ECOSYSTEM OF THE SANTA CRUZ MOUNTAINS.  
 Micro: NEEDS SOFT-WELL DRAINED SAND.

Occurrence No. 2 Map Index: 56848 EO Index: 59281 Dates Last Seen: \_\_\_\_\_  
 Occ Rank: Unknown Element: 1938-05-01  
 Origin: Natural/Native occurrence Site: 1938-05-01  
 Presence: Presumed Extant  
 Trend: Unknown Record Last Updated: 2005-01-11  
 Main Source: MANIS 2004 (MUS)

Quad Summary: PALO ALTO (3712242/428B)  
 County Summary: SANTA CLARA, SAN MATEO

Lat/Long: 37.42924° / -122.17038° Township: 06S  
 UTM: Zone-10 N4142814 E573399 Range: 03W  
 Radius: 1 mile Mapping Precision: NON-SPECIFIC Section: 10 Qtr: XX  
 Elevation: 100 ft Symbol Type: POINT Meridian: M

Location: STANFORD UNIVERSITY, PALO ALTO.  
 Location Detail: EXACT LOCATION UNKNOWN. MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY MANIS. LOCATION UNCERTAINTY GIVEN AS 1 MILE.  
 General: ONE MALE SPECIMEN COLLECTED 1 MAY 1938 BY J. DIXON AT "STANFORD UNIVERSITY." DEPOSITED AT MVZ #3678.  
 Owner/Manager: STANFORD UNIVERSITY

Occurrence No. 10 Map Index: 09283 EO Index: 59321 Dates Last Seen: \_\_\_\_\_  
 Occ Rank: Unknown Element: 1941-07-31  
 Origin: Natural/Native occurrence Site: 1941-07-31  
 Presence: Presumed Extant  
 Trend: Unknown Record Last Updated: 2005-01-11  
 Main Source: MANIS 2004 (MUS)

Quad Summary: PALO ALTO (3712242/428B)  
 County Summary: SAN MATEO

Lat/Long: 37.40465° / -122.22857° Township: 06S  
 UTM: Zone-10 N4140042 E568274 Range: 03W  
 Radius: 1 mile Mapping Precision: NON-SPECIFIC Section: 18 Qtr: XX  
 Elevation: 5,800 ft Symbol Type: POINT Meridian: M

Location: JASPER RIDGE.  
 General: 4 MALES COLLECTED 4-6 APR 1907 AT "JASPER RIDGE, NEAR STANFORD UNIVERSITY." DEPOSITED AT CAS #20785-20788. 1 MALE COLLECTED 31 JUL 1941 AT "JASPER RIDGE." DEPOSITED AT CAS #19324.  
 Owner/Manager: UNKNOWN

Occurrence No. 11 Map Index: 52690 EO Index: 59322 Dates Last Seen: \_\_\_\_\_  
 Occ Rank: Unknown Element: 1933-08-08  
 Origin: Natural/Native occurrence Site: 1933-08-08  
 Presence: Presumed Extant  
 Trend: Unknown Record Last Updated: 2005-02-23  
 Main Source: MANIS 2004 (MUS)

Quad Summary: PALO ALTO (3712242/428B), WOODSIDE (3712243/429A), REDWOOD POINT (3712252/447C), SAN MATEO (3712253/448D)  
 County Summary: SANTA CLARA, SAN MATEO

Lat/Long: 37.48134° / -122.24148° Township: 05S  
 UTM: Zone-10 N4148541 E567062 Range: 04W  
 Radius: 5 mile Mapping Precision: NON-SPECIFIC Section: 24 Qtr: XX  
 Elevation: 5 ft Symbol Type: POINT Meridian: M

Location: REDWOOD CITY, SOUTH SAN FRANCISCO BAY.  
 Location Detail: EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF REDWOOD CITY.  
 General: 1 UNKNOWN SPECIMEN COLLECTED 8 AUG 1933 BY A. HOLM AT "REDWOOD CITY." DEPOSITED AT CAS #7521. GRINNELL ALSO COLLECTED A SPECIMEN AT "BELMONT" IN 1904.  
 Owner/Manager: UNKNOWN

**Dirca occidentalis**

western leatherwood

Element Code: PDTHY03010

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G2G3	CNPS List: 1B
State: None	State: S2S3	R-E-D Code: 2-2-3

**Habitat Associations**

**General:** BROADLEAFED UPLAND FOREST, CHAPARRAL, CLOSED-CONE CONIF FOR, CISMONTANE WDLND, N COAST CONIF FOR, RIP FOR, RIP WDLND.  
**Micro:** ON BRUSHY SLOPES, MESIC SITES; MOSTLY IN MIXED EVERGREEN & FOOTHILL WOODLAND COMMUNITIES. 30-550M.

<b>Occurrence No.</b> 5	<b>Map Index:</b> 28650	<b>EO Index:</b> 29958	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1967-03-13	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1967-03-13	
<b>Presence:</b> Presumed Extant				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2006-02-02	
<b>Main Source:</b> PIAZZA, S. SN SJSU #647 (HERB)				

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.40354° / -122.23783°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4139913 E567454	<b>Range:</b> 03W
<b>Radius:</b> 2/5 mile	<b>Section:</b> 18
<b>Elevation:</b> 450 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** VICINITY OF SEARSVILLE LAKE, WEST OF PALO ALTO.

**Ecological:** IN SHADE ON DRY WOODED SLOPES.

**General:** COLLECTIONS FROM NEAR SOUTH SIDE OF LAKE, NORTH END OF LAKE, EAST OF LAKE, ABOVE LAKE, AND AT JASPER RIDGE BIOLOGICAL EXPERIMENTAL AREA ATTRIBUTED TO THIS SITE. NEED BETTER MAPPED INFORMATION.

**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 6	<b>Map Index:</b> 28651	<b>EO Index:</b> 29957	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1929-03-02	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1929-03-02	
<b>Presence:</b> Presumed Extant				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2006-02-02	
<b>Main Source:</b> WIGGINS #3363 DS #379463 (HERB)				

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.41747° / -122.18757°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4141495 E571890	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 16
<b>Elevation:</b> 150 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** ALONG LOS TRANCOS CREEK BACK OF STANFORD UNIVERSITY, PALO ALTO.

**Location Detail:** SEVERAL COLLECTIONS FROM THE VICINITY ARE ATTRIBUTED TO THIS SITE INCLUDING "SCHENKELS CAMPGROUND", "NEAR ISOLATION HOSPITAL", "BY STONE CRUSHER", "NEAR ADELANTA VILLA", AND "HILLS ABOVE STANFORD".

**General:** MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1929 COLLECTION BY WIGGINS. OTHER COLLECTIONS FROM THIS VICINITY MADE BETWEEN 1895 AND 1929.

**Owner/Manager:** STANFORD UNIVERSITY

***Emys (=Clemmys) marmorata***

western pond turtle

Element Code: ARAAD02030

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G3G4	CDFG Status: SC
State: None	State: S3	

**Habitat Associations**

**General:** A THOROUGHLY AQUATIC TURTLE OF PONDS, MARSHES, RIVERS, STREAMS & IRRIGATION DITCHES WITH AQUATIC VEGETATION.  
**Micro:** NEED BASKING SITES AND SUITABLE (SANDY BANKS OR GRASSY OPEN FIELDS) UPLAND HABITAT FOR EGG-LAYING.

<b>Occurrence No.</b> 64	<b>Map Index:</b> 32819	<b>EO Index:</b> 22279	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> Unknown			<b>Element:</b> XXXX-XX-XX	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> XXXX-XX-XX	
<b>Presence:</b> Presumed Extant				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2003-09-04	
<b>Main Source:</b> HOLLAND, D. 1988 (PERS)				

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.42861° / -122.18985°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4142729 E571678	<b>Range:</b> 03W
<b>Area:</b> 273.0 ac	<b>Section:</b> 09
<b>Elevation:</b> 100 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** SAN FRANCISQUITO CREEK, NEAR STANFORD UNIVERSITY; BETWEEN HIGHWAY 82 AND HIGHWAY 280.

**General:** CAS/SU SPECIMEN #1240, DATE UNKNOWN.

**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 73	<b>Map Index:</b> 32863	<b>EO Index:</b> 614	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> Unknown			<b>Element:</b> XXXX-XX-XX	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> XXXX-XX-XX	
<b>Presence:</b> Presumed Extant				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1996-02-06	
<b>Main Source:</b> HOLLAND, D. 1988 (PERS)				

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA

<b>Lat/Long:</b> 37.42248° / -122.17790°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4142058 E572740	<b>Range:</b> 03W
<b>Area:</b> 156.2 ac	<b>Section:</b> 10
<b>Elevation:</b> 110 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** LAKE LAGUNITA, STANFORD UNIVERSITY

**General:** CAS/SU SPECIMEN #18163, 7847, DATES AND NUMBERS UNKNOWN.

**Owner/Manager:** STANFORD UNIVERSITY

<b>Occurrence No.</b> 242	<b>Map Index:</b> 51410	<b>EO Index:</b> 51410	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> Good			<b>Element:</b> 1997-07-15	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1997-07-15	
<b>Presence:</b> Presumed Extant				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2003-05-28	
<b>Main Source:</b> LAUNER, A. E. 1997 (OBS)				

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.41073° / -122.23791°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4140710 E567442	<b>Range:</b> 03W
<b>Area:</b> 13.8 ac	<b>Section:</b> 18
<b>Elevation:</b> 200 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** SAN FRANCISQUITO CREEK, 0.25 MILE NORTH OF SEARSVILLE LAKE, STANFORD UNIVERSITY

**Location Detail:** SEVERAL ROADS AND TRAILS IMPACT THE CREEK.

**Ecological:** HABITAT CONSISTS OF A RELATIVELY SMALL, VARIABLE FLOW CREEK (CFS = 0 TO 2500); PORTIONS OF CREEK DRY IN SUMMER MOST YEARS. SUBSTRATE VARIES FROM BEDROCK TO MUD AND LOOSE GRAVELS. POOLS WITH TURTLES WERE DEEP (AT LEAST 8') & LONG (~35 YARDS)

**Threat:** THREATENED BY ROADS/TRAILS AND AGRICULTURE (WHICH HAS CAUSED CONTRACTION OF THE RIPARIAN ZONE AND LOSS OF SIDE POOLS).

**General:** 2 ADULTS OBSERVED ON 15 JUL 1997.

**Owner/Manager:** STANFORD UNIVERSITY

***Eryngium aristulatum var. hooveri***

Hoover's button-celery

Element Code: PDAPI0Z043

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G5T2	CNPS List: 1B
State: None	State: S2.1	R-E-D Code: 3-3-3

**Habitat Associations**

General: VERNAL POOLS.  
 Micro: ALKALINE DEPRESSIONS, VERNAL POOLS, ROADSIDE DITCHES AND OTHER WET PLACES NEAR THE COAST. 5-45M.

<b>Occurrence No.</b> 6	<b>Map Index:</b> 28651	<b>EO Index:</b> 56045	<b>Dates Last Seen</b>
<b>Occ Rank:</b> None			<b>Element:</b> 1907-06-04
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1907-06-04
<b>Presence:</b> Possibly Extirpated			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2004-07-09
<b>Main Source:</b> RANDALL, J. #414 DS (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.41747° / -122.18757°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4141495 E571890	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 16
<b>Elevation:</b> 150 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** FOOTHILLS NEAR STANFORD UNIVERSITY.  
**Location Detail:** EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDb, IN THE VICINITY OF STANFORD UNIVERSITY, SW OF PALO ALTO.  
**Threat:** DEVELOPMENT.  
**General:** UNKNOWN NUMBER OF PLANTS SEEN IN 1899 AND 1907. POSSIBLY EXTIRPATED DUE TO DEVELOPMENT IN THE AREA SINCE DATE OF COLLECTION.  
**Owner/Manager:** UNKNOWN

***Euphydryas editha bayensis***

Bay checkerspot butterfly

Element Code: IILEPK4055

**Status**  
 Federal: Threatened  
 State: None

**NDDB Element Ranks**  
 Global: G5T1  
 State: S1

**Other Lists**  
 CDFG Status:

**Habitat Associations**

**General:** RESTRICTED TO NATIVE GRASSLANDS ON OUTCROPS OF SERPENTINE SOIL IN THE VICINITY OF SAN FRANCISCO BAY.  
**Micro:** PLANTAGO ERECTA IS THE PRIMARY HOST PLANT; ORTHOCARPUS DENSIFLORUS & O. PURPURSCENS ARE THE SECONDARY HOST PLANTS.

<b>Occurrence No.:</b> 2	<b>Map Index:</b> 33756	<b>EO Index:</b> 6197	<b>Dates Last Seen</b>
<b>Occ Rank:</b> None			<b>Element:</b> 1997-XX-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2002-XX-XX
<b>Presence:</b> Extirpated			
<b>Trend:</b> Decreasing			<b>Record Last Updated:</b> 2003-09-04
<b>Main Source:</b> LAUNER, A. E. 1994 (OBS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.40236° / -122.22107°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4139793 E5688939	<b>Range:</b> 03W
<b>Area:</b> 52.9 ac	<b>Section:</b> 20
<b>Elevation:</b> 600 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** JASPER RIDGE BIOLOGICAL PRESERVE, STANFORD UNIVERSITY, PALO ALTO

**Location Detail:** SITE CONSISTS OF 3 SERPENTINE PATCHES, THE LARGEST AND NORTHERNMOST KNOWN AS "AREA C" AND THE SMALLER TWO AS "AREA G" AND "AREA H".

**Ecological:** HABITAT IS A SMALL SERPENTINE GRASSLAND AREA, SURROUNDED BY CHAPARRAL, OAK WOODLAND, AND RESIDENCES.

**Threat:** THREATS INCLUDE PESTICIDE USE BY ADJACENT LANDOWNERS AND SUCCESSION.

**General:** SITE STUDIED SINCE 1960. COLONY NEARLY EXTIRPATED BY DROUGHT, 1975-77. AREA "G" EXTINCT. AREA "C" EXTIRPATED IN 1991. 14 ADULTS IN AREA "H" IN 1994. 40 ADULTS IN AREA "H" IN 1995; 0 IN "G" AND "C". 6 ADULTS IN 1997. 0 OBSERVED, 1998-2002.

**Owner/Manager:** STANFORD UNIVERSITY

***Fritillaria liliacea***  
 fragrant fritillary

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Element Code:</b> PMLIL0V0C0
Federal: None	Global: G2	<b>Other Lists</b>
State: None	State: S2.2	CNPS List: 1B
		R-E-D Code: 2-2-3

**Habitat Associations**

**General:** COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, COASTAL PRAIRIE.  
**Micro:** OFTEN ON SERPENTINE; VARIOUS SOILS REPORTED THOUGH USUALLY CLAY, IN GRASSLAND. 3-410M.

<b>Occurrence No.:</b> 36	<b>Map Index:</b> 09283	<b>EO Index:</b> 6196	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1894-03-29
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1894-03-29
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1994-02-25
<b>Main Source:</b> BURNHAM, S. #10394 RSA (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.40465° / -122.22857°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4140042 E568274	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 18
<b>Elevation:</b> 5,800 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** HERBARIUM LABEL READS: "HILLS ABOUT STANFORD UNIVERSITY", PALO ALTO.  
**Location Detail:** MAPPED AT JASPER RIDGE DUE TO KNOWN PRESENCE OF SERPENTINE DERIVED SOILS AT THE SITE. OTHER HILLS IN THE AREA MAY ALSO SUPPORT SUITABLE HABITAT.  
**General:** ONLY SOURCE OF INFORMATION IS 1894 COLLECTION BY BURNHAM. 1902 COLLECTION BY ABRAMS, "NEAR STANDFORD UNIVERSITY" ATTRIBUTED TO SITE. AREA SHOULD BE CHECKED FOR PRESENCE OF SUITABLE HABITAT.  
**Owner/Manager:** UNKNOWN

***Geothlypis trichas sinuosa***

saltmarsh common yellowthroat

Element Code: ABPBX1201A

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None State: None	Global: G5T2 State: S2	CDFG Status: SC

**Habitat Associations**

**General:** RESIDENT OF THE SAN FRANCISCO BAY REGION, IN FRESH AND SALT WATER MARSHES.  
**Micro:** REQUIRES THICK, CONTINUOUS COVER DOWN TO WATER SURFACE FOR FORAGING; TALL GRASSES, TULE PATCHES, WILLOWS FOR NESTING.

<b>Occurrence No.</b> 9	<b>Map Index:</b> 09259	<b>EO Index:</b> 24851	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1985-XX-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1985-XX-XX
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2005-02-09
<b>Main Source:</b> U.S. FISH & WILDLIFE SERVICE 1986 (LIT)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.40020° / -122.24102°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4139540 E567175	<b>Range:</b> 03W
<b>Area:</b> 42.7 ac	<b>Section:</b> 19
<b>Elevation:</b> 360 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** MARSH SOUTH OF SEARSVILLE LAKE.  
**Ecological:** THE LAKE CONTAINS SEVERAL FRESHWATER MARSH PLANT SPECIES. HABITAT AT WEST EDGE OF LAKE RESEMBLES A SWAMP. SEARSVILLE MARSH (W OF SAND HILL RD) IS DOMINATED BY WILLOWS, CATTAILS AND DENSE MIXTURE OF SWAMP AND FRESHWATER MARSH VEGETATION.  
**General:** 11 PAIRS OBSERVED/ESTIMATED IN 1976. 12 BREEDING PAIRS OBSERVED IN 1985. 5 PAIRS NESTED ALONG WESTERN EDGE OF LAKE. 7 PAIRS NESTED W OF SAND HILL RD.  
**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 77	<b>Map Index:</b> 59784	<b>EO Index:</b> 59820	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Good			<b>Element:</b> 2004-05-15
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2004-05-15
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2005-03-16
<b>Main Source:</b> LIU, L. 2004 (OBS)			

**Quad Summary:** MOUNTAIN VIEW (3712241/428A), PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.46821° / -122.12438°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4147174 E577429	<b>Range:</b> 02W
<b>Area:</b> 108.5 ac	<b>Section:</b> 30
<b>Elevation:</b> 4 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** SW OF COOLEY LANDING, EAST PALO ALTO  
**Ecological:** HABITAT CONSISTS OF COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SPARTINA SPP..  
**General:** 9 DETECTIONS OCCURRED BETWEEN 17 APR AND 15 MAY 2004.  
**Owner/Manager:** UNKNOWN

***Hesperolinon congestum***

Marin western flax

Element Code: PDLIN01060

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: Threatened	Global: G2	CNPS List: 1B
State: Threatened	State: S2.1	R-E-D Code: 3-3-3

**Habitat Associations**

General: CHAPARRAL, VALLEY AND FOOTHILL GRASSLAND.  
 Micro: IN SERPENTINE BARRENS AND IN SERPENTINE GRASSLAND AND CHAPARRAL. 30-365M.

<b>Occurrence No.</b> : 5	<b>Map Index:</b> 09236	<b>EO Index:</b> 18631	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Fair			<b>Element:</b> 1986-05-20
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1986-05-20
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1998-04-14
<b>Main Source:</b> LINDENMEYER, T. 1981 (OBS)			

**Quad Summary:** PALO ALTO (3712242/428B), WOODSIDE (3712243/429A)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.44187° / -122.25358°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4144154 E566027	<b>Range:</b> 04W
<b>Radius:</b> 1/5 mile	<b>Section:</b> 1
<b>Elevation:</b> 520 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** WOODSIDE GLENS, BETW I-280 AND CANADA ROAD (KITE HILL).  
**Location Detail:** THIS AREA SET ASIDE FOR MITIGATION FOR BAY CHECKERSPOT BUTTERFLY (WHICH HAS DISAPPEARED FROM THIS SITE). SITE GETTING GRASSIER FORM WATER RUNOFF FROM HOMES UPSLOPE.  
**Ecological:** SERPENTINE GRASSLAND; ASSOCIATED WITH STIPA. FRITILLARIA LILIACEA OCCURS NEARBY.  
**Threat:** VULNERABLE TO DEVELOPMENT. SITE NOT FENCED (1988); PVT RESIDENCE ACROSS THE ST, SUSCEPTIBLE TO DUMPING, EROSION, RUNOFF.  
**General:** BETWEEN 1000-1500 PLANTS IN 1981; 175 IN 1986 IN OPEN AREA NOT TO BE DEVELOPED.  
**Owner/Manager:** PVT

***Laterallus jamaicensis coturniculus***

California black rail

Element Code: ABNME03041

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G4T1	CDFG Status:
State: Threatened	State: S1	

**Habitat Associations**

**General:** MAINLY INHABITS SALT-MARSHES BORDERING LARGER BAYS.  
**Micro:** OCCURS IN TIDAL SALT MARSH HEAVILY GROWN TO PICKLEWEED; ALSO IN FRESH-WATER AND BRACKISH MARSHES, ALL AT LOW ELEVATION.

<b>Occurrence No.:</b> 132	<b>Map Index:</b> 59784	<b>EO Index:</b> 63305	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Good			<b>Element:</b> 2005-04-27
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2005-04-27
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2005-11-22
<b>Main Source:</b> LIU, L. 2005 (OBS)			

**Quad Summary:** MOUNTAIN VIEW (3712241/428A), PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.46821° / -122.12438°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4147174 E577429	<b>Range:</b> 02W
<b>Area:</b> 108.5 ac	<b>Section:</b> 30
<b>Elevation:</b> 4 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** SW OF COOLEY LANDING, EAST PALO ALTO  
**Location Detail:** 11 SURVEY LOCATIONS WITHIN THIS AREA. DETECTIONS WERE WITHIN 100 METERS OF THE SURVEY LOCATIONS.  
**Ecological:** HABITAT IS COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SPARTINA SPP..  
**General:** 2 DETECTIONS ON 27 APR 2005  
**Owner/Manager:** CITY OF PALO ALTO

**Malacothamnus arcuatus**

arcuate bush mallow

Element Code: PDMAL00Q0E0

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G2Q	CNPS List: 1B
State: None	State: S2.2	R-E-D Code: 2-2-3

**Habitat Associations**  
 General: CHAPARRAL.  
 Micro: GRAVELLY ALLUVIUM. 80-355M.

<b>Occurrence No.</b> 14	<b>Map Index:</b> 09283	<b>EO Index:</b> 55920	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> XXXX-XX-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> XXXX-XX-XX
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2004-06-25
<b>Main Source:</b> CORELLI, T. ET AL 2004 (PERS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.40465° / -122.22857°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4140042 E568274	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 18
<b>Elevation:</b> 5,800 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** JASPER RIDGE BIOLOGICAL PRESERVE.  
**Location Detail:** EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDDB, IN THE VICINITY OF JASPER RIDGE BIOLOGICAL PRESERVE, APPROX. 4.0 MILES SW OF PALO ALTO, AND 1.0 MILE S OF HWY 280.  
**General:** ONLY INFORMATION FOR THIS SITE IS REFERENCE IN 2004 FIELD SURVEY FORM BY CORELLI ET AL. UNKNOWN DATE OF SITE VISIT. UNKNOWN NUMBER OF PLANTS SEEN. NEEDS FIELDWORK.  
**Owner/Manager:** SMT COUNTY

<b>Occurrence No.</b> 15	<b>Map Index:</b> 55905	<b>EO Index:</b> 55921	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Poor			<b>Element:</b> 2002-06-14
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2002-06-14
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2004-06-25
<b>Main Source:</b> COTTER, K. 2002 (OBS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA

<b>Lat/Long:</b> 37.37667° / -122.17986°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4136974 E572611	<b>Range:</b> 03W
<b>Area:</b> 6.0 ac	<b>Section:</b> 27
<b>Elevation:</b> 360 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b> SW
<b>Symbol Type:</b> POLYGON	

**Location:** ARASTRADERO PRESERVE, W OF THE PALO ALTO HILLS GOLF AND COUNTRY CLUB.  
**Location Detail:** ONE COLONY MAPPED IN THE SE1/4 OF THE SW1/4 OF SEC 27.  
**Ecological:** PLANT IS SURROUNDED BY COYOTE BRUSH (BACCHARIS PILULARIS) ON THREE SIDES AT THE BOTTOM OF A SMALL RAVINE, SITUATED IN A GRASSLAND. SE FACING SLOPE.  
**Threat:** NON-NATIVE PLANTS. BROWSING BY DEER.  
**General:** ONE PLANT OBSERVED IN 2002. THIS PLANT WAS LAST SEEN ABOUT 10-15 YEARS AGO BY CNPS MEMBERS.  
**Owner/Manager:** CITY OF PALO ALTO

**Malacothamnus davidsonii**

Davidson's bush mallow

Element Code: PDMAL00Q040

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G1	CNPS List: 1B
State: None	State: S1.1	R-E-D Code: 2-2-3

**Habitat Associations**

**General:** COASTAL SCRUB, RIPARIAN WOODLAND, CHAPARRAL.  
**Micro:** SANDY WASHES. 180-855M.

<b>Occurrence No.</b> 38	<b>Map Index:</b> 28651	<b>EO Index:</b> 64310	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1936-07-23
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1936-07-23
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2006-03-13
<b>Main Source:</b> BAKER, C. #3438 UC #75173 (HERB)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.41747° / -122.18757°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4141495 E571890	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 16
<b>Elevation:</b> 150 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** FOOTHILLS NEAR STANFORD UNIVERSITY.

**Location Detail:** EXACT LOCATION UNKNOWN, MAPPED AS BEST GUESS IN VICINITY OF STANFORD, WEST OF PALO ALTO AND NORTH OF HIGHWAY 280.

**General:** 1936 WIGGINS COLLECTION "NEAR HIDDEN VILLA, VICINITY OF STANFORD UNIVERSITY" ALSO ATTRIBUTED TO THIS SITE. THESE SPECIMENS FORMERLY LABELED AS M. ARCUATUS (ANNOTATED T. SLOTTA, 2004). NEEDS FIELDWORK.

**Owner/Manager:** UNKNOWN

**Melospiza melodia pusillula**

Alameda song sparrow

Element Code: ABPBXA301S

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: GST2?	CDFG Status: SC
State: None	State: S2?	

**Habitat Associations**

**General:** RESIDENT OF SALT MARSHES BORDERING SOUTH ARM OF SAN FRANCISCO BAY.  
**Micro:** INHABITS SALICORNIA MARSHES; NESTS LOW IN GRINDELIA BUSHES (HIGH ENOUGH TO ESCAPE HIGH TIDES) AND IN SALICORNIA.

<b>Occurrence No.</b> 6	<b>Map Index:</b> 59784	<b>EO Index:</b> 60617	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> Good			<b>Element:</b> 2004-05-15	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2004-05-15	
<b>Presence:</b> Presumed Extant				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2005-03-16	
<b>Main Source:</b> LIU, L. 2004 (OBS)				

**Quad Summary:** MOUNTAIN VIEW (3712241/428A), PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.46821° / -122.12438°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4147174 E577429	<b>Range:</b> 02W
<b>Area:</b> 108.5 ac	<b>Section:</b> 30
<b>Elevation:</b> 4 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** SW OF COOLEY LANDING, EAST OF PALO ALTO.  
**Location Detail:** MVZ: LOCATION GIVEN AS "MOUTH SAN FRANCISQUITO CREEK, PALO ALTO". CAS: LOCATION GIVEN AS "SAN FRANCISCO BAY; NEAR PALO ALTO". AREA MAPPED ACCORDING TO UTM COORDINATES PROVIDED BY LIU (2004).  
**Ecological:** HABITAT CONSISTS OF COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SCIRPUS SPP. SURROUNDING LAND: MULTI-USE TRAIL, AIRPORT.  
**General:** MANY RECORDS FROM MVZ DURING 1897, 1900, 1901, 1908, AND 6 FROM CAS DURING 1896 (DATA ALSO ATTRIBUTED TO OCC# 7). 1-10 DETECTED AT EACH OF 11 DIFFERENT POINTS ON 17 APR AND 15 MAY 2004. 6 POINTS SAMPLED 2X, 5 POINTS SAMPLED 1X.  
**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 10	<b>Map Index:</b> 60628	<b>EO Index:</b> 60664	<b>Dates Last Seen</b>	
<b>Occ Rank:</b> Good			<b>Element:</b> 2004-05-01	
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2004-05-01	
<b>Presence:</b> Presumed Extant				
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2005-03-18	
<b>Main Source:</b> LIU, L. 2004 (OBS)				

**Quad Summary:** PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.49948° / -122.23762°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4150556 E567387	<b>Range:</b> 03W
<b>Area:</b> 32.3 ac	<b>Section:</b> 18
<b>Elevation:</b> 7 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> NW
<b>Symbol Type:</b> POLYGON	

**Location:** ALONG HWY 101, SOUTH OF SMITH SLOUGH, SAN CARLOS.  
**Location Detail:** AREA MAPPED ACCORDING TO UTM COORDINATES PROVIDED BY LIU (2004). MVZ LOCATION GIVEN AS "NEAR REDWOOD CITY".  
**Ecological:** HABITAT CONSISTS OF A COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA, SCIRPUS SPP., AND SPARTINA SPP.. CURRENT/SURROUNDING LAND USE: SALT PONDS AND AIRPORT ABOUT 0.5 MI TO THE NORTH.  
**General:** 2 COLLECTED (MVZ# 108140, 108141) ON 4 MAY 1929. 1 DETECTION AT 2 POINTS, 2 DETECTIONS AT 1 POINT AND 4 DETECTIONS AT 1 POINT ON 21 MAR 2004 AND 1 MAY 2004. 2 POINTS SAMPLED 1 TIME AND 2 POINTS SAMPLED 2 TIMES.  
**Owner/Manager:** UNKNOWN

**Melospiza melodia pusillula**

Alameda song sparrow

Element Code: ABPBXA301S

Status

NDDB Element Ranks

Other Lists

Federal: None

Global: G5T2?

CDFG Status: SC

State: None

State: S2?

Habitat Associations

General: RESIDENT OF SALT MARSHES BORDERING SOUTH ARM OF SAN FRANCISCO BAY.

Micro: INHABITS SALICORNIA MARSHES; NESTS LOW IN GRINDELIA BUSHES (HIGH ENOUGH TO ESCAPE HIGH TIDES) AND IN SALICORNIA.

Occurrence No. 12	Map Index: 60636	EO Index: 60672	Dates Last Seen	
Occ Rank: Good			Element: 2004-05-01	
Origin: Natural/Native occurrence			Site: 2004-05-01	
Presence: Presumed Extant				
Trend: Unknown			Record Last Updated: 2005-03-18	
Main Source: LIU, L. 2004 (OBS)				

Quad Summary: PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)

County Summary: SAN MATEO

Lat/Long: 37.50170° / -122.22805°	Township: 05S
UTM: Zone-10 N4150810 E568231	Range: 03W
Area: 44.9 ac	Section: 18
Elevation: 5 ft	Meridian: M
Mapping Precision: NON-SPECIFIC	Qtr: NE
Symbol Type: POLYGON	

Location: ALONG THE EAST PORTION OF SMITH SLOUGH, SAN CARLOS.

Location Detail: AREA MAPPED ACCORDING TO UTM COORDINATES GIVEN.

Ecological: HABITAT CONSISTS OF A COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA, SCIRPUS SPP., AND SPARTINA SPP.. CURRENT/SURROUNDING LAND USE: SALT PONDS AND AIRPORT ABOUT 1 MILE NW.

General: 1 DETECTION AT 1 POINT, 2 DETECTIONS AT EACH OF 2 POINTS, 4 DETECTIONS AT 1 POINT, AND 5 DETECTIONS AT 1 POINT ON 21 MAR 2004 AND 1 MAY 2004. 2 POINTS SAMPLED 1 TIME AND 3 POINTS SAMPLED 2 TIMES.

Owner/Manager: UNKNOWN

Occurrence No. 26	Map Index: 60942	EO Index: 60978	Dates Last Seen	
Occ Rank: Unknown			Element: 1908-09-19	
Origin: Natural/Native occurrence			Site: 1908-09-19	
Presence: Presumed Extant				
Trend: Unknown			Record Last Updated: 2005-04-12	
Main Source: MUZEUM OF VERTEBRATE ZOOLOGY 2005 (MUS)				

Quad Summary: MOUNTAIN VIEW (3712241/428A), PALO ALTO (3712242/428B)

County Summary: SANTA CLARA

Lat/Long: 37.43568° / -122.13291°	Township: 06S
UTM: Zone-10 N4143559 E576707	Range: 02W
Radius: 1 mile	Section: 06
Elevation: 18 ft	Meridian: M
Mapping Precision: NON-SPECIFIC	Qtr: XX
Symbol Type: POINT	

Location: PALO ALTO.

Location Detail: LOCATION GIVEN BY MVZ AND CAS AS "PALO ALTO". AREA MAPPED ACCORDING TO LAT/LONG PROVIDED BY MVZ (MAX ERROR DISTANCE 4 MILES). LOCATION MAPPED IN THE VICINITY OF OREGON AVE, BETWEEN HWY 82 AND HWY 101.

Ecological: MVZ# 36009 (MELOSPIZA MELODIA MAXILLARIS) COLLECTED FROM THIS LOCATION IN 1901. THIS BIRD WAS NOTED AS A "WANDERER FROM S SIDE SUISUN BAY".

General: 1 COLLECTED (MVZ# 77098), 1896. 1 COLL (MVZ# 106584), 1898. 7 COLL (MVZ#77107-77113), 1899. 4 COLL (MVZ# 35928-35931), 1901. 2 COLL (MVZ# 35952, 35953), 1902. 3 COLL (MVZ# 5064-5066, 57057, 57058), 1908. MANY CAS RECORDS, 1891-1902.

Owner/Manager: UNKNOWN

**Melospiza melodia pusillula**

Alameda song sparrow

Element Code: ABPBXA301S

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G5T2?	CDFG Status: SC
State: None	State: S2?	

**Habitat Associations**

**General:** RESIDENT OF SALT MARSHES BORDERING SOUTH ARM OF SAN FRANCISCO BAY.  
**Micro:** INHABITS SALICORNIA MARSHES; NESTS LOW IN GRINDELIA BUSHES (HIGH ENOUGH TO ESCAPE HIGH TIDES) AND IN SALICORNIA.

<b>Occurrence No.</b> 30	<b>Map Index:</b> 60954	<b>EO Index:</b> 60990	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1946-09-19
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1946-09-19
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2005-04-13
<b>Main Source:</b> MUSEUM OF VERTEBRATE ZOOLOGY 2005 (MUS)			

**Quad Summary:** PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.50341° / -122.14201°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4151065 E575834	<b>Range:</b> 03W
<b>Radius:</b> 4/5 mile	<b>Section:</b> 13
<b>Elevation:</b> 4 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** RAVENSWOOD POINT.  
**Location Detail:** LOCATION GIVEN AS "RAVENSWOOD POINT". LOCATION MAPPED TO INCLUDE LAT/LONG PROVIDED BY MVZ; MAX ERROR DISTANCE 0.5 MILE.  
**General:** 10 COLLECTED (MVZ# 96542-96551) ON 19 SEP 1946.  
**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 38	<b>Map Index:</b> 56778	<b>EO Index:</b> 61054	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1914-12-14
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1914-12-14
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2005-04-19
<b>Main Source:</b> CALIFORNIA ACADEMY OF SCIENCE 2005 (MUS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.45064° / -122.17734°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4145182 E572763	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 34
<b>Elevation:</b> 70 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** MENLO PARK.  
**Location Detail:** LOCATION STATED AS (AND MAPPED AT) "MENLO PARK".  
**General:** 1 MALE COLLECTED (CAS# 51629) ON 14 DEC 1914.  
**Owner/Manager:** UNKNOWN

**Northern Coastal Salt Marsh**

Element Code: CTT52110CA

----- Status ----- NDDB Element Ranks ----- Other Lists -----  
 Federal: None Global: G3  
 State: None State: S3.2

----- Habitat Associations -----  
 General:  
 Micro:

Occurrence No. 12 Map Index: 09374 EO Index: 30347 Dates Last Seen  
 Occ Rank: Unknown Element: 1977-06-XX  
 Origin: Natural/Native occurrence Site: 1977-06-XX  
 Presence: Presumed Extant  
 Trend: Unknown Record Last Updated: 1998-07-20  
 Main Source: JONES & STOKES ASSOC. 1979 (LIT)

Quad Summary: PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)  
 County Summary: SAN MATEO

Lat/Long: 37.50575° / -122.18489° Township: 05S  
 UTM: Zone-10 N4151291 E572042 Range: 03W  
 Area: 1,073.0 ac Mapping Precision: SPECIFIC Section: 10 Qtr: XX  
 Elevation: 1 ft Symbol Type: POLYGON Meridian: M

Location: GRECO ISL, SAN CARLOS SW SAN FRANCISCO BAY.  
 Location Detail: ALL OF ISL & FRINGE OF ADJACENT ISL.  
 Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO  
 Threat: NEXT TO SALT PONDS.  
 Owner/Manager: UNKNOWN

Occurrence No. 15 Map Index: 09495 EO Index: 16151 Dates Last Seen  
 Occ Rank: Good Element: 1977-06-XX  
 Origin: Natural/Native occurrence Site: 1987-05-29  
 Presence: Presumed Extant  
 Trend: Unknown Record Last Updated: 1998-07-20  
 Main Source: JONES & STOKES ASSOC. 1979 (LIT)

Quad Summary: MILPITAS (3712148/427B), MOUNTAIN VIEW (3712241/428A), PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)  
 County Summary: SANTA CLARA, SAN MATEO

Lat/Long: 37.46717° / -122.12174° Township: 05S  
 UTM: Zone-10 N4147061 E577664 Range: 02W  
 Area: 1,281.0 ac Mapping Precision: SPECIFIC Section: 30 Qtr: XX  
 Elevation: 10 ft Symbol Type: POLYGON Meridian: M

Location: NE PALO ALTO S SAN FRANCISCO BAY.  
 Location Detail: FRINGE OF BAY.  
 Ecological: PARTS OF THE MARSH CONTAIN POCKETS OF FRESH WATER, BUT MAJORITY OF AREA IS SALT. DOMINANTS INCLUDE SALICORNIA,  
 VIRGINICA, SPROTINA FOLIOSA, DISTICHLIS SPICATA, AND FRANKENIA GRANDIFLORA.  
 Threat: NEXT TO SALT PONDS, GOLF COURSE, INDUSTRY AND HOUSING.  
 General: UNDISTURBED PORTIONS ARE IN EXCELLENT CONDITION. OTHER PARTS ARE OF VARIABLE QUALITY. THIS WAS OCC #015 OF CTT52110CA.  
 Owner/Manager: UNKNOWN

<b>Potamogeton filiformis</b>		
slender-leaved pondweed		Element Code: PMPOT03090
<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G5	CNPS List: 2
State: None	State: S1S2	R-E-D Code: 3-2-1
<b>Habitat Associations</b>		
General: MARSHES AND SWAMPS.		
Micro: SHALLOW, CLEAR WATER OF LAKES AND DRAINAGE CHANNELS. 15-2310M.		

Occurrence No. 3	Map Index: 28024	EO Index: 838	<b>Dates Last Seen</b>
Occ Rank: Unknown			Element: 1899-07-25
Origin: Natural/Native occurrence			Site: 1899-07-25
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 1996-12-26
Main Source: CONGDON, J. SN UC #142446 (HERB)			

Quad Summary: PALO ALTO (3712242/428B)  
 County Summary: SANTA CLARA, SAN MATEO

Lat/Long: 37.44682° / -122.15910°	Township: 06S
UTM: Zone-10 N4144773 E574380	Range: 03W
Radius: 1 mile	Section: 2
Elevation: 50 ft	Meridian: M
Mapping Precision: NON-SPECIFIC	Qtr: XX
Symbol Type: POINT	

**Location:** PALO ALTO.  
**Location Detail:** UNSURE OF EXACT LOCATION; "PALO ALTO" IS NOT ENOUGH INFO TO MAP WELL. MAPPED AT PALO ALTO P.O. ON TOPO.  
**General:** ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1899 COLLECTION BY CONGDON.  
**Owner/Manager:** UNKNOWN

***Rallus longirostris obsoletus***

California clapper rail

Element Code: ABNME05016

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: Endangered	Global: G5T1	CDFG Status:
State: Endangered	State: S1	

**Habitat Associations**

**General:** SALT-WATER & BRACKISH MARSHES TRAVERSED BY TIDAL SLOUGHS IN THE VICINITY OF SAN FRANCISCO BAY.  
**Micro:** ASSOCIATED WITH ABUNDANT GROWTHS OF PICKLEWEED, BUT FEEDS AWAY FROM COVER ON INVERTEBRATES FROM MUD-BOTTOMED SLOUGHS.

<b>Occurrence No.:</b> 45	<b>Map Index:</b> 09498	<b>EO Index:</b> 25845	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Good			<b>Element:</b> 2006-02-02
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 2006-02-02
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 2006-04-06
<b>Main Source:</b> GILL, R. 1979 (LIT)			

**Quad Summary:** MOUNTAIN VIEW (3712241/428A), PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.46737° / -122.12298°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4147083 E577553	<b>Range:</b> 02W
<b>Area:</b> 247.8 ac	<b>Section:</b> 30
<b>Elevation:</b> 1 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** LAUMEISTER TRACT AND FABER TRACT, SOUTH OF COOLEY LANDING AND NORTH OF SAN FRANCISQUITO CREEK, PALO ALTO  
**Location Detail:** 2004: AREA IMMEDIATELY NORTH OF SAN FRANCISQUITO CREEK. 2006: MARSHES SURROUNDING THE MOUTH OF SAN FRANCISQUITO CREEK.  
**Ecological:** HABITAT CONSISTS NORTHERN COASTAL SALTMARSH, DOMINATED BY SALICORNIA SP. WITH GRINDELIA STRICTA AND SPARTINA SPP.; SURROUNDED BY AN AIRPORT AND A GOLF COURSE TO THE SOUTH AND URBAN RESIDENTIAL TO THE WEST.  
**Threat:** THREATENED BY RECREATIONAL USE ALONG LEVEES, FLOOD CONTROL MAINTENANCE ALONG CREEK, AND AIRPORT MAINTENANCE/ACTIVITIES.  
**General:** AREA REPORTED TO SUPPORT BREEDING POP SOMETIME 1971-1975. 1993:60-67 RAILS OBS IN AIRBOAT SURVEY (TIDE=7.1). JAN 2001:1-7 RAILS HEARD AT POINTS PASSIVELY SURVEYED ALONG SAN FRANCISQUITO CR. 2004:5 ADULTS DETECTED. 2006: 15 ADULTS OBS.  
**Owner/Manager:** USFWS-SAN FRANCISCO BAY NWR

<b>Occurrence No.:</b> 50	<b>Map Index:</b> 09374	<b>EO Index:</b> 30346	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1975-XX-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1975-XX-XX
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1997-02-06
<b>Main Source:</b> GILL, R. 1979 (LIT)			

**Quad Summary:** PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.50575° / -122.18489°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4151291 E572042	<b>Range:</b> 03W
<b>Area:</b> 1,073.0 ac	<b>Section:</b> 10
<b>Elevation:</b> 1 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** MARSHES ON GRECO ISLAND AND BORDERING WESTPOINT SLOUGH, SOUTH SAN FRANCISCO BAY.  
**Ecological:** HABITAT CONSISTS OF NORTHERN COASTAL SALTMARSH, BORDERED BY SALT PONDS; VEGETATED BY MIXED SALICORNIA/SPARTINA.  
**General:** BREEDING POPULATION.  
**Owner/Manager:** UNKNOWN

***Rana aurora draytonii***

California red-legged frog

Element Code: AAABH01022

**Status**  
 Federal: Threatened  
 State: None

**NDDB Element Ranks**  
 Global: G4T2T3  
 State: S2S3

**Other Lists**  
 CDFG Status: SC

**Habitat Associations**

**General:** LOWLANDS & FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.  
**Micro:** REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

**Occurrence No.** 230      **Map Index:** 38080      **EO Index:** 33087      **Dates Last Seen**  
**Occ Rank:** Good      **Element:** 2001-09-15  
**Origin:** Natural/Native occurrence      **Site:** 2001-09-15  
**Presence:** Presumed Extant  
**Trend:** Unknown      **Record Last Updated:** 2003-05-21  
**Main Source:** LAUNER, A. 1997 (OBS)

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA

**Lat/Long:** 37.40214° / -122.15289°      **Township:** 06S  
**UTM:** Zone-10 N4139821 E574974      **Range:** 03W  
**Area:** 180.2 ac      **Mapping Precision:** NON-SPECIFIC      **Section:** 23      **Qtr:** XX  
**Elevation:** 150 ft      **Symbol Type:** POLYGON      **Meridian:** M

**Location:** MATADERO CREEK AND DEER CREEK, PALO ALTO

**Location Detail:** MATADERO CREEK - BETWEEN OLD PAGE MILL BRIDGE AND FOOTHILL BLVD; DEER CREEK - FROM THE MATADERO CREEK CONFLUENCE TO ARASTRADERO BLVD. DEER CREEK WAS DRY IN 1997; FREE OF CRAYFISH/FISH IN 1998. WATER WAS VERY LOW IN SUMMER 2001.

**Ecological:** HABITAT CONSISTS OF RIPARIAN, WITH SOME GRAZING AND SOME DEVELOPMENT UPSTREAM. WESTERN POND TURTLES ALSO FOUND AT THIS SITE.

**Threat:** THREATS INCLUDE NON-NATIVE FISH, BULLFROGS, CRAYFISH, DUMPING IN QUARRY, BANK EROSION, TRAFFIC, AND ONGOING DEVELOPMENT.

**General:** 30 ADS/20 TADPOLES, MAR-OCT 1997. 2 ADS, 19 AUG 97. 10+ ADS/15 TADPOLES, 1998. 5+ ADS/95 TADPOLES, APR-OCT 1998. 1 JUV, 8 MAY 1999. 41 ADS/4 JUVS/45 TADPOLES, 1999. 33 ADS/2 JUVS/47 TADPOLES, 2000. 26 ADS/2 JUVS/10 TADPOLES, 2001.

**Owner/Manager:** STANFORD UNIVERSITY, SCVWD

**Occurrence No.** 231      **Map Index:** 38084      **EO Index:** 33091      **Dates Last Seen**  
**Occ Rank:** Good      **Element:** 2001-09-01  
**Origin:** Natural/Native occurrence      **Site:** 2001-09-01  
**Presence:** Presumed Extant  
**Trend:** Decreasing      **Record Last Updated:** 2003-05-21  
**Main Source:** LAUNER, A. 1997 (OBS)

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

**Lat/Long:** 37.41067° / -122.22046°      **Township:** 06S  
**UTM:** Zone-10 N4140716 E568986      **Range:** 03W  
**Area:** 161.2 ac      **Mapping Precision:** SPECIFIC      **Section:** 17      **Qtr:** XX  
**Elevation:** 250 ft      **Symbol Type:** POLYGON      **Meridian:** M

**Location:** SAN FRANCISQUITO CREEK, FROM THE BEAR CREEK CONFLUENCE TO WITHIN 1 MILE OF THE HIGHWAY 280 BRIDGE, PALO ALTO

**Location Detail:** LOW WATER IN 2001; POPULATION MAY BE IN SERIOUS DECLINE.

**Ecological:** HABITAT CONSISTS OF RIPARIAN; SURROUNDED BY GRASSLAND, AGRICULTURAL FIELDS, AND OAK WOODLANDS.

**Threat:** THREATS: BULLFROGS AND CENTRARCHIDS, ADJ LAND USE (AGRICULTURE & EQUESTRIAN FACILITIES), WATER QUALITY, AND DEVELOPMENT.

**General:** 16 ADS/13 TADPOLES OBSERVED, 24 JUL-LATE AUG 1997. 16 ADS/13 TADPOLES OBSERVED, 1 MAY-OCT 1998. 8 ADS/135 TADPOLES OBSERVED, 15 MAY-15 SEP 1999. 7 ADS/13 TADPOLES OBSERVED, 15 MAY-15 SEP 2000. 2 ADULTS OBSERVED, 15 JUN-1 SEP 2001.

**Owner/Manager:** STANFORD UNIVERSITY

***Rana aurora draytonii***

California red-legged frog

Element Code: AAABH01022

Status  
 Federal: Threatened  
 State: None

NDDB Element Ranks  
 Global: G4T2T3  
 State: S2S3

Other Lists  
 CDFG Status: SC

Habitat Associations

General: LOWLANDS & FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.  
 Micro: REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Occurrence No. 282      Map Index: 40565      EO Index: 35572      Dates Last Seen  
 Occ Rank: Good      Element: 1998-08-02  
 Origin: Natural/Native occurrence      Site: 1998-08-02  
 Presence: Presumed Extant  
 Trend: Unknown      Record Last Updated: 1999-01-12  
 Main Source: JENNINGS, M. 1998 (OBS)

Quad Summary: PALO ALTO (3712242/428B)  
 County Summary: SAN MATEO

Lat/Long: 37.42676° / -122.23784°      Township: 06S  
 UTM: Zone-10 N4142488 E567433      Range: 03W  
 Radius: 80 meters      Mapping Precision: SPECIFIC      Section: 07      Qtr: XX  
 Elevation: 230 ft      Symbol Type: POINT      Meridian: M

Location: WEST OF I-280, 0.6 MILE SW OF BEAR GULCH RESERVOIR, WOODSIDE.  
 Location Detail: SITE IS LOCATED 0.4 MILE NW OF THE END OF LAWLER RANCH ROAD.  
 Ecological: HABITAT CONSISTS OF A SPRING-FED POND AND INTERMITTENT STREAM, SURROUNDED BY OAK WOODLAND.  
 Threat: THREATENED BY DEVELOPMENT.  
 General: 1 ADULT COLLECTED (MRJ #1407) ON 2 AUG 1998 AND DEPOSITED AT CAS. CAS # 207121. SVL 91 MM, 88.7 GM.  
 Owner/Manager: PVT

Occurrence No. 283      Map Index: 40566      EO Index: 35573      Dates Last Seen  
 Occ Rank: Good      Element: 1998-08-02  
 Origin: Natural/Native occurrence      Site: 1998-08-02  
 Presence: Presumed Extant  
 Trend: Unknown      Record Last Updated: 1999-01-12  
 Main Source: JENNINGS, M. 1998 (OBS)

Quad Summary: PALO ALTO (3712242/428B)  
 County Summary: SAN MATEO

Lat/Long: 37.42515° / -122.23226°      Township: 06S  
 UTM: Zone-10 N4142314 E567928      Range: 03W  
 Radius: 80 meters      Mapping Precision: SPECIFIC      Section: 07      Qtr: XX  
 Elevation: 210 ft      Symbol Type: POINT      Meridian: M

Location: WEST OF I-280, 0.5 MILE SSW OF BEAR GULCH RESERVOIR, WOODSIDE.  
 Location Detail: SITE IS LOCATED AT THE OF THE END OF LAWLER RANCH ROAD.  
 Ecological: HABITAT CONSISTS OF AN ARTIFICIAL POND VEGETATED BY TULE/CATTAILS; WILLOWS FOUND BELOW THE DAM FACE. SITE IS SURROUNDED BY OPEN OAK WOODLAND, FORMERLY GRAZED BY LIVESTOCK.  
 Threat: THREATENED BY DEVELOPMENT.  
 General: 3 ADULTS AND 5 LARVAE COLLECTED (MRJ #1408) ON 2 AUG 1998 AND DEPOSITED AT CAS. CAS# 207151.  
 Owner/Manager: PVT

***Rana aurora draytonii***

California red-legged frog

Element Code: AAABH01022

**Status**  
 Federal: Threatened  
 State: None

**NDDB Element Ranks**  
 Global: G4T2T3  
 State: S2S3

**Other Lists**  
 CDFG Status: SC

**Habitat Associations**

**General:** LOWLANDS & FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.  
**Micro:** REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

**Occurrence No.:** 640      **Map Index:** 51392      **EO Index:** 51392      **Dates Last Seen**  
**Occ Rank:** Fair      **Element:** 2003-05-14  
**Origin:** Natural/Native occurrence      **Site:** 2003-05-14  
**Presence:** Presumed Extant  
**Trend:** Unknown      **Record Last Updated:** 2003-05-27  
**Main Source:** SISK, N. R. 2003 (OBS)

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

**Lat/Long:** 37.43016° / -122.22030°      **Township:** 06S  
**UTM:** Zone-10 N4142878 E568982      **Range:** 03W  
**Radius:** 80 meters      **Mapping Precision:** SPECIFIC      **Section:** 08      **Qtr:** NW  
**Elevation:** 160 ft      **Symbol Type:** POINT      **Meridian:** M

**Location:** CREEK ALONG WALSH ROAD, 0.4 MILE SE OF BEAR GULCH RESERVOIR, ATHERTON

**Ecological:** HABITAT CONSISTS OF A STEEP-BANKED STREAM, DRAINING TO THE EAST; SEVERAL DEEP POOLS PRESENT. OVERSTORY DOMINATED BY BOTH NATIVE OAKS AND NON-NATIVE/LANDSCAPE TREES; UNDERSTORY DOMINATED BY POISON OAK. CLAY SOILS DOMINATE.

**Threat:** THREATENED BY PROPOSED STREAMBED ALTERATION.

**General:** 1 JUVENILE OBSERVED ON 14 MAY 2003.

**Owner/Manager:** UNKNOWN

**Reithrodontomys raviventris**

salt-marsh harvest mouse

Element Code: AMAFF02040

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: Endangered	Global: G1G2	CDFG Status:
State: Endangered	State: S1S2	

**Habitat Associations**

**General:** ONLY IN THE SALINE EMERGENT WETLANDS OF SAN FRANCISCO BAY AND ITS TRIBUTARIES.

**Micro:** PICKLEWEED IS PRIMARY HABITAT. DO NOT BURROW, BUILD LOOSELY ORGANIZED NESTS. REQUIRE HIGHER AREAS FOR FLOOD ESCAPE.

<b>Occurrence No.</b> 131	<b>Map Index:</b> 37524	<b>EO Index:</b> 32526	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Good			<b>Element:</b> 1991-01-17
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1991-01-17
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1997-11-04
<b>Main Source:</b> KUCERA, T. 1990 (OBS)			

**Quad Summary:** MOUNTAIN VIEW (3712241/428A), PALO ALTO (3712242/428B)

**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.47177° / -122.12375°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4147570 E577481	<b>Range:</b> 02W
<b>Area:</b> 80.7 ac	<b>Section:</b> 30
<b>Elevation:</b> 0 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** SOUTH OF COOLEY LANDING, SOUTH OF BAY ROAD AND NORTH OF SAN MATEO COUNTY LINE, EAST PALO ALTO.

**Location Detail:** MARSH AREA.

**Ecological:** SALICORNIA MARSH. LAND USE: OPEN SPACE.

**Threat:** POTENTIAL CHEMICAL CONTAMINATION FROM NEARBY CHEMICAL AND INDUSTRIAL FACILITIES.

**General:** 12 ADULTS OBSERVED 17 JAN 1991, 8 ADULTS OBSERVED 15-20 OCT 1990.

**Owner/Manager:** CITY OF EAST PALO ALTO

<b>Occurrence No.</b> 134	<b>Map Index:</b> 37532	<b>EO Index:</b> 32534	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Fair			<b>Element:</b> 1988-01-20
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1988-01-20
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1997-11-05
<b>Main Source:</b> VOUCHILAS, C. 1988 (OBS)			

**Quad Summary:** PALO ALTO (3712242/428B)

**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.49294° / -122.17786°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4149875 E572676	<b>Range:</b> 03W
<b>Area:</b> 41.9 ac	<b>Section:</b> 15
<b>Elevation:</b> 0 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** FLOOD SLOUGH, NORTH OF MARSH ROAD & HIGHWAY 101 INTERCHANGE, REDWOOD CITY.

**Location Detail:** TRAPS PLACED IN HIGH MARSH ZONE.

**Ecological:** TIDAL SALT MARSH. HIGH MARSH ZONE DOMINATED BY GRINDELIA HUMILIS, FRANKENIA GRANDIFOLIA, DISTICHLIS SPICATA, AND ANNUAL GRASSES MIXED IN WITH SALICORNIA VIRGINICA.

**Threat:** SUBJECT TO STORMWATER DISCHARGE.

**General:** TOTAL OF 15 CAPTURED, 12 ADULTS & 3 JUVENILES IN 225 TRAP-NIGHTS OF EFFORT.

**Owner/Manager:** UNKNOWN

***Reithrodontomys raviventris***

salt-marsh harvest mouse

Element Code: AMAFF02040

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: Endangered	Global: G1G2	CDFG Status:
State: Endangered	State: S1S2	

**Habitat Associations**

**General:** ONLY IN THE SALINE EMERGENT WETLANDS OF SAN FRANCISCO BAY AND ITS TRIBUTARIES.  
**Micro:** PICKLEWEED IS PRIMARY HABITAT. DO NOT BURROW, BUILD LOOSELY ORGANIZED NESTS. REQUIRE HIGHER AREAS FOR FLOOD ESCAPE.

<b>Occurrence No.</b> 135	<b>Map Index:</b> 37534	<b>EO Index:</b> 32536	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Fair			<b>Element:</b> 1990-11-29
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1990-11-29
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1997-11-05
<b>Main Source:</b> SHELLHAMMER, H. 1990 (OBS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.48261° / -122.13156°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4148766 E576779	<b>Range:</b> 02W
<b>Radius:</b> 1/10 mile	<b>Section:</b> 19 <b>Qtr:</b> XX
<b>Elevation:</b> 0 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	
<b>Symbol Type:</b> POINT	

**Location:** 0.7 MILE ESE OF HIGHWAY 84 AND 109 JUNCTION, NEAR HETCH HETCHY AQUEDUCT, RAVENSWOOD AREA OF EAST PALO ALTO.

**Ecological:** LOW PICKLEWEED AND ALKALI HEATH (50:50 MIX).

**Threat:** ROAD POTENTIAL TO NEW INDUSTRIAL PARK.

**General:** TOTAL OF 1 CAPTURED (1990 PROJECT F).

**Owner/Manager:** PVT

**Serpentine Bunchgrass**

Element Code: CTT42130CA

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G2	
State: None	State: S2.2	

**Habitat Associations**

General:  
 Micro:

<b>Occurrence No.:</b> 6	<b>Map Index:</b> 09283	<b>EO Index:</b> 6198	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1986-XX-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1986-XX-XX
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1998-07-14
<b>Main Source:</b> MCCARTEN, N. 1986 (LIT)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.40465° / -122.22857°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4140042 E568274	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 18
<b>Elevation:</b> 5,800 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** JASPER RIDGE PRESERVE, STANFORD UNIVERSITY, S OF SAN FRANCISQUITO CR, W OF ALPINE RD.  
**Location Detail:** THREE AREAS SERPENTINE GRASSLANDS.  
**Ecological:** POA SECUNDA SSP. SECUNDA, MELICA IMPERFECTA, NASSELLA PULCHRA.  
**General:** GRASSLANDS ACTIVELY KNOWN FROM SITE. GRASSLANDS ACTIVELY USED FOR RESEARCH. THIS WAS OCC #006 OF CTT42130CA.  
**Owner/Manager:** STANFORD UNIVERSITY

***Sorex vagrans halicoetes***

salt-marsh wandering shrew

Element Code: AMABA01071

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: GST1	CDFG Status: SC
State: None	State: S1	

**Habitat Associations**

**General:** SALT MARSHES OF THE SOUTH ARM OF SAN FRANCISCO BAY.

**Micro:** MEDIUM HIGH MARSH 6-8 FT ABOVE SEA LEVEL WHERE ABUNDANT DRIFTWOOD IS SCATTERED AMONG SALICORNIA.

<b>Occurrence No.:</b> 13	<b>Map Index:</b> 09471	<b>EO Index:</b> 24355	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1961-XX-XX
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1975-XX-XX
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Decreasing			<b>Record Last Updated:</b> 1999-09-17
<b>Main Source:</b> U.S. FISH & WILDLIFE SERVICE 1986 (LIT)			

**Quad Summary:** PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)

**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.50568° / -122.13376°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4151324 E576562	<b>Range:</b> 02W
<b>Area:</b> 99.1 ac	<b>Section:</b> 18
<b>Elevation:</b> 2 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POLYGON	

**Location:** SALT MARSH FROM RAVENSWOOD POINT TO THE WEST APPROACH TO THE DUMBARTON BRIDGE.

**Ecological:** AT RAVENSWOOD POINT THERE ARE ABOUT 50 ACRES OF DIKED SALT MARSH AND 35 ACRES OF TIDAL SALT MARSH. MOST OUTWARD SECTIONS OF TIDAL MARSH ARE TOTALLY INUNDATED DAILY BY HIGH TIDES.

**General:** MVZ RECORDS FROM 1950 & 1951 FROM RAVENSWOOD POINT. TRAPPING DONE IN 1975 AT RAVENSWOOD POINT (CUMMINGS), BUT NO SHREWS CAPTURED. MVZ SPECIMENS #115056-115058 FROM 1951 & MVZ SPECIMEN #134461 FROM 1961 FROM DUMBARTON BRIDGE AREA.

**Owner/Manager:** USFWS-SAN FRANCISCO BAY NWR

***Sterna antillarum browni***

California least tern

Element Code: ABNNM08103

**Status**

Federal: Endangered  
 State: Endangered

**NDDB Element Ranks**

Global: G4T2T3Q  
 State: S2S3

**Other Lists**

CDFG Status:

**Habitat Associations**

**General:** (NESTING COLONY) NESTS ALONG THE COAST FROM SAN FRANCISCO BAY SOUTH TO NORTHERN BAJA CALIFORNIA.

**Micro:** COLONIAL BREEDER ON BARE OR SPARSELY VEGETATED, FLAT SUBSTRATES: SAND BEACHES, ALKALI FLATS, LAND FILLS, OR PAVED AREAS.

Occurrence No. 6

Map Index: 09393

EO Index: 25707

**Dates Last Seen**

Occ Rank: None

Element: 1976-XX-XX

Origin: Natural/Native occurrence

Site: 1976-XX-XX

Presence: Extirpated

Trend: Unknown

Record Last Updated: 1999-09-07

Main Source: ATWOOD, J. ET AL 1979 (LIT)

**Quad Summary:** PALO ALTO (3712242/428B), REDWOOD POINT (3712252/447C)

**County Summary:** SAN MATEO

**Lat/Long:** 37.49694° / -122.19222°

**Township:** 05S

**UTM:** Zone-10 N4150308 E571403

**Range:** 03W

**Area:** 1,762.0 ac

**Mapping Precision:** NON-SPECIFIC

**Section:** 16 **Qtr:** XX

**Elevation:** 1 ft

**Symbol Type:** POLYGON

**Meridian:** M

**Location:** REDWOOD CITY SALT PONDS. NORTH OF HWY 101 & SOUTH OF WESTPOINT SLOUGH. BETWEEN MARSH RD AND HARBOR BLVD.

**Ecological:** THE SITE WAS SAID TO BE UNDER WATER IN 1977 & 1978.

**General:** IN 1976, A FEW PAIRS NESTED NEAR SOME FORSTER'S TERNS ON A DRIED SALT EVAPORATING POND, 3-5 KM SSE OF BAIR ISLAND. FURTHER SE OF THESE PONDS, PALO ALTO BAYLANDS SERVES AS A FREQUENT POST-BREEDING HAUNT.

**Owner/Manager:** UNKNOWN

**Taxidea taxus**

American badger

Element Code: AMAJF04010

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None	Global: G5	CDFG Status: SC
State: None	State: S4	

**Habitat Associations**

**General:** MOST ABUNDANT IN DRIER OPEN STAGES OF MOST SHRUB, FOREST, AND HERBACEOUS HABITATS, WITH FRIABLE SOILS.  
**Micro:** NEED SUFFICIENT FOOD, FRIABLE SOILS & OPEN, UNCULTIVATED GROUND. PREY ON BURROWING RODENTS. DIG BURROWS.

<b>Occurrence No.</b> 130	<b>Map Index:</b> 56778	<b>EO Index:</b> 56794	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1894-07-08
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1894-07-08
<b>Presence:</b> Presumed Extant			<b>Record Last Updated:</b> 2004-09-14
<b>Trend:</b> Unknown			
<b>Main Source:</b> CAS 2004 (MUS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SANTA CLARA, SAN MATEO

<b>Lat/Long:</b> 37.45064° / -122.17734°	<b>Township:</b> 05S
<b>UTM:</b> Zone-10 N4145182 E572763	<b>Range:</b> 03W
<b>Radius:</b> 1 mile	<b>Section:</b> 34
<b>Elevation:</b> 70 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** MENLO PARK, SAN MATEO COUNTY.

**General:** FEMALE COLLECTED (CAS #20652) BY F. G. KRAUSS ON 8 JUL 1894.

**Owner/Manager:** UNKNOWN

<b>Occurrence No.</b> 133	<b>Map Index:</b> 56782	<b>EO Index:</b> 56798	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Unknown			<b>Element:</b> 1981-07-28
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1981-07-28
<b>Presence:</b> Presumed Extant			<b>Record Last Updated:</b> 2004-09-14
<b>Trend:</b> Unknown			
<b>Main Source:</b> CAS 2004 (MUS)			

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b> 37.42252° / -122.19757°	<b>Township:</b> 06S
<b>UTM:</b> Zone-10 N4142048 E571000	<b>Range:</b> 03W
<b>Radius:</b> 1/5 mile	<b>Section:</b> 09
<b>Elevation:</b> 200 ft	<b>Meridian:</b> M
<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> XX
<b>Symbol Type:</b> POINT	

**Location:** SAND HILL ROAD, 1 MILE EAST OF HIGHWAY 280, PALO ALTO.

**Location Detail:** COUNTY GIVEN AS SANTA CLARA COUNTY; HOWEVER, LOCATION DESCRIBED IS LOCATED IN SAN MATEO COUNTY.

**General:** MALE COLLECTED (CAS #24516) BY G. A. GIUSTI ON 28 JUL 1981.

**Owner/Manager:** UNKNOWN

***Thamnophis sirtalis tetrataenia***

San Francisco garter snake

Element Code: ARADB3613B

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: Endangered	Global: G5T2	CDFG Status:
State: Endangered	State: S2	

**Habitat Associations**

**General:** VICINITY OF FRESHWATER MARSHES, PONDS AND SLOW MOVING STREAMS IN SAN MATEO COUNTY AND EXTREME NORTHERN SANTA CRUZ COUNTY

**Micro:** PREFERS DENSE COVER & WATER DEPTHS OF AT LEAST ONE FOOT. UPLAND AREAS NEAR WATER ARE ALSO VERY IMPORTANT.

<b>Occurrence No.:</b> 22	<b>Map Index:</b> 17006	<b>EO Index:</b> 27521	<b>Dates Last Seen</b>
<b>Occ Rank:</b> Good			<b>Element:</b> 1987-10-06
<b>Origin:</b> Natural/Native occurrence			<b>Site:</b> 1987-10-06
<b>Presence:</b> Presumed Extant			
<b>Trend:</b> Unknown			<b>Record Last Updated:</b> 1996-01-08
<b>Main Source:</b> MCGINNIS, S. 1987 (OBS & MAP)			

**Quad Summary:** PALO ALTO (3712242/428B)

**County Summary:** SAN MATEO

<b>* SENSITIVE *</b>	<b>Lat/Long:</b> 37.40339° / -122.22872°	<b>Township:</b> 07S
	<b>UTM:</b> Zone-10 N4139902 E568261	<b>Range:</b> 03W
	<b>Radius:</b> 1/5 mile	<b>Section:</b> 07
	<b>Elevation:</b> 1,750 ft	<b>Meridian:</b> M
	<b>Mapping Precision:</b> NON-SPECIFIC	<b>Qtr:</b> SE
	<b>Symbol Type:</b> POINT	

**Location:** WOODRUFF NURSERY, OFF ALPINE ROAD APPROX 0.5 MILE SOUTHWEST OF HWY 35, SANTA CRUZ MOUNTAINS.

**Ecological:** SMALL, VEGETATED PONDS WITH A DENSE STAND OF RIPARIAN VEGETATION BETWEEN AND AROUND THEM.

**General:** LAND IS UNUSABLE BY THE NURSERY AND COULD BE PROTECTED.

**Owner/Manager:** PVT

***Tropidocarpum capparideum***

caper-fruited tropidocarpum

Element Code: PDBRA2R010

<b>Status</b>	<b>NDDB Element Ranks</b>	<b>Other Lists</b>
Federal: None State: None	Global: G1 State: S1.1	CNPS List: 1B R-E-D Code: 3-3-3

**Habitat Associations**

General: VALLEY AND FOOTHILL GRASSLAND.  
 Micro: ALKALINE CLAY. 0-455M.

Occurrence No. 13	Map Index: 28651	EO Index: 45314	<b>Dates Last Seen</b>
Occ Rank: Unknown			Element: 1902-03-18
Origin: Natural/Native occurrence			Site: 1902-03-18
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 2001-05-08
Main Source: BAKER, C. #336 RSA (HERB)			

Quad Summary: PALO ALTO (3712242/428B)

County Summary: SANTA CLARA, SAN MATEO

Lat/Long: 37.41747° / -122.18757°	Township: 06S
UTM: Zone-10 N4141495 E571890	Range: 03W
Radius: 1 mile	Section: 16
Elevation: 150 ft	Meridian: M
Mapping Precision: NON-SPECIFIC	Qtr: XX
Symbol Type: POINT	

Location: FOOTHILLS NEAR STANFORD UNIVERSITY.

Location Detail: COMMON IN OLD FIELDS AND ROADSIDES. EXACT LOCATION VERY UNCERTAIN. "FOOTHILLS NEAR STANFORD" WAS ALL THAT WAS ON THE HERBARIUM LABEL. NEEDS FIELDWORK.

General: ID UNCERTAIN. ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1902 COLLECTION BY BAKER; NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

**Valley Oak Woodland**

<b>Status</b>		<b>NDDB Element Ranks</b>		<b>Element Code: CTT71130CA</b>	
Federal:	None	Global:	G3	<b>Other Lists</b>	
State:	None	State:	S2.1		
<b>Habitat Associations</b>					
General:					
Micro:					

<b>Occurrence No.</b>	103	<b>Map Index:</b>	21009	<b>EO Index:</b>	20450	<b>Dates Last Seen</b>	
<b>Occ Rank:</b>	Unknown					<b>Element:</b>	1990-01-12
<b>Origin:</b>	Natural/Native occurrence					<b>Site:</b>	1990-01-12
<b>Presence:</b>	Presumed Extant					<b>Record Last Updated:</b>	1998-08-02
<b>Trend:</b>	Unknown						
<b>Main Source:</b>	DURHAM, P.1990 (PERS)						

**Quad Summary:** PALO ALTO (3712242/428B)  
**County Summary:** SAN MATEO

<b>Lat/Long:</b>	37.46104° / -122.16771°	<b>Township:</b>	05S
<b>UTM:</b>	Zone-10 N4146344 E573605	<b>Range:</b>	03W
<b>Area:</b>	57.9 ac	<b>Section:</b>	35
<b>Elevation:</b>	40 ft	<b>Meridian:</b>	M
	<b>Mapping Precision:</b> SPECIFIC	<b>Qtr:</b>	XX
	<b>Symbol Type:</b> POLYGON		

**Location:** ST. PATRICK'S SEMINARY, WITHIN THE CITY OF MENLO PARK.  
**Location Detail:** 188 HERITAGE TREES, MOSTLY OAKS, SCATTERED OVER THE 69 ACRES OF GROUNDS.  
**Ecological:** SITE MENTIONED BY COOPER IN 1926 ARTICLE AS REPRESENTING THE VEGETATION OF THE SAN FRANCISQUITO FAN. (COOPER, W.S. 1966. VEGETATIONAL DEVELOPMENT UPON ALLUVIAL FANS IN THE VICINITY OF PALO ALTO. ECOLOGY 7(1):1-30.).  
**Threat:** DEVELOPMENT.  
**General:** SITE USED BY AT LEAST 10 TAXA OF RAPTORS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO  
**Owner/Manager:** PVT