

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE  
STATE OF CALIFORNIA**

In the Matter of the Application of )  
SOUTHERN CALIFORNIA EDISON )  
COMPANY (U 338-E) for a Permit to )  
Construct Electrical Facilities with )  
Voltages Between 50 kV and 200 kV: )  
Lakeview Substation Project )  
\_\_\_\_\_ )

Application No. \_\_\_\_\_  
(Filed September 17, 2010)

**PROPONENT'S ENVIRONMENTAL ASSESSMENT**  
**LAKEVIEW SUBSTATION PROJECT**

**Volume 2 of 2**

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Volume 2 of 2

**APPENDIX A**  
**ENVIRONMENTAL CHECKLIST FORM**

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## **APPENDIX A Environmental Checklist Form**

### **1. Project Title**

Lakeview Substation Project

### **2. Lead Agency Name and Address**

California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, California 94102-3298

### **3. Contact Persons and Phone Numbers**

Ryan Stevenson  
Project Manager, Regulatory Policy & Affairs Department  
(626)302-3613

### **4. Project Location**

The project is located in the communities of Lakeview and Nuevo in unincorporated Riverside County, California.

### **5. Project Sponsor's Name and Address**

Southern California Edison Company (SCE)  
2244 Walnut Grove Avenue  
Rosemead, California 91770

### **6. General Plan Designation**

The California Public Utilities Commission (CPUC) has primary jurisdiction over the Lakeview Substation Project because it authorizes the construction, operation, and maintenance of public utility facilities. CPUC G.O. 131-D Section IX.B states that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters." SCE has considered local land use plans as part of the environmental review process.

The Proposed Project would be located on formerly privately owned agricultural land, which was purchased by SCE. The County of Riverside land use designation for the Proposed Substation Site is Medium Density Residential (MDR), which is defined by the Lakeview-Nuevo Area Plan as:

- Single-family detached residences
- Lot sizes range from 5,500 to 20,000 square feet
- 2 to 5 dwelling units per acre (building density / intensity range)

New rights-of-way (ROW) and easements would be required for the new 115 kV subtransmission source lines and access roads that are planned as part of the Proposed Project. Proposed Subtransmission Source Line Route Segment One traverses approximately 1.5 miles of land, including lands designated by the County of Riverside General Plan (2007) as:

- MDR: Medium Density Residential
- OS-W: Open Space – Water
- OS-CH: Open Space – Conservation Habitat

Proposed Subtransmission Source Line Route Segment Two traverses approximately 1.8 miles of land with the same types of land use as Segment One.

## **7. Zoning**

As described in Section 6 above, the CPUC has primary jurisdiction over the Lakeview Substation Project. SCE has considered other state and local land use plans as part of the environmental review process, even though such projects are exempt from local land use jurisdiction, zoning regulations and permits.

The Proposed Substation Site is located within the Lakeview Area Zoning District of Riverside County and is zoned as Rural Residential (R-R). Proposed Subtransmission Source Line Route Segment One travels through approximately 1.5 miles of lands zoned R-R and Residential Agriculture (R-A). Proposed Subtransmission Source Line Route Segment Two traverses approximately 1.8 miles of land with the same types of land use as Segment One.

## **8. Description of Project**

The Proposed Project consists of the following components:

- Construction of a new 115/12 kV substation (Lakeview Substation). Lakeview Substation would be an unattended, automated 56 MVA 115/12 kV low-profile substation
- Installation of two new 115 kV subtransmission source line segments to connect the proposed Lakeview Substation to the existing Valley-Moval 115 kV subtransmission line
  - One segment would be approximately 1.8 miles in length to form the new Valley-Lakeview 115 kV subtransmission line
  - One segment would be approximately 1.5 miles in length to form the new Lakeview-Moval 115 kV subtransmission line
- Construction of two new underground 12 kV distribution getaways

- Installation of telecommunications facilities at the proposed Lakeview Substation, inclusive of telecommunication cable (overhead and underground) to connect the proposed Lakeview Substation to the SCE telecommunications network, and upgrades to the telecommunications equipment at the various substations (described in Section 3.1.3 Telecommunications Description)
- Decommissioning of both Nuevo and Model Pole Top (Model P.T.) Substations

## **9. Surrounding Land Uses and Setting**

The Proposed Project is located in the rural communities of Lakeview and Nuevo in unincorporated Riverside County, California. The communities are part of the County's Lakeview-Nuevo Plan Area and are located approximately 75 miles southeast of Los Angeles. The incorporated cities of Perris and San Jacinto are the closest to the Proposed Project Area, to the west and the east respectively. The land use pattern in the area includes a mix of rural, low and medium-density residential; some commercial uses, community facilities, agriculture and light industrial. The area immediately surrounding the Proposed Substation Site is used primarily for agricultural activities and associated uses and is bounded on all sides by privately owned parcels. The Proposed Substation Site can be characterized as rural, previously consisting of agricultural uses. SCE owns the Proposed Substation Site.

**ENVIRONMENTAL RESOURCES POTENTIALLY AFFECTED**

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages. Most of these impacts would be reduced to a less than significant level with the implementation of SCE’s Applicant Proposed Measures (APMs), as described in Chapter 4. However, there are impacts related to agriculture and forestry resources and air quality that would remain significant even after mitigation measures are applied.

<input checked="" type="checkbox"/> Aesthetics	<input checked="" type="checkbox"/> Agriculture and Forest Resources	<input checked="" type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Geology and Soils
<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Hazards and Hazardous Materials	<input type="checkbox"/> Hydrology and Water Quality
<input type="checkbox"/> Land Use and Planning	<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Noise
<input type="checkbox"/> Population and Housing	<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation
<input type="checkbox"/> Transportation and Traffic	<input type="checkbox"/> Utilities and Service Systems	<input checked="" type="checkbox"/> Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and 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 NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature \_\_\_\_\_  
\_\_\_\_\_

Date

Signature \_\_\_\_\_  
\_\_\_\_\_

Date

## EVALUATION OF ENVIRONMENTAL IMPACTS

- 1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, and then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiring, program EIR, or other CEQA process, an effect has been adequately analyzed I an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a) Earlier Analysis Used. Identify and state where they are available for review.
  - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

- 6) Lead agencies are encouraged to incorporate into the checklist references to Information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
  - a) the significance criteria or threshold, if any, used to evaluate each question; and
  - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

**CEQA ENVIRONMENTAL CHECKLIST**

Please note: explanatory text that accompanies these checkbox findings is provided at the end of this table.

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
II. AGRICULTURE AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a 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)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IV. BIOLOGICAL RESOURCES. Would the project:				
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 US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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 waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IX. HYDROLOGY AND WATER QUALITY. Would the project:				

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>ISSUES</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporation</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
XI. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
XII. NOISE. Would the project result in:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES.				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental 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 public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
XV. RECREATION.				
a) Would the project 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVI. TRANSPORTATION AND TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>XVII. UTILITIES AND SERVICE SYSTEMS.</b> Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.</b>				
a) Does the project 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a 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)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Sources and Explanation of Answers

This section contains a brief explanation for answers provided in the environmental checklist form.

### Aesthetics

As the Proposed Project is not located near a State Scenic Highway, there would be no impacts to these resources. As demonstrated in Section 4.1.4, Aesthetics Impact Analysis, the Proposed Project represents an incremental change in the visual character or quality of the site, but generally impacts associated with the Proposed Project would be less than significant. An exception would be a significant visual impact on viewers in close proximity to the Proposed Substation Site (e.g., viewers traveling along 10<sup>th</sup> Street and Reservoir Avenue). However, SCE proposes to implement APM Aesthetics 1 to mitigate the potential impact to less than significant. APM Aesthetics 1 states, SCE will prepare a landscaping plan consistent with Riverside County standards, as well as SCE standards, to filter views of the substation for the surrounding community and other potential sensitive receptors. Lights for the Proposed Project would only be used when required for construction work, maintenance work, and emergency repairs occurring at night. The lighting would not have a significant effect on nighttime views in the area. (See Section 4.1, Aesthetics.)

### Agriculture and Forestry Resources

The Proposed Substation Site is located within the Lakeview Area Zoning District of Riverside County and is zoned as Rural Residential (R-R), which allows for public utility use. There would be no impact resulting from a conflict with an existing agricultural zoning designation, zoning for forest land or timberland, or a Williamson Act Contract. The Proposed Project is a single use facility, and would not involve other changes in the environment that would result in the conversion of farmland to nonagricultural use. Impacts would be less than significant.

The Proposed Project would cross lands designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance. There is currently no forest land located within the Proposed Project Area. The Proposed Project would permanently convert approximately 13.5 acres of these types of farmland to nonagricultural use for the construction of the substation, access roads, subtransmission source line poles, and other project features.<sup>1</sup> As described in Section 4.2.4, Agriculture and Forestry Resources Impact Analysis, the conversion of 10-acres of state-designated farmland to non-agricultural use would be a significant and unavoidable impact and no mitigation measures are available. The farmland that would be converted to non-agricultural use as a result of the Proposed Project has already been designated for urban development by the County of Riverside General Plan, the impacts of which have been analyzed in the Environmental Impact Report (EIR) prepared for the Riverside County General Plan Update of 2003. (See Section 4.2, Agriculture and Forestry Resources.)

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<sup>1</sup> Other project features include facilities related to telecommunication including duct banks, pull boxes, and manholes.

### Air Quality

Growth projections from local general plans adopted by cities in the district and vehicle-miles-traveled (VMT) projections developed by the Southern California Association of Governments (SCAG) are some of the inputs used to develop the Air Quality Management Plan (AQMP). Because construction and operation of the Proposed Project would not result in a population increase, the Proposed Project would not conflict with the growth projections used to develop the 2007 AQMP; therefore, there would be no impact. Construction and operation of the Proposed Project are unlikely to create objectionable odors that would affect a substantial number of people; therefore, there would be no impact. Construction of the Proposed Project would not expose receptors, including sensitive receptors, to substantial pollutant concentrations. Impacts would be less than significant. Operation of the Proposed Project would result in less than significant impacts to Air Quality.

The estimated peak daily emissions of nitrogen oxides (NO<sub>x</sub>) and suspended particulate matter measuring less than 10 microns (PM<sub>10</sub>) during construction activities exceed corresponding South Coast Air Quality Management District (SCAQMD) mass daily significance thresholds, and emissions of these pollutants during construction may contribute to regional air quality violations. Construction emissions would be reduced by complying with California Air Resources Board (CARB) Off-Road Idling Policy. In addition, SCE will comply with California Code of Regulations, Title 13, Section 2423 to further reduce construction-related emissions. Although these measures would reduce impacts, impacts to air quality during construction of the Proposed Project are expected to remain significant.

Construction of the Proposed Project could also result in a cumulatively considerable net increase in NO<sub>x</sub> and PM<sub>10</sub> emissions. Compliance with California Code of Regulations, Title 13, Section 2423 would reduce VOC, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> construction emissions, but the cumulative impact from these emissions is expected to remain significant. (See Section 4.3, Air Quality.)

### Biological Resources

Construction of the Proposed Substation Site would impact agriculture and disturbed areas. These impacts are summarized in Table 4.4-4. These areas generally have low biological value because they are composed of unvegetated areas or are vegetated with non-native species. The San Jacinto River and the associated drainage ditches would be avoided by direct grading and construction impacts. However, incidental or accidental impacts could occur and, of so, these impacts would be potentially significant. The potential of this impact would be reduced to less than significant by implementation of Best Management Practices (BMPs). Temporary, minor impacts to wildlife movement may result from construction activities. The potential of this impact would be reduced to less-than-significant levels with implementation of APM 2. SCE proposes APMs 1-7 to avoid, minimize, correct, reduce, or eliminate impacts to special status species. Impacts to biological resources are expected to be less than significant. Operation of the Proposed Project would consist of minor maintenance and emergency repairs and would result in either less than significant or no impacts to biological resources. (See Section 4.4, Biological Resources).

### Cultural Resources

The Proposed Substation Site (as well as the proposed Subtransmission Source Line Route and Fiber Optic Cable Routes) are underlain by Pleistocene alluvial sediments with high potential to contain paleontological resources. Thus, ground disturbing activities throughout almost the entire project have the potential to impact paleontological resources. Monitoring of excavation into rock units having high potential to contain significant nonrenewable paleontological resources would be recommended as a mitigation measure and first step to avoid or reduce impacts to less than significant levels. (See Section 4.5 Cultural Resources).

### Geology and Soils

Operation of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction and landslides. Impacts from liquefaction, landslides, and ground failure are considered to be less than significant. Due to its proximity to an active fault zone, the Proposed Project would experience moderate to high levels of earthquake-induced ground shaking. As part of the Proposed Project, SCE conducted an initial geotechnical investigation consistent with the Alquist-Priolo Earthquake Fault Zoning Act, and would design the substation and subtransmission structures consistent with CPUC and industry standards. Impacts would be less than significant.

No septic or alternative waste water disposal systems requiring soils capable of supporting these systems would be installed at the Proposed Substation Site. During construction of the Proposed Project, a Storm Water Pollution Prevention Plan (SWPPP) would be implemented, which would reduce any effects due to erosion and the loss of topsoil to less-than-significant levels. In addition, the grading permit issued by the County of Riverside would include surface improvements that would minimize soil erosion and the loss of topsoil at the Proposed Substation Site. Site preparation, design and construction in compliance with the SWPPP and the grading permit would make impacts due to soil erosion and loss of topsoil less than significant. Implementation of permanent Best Management Practices (BMPs) would reduce water and wind erosion of soils, or loss of topsoil, from operation of the Proposed Project to less-than-significant levels. (See Section 4.6, Geology and Soils.)

### Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions from the Proposed Project would be well below the SCAQMD threshold and draft CARB recommendation. The total of amortized GHG emissions and annual operational GHG emissions is 77 metric tons CO<sub>2</sub>e per year. This estimate is much lower than the 10,000 metric ton South Coast Air Quality Management District (SCAQMD) threshold or the 7,000 metric ton draft California Air Resources Board (CARB) threshold. Therefore, the Proposed Project is not expected to have a significant impact from GHG emissions. Since SCE complies with all Climate Action Team guidance, the Proposed Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases. There would be no impact. (See Section 4.7, Greenhouse Gas Emissions.)

### Hazards and Hazardous Materials

The Proposed Substation Site is not located on a known hazardous waste site. There would be no safety hazard for personnel during construction or operation of the Proposed Project, and no impact to people residing or working in the Proposed Project Area from a public airport, public use airport, or private airstrip. All transport of hazardous materials would be in compliance with applicable laws, rules and regulations, including the acquisition of required shipping papers, package marking, labeling, transport vehicle placarding, training, and registrations; therefore, impacts would be less than significant.

Construction of the Proposed Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. There is a possibility of a spill or release of hazardous materials during construction and operation, but the controls put in place by the SWPPP, Worker Environmental Awareness Plan (WEAP), and Spill Prevention Control and Countermeasure (SPCC) would minimize the impacts to less-than-significant levels. The Proposed Project also would not interfere with an emergency response plan; the impact would be less than significant.

A portion of the Proposed Subtransmission Source Line Route and the proposed telecommunications route would be built in an area mapped as a moderate fire hazard area. SCE has standard protocols that are implemented when the National Weather Service issues a Red Flag Warning. In addition, SCE participates with the California Department of Forestry and Fire Protection (CAL FIRE), California Office of Emergency Services, U.S. Forest Service and various city and county fire agencies in the Red Flag Fire Prevention Program and complies with California Public Resources Code Sections 4292 and 4293 related to vegetation management in transmission line corridors. In addition to the protective measures, fire risks during construction would be low, as only a portion of the Proposed Project is located within a moderate fire hazard area. As a result, construction of the Proposed Project would have a less-than-significant impact to risk of loss, injury or death involving wildland fires. (See Section 4.8, Hazards and Hazardous Materials.)

### Hydrology and Water Quality

The Proposed Project would not place housing in a 100-year floodplain; there would be no impact. A SWPPP would be prepared based on final engineering design and would include all project components. Implementation of the SWPPP, WEAP, and associated BMPs would minimize impacts on water quality from erosion, accidental spills, and other potential water quality impacts during construction. The Proposed Project would not violate any water quality standards or waste discharge requirements, expose people or structures to significant risk of flooding, seiche or tsunami; impacts would be less than significant. During construction, SCE would obtain an NPDES permit for construction storm water discharge, which includes measures to protect water quality during rain events. These measures would keep impacts to water quality to less than significant levels. Impacts would be less than significant.

Due to placement of semi-permeable and impervious material that would be associated with development of the Proposed Substation Site, storm water runoff from the site would flow to the west. The storm water improvement portion of the grading plan would

be designed to control the discharge of storm water runoff from the site. If required by the County of Riverside as part of the final drainage plan, a detention basin would be included within the enclosed substation to control the rate of off-site discharge of storm water and the detention basin would be designed to meet Riverside County requirements. Prior to substation construction, SCE would obtain a grading permit from the County of Riverside, at which time a final site drainage plan would be determined. As a result, construction of the Proposed Substation would not substantially alter the existing drainage pattern of the site or area or produce a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. In addition, the transmission line structure footprints used for the Proposed Project would not be large enough to substantially alter a stream or watercourse or increase runoff in a manner that would result in flooding on- or off-site. Impacts would be less than significant. (See Section 4.9, Hydrology and Water Quality.)

### Land Use and Planning

Construction and operation of the Proposed Project would not divide an established community; therefore, there would be no impact. The Proposed Project is generally compatible with Riverside County and the communities of Lakeview/Nuevo land use, zoning and future planning for the area. Construction and operation of the Proposed Project would not conflict with an applicable environmental plan, policy, or regulation of an agency with jurisdiction over the Proposed Project. Inconsistency with local policies would not cause significant impacts since the CPUC's jurisdiction over electric power line projects and substations exempts the Proposed Project pursuant to General Order No. 131-D from local land use regulations. Impacts would be less than significant.

The Proposed Project would be located within the established Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) boundary. From a land use and planning perspective, construction and operation of the Proposed Project would not conflict with or impact a habitat conservation plan or natural community conservation plan. There would be no impact. (See Section 4.10, Land Use and Planning)

### Mineral Resources

The Proposed Project would not result in the loss of availability of a locally important recovery site delineated on a local general plan, specific plan or other land use plan; there would be no impact. Construction and operation of the Proposed Project would not represent a significant area that would be unavailable for exploration and extraction of known mineral resources that would be of value to the region and the state; this impact would be less than significant. (See Section 4.11, Mineral Resources.)

### Noise

Riverside County restricts construction activities to between the hours of 6:00 a.m. to 6:00 p.m. during the months of June through September and from 7:00 a.m. to 6:00 p.m. during the months of October through May. In addition, Riverside County restricts the operation of power tools and equipment to between the hours of 8:00 a.m. to 10:00 p.m. when audible to the human ear inside an inhabited dwelling or at a distance greater than 100 feet. Construction activities for the Proposed Project are expected to occur during the day, and nighttime work is not anticipated to occur. Because noise associated with

construction activities would occur in accordance with restrictions and standards established by the Riverside County municipal code, the impact would be less than significant. The Proposed Project would not be located within an airport land use plan or in the vicinity of a private airstrip. Noise impacts to project personnel would be less than significant. The Proposed Project would not result in a substantial permanent increase in noise. Because of the Proposed Project's rural location and distance to sensitive receptors (minimum of 100 feet) in the communities of Nuevo and Lakeview, the perception of operational noise associated with the Lakeview Substation would be negligible. Impacts would be less than significant (See Section 4.12, Noise.)

#### Population and Housing

The Proposed Project would not induce population growth or displace substantial numbers of people or housing. The Proposed Project would not include any new homes, so there would be no direct impact on population growth in the area. The Proposed Project would include new rights-of-way and access roads for portions of the Proposed Subtransmission Source Line Route. However, these new ROW and access roads would not provide new opportunities for local industry or commerce in the area and would not directly or indirectly induce population growth. As a result, construction and operation impacts would be less than significant. (See Section 4.13, Population and Housing.)

#### Public Services

Construction and operation of the Proposed Project would not require expansion of fire and police protection, schools, or other public facilities. There would be a less than significant impact to the performance objectives of these resources from construction and operation of the Proposed Project. (See Section 4.14, Public Services.)

#### Recreation

The Proposed Project would not increase the use of existing parks or require the construction of new recreation facilities. There would be no impact to recreation. (See Section 4.15, Recreation.)

#### Transportation and Traffic

No designated Congestion Management Program (CMP) roads or highways are located in the Lakeview/Nuevo community. The Proposed Project would not result in a change in air traffic patterns, would not affect the design features or introduce incompatible use for transportation, or conflict with programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. There would be no impact. Construction traffic would increase traffic by approximately 3 percent and would be confined primarily to early morning and late afternoon periods, with some materials deliveries during the day. This increase does not represent a substantial increase in either the number of vehicle trips, the volume to capacity ratio on the affected roads, or congestion at the intersections most affected by project implementation. The increase in traffic would be less than significant. Construction of the Proposed Project would not result in inadequate emergency access to the area affected by the Proposed

Project; this impact would be would be less than significant. (See Section 4.16, Transportation and Traffic.)

#### Utilities and Service Systems

The Proposed Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or result in the construction of new water, wastewater, or storm water facilities. The Proposed Project would not affect water supplies or affect wastewater treatment capacities. The waste that would be generated by the Proposed Project that would require disposal would be accommodated in the one of the three serving landfills that currently have over 60 percent of available remaining capacities; the impact would be less than significant. SCE would handle the reuse and disposal of treated wood poles for the Proposed Project in accordance with all applicable federal, state, and local statutes related to solid waste. Impacts to utilities and service systems would be less than significant. (See Section 4.17, Utilities and Service Systems.)

#### Mandatory Findings of Significance

In reference to Item b): Does the project have impacts that are individually limited, but cumulatively considerable?

#### Air Quality

Construction of the Proposed Project, along with other projects included in the cumulative impact analysis (refer to Table 6.1), may contribute to adverse air quality impacts. Construction of the Proposed Project could result in a cumulatively considerable net increase in NO<sub>x</sub>, PM<sub>10</sub> and emissions. Compliance with California Code of Regulations, Title 13, Section 2423 would reduce VOC, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> construction emissions, but the cumulative impact from these emissions is expected to remain significant.

**APPENDIX B**

**LIST OF PREPARERS/AGENCY CONSULTATIONS**

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## APPENDIX B List of Preparers

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Department of Fish and Game, San Jacinto Wildlife Area, (provided information on visitor frequency data at the SJWA)

Department of Fish and Game, Southern Enforcement District (provided information on recreational activities at the SJWA)

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Kathleen Browne, Urban/Regional Planner III, Riverside County Planning Department, (provided information on agricultural preserves)

Native American Heritage Commission (NAHC), Sacramento, CA

Kristin Shuman, Regional Conservation Authority, Western Riverside County (provided information pertaining to Section 4.4 Biological Resources)

**APPENDIX C**  
**AIR QUALITY CALCULATIONS**

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## Appendix C Air Quality Calculations

### Table of Contents

<b>1.0</b>	Analysis Overview .....	4
<b>2.0</b>	Emission Calculations.....	4
<b>2.1</b>	Emission Sources .....	4
<b>2.2</b>	Construction Equipment Exhaust Emission Calculations.....	5
<b>2.3</b>	Motor Vehicle Exhaust Emission Calculations .....	6
<b>2.4</b>	Motor Vehicle Entrained Particulate Matter Emission Calculations.....	23
<b>2.5</b>	Earthwork Fugitive Particulate Matter Emission Calculations .....	25
<b>2.6</b>	Asphaltic Paving VOC Emission Calculations.....	29
<b>2.7</b>	Equipment SF <sub>6</sub> Leakage GHG Emission Calculations .....	30
<b>3.0</b>	Peak Daily Emissions Calculations.....	30
<b>3.1</b>	Peak Daily Construction Emission Calculations.....	30
<b>3.2</b>	Peak Daily Operational Emission Calculations .....	32
<b>4.0</b>	Total Greenhouse Gas Emission Calculations .....	32
<b>5.0</b>	Localized Impacts Analysis.....	32
<b>6.0</b>	References .....	34

### Tables

Table C-1	Motor Vehicle Categories and Numbers.....	8
Table C-2	Motor Vehicle Daily Vehicle-Miles-Traveled .....	14
Table C-3	Estimated Soil Handling and Storage Pile Surface Areas by Construction Phase .....	28
Table C-4	Possible Overlapping Construction Phases.....	31

This appendix describes the procedures used to analyze potential air quality impacts for the Lakeview Substation Project Proponent's Environmental Assessment (PEA).

## 1.0 ANALYSIS OVERVIEW

The following analyses of potential air quality impacts were conducted:

- Total peak daily emissions of criteria pollutants and precursors (volatile organic compounds [VOC], carbon monoxide [CO], nitrogen oxides [NO<sub>x</sub>], sulfur oxides [SO<sub>x</sub>], particulate matter smaller than 10 microns aerodynamic diameter [PM<sub>10</sub>] and particulate matter smaller than 2.5 microns aerodynamic diameter [PM<sub>2.5</sub>]) during construction (including construction of the Proposed Substation, distribution facilities, Subtransmission Source Lines, and telecommunication facilities, and demolition of the Nuevo and Model Pole Top substations) and operation of the Proposed Project were calculated and compared with California Environmental Quality Act (CEQA) significance thresholds for regional air quality impacts adopted by the South Coast Air Quality Management District (SCAQMD)
- On-site peak daily emissions of CO, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> during construction and operation of the proposed project were calculated and analyzed to evaluate potential localized impacts
- Total greenhouse gas (GHG) emissions during construction and operation of the Proposed Project were calculated to evaluate potential cumulative impacts from GHG emissions

Section 2 of this appendix describes the emission calculation procedures for the types of activities that are anticipated to generate emissions during construction and operation of the Proposed Project, Section 3 describes the calculation of peak daily emissions, Section 4 describes the calculation of total GHG emissions, and Section 5 describes the analysis of potential localized impacts. References are provided in Section 6. The associated calculations are provided in the attached tables.

## 2.0 EMISSION CALCULATIONS

### 2.1 Emission Sources

Construction and operational emissions can be distinguished as either on-site or off-site. On-site emissions principally consist of exhaust emissions (CO, VOC, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and GHG) from construction equipment and motor vehicles, entrained PM<sub>10</sub> and PM<sub>2.5</sub> from vehicles traveling on paved and unpaved surfaces, fugitive dust (PM<sub>10</sub> and PM<sub>2.5</sub>) from grading and excavation, VOC from asphaltic paving, and GHG from leakage of equipment containing sulfur hexafluoride (SF<sub>6</sub>). Off-site emissions during the construction and operation phases consist of exhaust emissions and entrained paved and unpaved road dust from motor vehicles.

## 2.2 Construction Equipment Exhaust Emission Calculations

The combustion of fuel to provide power for the operation of construction equipment results in the generation of exhaust emissions. The following equation was used to calculate daily exhaust emissions from each type of construction equipment used during each construction phase for the Proposed Project:

$$E_{i,j} = EF_{i,j} \times H_j \times N_j \quad (\text{Eq. 1})$$

where:

$E_{i,j}$  = Emissions of pollutant i from equipment type j [pounds/day]

$EF_{i,j}$  = Emission factor for pollutant i from equipment type j [pounds/operating hour]

$H_j$  = Daily operating time for equipment type j [hours/day]

$N_j$  = Number of pieces of equipment of type j

The exhaust emission factors,  $EF_{i,j}$ , used for the calculations for diesel-fueled equipment are composite horsepower-based off-road emission factors for 2012, the year construction is anticipated to begin, developed for the SCAQMD by the California Air Resources Board (CARB) from its OFFROAD 2007 Model (SCAQMD, 2008a). The composite off-road emission factors were derived based on equipment type (e.g., tractor, dozer, scraper), and average equipment age and horsepower rating within horsepower ranges for the year.

The emission factors developed by CARB for the SCAQMD are listed in Table 48 in the attached tables. They include emission factors for VOC, CO, NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub>, as well as two GHGs (carbon dioxide [CO<sub>2</sub>] and methane [CH<sub>4</sub>]). PM<sub>2.5</sub> emission factors were calculated by multiplying the PM<sub>10</sub> emission factors by the PM<sub>2.5</sub> fraction of PM<sub>10</sub> in construction equipment engine exhaust (SCAQMD, 2006).

Aerial lifts and some of the forklifts to be used during construction of the Proposed Project are anticipated to be propane-fueled. Since the emission factors available from the SCAQMD are only for diesel-fueled equipment, AECOM used the CARB OFFROAD 2007 Model to calculate total daily emissions and total daily operating hours for natural gas-fueled<sup>1</sup> aerial lifts and forklifts during 2012 in the SCAQMD's jurisdiction. Total daily emissions by equipment horsepower range were then divided by total daily operating hours to calculate hourly emission factors. The resulting emission factors are listed in Table 48 in the attached tables.

The following equation was used to calculate total GHG emissions from each type of construction equipment during each construction phase:

<sup>1</sup> The OFFROAD 2007 Model does not calculate emissions from propane-fueled equipment. Therefore, emissions from natural gas-fueled equipment were used to estimate emissions from propane-fueled equipment.

$$E_{GHG,j} = (E_{CO2,j} + 21 \times E_{CH4,j}) \times D_j \times 4.536 \times 10^{-4} \quad (\text{Eq. 2})$$

where:

$E_{GHG,j}$  = Total GHG emissions from equipment type j [metric tons (1,000 kilograms) carbon dioxide equivalent]

$E_{CO2,j}$  = Daily CO<sub>2</sub> emissions from equipment type j [pounds/day]

21 = Global warming potential for CH<sub>4</sub> relative to CO<sub>2</sub>

$E_{CH4,j}$  = Daily CH<sub>4</sub> emissions from equipment type j [pounds/day]

$D_j$  = Days equipment of type j are used during the construction phase

$4.536 \times 10^{-4}$  = Metric tons per pound unit conversion

Table 3.5, Construction Equipment and Workforce Estimates, in Chapter 3, Project Description, of the PEA provided the types, number, daily operating hours and total operating days for construction equipment anticipated to be used during each construction phase for the Proposed Project. Horsepower ratings for the equipment were estimated from typical horsepower ratings for the types of equipment anticipated to be used. All construction equipment exhaust emissions were anticipated to occur on-site.

Daily VOC, CO, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> and total GHG construction equipment exhaust emissions calculations for each construction phase are provided in Tables 7 through 46 in the attached tables.

### **2.3 Motor Vehicle Exhaust Emission Calculations**

The combustion of fuel in motor vehicle engines results in the generation of exhaust emissions. The following equation was used to calculate daily exhaust emissions from each type of motor vehicle used during each construction phase and during operation of the Proposed Project:

$$E_{i,j} = EF_{i,j} \times VMT_j \times N_j \quad (\text{Eq. 3})$$

where:

$E_{i,j}$  = Emissions of pollutant i from motor vehicle type j [pounds/day]

$EF_{i,j}$  = Emission factor for pollutant i from motor vehicle type j [pounds/vehicle-mile-traveled]

$VMT_j$  = Daily vehicle-miles-traveled (VMT) by motor vehicle type j [miles/day]

$N_j$  = Number of motor vehicles of type j

The SCAQMD (2007a) has derived motor vehicle emission factors using CARB's EMFAC 2007 (v2.3) BURDEN model. The emission factors were derived by dividing the total daily district-wide emissions by total daily vehicle-miles-traveled (VMT) to obtain

emission factors in pounds per mile traveled. Emission factors were derived for gasoline-fueled passenger/light-duty vehicles and diesel-fueled medium-/heavy-duty vehicles by taking the weighted average of vehicle types and simplifying them into two categories - passenger/light-duty and medium-/heavy-duty vehicles (e.g., delivery trucks). Emission factors were also derived for heavy heavy-duty diesel-fueled trucks, which have a vehicle weight ranging between 33,001 and 60,000 pounds.

The emission factors developed by the SCAQMD (2007a) are listed in Tables 49 and 50 in the attached tables. They include emission factors for VOC, CO, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO<sub>2</sub> and CH<sub>4</sub>. PM<sub>2.5</sub> emission factors were calculated by multiplying the PM<sub>10</sub> emission factors by the PM<sub>2.5</sub> fraction of PM<sub>10</sub> in motor vehicle exhaust (SCAQMD, 2006).

The following equation was used to calculate total GHG emissions from each type of vehicle during each construction phase and during operation of the Proposed Project:

$$E_{GHG,j} = (E_{CO_2,j} + 21 \times E_{CH_4,j}) \times D_j \times 4.536 \times 10^{-4} \quad (\text{Eq. 2})$$

where:

$E_{GHG,j}$  = Total GHG emissions from vehicle type j [metric tons carbon dioxide equivalent]

$E_{CO_2,j}$  = Daily CO<sub>2</sub> emissions from vehicle type j [pounds/day]

21 = Global warming potential for CH<sub>4</sub> relative to CO<sub>2</sub>

$E_{CH_4,j}$  = Daily CH<sub>4</sub> emissions from vehicle type j [pounds/day]

$D_j$  = Days vehicles of type j are used during the construction phase

$4.536 \times 10^{-4}$  = Metric tons per pound unit conversion

The types of vehicles, the vehicle categories used to assign emission factors, the number of vehicles used and the basis for estimating the number of vehicles during each construction phase and during operation of the Proposed Project are listed in Table C-1, Motor Vehicle Categories and Numbers. The daily on-site and off-site VMT for each type of vehicle and the basis for the VMT estimates during each construction phase and during operation of the Proposed Project are listed in Table C-2, Motor Vehicle Daily Vehicle-Miles-Traveled. Table C-2 also lists estimated VMT for travel on paved and unpaved roads and surfaces. Although exhaust emissions are independent of the type of surface, entrained fugitive particulate matter emission factors, as discussed in Section 2.4, Motor Vehicle Entrained Particulate Matter Calculations, are different for travel on paved and unpaved surfaces.

Daily motor vehicle exhaust emission calculations are provided in Tables 7 through 47 in the attached tables.

**Table C-1 Motor Vehicle Categories and Numbers**

Vehicle	Category <sup>1</sup>	Number	Basis for Number <sup>2</sup>
<b>Substation Survey</b>			
Survey Truck	Passenger	2	Table 3.5
Worker Commute	Passenger	2	Table 3.5
<b>Substation Grading</b>			
Water Truck	HHDT	1	Table 3.5
Tool Truck	Passenger	1	Table 3.5
Pickup 4x4	Passenger	1	Table 3.5
Dump Truck	HHDT	45	Based on 40,000 CY export/import (Table 3.1) over 90 days and 10 CY/truck: $40,000 / 90 / 10 = 44.4$
Worker Commute	Passenger	15	Table 3.5
<b>Substation Fencing</b>			
Flatbed Truck	Delivery	1	Table 3.5
Crewcab Truck	Delivery	1	Table 3.5
Worker Commute	Passenger	4	Table 3.5
<b>Substation Civil</b>			
Dump Truck	HHDT	1	Based on 450 CY excavated (Table 3.1) over 60 days and 10 CY/truck: $450 / 60 / 10 = 0.8$
Water Truck	HHDT	1	Table 3.5
Tool Truck	Passenger	1	Table 3.5
Concrete Truck	HHDT	9	Based on total of 445 CY concrete poured (Table 3.1) over 5 days and 10 CY/truck: $445 / 5 / 10 = 8.9$
Worker Commute	Passenger	10	Table 3.5
<b>Substation MEER</b>			
Carry-all Truck	Delivery	1	Table 3.5
Stake Truck	Delivery	1	Table 3.5
Worker Commute	Passenger	4	Table 3.5
<b>Substation Electrical</b>			
Crew Truck	Passenger	2	Table 3.5
Worker Commute	Passenger	10	Table 3.5
<b>Substation Wiring</b>			
Worker Commute	Passenger	5	Table 3.5
<b>Substation Transformers</b>			

Vehicle	Category <sup>1</sup>	Number	Basis for Number <sup>2</sup>
Crew Truck	Passenger	1	Table 3.5
Low Bed Truck	HHDT	1	Table 3.5
Worker Commute	Passenger	6	Table 3.5
<b>Substation Maintenance Crew Equipment Check</b>			
Maintenance Truck	Passenger	2	Table 3.5
Worker Commute	Passenger	2	Table 3.5
<b>Substation Testing</b>			
Crew Truck	Passenger	1	Table 3.5
Worker Commute	Passenger	2	Table 3.5
<b>Substation Asphaltting</b>			
Stake Truck	HHDT	1	Table 3.5
Dump Truck	HHDT	1	Table 3.5
Crew Truck	Passenger	2	Table 3.5
Asphalt Delivery Truck	HHDT	4	Based on 308 CY (Table 3.1) over 8 days and 10 CY/truck: $308 / 8 / 10 = 3.9$
Aggregate Base Delivery Truck	HHDT	6	Based on 370 CY (Table 3.1) over 7 days and 10 CY/truck: $370 / 7 / 10 = 5.3$
Worker Commute	Passenger	6	Table 3.5
<b>Substation Landscaping</b>			
Dump Truck	HHDT	1	Table 3.5
Crushed Rock Delivery Truck	HHDT	7	Based on 1,050 CY (Table 3.1) over 15 days and 10 CY/truck: $1,050 / 15 / 10 = 7.0$
Worker Commute	Passenger	6	Table 3.5
<b>Substation Irrigation</b>			
Crew Truck	Passenger	1	Table 3.5
Worker Commute	Passenger	7	Table 3.5
<b>Distribution Civil</b>			
Dump Truck	HHDT	4	Based on 315 CY (Table 3.1) over 9 days and 10 CY/truck: $450 / 9 / 10 = 3.5$
Delivery Truck	HHDT	1	Table 3.5
Concrete Truck	Delivery	2	Based on 100 CY (estimate) over 9 days and 10 CY/truck: $100 / 9 / 10 = 1.1$
Worker Commute	Passenger	5	Table 3.5
<b>Distribution Electrical</b>			
Rodder Truck	HHDT	1	Table 3.5
Reel Truck	HHDT	1	Table 3.5

**APPENDIX C AIR QUALITY CALCULATIONS**

<b>Vehicle</b>	<b>Category<sup>1</sup></b>	<b>Number</b>	<b>Basis for Number<sup>2</sup></b>
Line Truck	Delivery	1	Table 3.5
Troubleman Truck	Delivery	1	Table 3.5
Boom Truck	HHDT	1	Table 3.5
Foreman Truck	Passenger	1	Table 3.5
Worker Commute	Passenger	8	Table 3.5
<b>Subtransmission Survey</b>			
1/2-Ton Pick-up Truck, 4x4	Passenger	1	Table 3.5
Worker Commute	Passenger	2	Table 3.5
<b>Subtransmission Marshalling Yard</b>			
1-Ton Crew Cab, 4x4	Delivery	1	Table 3.5
Truck, Semi Tractor	HHDT	1	Table 3.5
Worker Commute	Passenger	4	Table 3.5
<b>Subtransmission Right-of-Way Clearing</b>			
Water Truck	HHDT	4	Based on 16,000 gal/day and 4,000 gal truck: $16,000 / 4,000 = 4$
1-Ton Crew Cab, 4x4	Delivery	1	Table 3.5
Lowboy Truck/Trailer	HHDT	1	Table 3.5
Worker Commute	Passenger <sup>5</sup>	5	Table 3.5
<b>Subtransmission Roads and Landing Work</b>			
Water Truck	HHDT	8	Based on 32,000 gal/day and 4,000 gal/truck: $32,000 / 4,000 = 8$
1-Ton Crew Cab, 4x4	Delivery	1	Table 3.5
Lowboy Truck/Trailer	HHDT	1	Table 3.5
Aggregate Base Delivery Truck	HHDT	29	Based on 4,000 CY (Section 3.2.3.2) over 14 days and 10 CY/truck: $4,000 / 14 / 10 = 28.6$
Worker Commute	Passenger	5	Table 3.5
<b>Subtransmission Guard Structure Installation</b>			
3/4-Ton Pick-up Truck, 4x4	Delivery	1	Table 3.5
1-Ton Crew Cab Flat Bed, 4x4	Delivery	1	Table 3.5
Extendable Flat Bed Pole Truck	HHDT	1	Table 3.5
Auger Truck	HHDT	1	Table 3.5
30-Ton Crane Truck	HHDT	1	Table 3.5
80ft. Hydraulic Manlift/Bucket Truck	HHDT	1	Table 3.5

Vehicle	Category <sup>1</sup>	Number	Basis for Number <sup>2</sup>
Worker Commute	Passenger	6	Table 3.5
<b>Subtransmission Wood Poles Removal</b>			
1-Ton Crew Cab, 4x4	Delivery	1	Table 3.5
Flat Bed Truck/Trailer	HHDT	1	Table 3.5
30-Ton Crane Truck	HHDT	1	Table 3.5
Worker Commute	Passenger	6	Table 3.5
<b>Subtransmission TSP Foundations Installation</b>			
Water Truck	HHDT	1	Table 3.5
1-Ton Crew Cab Flat Bed, 4x4	Delivery	1	Table 3.5
10-CY Dump Truck	HHDT	8	Based on excavating 18' dia. x 40' deep (Table 3.2) = 74.5 CY foundation/day and 10 CY truck: 74.5 / 10 = 7.5
10-CY Concrete Mixer Truck	HHDT	8	Based on pouring 18' dia. x 40' deep (Table 3.2) = 74.5 CY foundation/day and 10 CY truck: 74.5 / 10 = 7.5
30-Ton Crane Truck	HHDT	1	Table 3.5
Auger Truck	HHDT	1	Table 3.5
Worker Commute	Passenger	7	Table 3.5
<b>Subtransmission Wood Pole Installation</b>			
3/4-Ton Pick-up Truck, 4x4	Delivery	1	Table 3.5
1-Ton Crew Cab Flat Bed, 4x4	Delivery	1	Table 3.5
Worker Commute	Passenger	8	Table 3.5
<b>Subtransmission Steel Pole Haul</b>			
3/4-Ton Pick-up Truck, 4x4	Delivery	1	Table 3.5
40' Flat Bed Truck/Trailer	HHDT	1	Table 3.5
Worker Commute	Passenger	4	Table 3.5
<b>Subtransmission Steel Pole Assembly</b>			
3/4-Ton Pick-up Truck, 4x4	Delivery	1	Table 3.5
1-Ton Crew Cab Flat Bed, 4x4	Delivery	1	Table 3.5
Worker Commute	Passenger	8	Table 3.5
<b>Subtransmission Steel Pole Erection</b>			
3/4-Ton Pick-up Truck, 4x4	Delivery	1	Table 3.5
1-Ton Crew Cab Flat Bed, 4x4	Delivery	1	Table 3.5

**APPENDIX C AIR QUALITY CALCULATIONS**

<b>Vehicle</b>	<b>Category<sup>1</sup></b>	<b>Number</b>	<b>Basis for Number<sup>2</sup></b>
Worker Commute	Passenger	8	Table 3.5
<b>Subtransmission Conductor Installation</b>			
3/4-Ton Pick-up Truck, 4x4	Delivery	1	Table 3.5
1-Ton Crew Cab Flat Bed, 4x4	Delivery	1	Table 3.5
Wire Truck/Trailer	HHDT	1	Table 3.5
Dump Truck (Trash)	HHDT	1	Table 3.5
Bucket Truck	HHDT	1	Table 3.5
22-Ton Manitex	HHDT	1	Table 3.5
Splicing Rig	Delivery	1	Table 3.5
Splicing Lab	Delivery	1	Table 3.5
3 Drum Straw Line Puller	HHDT	1	Table 3.5
Static Truck/Tensioner	HHDT	1	Table 3.5
Worker Commute	Passenger	16	Table 3.5
<b>Subtransmission Guard Structure Removal</b>			
3/4-Ton Pick-up Truck, 4x4	Delivery	1	Table 3.5
1-Ton Crew Cab Flat Bed, 4x4	Delivery	1	Table 3.5
Extendable Flat Bed Pole Truck	HHDT	1	Table 3.5
30-Ton Crane Truck	HHDT	1	Table 3.5
80-Foot Hydraulic Manlift/Bucket Truck	HHDT	1	Table 3.5
Worker Commute	Passenger	6	Table 3.5
<b>Subtransmission Restoration</b>			
Water Truck	HHDT	1	Table 3.5
1-Ton Crew Cab, 4x4	Delivery	1	Table 3.5
Lowboy Truck/Trailer	HHDT	1	Table 3.5
Worker Commute	Passenger	7	Table 3.5
<b>Telecommunications Control Building</b>			
Van	Passenger	2	Table 3.5
Crew Truck	Delivery	1	Table 3.5
Worker Commute	Passenger	4	Table 3.5
<b>Telecommunications Overhead Installation</b>			
Bucket Truck	Delivery	2	Table 3.5
Splice Lab Truck	Delivery	1	Table 3.5

Vehicle	Category <sup>1</sup>	Number	Basis for Number <sup>2</sup>
Crew Truck	Delivery	1	Table 3.5
Worker Commute	Passenger	6	Table 3.5
<b>Telecommunications Underground Facility</b>			
Crew Truck	Delivery	2	Table 3.5
Flatbed Truck	HHDT	1	Table 3.5
Stake Truck	HHDT	1	Table 3.5
Worker Commute	Passenger	6	Table 3.5
<b>Telecommunications Underground Installation</b>			
Reel Truck	HHDT	2	Table 3.5
Crew Truck	Delivery	1	Table 3.5
Splice Lab Truck	Delivery	1	Table 3.5
Worker Commute	Passenger	6	Table 3.5
<b>Telecommunications Systems at Other Locations</b>			
Van	Passenger	6	Table 3.5
Worker Commute	Passenger	6	Table 3.5
<b>Nuevo Substation Demolition Civil</b>			
Dump Truck	HHDT	2	Table 3.5
Water Truck	HHDT	1	Table 3.5
Tool Truck	Passenger	1	Table 3.5
Worker Commute	Passenger	5	Table 3.5
<b>Nuevo Substation Demolition Electrical</b>			
Tool Trailer	Passenger	1	Table 3.5
Crew Truck	Passenger	2	Table 3.5
Worker Commute	Passenger	5	Table 3.5
<b>Nuevo Substation Demolition Equipment Check</b>			
Maintenance Truck	Passenger	1	Table 3.5
Worker Commute	Passenger	2	Table 3.5
<b>Nuevo Substation Demolition Testing</b>			
Crew Truck	Passenger	1	Table 3.5
Worker Commute	Passenger	2	Table 3.5
<b>Model P. T. Substation Demolition Civil</b>			
Dump Truck	HHDT	1	Table 3.5
Flatbed Truck	HHDT	1	Table 3.5
Foreman Truck	Passenger	1	Table 3.5

Vehicle	Category <sup>1</sup>	Number	Basis for Number <sup>2</sup>
Worker Commute	Passenger	5	Table 3.5
<b>Model P. T. Substation Demolition Electrical</b>			
Line Truck	Delivery	1	Table 3.5
Troubleman Truck	Delivery	1	Table 3.5
Boom Truck	Delivery	1	Table 3.5
Foreman Truck	Delivery	1	Table 3.5
Flatbed Truck	Delivery	1	Table 3.5
Pumper/Tanker Truck	Delivery	1	Table 3.5
Worker Commute	Passenger	5	Table 3.5
<b>Operations</b>			
Subtransmission Line Inspection	Passenger	1	Section 3.12
Substation Site Visit	Passenger	1	Section 3.12

Notes:

CY = cubic yards; dia = diameter; gal = gallons; MEER = Mechanical and Electrical Equipment Room; TSP = Tubular Steel Poles; ' = feet

<sup>1</sup> Category is used to assign emission factors. 'Passenger' is passenger vehicles in Table 49 in the attached tables, and is used for all gasoline-fueled vehicles. 'Delivery' is delivery vehicles in Table 49 in the attached tables, and is used for diesel-fueled vehicles except for heavy, heavy-duty diesel-fueled trucks (HHDT). 'HHDT' is heavy, heavy-duty diesel-fueled trucks in Table 50 in attached tables.

<sup>2</sup> Table and section numbers refer to tables and sections in PEA Chapter 3, Project Description.

**Table C-2 Motor Vehicle Daily Vehicle-Miles-Traveled**

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
<b>Substation Survey</b>					
Survey Truck	1	60	0	60	Survey company assumed to be within 30 mi. of substation
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Grading</b>					
Water Truck	2	10	0	10	Water supply within 5 mi.
Tool Truck	1	14	0	14	Travel from Meniffee Service Center
Pickup 4x4	1	14	0	14	Travel from Meniffee Service Center
Dump Truck	0.2	60	0	60	Borrow/disposal sites within 30 mi.
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
<b>Substation Fencing</b>					
Flatbed Truck	2	14	0	14	Travel from Menifee Service Center
Crewcab Truck	1	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Civil</b>					
Dump Truck	1	0	0	0	Dump truck stays on-site
Water Truck	1	10	0	10	Water supply assumed to be within 5 mi. of substation
Tool Truck	1	14	0	14	Travel from Menifee Service Center
Concrete Truck	0.1	60	0	60	Concrete supplier within 30 mi.
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation MEER</b>					
Carry-all Truck	1	14	0	14	Travel from Menifee Service Center
Stake Truck	1	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Electrical</b>					
Crew Truck	1	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Wiring</b>					
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Transformers</b>					
Crew Truck	1	14	0	14	Travel from Menifee Service Center
Low Bed Truck	1	0	0	0	Low bed truck stays on-site
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Maintenance Crew Equipment Check</b>					
Maintenance Truck	0.5	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Testing</b>					
Crew Truck	0.5	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Asphaltting</b>					

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
Stake Truck	1	0	0	0	Stake truck stays on-site
Dump Truck	1	0	0	0	Dump truck stays on-site
Crew Truck	2	14	0	14	Travel from Menifee Service Center
Asphalt Delivery Truck	0.1	60	0	60	Asphalt supplier within 30 mi.
Aggregate Base Delivery Truck	0.1	60	0	60	Aggregate supply within 30 mi.
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Landscaping</b>					
Dump Truck	1	0	0	0	Dump truck stays on-site
Crushed Rock Delivery Truck	0.1	60	0	60	Crushed rock supply within 30 mi.
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Substation Irrigation</b>					
Crew Truck	0.5	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Distribution Civil</b>					
Dump Truck	0	60	0	60	Disposal site within 30 mi.
Delivery Truck	0	60	0	60	Equipment supplier within 30 mi.
Concrete Truck	0	60	0	60	Concrete supplier within 30 mi.
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Distribution Electrical</b>					
Rodder Truck	0	14	0	14	Travel from Menifee Service Center
Reel Truck	0	14	0	14	Travel from Menifee Service Center
Line Truck	0	14	0	14	Travel from Menifee Service Center
Troubleman Truck	0	14	0	14	Travel from Menifee Service Center
Boom Truck	0	14	0	14	Travel from Menifee Service Center
Foreman Truck	0	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Survey</b>					
1/2-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
Worker Commute	0	60	0	0	Workers assumed to be located within 30 mi.
<b>Subtransmission Marshalling Yard</b>					
1-Ton Crew Cab, 4x4	5	0	0	0	Traveling on-site 25% of 2 hr/day at 10 mph
Truck, Semi Tractor	2.5	0	0	0	Traveling on-site 25% of 1 hr/day at 10 mph
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Right-of-Way Clearing</b>					
Water Truck	1	10	3	13	Water supply within 5 mi. of Subtransmission Source Line Route (paved); roundtrip along 1.5 mi. of Subtransmission Source Line Route (unpaved)
1-Ton Crew Cab, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Lowboy Truck/Trailer	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Roads and Landing Work</b>					
Water Truck	1	10	3	13	Water supply within 5 mi. of Subtransmission Source Line Route (paved); roundtrip along 1.5 mi. of Subtransmission Source Line Route (unpaved)
1-Ton Crew Cab, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Lowboy Truck/Trailer	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Aggregate Base Delivery Truck	0	60	4	64	Aggregate supply within 30 mi. of Subtransmission Source Line Route (paved); roundtrip along Subtransmission Source Line Route (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Guard Structure Installation</b>					
3/4-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
1-Ton Crew Cab Flat Bed, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Extendable Flat Bed Pole Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Auger Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
30-Ton Crane Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
80-Foot Hydraulic Manlift/Bucket Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Wood Poles Removal</b>					
1-Ton Crew Cab, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Flat Bed Truck/Trailer	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
30-Ton Crane Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission TSP Foundations Installation</b>					
Water Truck	0	10	4	14	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
1-Ton Crew Cab Flat Bed, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
10-cu. yd. Dump Truck	0	60	4	64	Disposal site within 30 mi. of Subtransmission Source Line Route (paved); roundtrip along Subtransmission Source Line Route (unpaved)
10-cu. yd. Concrete Mixer Truck	0	60	4	64	Concrete supply within 30 mi. of Subtransmission Source Line Route (paved); roundtrip along Subtransmission Source Line Route (unpaved)

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
30-Ton Crane Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Auger Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Wood Pole Installation</b>					
3/4-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
1-Ton Crew Cab Flat Bed, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Steel Pole Haul</b>					
3/4-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
40' Flat Bed Truck/Trailer	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Steel Pole Assembly</b>					
3/4-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
1-Ton Crew Cab Flat Bed, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Steel Pole Erection</b>					
3/4-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
1-Ton Crew Cab Flat Bed, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Conductor Installation</b>					
3/4-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
1-Ton Crew Cab Flat Bed, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Wire Truck/Trailer	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Dump Truck (Trash)	0	60	4	64	Disposal site within 30 mi. of Subtransmission Source Line Route (paved); roundtrip along Subtransmission Source Line Route (unpaved)
Bucket Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
22-Ton Manitex	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Splicing Rig	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Splicing Lab	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
3 Drum Straw Line Puller	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Static Truck/Tensioner	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Guard Structure Removal</b>					
3/4-Ton Pick-up Truck, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
1-Ton Crew Cab Flat Bed, 4x4	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
Extendable Flat Bed Pole Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
30-Ton Crane Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
80-Foot Hydraulic Manlift/Bucket Truck	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Subtransmission Restoration</b>					
Water Truck	3	10	3	13	Travel from Menifee Service Center (paved); 1.5 mi. roundtrip along Subtransmission Source Line ROW (unpaved)
1-Ton Crew Cab, 4x4	3	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Lowboy Truck/Trailer	0	14	4	18	Travel from Menifee Service Center (paved); roundtrip along Subtransmission Source Line ROW (unpaved)
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Telecommunications Control Building</b>					
Van	0	14	0	14	Travel from Menifee Service Center
Crew Truck	0	14	0	14	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Telecommunications Overhead Installation</b>					
Bucket Truck	0	0	21	21	Roundtrip along Subtransmission Source Line ROW (4 mi.) plus travel along ROW from new Subtransmission Source Line ROW to Moval Substation (17 mi.)
Splice Lab Truck	0	0	21	21	Roundtrip along Subtransmission Source Line ROW (4 mi.) plus travel along ROW from new Subtransmission Source Line ROW to Moval Substation (17 mi.)
Crew Truck	0	0	21	21	Roundtrip along Subtransmission Source Line ROW (4 mi.) plus travel along ROW from new Subtransmission Source Line ROW to Moval Substation (17 mi.)

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Telecommunications Underground Facility</b>					
Crew Truck	0	1	0	1	Worksite within 0.5 mi. from nearest substation
Flatbed Truck	0	1	0	1	Worksite within 0.5 mi. from nearest substation
Stake Truck	0	1	0	1	Worksite within 0.5 mi. from nearest substation
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Telecommunications Underground Installation</b>					
Reel Truck	0	1	0	1	Worksite within 0.5 mi. from nearest substation
Crew Truck	0	1	0	1	Worksite within 0.5 mi. from nearest substation
Splice Lab Truck	0	1	0	1	Worksite within 0.5 mi. from nearest substation
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Telecommunications Systems at Other Locations</b>					
Van	0	60	0	60	Other substations assumed within 30 mi.
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Nuevo Substation Demolition Civil</b>					
Dump Truck	1	60	0	60	Disposal site within 30 mi.
Water Truck	1	10	0	10	Water supply within 5 mi.
Tool Truck	1	0	0	0	Tool truck stays on-site
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Nuevo Substation Demolition Electrical</b>					
Tool Trailer	1	0	0	0	Tool trailer stays on-site
Crew Truck	1	12	0	12	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Nuevo Substation Demolition Equipment Check</b>					
Maintenance Truck	0.5	12	0	12	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Nuevo Substation Demolition Testing</b>					
Crew Truck	0.5	12	0	12	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Model P. T. Substation Demolition Civil</b>					
Dump Truck	1	60	0	60	Disposal site within 30 mi.

Vehicle	On-Site Daily VMT (mi) <sup>1</sup>	Off-Site Daily VMT (mi)			Notes
		P <sup>2</sup>	U <sup>2</sup>	T <sup>2</sup>	
Flatbed Truck	1	12	0	12	Travel from Menifee Service Center
Foreman Truck	1	12	0	12	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Model P. T. Substation Demolition Electrical</b>					
Line Truck	0.5	12	0	12	Travel from Menifee Service Center
Troubleman Truck	0.5	12	0	12	Travel from Menifee Service Center
Boom Truck	0.5	12	0	12	Travel from Menifee Service Center
Foreman Truck	0.5	12	0	12	Travel from Menifee Service Center
Flatbed Truck	0.5	12	0	12	Travel from Menifee Service Center
Pumper/Tanker Truck	0.5	12	0	12	Travel from Menifee Service Center
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi.
<b>Operations</b>					
Subtransmission Line Inspection	0	60	7	67	Trip origin within 30 mi.; roundtrip along entire Subtransmission Source Line Route (unpaved)
Substation Site Visit	0	60	0	60	Trip origin within 30 mi.

Notes:

CY = cubic yards; hr/day = hours per day; MEER = Mechanical and Electrical Equipment Room; mi = miles; mph = miles per hour; ROW = rights-of-way; TSP = Tubular Steel Poles; ' = feet

<sup>1</sup> On-site travel estimated from site dimensions. All on-site travel is unpaved, except for marshalling yard and Nuevo and Model Pole Top substations.

<sup>2</sup> P = off-site paved road/surface VMT; U = off-site unpaved road/surface VMT; T = total off-site VMT

## 2.4 Motor Vehicle Entrained Particulate Matter Emission Calculations

Motor vehicles entrain particulate matter from the surfaces on which they travel. The following equation was used to calculate daily entrained particulate matter emissions from each type of motor vehicle used during each construction phase and during operation for the Proposed Project:

$$E_{i,j,k} = EF_{i,j,k} \times VMT_{j,k} \times N_j \text{ (Eq. 4)}$$

where:

$$E_{i,j,k} = \text{Emissions of pollutant } i \text{ (PM}_{10} \text{ or PM}_{2.5}\text{) from motor vehicle type } j \text{ traveling on surface type } k \text{ (paved or unpaved) [pounds/day]}$$

$EF_{i,j,k}$  = Emission factor for pollutant i from motor vehicle type j on surface type k [pounds/VMT]

$VMT_{j,k}$  = Daily VMT by motor vehicle type j on surface type k [miles/day]

$N_j$  = Number of motor vehicles of type j

The following equation (EPA, 2006a) was used to calculate the emission factors for motor vehicles traveling on paved roads and surfaces:

$$EF_{i,j,P} = k_{i,P} \times (sL / 2)^{0.65} \times (W_j/3)^{1.5} - C \quad (\text{Eq. 5})$$

where:

$EF_{i,j,P}$  = Emission factor for pollutant i ( $PM_{10}$  or  $PM_{2.5}$ ) from motor vehicle type j traveling on paved surfaces [pounds/VMT]

$k_{i,P}$  = Particle size multiplier for pollutant i

= 0.016 for  $PM_{10}$

= 0.0024 for  $PM_{2.5}$

sL = Surface silt loading [grams/square meter]

$W_j$  = Average weight of vehicles traveling on the paved surface [tons]

C = Exhaust, brake wear and tire wear adjustment [pounds/VMT]

= 0.0047 for  $PM_{10}$

= 0.00036 for  $PM_{2.5}$

The paved road silt loading of 0.035 grams/square meter and the average on-road vehicle weight of 3.2 tons in Riverside County from CARB (1997) were used for the calculations.

The following equation (EPA, 2006b) was used to calculate the emission factors for motor vehicles traveling on unpaved roads and surfaces:

$$EF_{i,i,U} = k_{i,U} \times (s / 12)^{0.9} \times (W_j/3)^{0.45} \times (1 - CE_U / 100) \quad (\text{Eq. 6})$$

where:

$EF_{i,j,U}$  = Emission factor for pollutant i ( $PM_{10}$  or  $PM_{2.5}$ ) from motor vehicle type j traveling on unpaved surfaces [pounds/VMT]

$k_{i,U}$  = Particle size multiplier for pollutant i

= 1.5 for  $PM_{10}$

= 0.15 for  $PM_{2.5}$

$s$  = Silt content of the unpaved surface [percent by weight]

$W_j$  = Average weight of vehicles traveling on the unpaved surface [tons]

$CE_U$  = Control efficiency for entrained particulate matter emissions from unpaved surfaces [percent]

The unpaved road silt content of 7.5 percent for overburden from the SCAQMD CEQA Handbook, (SCAQMD, 1993), Table A9-9-E-1, was used. Vehicle weights were estimated from the type of vehicle. The control efficiency of 57 percent from limiting speeds on unpaved roads to 15 miles per hour (mph) (SCAQMD, 2007b) was used for the calculations.

Entrained particulate matter emission factors by type of vehicle and surface are provided in Table 51 in the attached tables. Estimated daily VMT on paved and unpaved surfaces by type of vehicle during each construction phase and during operation of the Proposed Project are listed in Table C-2, Motor Vehicle Daily Vehicle-Miles-Traveled.

Motor vehicle entrained particulate matter emission calculations are provided in Tables 7 through 47 in the attached tables.

## 2.5 Earthwork Fugitive Particulate Matter Emission Calculations

Handling soil during excavation and grading generates fugitive particulate matter from soil dropping during transfers, wind erosion of temporary storage piles, and bulldozing, scraping and grading.

The following equation was used to calculate daily emissions from soil dropping during construction of the Proposed Project:

$$E_i = EF_i \times V_s \tag{Eq. 7}$$

where:

$E_i$  = Emissions of pollutant  $i$  ( $PM_{10}$  or  $PM_{2.5}$ ) from soil dropping [pounds/day]

$EF_i$  = Emission factor for pollutant  $i$  from soil dropping [pounds/cubic yard]

$V_s$  = Volume of soil dropped [cubic yards/day]

The following equation (EPA, 2006c) was used to calculate the emission factor for fugitive particulate matter emissions from soil dropping:

$$EF_i = f_i \times 0.011 \times (WS / 5)^{1.3} / (M / 2)^{1.4} \times N_s \times D_s \tag{Eq. 8}$$

where:

$EF_i$  = Emission factor for fugitive particulate matter emissions from soil dropping

$f_i$  = Mass fraction of pollutant  $i$  ( $PM_{10}$  or  $PM_{2.5}$ ) in  $PM_{10}$  emissions from soil dropping

= 1 for  $PM_{10}$

= 0.208 for  $PM_{2.5}$  from SCAQMD (2006)

WS = Mean wind speed [miles/hour]

= 12 miles/hour from SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G

M = Soil moisture content [percent by weight]

= 10.6 percent average of near-surface soil samples from Proposed Substation Site preliminary geotechnical investigation

$N_s$  = Number of times each cubic yard is dropped [number/day]

= 4 (assumption)

$D_s$  = Soil density [tons/cubic yard]

= 1.47 tons/cubic yard average of near-surface soil samples from Proposed Substation Site preliminary geotechnical investigation

The following equation was used to calculate daily emissions from storage pile wind erosion during construction of the Proposed Project:

$$E_i = EF_i \times A_s \quad (\text{Eq. 9})$$

where:

$E_i$  = Emissions of pollutant  $i$  ( $PM_{10}$  or  $PM_{2.5}$ ) from storage pile wind erosion [pounds/day]

$EF_i$  = Emission factor for pollutant  $i$  from storage pile wind erosion [pounds/acre-day]

$A_s$  = Exposed storage pile surface area [acres]

The following equation from the SCAQMD CEQA Air Quality Handbook (SCAQMD, 1993), Table 9-9-E, was used to calculate the emission factor for fugitive particulate matter emissions from storage pile wind erosion:

$$EF_i = f_i \times 0.85 \times (s / 1.5) \times (365 / 235) \times (P_w / 15) \times (1 - CE / 100) \quad (\text{Eq. 10})$$

where:

$EF_i$  = Emission factor for fugitive particulate matter emissions from storage pile wind erosion

- $f_i$  = Mass fraction of pollutant  $i$  ( $PM_{10}$  or  $PM_{2.5}$ ) in  $PM_{10}$  emissions from storage pile wind erosion
  - = 1 for  $PM_{10}$
  - = 0.208 for  $PM_{2.5}$  from SCAQMD (2006)
- $s$  = Storage pile silt content [weight percent]
  - = 26.7 percent average of near-surface soil samples from Proposed Substation Site preliminary geotechnical investigation
- $P_w$  = Percent of time unobstructed wind speed exceeds 12 miles/hour
  - = 100 percent (conservative assumption)
- CE = Control efficiency [percent]
  - = 90 percent from watering storage pile by hand at a rate of 1.4 gallons/hour-square yard (SCAQMD, 2007b)

The following equation was used to calculate daily emissions from bulldozing, scraping and grading during construction of the Proposed Project:

$$E_i = EF_i \times H_G \tag{Eq. 11}$$

where:

- $E_i$  = Emissions of pollutant  $i$  ( $PM_{10}$  or  $PM_{2.5}$ ) from bulldozing, scraping and grading [pounds/day]
- $EF_i$  = Emission factor for pollutant  $i$  from bulldozing, scraping and grading [pounds/hour]
- $H_G$  = Daily bulldozing, scraping and grading duration [hours/day]

The following equation (EPA, 1998) was used to calculate the emission factor for fugitive particulate matter emissions from bulldozing, scraping and grading:

$$EF_i = f_i \times 0.75 \times s^{1.5} / M^{1.4} \times (1 - CE / 100) \tag{Eq. 12}$$

where:

- $EF_i$  = Emission factor for fugitive particulate matter emissions from bulldozing, scraping and grading
- $f_i$  = Mass fraction of pollutant  $i$  ( $PM_{10}$  or  $PM_{2.5}$ ) in  $PM_{10}$  emissions from bulldozing, scraping and grading
  - = 1 for  $PM_{10}$
  - = 0.208 for  $PM_{2.5}$  from SCAQMD (2006)

- s = Material silt content [weight percent]
  - = 26.7 percent average of near-surface soil samples from Proposed Substation Site preliminary geotechnical investigation
- M = Material moisture content [weight percent]
  - = 10.6 percent average of near-surface soil samples from Proposed Substation Site preliminary geotechnical investigation
- CE = Control efficiency [percent]
  - = 61 percent from watering three times per day from SCAQMD (2007c)

The emission factor calculations are presented in Table 52 in the attached tables.

The daily hours of bulldozing, scraping and grading were calculated from the construction equipment usage estimates provided in Table 3.5, Construction Equipment and Workforce Estimates, in Chapter 3, Project Description, of the PEA. Estimated daily volumes of soil handled and storage pile surface areas during construction phases that involve soil handling and temporary storage piles are listed in Table C-3, Estimated Soil Handling and Storage Pile Surface Areas by Construction Phase.

Earthwork fugitive particulate matter emission calculations are provided in Tables 7 through 47 in the attached tables.

**Table C-3 Estimated Soil Handling and Storage Pile Surface Areas by Construction Phase**

Construction Phase	Type	Daily Amount	Basis <sup>1</sup>
Substation Grading	Soil Dropping	450 CY	40,000 CY total (Table 3.1) over 90 days: 40,000 / 90 = 444
	Storage Piles	0.13 acres	450 CY total in two conical piles 7' tall x 58' diameter
Substation Civil	Soil Dropping	8 CY	450 CY total (Table 3.1) over 60 days: 450 / 60 = 7.5
Distribution Civil	Soil Dropping	50 CY	450 CY total (Table 3.1) over 9 days: 450 / 9 = 50
Subtransmission ROW Clearing	Soil Handling	200 CY	Clearing 10,800' long x 14' wide x 6" depth (Section 3.2.3.2) over 14 days: 10,800 x 14 x 0.5 / 27 / 14 = 200
Subtransmission Roads and Landings	Soil Handling	2,800	Cut and fill 8 acres (Table 3.4) x 18" depth (Section 3.2.3.2) over 14 days: 8 x 43,560 x 1.5 / 27 x 2 / 14 = 2,766
	Storage Piles	0.6 acres	8 acres (Table 3.4) over 14 days: 8 / 14 = 0.57
Subtransmission TSP	Soil	75 CY	Excavate 8' diameter x 40' deep (Table 3.2)

Construction Phase	Type	Daily Amount	Basis <sup>1</sup>
Foundations Installation	handling		per day = $\pi \times 8^2 / 4 \times 40 / 27 = 74.5$
Subtransmission Wood Pole Installation	Soil Handling	12 CY	Excavate 73 poles, 3' diameter x 11' deep (Table 3.2) over 19 days: $73 \times \pi \times 3^2 / 4 \times 11 / 27 / 19 = 11.1$
Telecommunications Underground Facility	Soil Handling	34 CY	Excavate duct banks, 3,950' long (Table 3.4) x 1.5' wide x 3' deep (Section 3.2.4) plus pull boxes and manholes, two 3' x 5' x 3' and three 4' x 4' x 5' (Section 3.2.4) over 20 days: $(3,950 \times 1.5 \times 3 + 2 \times 3 \times 5 \times 3 + 3 \times 4 \times 4 \times 5) / 27 / 20 = 33.5$
Model Pole Top Substation Decommissioning Civil	Soil Handling	130 CY	Excavate total of 260 CY over 2 days
	Storage Pile	0.04 acres	130 CY in one conical pile 7' tall x 22' diameter

Note:

CY = cubic yards; hr/day = hours per day; ROW = rights-of-way; TSP = Tubular Steel Poles; ' = feet; " = inches

<sup>1</sup> Table and section numbers refer to PEA Chapter 3, Project Description

## 2.6 Asphaltic Paving VOC Emission Calculations

Asphaltic paving generates VOC emissions as the asphalt cures. The following equation was used to calculate daily VOC emissions from asphaltic paving:

$$E = EF \times A_p \tag{Eq. 13}$$

where:

E = VOC emissions from asphaltic paving [pounds/day]

EF = Emission factor for VOC from asphaltic paving [pounds/acre]

= 2.62 pounds/acre from URBEMIS 2007 User's Guide, Appendix A (URBEMIS, 2007)

A<sub>p</sub> = Area paved [acres/day]

The maximum surface area paved in a single day would be 11,200 square feet (0.26 acres) for the Proposed Substation external driveway (see PEA Chapter 3, Project Description, Table 3.1, Substation Ground Improvements and Material Volumes). VOC emissions from asphaltic paving are calculated in Table 17 in the attached tables.

## 2.7 Equipment SF<sub>6</sub> Leakage GHG Emission Calculations

New circuit breakers installed at the Proposed Substation would be insulated with SF<sub>6</sub>, which is a GHG. Leakage of SF<sub>6</sub> from the circuit breakers during operation of the Proposed Project would generate GHG emissions. The following equation was used to calculate GHG emissions from SF<sub>6</sub> leakage:

$$E = L / 100 \times M_{\text{SF}_6} \times 23,200 \times 4.536 \times 10^{-4} \quad (\text{Eq. 14})$$

where:

E = GHG emissions from SF<sub>6</sub> leakage [metric tons CO<sub>2</sub> equivalent/year]

L = SF<sub>6</sub> leakage rate [percent/year]

= 0.5 percent/year estimated by SCE

M<sub>SF6</sub> = SF<sub>6</sub> in new circuit breakers [pounds]

= 378 pounds, estimated by SCE

23,200 = SF<sub>6</sub> global warming potential

4.536 x 10<sup>-4</sup> = Metric tons/pound conversion factor

GHG emissions from SF<sub>6</sub> leakage are calculated in Table 47 in the attached tables.

## 3.0 PEAK DAILY EMISSIONS CALCULATIONS

Peak daily emissions of VOC, CO, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> during construction and operation of the Proposed Project were calculated for comparison with the SCAQMD's CEQA mass emissions CEQA significance thresholds.

### 2.1 Peak Daily Construction Emission Calculations

The following steps were used to estimate peak daily emissions during construction of the Proposed Project:

- Daily emissions during each of the construction phases in Table 3.5, Construction Equipment and Workforce Estimates, in Chapter 3, Project Description, of the PEA were calculated using the procedures in Section 2, Emission Calculations. The calculations are provided in Tables 7 through 46 in the attached tables, and total daily emissions for each construction phase are listed in Table 1 in the attached tables.
- The maximum daily emissions that may occur during construction of each component of the Proposed Project (Substation, distribution facilities, Subtransmission Source Lines and telecommunication facilities and during demolition of the Nuevo Substation and the Model Pole Top Substation) were estimated as follows:

- Daily emissions during the construction phases for each component of the Proposed Project that may overlap were added together to estimate daily emissions during overlapping construction phases. Construction phases that may overlap are listed in Table C-4, Possible Overlapping Construction Phases.
- The highest daily emissions among the overlapping and non-overlapping construction phases for each component of the Proposed Project were then determined.
- Construction of the Proposed Substation, distribution facilities, Subtransmission Source Lines and telecommunication facilities may all occur at the same time. Therefore, maximum daily emissions during simultaneous construction of these project components were estimated by adding together the maximum daily emissions during construction of the individual components estimated in the previous step.
- Demolition of the Nuevo and Model Pole Top substations may occur at the same time but would not commence until construction of the other Proposed Project components is completed. Therefore, the maximum daily emissions during the demolition activities for the two substations were added together to estimate maximum daily emissions during demolition.
- Peak daily construction emissions were the higher of the maximum daily emissions during construction of the new Proposed Project components and during demolition of the two existing substations.

The peak daily construction emissions calculations are provided in Table 2 in the attached tables.

**Table C-4 Possible Overlapping Construction Phases**

<b>Project Component</b>	<b>Overlapping Construction Phases</b>
Substation Construction	Grading
	Civil and Fencing
	MEER, Electrical, Wiring, Transformers, Equipment Check, Testing, Asphaltting, Landscaping, Irrigation
Distribution Facilities Construction	All Phases
Subtransmission Source Line Construction	All Phases
Telecommunications Construction	Marshalling Yard, Right-of-Way Clearing, Roads and Landing Work
	Marshalling Yard, Tubular Steel Pole Foundations Installation, Steel Pole Haul, Steel Pole Assembly, Steel Pole Erection, Wood Pole Installation
	Marshalling Yard, Steel Pole Erection, Wood Pole Installation, Guard Structure Installation

Project Component	Overlapping Construction Phases
	Marshalling Yard, Existing Wood Poles Removal, Guard Structure Installation
	Marshalling Yard, Conductor Installation
	Marshalling Yard, Guard Structure Removal
	Marshalling Yard, Restoration
	Marshalling Yard, Right-of-Way Clearing, Roads and Landing Work
Nuevo Substation Demolition	Civil
	Electrical
	Maintenance Crew Equipment Check
	Testing
Model Pole Top Substation Demolition	Civil
	Electrical

## 2.2 Peak Daily Operational Emission Calculations

During operation of the Proposed Project, motor vehicle exhaust and entrained paved road particulate matter emissions would be generated by motor vehicle travel for inspections of the Proposed Substation and Subtransmission Source Lines. Emissions from these activities were calculated using the procedures described in Section 2.2, Construction Equipment Exhaust Emission Calculations, and Section 2.3, Motor Vehicle Exhaust Emission Calculations. The calculations of peak daily emissions considered visits to inspect both the Proposed Substation and the Subtransmission Source Lines on the same day, to ensure that emissions were not underestimated. The peak daily operational emission calculations are provided in Table 47 in the attached tables.

## 4.0 TOTAL GREENHOUSE GAS EMISSION CALCULATIONS

GHG emissions during each construction phase and during operation of the Proposed Project were calculated using the procedures described in Section 2.2, Construction Equipment Exhaust Emission Calculations, Section 2.3, Motor Vehicle Exhaust Emission Calculations, and Section 2.7, Equipment SF<sub>6</sub> Leakage GHG Emission Calculations. The calculations are provided in Tables 7 through 47 in the attached tables. Total GHG emissions during construction and during each construction phase are listed in Table 6 in the attached Tables, and GHG emissions during project operation are in Table 47.

## 5.0 LOCALIZED IMPACTS ANALYSIS

The SCAQMD (2008b) has developed look-up tables that can be used to evaluate the potential for construction emissions to cause localized exceedances of the ambient air quality CEQA significance thresholds. This localized significance thresholds (LST) analysis consists of comparing maximum daily on-site CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>

emissions at individual locations with maximum allowable emissions obtained from the look-up tables. The maximum allowable emissions in the tables depend on the location within the South Coast Air Basin, the size (disturbed area) of the construction activities, and the distance from the construction site boundary to the nearest receptor. Receptors for the analysis include residences for PM<sub>10</sub> and PM<sub>2.5</sub> and either residences or commercial locations for CO and NOx.

Daily on-site emissions during each construction phase were calculated using the procedures described in Section 2, Emission Calculations, for use in the LST analysis for impacts during construction of the Proposed Project. All construction equipment usage and fugitive particulate matter emissions from earthwork were assumed to occur on-site. On-site motor vehicle travel estimates to calculate on-site vehicle exhaust and entrained particulate matter emissions are listed in Table C-2, Motor Vehicle Daily Vehicle-Miles-Traveled. Daily on-site construction emissions calculations are provided in Tables 7 through 46 in the attached tables, and total daily on-site emissions are listed by construction phase in Table 3 in the attached tables.

Maximum daily on-site emissions that could occur at a single location during construction of each of the components of the Proposed Project were used in the LST analysis. On-site emissions during construction of the Proposed Substation, distribution facilities and telecommunication facilities and during demolition of the Nuevo and Model Pole Top substations were assumed to occur at a single location each day. On-site emissions during construction of the Proposed Subtransmission Source Line Route were divided by the number of separate locations at which construction activities for that phase of construction would occur during one day to calculate the emissions used in the analyses. The following information was used for this analysis:

- Guard Structure Installation: 4 structures per day (4 locations)
- Existing Wood Poles Removal: 10 poles per day (10 locations)
- Tubular Steel Pole Foundations Installation: 1 foundation per day (1 location)
- Wood Pole Installation: 4 poles per day (1 location)
- Steel Pole Haul: 4 locations per day (4 locations)
- Steel Pole Assembly: 3 poles per day (3 locations)
- Steel Pole Erection: 3 poles per day (3 locations)
- Conductor Installation: 1 pull, 1 tension and 1 splicing site per day (3 locations)
- Guard Structure Removal: 4 structures per day (4 locations)

Emissions generated during Proposed Subtransmission Source Line Route rights-of-way (ROW) clearing, roads and landing work, and restoration were not included in the analyses, since these emissions would occur over distances of approximately one mile each day, rather than at fixed locations. Daily on-site emissions at a single location for each construction phase and maximum daily on-site emissions during construction of each Proposed Project component are listed in Table 4 in the attached tables.

The SCAQMD look-up tables for the LST analysis list maximum daily allowable on-site emissions that will not cause LSTs to be exceeded for 1-, 2- and 5-acre construction sites and for receptor distances from the boundary of 25, 50, 100, 200 and 500 meters. The values for a 5-acre site were used for the analyses for the Proposed Substation construction, and the values for a 1-acre site were used for construction of the other Proposed Project components. Linear interpolation of the emissions in the look-up tables was used to calculate the maximum allowable emissions corresponding to the actual receptor distances. The analyses are shown in Table 5 in the attached tables.

Emissions during operation of the Proposed Project would be solely from motor vehicle travel to visit the Proposed Substation Site and to inspect the Proposed Subtransmission Source Lines. Since these emissions would not occur at a single location each day, they would not cause the localized significance thresholds to be exceeded.

## **6.0 REFERENCES**

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**Table 1**  
**Construction Emissions Summary**  
**Total Daily Criteria Pollutant Emissions by Construction Phase**

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
<b>Substation Construction</b>						
Survey	0.19	1.85	0.19	0.00	1.08	0.10
Grading	11.63	52.09	117.60	0.16	33.18	9.46
Fencing	0.65	4.53	3.55	0.01	2.86	0.48
Civil	3.78	26.62	32.41	0.05	5.50	2.00
Substation MEER	0.26	2.30	0.71	0.00	2.10	0.21
Electrical	0.96	41.64	3.94	0.01	1.87	0.37
Wiring	0.27	11.14	0.48	0.00	0.29	0.04
Transformers	0.99	14.35	6.32	0.01	2.64	0.50
Maintenance Crew Equipment Check	0.12	1.14	0.12	0.00	0.86	0.08
Testing	0.11	1.03	0.10	0.00	0.39	0.03
Asphalting	4.82	16.58	28.54	0.04	4.80	1.68
Landscaping	1.96	9.05	15.14	0.02	3.02	0.87
Irrigation	2.15	8.53	5.09	0.01	1.10	0.46
<b>Distribution Construction</b>						
Civil	4.27	16.34	41.78	0.06	2.26	1.47
Electrical	3.43	14.15	26.75	0.04	1.53	0.97
<b>Subtransmission Source Line Construction</b>						
Survey	0.11	1.06	0.11	0.00	1.86	0.18
Marshalling Yard	0.83	3.90	6.35	0.01	0.43	0.21
Right-of-Way Clearing	4.66	18.07	41.67	0.06	40.55	7.27
Roads and Landing Work	10.70	41.75	111.05	0.15	177.53	24.43
Guard Structure Installation	5.29	20.79	46.19	0.07	20.86	3.57
Existing Wood Poles Removal	3.60	14.07	30.02	0.05	11.11	2.12
Tubular Steel Pole Foundations Installation	6.00	24.73	62.29	0.10	76.11	9.56
Wood Pole Installation	2.65	11.54	20.55	0.03	5.20	1.21
Steel Pole Haul	1.26	5.71	10.25	0.01	6.05	0.91
Steel Pole Assembly	1.89	9.29	12.86	0.02	4.93	0.98
Steel Pole Erection	1.89	9.29	12.86	0.02	4.93	0.98
Conductor Installation	5.54	25.36	52.62	0.08	36.36	5.06
Guard Structure Removal	3.62	14.62	32.34	0.04	16.61	2.71
Restoration	5.46	21.03	48.99	0.07	31.32	6.51
<b>Telecommunications Construction</b>						
Control Building Communications Room	0.24	2.27	0.45	0.00	0.26	0.02
Overhead Cable Installation	2.74	12.72	29.52	0.04	66.39	7.38
Underground Facility Installation	1.14	6.33	5.54	0.01	0.80	0.42
Underground Cable Installation	2.95	12.25	28.20	0.05	1.28	0.90
Optical Systems Installation at Other Locations	0.57	5.51	0.56	0.01	0.64	0.04
<b>Nuevo Substation Demolition</b>						
Civil	1.47	8.17	10.40	0.02	0.99	0.67
Electrical	0.80	30.96	4.29	0.01	0.56	0.27
Maintenance Crew Equipment Check	0.11	1.01	0.10	0.00	0.12	0.01
Testing	0.11	1.01	0.10	0.00	0.38	0.03
<b>Model P.T. Substation Demolition</b>						
Civil	1.04	6.00	6.46	0.01	0.73	0.43
Electrical	3.47	14.63	30.57	0.04	1.53	1.42

Notes:

VOC = volatile organic compounds

CO = carbon monoxide

NOX = nitrogen oxides

SOX = sulfur oxides

PM10 = suspended particulate matter measuring less than 10 microns

PM2.5 = suspended particulate matter measuring less than 2.5 micron

lb/day = pounds per day

MEER = mechanical and electrical equipment room

**Table 2**  
**Construction Emissions Summary**  
**Total Daily Criteria Pollutant Emissions for Overlapping Construction Phases**

Group <sup>a</sup>	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
<b>Substation Construction</b>						
Survey	0.19	1.85	0.19	0.00	1.08	0.10
Grading	11.63	52.09	117.60	0.16	33.18	9.46
Civil, Fencing	4.43	31.15	35.96	0.06	8.36	2.48
MEER, Electrical, Wiring, Transformers, Equipment Check, Testing, Asphaltting, Landscaping, Irrigation	9.48	97.23	55.35	0.09	15.97	3.80
<b>Maximum</b>	<b>11.63</b>	<b>97.23</b>	<b>117.60</b>	<b>0.16</b>	<b>33.18</b>	<b>9.46</b>
<b>Distribution Construction</b>						
All	7.70	30.49	68.54	0.11	3.79	2.45
<b>Maximum</b>	<b>7.70</b>	<b>30.49</b>	<b>68.54</b>	<b>0.11</b>	<b>3.79</b>	<b>2.45</b>
<b>Subtransmission Source Line Construction</b>						
Marshalling Yard, Survey	0.94	4.95	6.46	0.01	2.29	0.39
Marshalling Yard, Right-of-Way Clearing, Roads and Landing Work	16.19	63.72	159.07	0.22	218.51	31.90
Marshalling Yard, Tubular Steel Pole Foundations Installation, Steel Pole Haul, Steel Pole Assembly, Steel Pole Erection, Wood Pole Installation	14.52	64.47	125.15	0.19	97.65	13.84
Marshalling Yard, Steel Pole Erection, Wood Pole Installation, Guard Structure Installation	10.66	45.52	85.94	0.14	31.42	5.97
Marshalling Yard, Existing Wood Poles Removal, Guard Structure Installation	9.73	38.76	82.56	0.13	32.40	5.90
Marshalling Yard, Conductor Installation	6.38	29.26	58.97	0.09	36.80	5.27
Marshalling Yard, Guard Structure Removal	4.45	18.52	38.70	0.06	17.05	2.92
Marshalling Yard, Restoration	6.30	24.93	55.34	0.08	31.76	6.72
<b>Maximum</b>	<b>16.19</b>	<b>64.47</b>	<b>159.07</b>	<b>0.22</b>	<b>218.51</b>	<b>31.90</b>
<b>Telecommunications Construction</b>						
All	7.40	36.81	63.82	0.11	69.11	8.74
<b>Maximum</b>	<b>7.40</b>	<b>36.81</b>	<b>63.82</b>	<b>0.11</b>	<b>69.11</b>	<b>8.74</b>
<b>CONSTRUCTION MAXIMUM DAILY<sup>b</sup></b>	<b>42.91</b>	<b>229.00</b>	<b>409.03</b>	<b>0.59</b>	<b>324.60</b>	<b>52.55</b>
<b>Nuevo Substation Demolition</b>						
Civil	1.47	8.17	10.40	0.02	0.99	0.67
Electrical	0.80	30.96	4.29	0.01	0.56	0.27
Maintenance Crew Equipment Check	0.11	1.01	0.10	0.00	0.12	0.01
Testing	0.11	1.01	0.10	0.00	0.38	0.03
<b>Maximum</b>	<b>1.47</b>	<b>30.96</b>	<b>10.40</b>	<b>0.02</b>	<b>0.99</b>	<b>0.67</b>
<b>Model P.T. Substation Demolition</b>						
Civil	1.04	6.00	6.46	0.01	0.73	0.43
Electrical	3.47	14.63	30.57	0.04	1.53	1.42
<b>Maximum</b>	<b>3.47</b>	<b>14.63</b>	<b>30.57</b>	<b>0.04</b>	<b>1.53</b>	<b>1.42</b>
<b>DEMOLITION MAXIMUM DAILY<sup>c</sup></b>	<b>3.47</b>	<b>30.96</b>	<b>30.57</b>	<b>0.04</b>	<b>1.53</b>	<b>1.42</b>
<b>PEAK DAILY<sup>d</sup></b>	<b>42.91</b>	<b>229.00</b>	<b>409.03</b>	<b>0.59</b>	<b>324.60</b>	<b>52.55</b>

<sup>a</sup> The construction phases within a group could all occur at the same time.

<sup>b</sup> Construction maximum daily emissions are the sum of the maximum daily emissions during construction of the substation, the distribution facilities, the subtransmission source lines and the telecommunications facilities, since construction of all of these components could occur at the same time.

<sup>c</sup> Demolition maximum daily emissions are the maximum daily emissions during demolition of the Nuevo Substation or the Model P.T. Substation.

<sup>d</sup> Peak daily emissions are the greater of the maximum daily emissions during construction and during demolition, since demolition would occur after construction is completed.

**Table 3**  
**Construction Emissions Summary**  
**Onsite Daily Criteria Pollutant Emissions by Construction Phase**

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
<b>Substation Construction</b>						
Survey	0.00	0.02	0.00	0.00	0.87	0.09
Grading	4.04	17.30	33.07	0.04	26.13	5.90
Fencing	0.39	2.26	2.88	0.00	2.61	0.45
Civil	1.90	16.30	14.92	0.02	4.14	1.25
Substation MEER	0.00	0.03	0.03	0.00	1.85	0.19
Electrical	0.46	36.83	3.45	0.00	1.31	0.34
Wiring	0.03	8.84	0.24	0.00	0.03	0.02
Transformers	0.68	11.38	6.02	0.01	2.29	0.48
Maintenance Crew Equipment Check	0.00	0.01	0.00	0.00	0.73	0.07
Testing	0.00	0.00	0.00	0.00	0.27	0.03
Asphalting	2.99	7.49	9.69	0.01	3.08	0.89
Landscaping	0.61	2.00	1.87	0.00	1.73	0.31
Irrigation	1.80	5.21	4.75	0.01	0.71	0.43
<b>Distribution Construction</b>						
Civil	2.99	9.44	29.38	0.04	1.08	0.96
Electrical	2.86	9.51	24.58	0.03	0.95	0.88
<b>Subtransmission Source Line Construction</b>						
Survey	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yard	0.64	2.06	6.17	0.01	0.22	0.20
Right-of-Way Clearing	4.21	14.78	38.96	0.05	23.22	5.46
Roads and Landing Work	5.45	18.42	50.75	0.07	37.97	8.42
Guard Structure Installation	4.74	16.75	43.06	0.07	1.71	1.58
Existing Wood Poles Removal	3.19	10.67	28.32	0.04	1.18	1.09
Tubular Steel Pole Foundations Installation	2.91	10.27	28.44	0.05	1.09	0.92
Wood Pole Installation	2.19	7.31	19.55	0.02	0.86	0.78
Steel Pole Haul	0.98	3.41	9.20	0.01	0.34	0.32
Steel Pole Assembly	1.43	5.06	11.86	0.01	0.59	0.54
Steel Pole Erection	1.43	5.06	11.86	0.01	0.59	0.54
Conductor Installation	4.23	15.33	45.87	0.06	1.53	1.41
Guard Structure Removal	3.11	10.75	29.77	0.04	1.20	1.10
Restoration	5.01	17.22	47.39	0.06	22.28	5.57
<b>Telecommunications Construction</b>						
Control Building Communications Room	0.00	0.00	0.00	0.00	0.00	0.00
Overhead Cable Installation	2.26	8.67	27.79	0.04	0.86	0.79
Underground Facility Installation	0.84	3.53	5.17	0.01	0.47	0.40
Underground Cable Installation	2.65	9.44	27.82	0.04	0.95	0.87
Optical Systems Installation at Other Locations	0.00	0.00	0.00	0.00	0.00	0.00
<b>Nuevo Substation Demolition</b>						
Civil	0.91	4.55	6.14	0.01	0.52	0.48
Electrical	0.54	28.48	4.04	0.00	0.27	0.25
Maintenance Crew Equipment Check	0.00	0.00	0.00	0.00	0.00	0.00
Testing	0.00	0.00	0.00	0.00	0.27	0.03
<b>Model P.T. Substation Demolition</b>						
Civil	0.61	2.87	3.99	0.00	0.35	0.32
Electrical	3.07	11.22	29.09	0.04	1.16	1.07

**Table 4**  
**Construction Emissions Summary**  
**Total Daily Onsite Criteria Pollutant Emissions for Overlapping Construction Phases**

Group <sup>a</sup>	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
<b>Substation Construction</b>						
Survey	0.00	0.02	0.00	0.00	0.87	0.09
Grading	4.04	17.30	33.07	0.04	26.13	5.90
Civil, Fencing	2.30	18.56	17.80	0.02	6.75	1.70
MEER, Electrical, Wiring, Transformers, Equipment Check, Testing, Asphaltting, Landscaping, Irrigation	6.58	71.79	26.06	0.03	11.99	2.75
<b>Maximum Substation Construction</b>	<b>6.58</b>	<b>71.79</b>	<b>33.07</b>	<b>0.04</b>	<b>26.13</b>	<b>5.90</b>
<b>Distribution Construction</b>						
Civil	2.99	9.44	29.38	0.04	1.08	0.96
Electrical	2.86	9.51	24.58	0.03	0.95	0.88
<b>Maximum</b>	<b>2.99</b>	<b>9.51</b>	<b>29.38</b>	<b>0.04</b>	<b>1.08</b>	<b>0.96</b>
<b>Subtransmission Source Line Construction<sup>b</sup></b>						
Survey	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yard	0.64	2.06	6.17	0.01	0.22	0.20
Guard Structure Installation	1.19	4.19	10.76	0.02	0.43	0.39
Existing Wood Poles Removal	0.32	1.07	2.83	0.00	0.12	0.11
Tubular Steel Pole Foundations Installation	2.91	10.27	28.44	0.05	1.09	0.92
Wood Pole Installation	0.55	1.83	4.89	0.01	0.21	0.19
Steel Pole Haul	0.25	0.85	2.30	0.00	0.09	0.08
Steel Pole Assembly	0.48	1.69	3.95	0.00	0.20	0.18
Steel Pole Erection	0.48	1.69	3.95	0.00	0.20	0.18
Conductor Installation	1.41	5.11	15.29	0.02	0.51	0.47
Guard Structure Removal	0.78	2.69	7.44	0.01	0.30	0.28
<b>Maximum</b>	<b>2.91</b>	<b>10.27</b>	<b>28.44</b>	<b>0.05</b>	<b>1.09</b>	<b>0.92</b>
<b>Telecommunications Construction</b>						
Control Building Communications Room	0.00	0.00	0.00	0.00	0.00	0.00
Overhead Cable Installation	2.26	8.67	27.79	0.04	0.86	0.79
Underground Facility Installation	0.84	3.53	5.17	0.01	0.47	0.40
Underground Cable Installation	2.65	9.44	27.82	0.04	0.95	0.87
Optical Systems Installation at Other Locations	0.00	0.00	0.00	0.00	0.00	0.00
<b>Maximum</b>	<b>2.65</b>	<b>9.44</b>	<b>27.82</b>	<b>0.04</b>	<b>0.95</b>	<b>0.87</b>
<b>Nuevo Substation Demolition</b>						
Civil	0.91	4.55	6.14	0.01	0.52	0.48
Electrical	0.54	28.48	4.04	0.00	0.27	0.25
Maintenance Crew Equipment Check	0.00	0.00	0.00	0.00	0.00	0.00
Testing	0.00	0.00	0.00	0.00	0.27	0.03
<b>Maximum</b>	<b>0.91</b>	<b>28.48</b>	<b>6.14</b>	<b>0.01</b>	<b>0.52</b>	<b>0.48</b>
<b>Model P.T. Substation Demolition</b>						
Civil	0.61	2.87	3.99	0.00	0.35	0.32
Electrical	3.07	11.22	29.09	0.04	1.16	1.07
<b>Maximum</b>	<b>3.07</b>	<b>11.22</b>	<b>29.09</b>	<b>0.04</b>	<b>1.16</b>	<b>1.07</b>

<sup>a</sup> The construction phases within a group could all occur at the same time at the same location.

The following Subtransmission Source Line construction activity emissions were divided by the following number of working locations per day:

- Guard Structure Installation: 4 structures per day
- Existing Wood Poles Removal: 10 poles per day
- Tubular Steel Pole Foundations Installation: 1 foundation per day
- Wood Pole Installation: 4 poles per day
- Steel Pole Haul: 4 locations per day
- Steel Pole Assembly: 3 poles per day
- Steel Pole Erection: 3 poles per day
- Conductor Installation: 1 pull, 1 tension and 1 splicing site per day
- Guard Structure Removal: 4 structures per day

<sup>b</sup> Right-of-way clearing, roads and landing work, and restoration were excluded from the LST analysis because these activities would occur over a distance of approximately 1 mile along the Proposed Subtransmission Source Line Route, instead of at a single location, each day.

**Table 5  
Construction Emissions  
Localized Significance Threshold Analysis**

Pollutant	Daily Onsite Emissions (lb/day)	Receptor Distance (m)	Allowable Emissions Interpolation <sup>a</sup>				Interpolated Emissions (lb/day) <sup>b</sup>	Allowable Exceeded?
			Distance 1 (m)	Emissions 1 (lb/day)	Distance 2 (m)	Emissions 2 (lb/day)		
<b>Substation Construction<sup>c</sup></b>								
CO	72	40	25	1,577	50	2,178	1,938	No
NOx	33	40	25	270	50	302	289	No
PM10	26	40	25	13	50	40	29	No
PM2.5	6	40	25	8	50	10	9	No
<b>Distribution Construction<sup>d</sup></b>								
CO	10	40	25	602	50	887	773	No
NOx	29	40	25	118	50	148	136	No
PM10	1	40	25	4	50	12	9	No
PM2.5	1	40	25	3	50	4	4	No
<b>Subtransmission Source Line Construction<sup>d</sup></b>								
CO	10	25	25	602	50	887	602	No
NOx	28	25	25	118	50	148	118	No
PM10	1	25	25	4	50	12	4	No
PM2.5	1	25	25	3	50	4	3	No
<b>Telecommunications Construction<sup>d</sup></b>								
CO	9	40	25	602	50	887	773	No
NOx	28	40	25	118	50	148	136	No
PM10	1	40	25	4	50	12	9	No
PM2.5	1	40	25	3	50	4	4	No
<b>Nuevo Substation Demolition<sup>d</sup></b>								
CO	28	60	50	887	100	1,746	1,059	No
NOx	6	60	50	148	100	212	161	No
PM10	1	60	50	12	100	30	16	No
PM2.5	0	60	50	4	100	8	5	No
<b>Model P.T. Substation Demolition<sup>d</sup></b>								
CO	11	60	50	887	100	1,746	1,059	No
NOx	29	60	50	148	100	212	161	No
PM10	1	60	50	12	100	30	16	No
PM2.5	1	60	50	4	100	8	5	No

<sup>a</sup> Allowable emissions are from Appendix C to Final Localized Significance Methodology, SCAQMD, revised October 2009, downloaded from <http://www.aqmd.gov/ceqa/handbook/LST/LST.html>

<sup>b</sup> Interpolated emissions = Emissions 1 + (Receptor distance - Distance 1) x (Emissions 2 - Emissions 1) / (Distance 2 - Distance 1)

<sup>c</sup> Closest receptor is a residence. Allowable emissions are for a 5 acre site

<sup>d</sup> Closest receptor is a residence. Allowable emissions are for a 1 acre site.

**Table 6**  
**Construction Emissions Summary**  
**Total Greenhouse Gas Emissions by Construction Phase**

Phase	CO <sub>2</sub> e (MT)
<b>Substation Construction</b>	
Survey	1.21
Grading	652.98
Fencing	3.15
Civil	72.97
Substation MEER	3.16
Electrical	37.09
Wiring	4.41
Transformers	15.09
Maintenance Crew Equipment Check	2.24
Testing	5.38
Asphalting	26.24
Landscaping	16.05
Irrigation	8.62
<b>Distribution Construction</b>	
Civil	41.77
Electrical	76.99
<b>Subtransmission Source Line Construction</b>	
Survey	0.35
Marshalling Yard	171.54
Right-of-Way Clearing	36.21
Roads and Landing Work	96.37
Guard Structure Installation	6.52
Existing Wood Poles Removal	1.97
Tubular Steel Pole Foundations Installation	151.36
Wood Pole Installation	25.67
Steel Pole Haul	3.34
Steel Pole Assembly	5.30
Steel Pole Erection	5.30
Conductor Installation	37.04
Guard Structure Removal	3.93
Restoration	11.95
<b>Telecommunications Construction</b>	
Control Building Communications Room	1.36
Overhead Cable Installation	83.44
Underground Facility Installation	8.77
Underground Cable Installation	12.59
Optical Systems Installation at Other Locations	4.32
<b>Nuevo Substation Demolition</b>	
Civil	3.55
Electrical	2.72
Maintenance Crew Equipment Check	0.13
Testing	0.13
<b>Model P.T. Substation Demolition</b>	
Civil	1.95
Electrical	41.92
<b>Total</b>	<b>1,685.07</b>

**Table 7  
Substation Construction Emissions  
Survey**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.02	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.87	0.09	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.87</b>	<b>0.09</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.19	1.84	0.19	0.00	0.02	0.01	1.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.19	0.00	
<b>Offsite Total</b>	<b>0.19</b>	<b>1.84</b>	<b>0.19</b>	<b>0.00</b>	<b>0.21</b>	<b>0.01</b>	<b>1.2</b>
<b>Total</b>	<b>0.19</b>	<b>1.85</b>	<b>0.19</b>	<b>0.00</b>	<b>1.08</b>	<b>0.10</b>	<b>1.2</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Survey Truck	2	10	N/A	1
<b>Offsite</b>				
Survey Truck	2	10	N/A	60
Worker Commute	2	10	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									

**Table 7  
Substation Construction Emissions  
Survey**

Survey Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Survey Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Survey Truck	0.00	0.02	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Survey Truck	0.10	0.92	0.09	0.00	0.01	0.01
Worker Commute	0.10	0.92	0.09	0.00	0.01	0.01
<b>Offsite Total</b>	<b>0.19</b>	<b>1.84</b>	<b>0.19</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>
<b>Total</b>	<b>0.19</b>	<b>1.85</b>	<b>0.19</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Survey Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Survey Truck	0.6	0.0	0.6
Worker Commute	0.6	0.0	0.6
<b>Offsite Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>
<b>Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Survey Truck	2	Unpaved	1	0.435	0.043	0.87	0.09
<b>Onsite Total</b>						<b>0.87</b>	<b>0.09</b>
<b>Offsite</b>							
Survey Truck	2	Paved	60	0.001	0.000	0.10	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.10	0.00
<b>Offsite Total</b>						<b>0.19</b>	<b>0.00</b>
<b>Total</b>						<b>1.06</b>	<b>0.09</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

a From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 8  
Substation Construction Emissions  
Grading**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	4.02	17.22	32.87	0.04	1.69	1.55	143.3
Onsite Motor Vehicle Exhaust	0.02	0.08	0.20	0.00	0.01	0.01	1.2
Onsite Motor Vehicle Fugitive PM	--	--	--	--	6.86	0.69	
Earthwork Fugitive PM	--	--	--	--	17.57	3.65	
<b>Onsite Total</b>	<b>4.04</b>	<b>17.30</b>	<b>33.07</b>	<b>0.04</b>	<b>26.13</b>	<b>5.90</b>	<b>144.5</b>
Offsite Motor Vehicle Exhaust	7.59	34.79	84.52	0.12	4.14	3.56	508.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	2.91	0.00	
<b>Offsite Total</b>	<b>7.59</b>	<b>34.79</b>	<b>84.52</b>	<b>0.12</b>	<b>7.05</b>	<b>3.56</b>	<b>508.5</b>
<b>Total</b>	<b>11.63</b>	<b>52.09</b>	<b>117.60</b>	<b>0.16</b>	<b>33.18</b>	<b>9.46</b>	<b>653.0</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Dozer	305	1	90	4
Loader	147	2	90	4
Scraper	267	1	90	3
Grader	110	1	90	3
4x4 Backhoe	79	2	90	2
4x4 Tamper	174	1	90	2

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Dozer	305	0.266	1.022	2.391	0.003	0.094	0.087	259.229	0.024	Crawler Tractors
Loader	147	0.131	0.629	1.013	0.001	0.058	0.054	106.315	0.012	Rubber Tired Loaders
Scraper	267	0.333	1.300	3.016	0.003	0.119	0.110	321.429	0.030	Scrapers
Grader	110	0.135	0.536	0.822	0.001	0.074	0.068	74.965	0.012	Graders
4x4 Backhoe	79	0.076	0.356	0.491	0.001	0.043	0.040	51.728	0.007	Tractors/Loaders/Backhoes
4x4 Tamper	174	0.101	0.588	0.860	0.001	0.047	0.043	106.516	0.009	Other Construction Equipment

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction = 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Dozer	1.06	4.09	9.57	0.01	0.38	0.35
Loader	1.05	5.03	8.11	0.01	0.47	0.43
Scraper	1.00	3.90	9.05	0.01	0.36	0.33
Grader	0.40	1.61	2.47	0.00	0.22	0.20
4x4 Backhoe	0.30	1.42	1.96	0.00	0.17	0.16
4x4 Tamper	0.20	1.18	1.72	0.00	0.09	0.09
<b>Total</b>	<b>4.02</b>	<b>17.22</b>	<b>32.87</b>	<b>0.04</b>	<b>1.69</b>	<b>1.55</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Dozer	42.3	0.0	42.4
Loader	34.7	0.0	34.8
Scraper	39.4	0.0	39.4
Grader	9.2	0.0	9.2
4x4 Backhoe	17.4	0.0	17.4
4x4 Tamper	0.0	0.0	0.0
<b>Total</b>	<b>143.0</b>	<b>0.0</b>	<b>143.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Water Truck	1	90	N/A	2
Tool Truck	1	90	N/A	1
Pickup 4x4	1	90	N/A	1
Dump Truck	45	90	N/A	0.1
<b>Offsite</b>				
Water Truck	1	90	N/A	10
Tool Truck	1	90	N/A	14

**Table 8**  
**Substation Construction Emissions**  
**Grading**

Pickup 4x4	1	90	N/A	14
Dump Truck	45	90	N/A	60
Worker Commute	15	90	N/A	60

<sup>a</sup> Dump trucks based on 40,000 CY import/export over 90 days and 10 CY/truck = 40,000 / 90 / 10 = 44.4

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Tool Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Pickup 4x4	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Tool Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Water Truck	0.01	0.02	0.06	0.00	0.00	0.00
Tool Truck	0.00	0.01	0.00	0.00	0.00	0.00
Pickup 4x4	0.00	0.01	0.00	0.00	0.00	0.00
Dump Truck	0.01	0.05	0.14	0.00	0.01	0.01
<b>Onsite Total</b>	<b>0.02</b>	<b>0.08</b>	<b>0.20</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Offsite</b>						
Water Truck	0.03	0.10	0.31	0.00	0.01	0.01
Tool Truck	0.01	0.11	0.01	0.00	0.00	0.00
Pickup 4x4	0.01	0.11	0.01	0.00	0.00	0.00
Dump Truck	6.82	27.58	83.49	0.11	4.04	3.49
Worker Commute	0.72	6.89	0.70	0.01	0.08	0.05
<b>Offsite Total</b>	<b>7.59</b>	<b>34.79</b>	<b>84.52</b>	<b>0.12</b>	<b>4.14</b>	<b>3.56</b>
<b>Total</b>	<b>7.61</b>	<b>34.87</b>	<b>84.73</b>	<b>0.12</b>	<b>4.15</b>	<b>3.57</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Water Truck	0.3	0.0	0.3
Tool Truck	0.0	0.0	0.0
Pickup 4x4	0.0	0.0	0.0
Dump Truck	0.8	0.0	0.8
<b>Onsite Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>
<b>Offsite</b>			
Water Truck	1.7	0.0	1.7
Tool Truck	0.6	0.0	0.6
Pickup 4x4	0.6	0.0	0.6
Dump Truck	464.7	0.0	465.0
Worker Commute	40.5	0.0	40.5
<b>Offsite Total</b>	<b>508.1</b>	<b>0.0</b>	<b>508.5</b>
<b>Total</b>	<b>509.4</b>	<b>0.0</b>	<b>509.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Water Truck	1	Unpaved	2	0.922	0.092	1.84	0.18
Tool Truck	1	Unpaved	1	0.435	0.043	0.43	0.04
Pickup 4x4	1	Unpaved	1	0.435	0.043	0.43	0.04
Dump Truck	45	Unpaved	0.1	0.922	0.092	4.15	0.42
<b>Onsite Total</b>						<b>6.86</b>	<b>0.69</b>
<b>Offsite</b>							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Tool Truck	1	Paved	14	0.001	0.000	0.01	0.00
Pickup 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Dump Truck	45	Paved	60	0.001	0.000	2.16	0.00
Worker Commute	15	Paved	60	0.001	0.000	0.72	0.00
<b>Offsite Total</b>						<b>2.91</b>	<b>0.00</b>

**Table 8**  
**Substation Construction Emissions**  
**Grading**

<b>Total</b>						<b>9.78</b>	<b>0.69</b>
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a From Table 51

b Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

<b>Activity</b>	<b>Activity Units</b>	<b>Activity Level</b>	<b>PM10 Emission Factor<sup>a</sup></b>	<b>PM2.5 Emission Factor<sup>a</sup></b>	<b>PM10 (lb/day)<sup>b</sup></b>	<b>PM2.5 (lb/day)<sup>b</sup></b>
Soil Handling <sup>c</sup>	CY/day	450	1.62E-03	3.36E-04	0.73	0.15
Bulldozing, Scraping and Grading	hr/day	10	1.481	0.308	14.81	3.08
Storage Pile Wind Erosion <sup>d</sup>	acres	0.13	15.7	3.26	2.04	0.42
<b>Total</b>					<b>17.57</b>	<b>3.65</b>

a From Table 52

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

c Peak daily estimated from total of 40,000 CY over 90 days

d Based on 225 CY in each of two cones 7 ft. tall x 58 ft. diameter

**Table 9  
Substation Construction Emissions  
Fencing**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.39	2.22	2.83	0.00	0.23	0.21	1.6
Onsite Motor Vehicle Exhaust	0.01	0.05	0.05	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.38	0.24	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.39</b>	<b>2.26</b>	<b>2.88</b>	<b>0.00</b>	<b>2.61</b>	<b>0.45</b>	<b>1.6</b>
Offsite Motor Vehicle Exhaust	0.25	2.27	0.67	0.00	0.04	0.03	1.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.21	0.00	
<b>Offsite Total</b>	<b>0.25</b>	<b>2.27</b>	<b>0.67</b>	<b>0.00</b>	<b>0.25</b>	<b>0.03</b>	<b>1.6</b>
<b>Total</b>	<b>0.65</b>	<b>4.53</b>	<b>3.55</b>	<b>0.01</b>	<b>2.86</b>	<b>0.48</b>	<b>3.1</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Bobcat	75	1	10	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Bobcat	75	0.048	0.277	0.354	0.001	0.029	0.026	42.762	0.004	Skid Steer Loaders

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, [http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Bobcat	0.39	2.22	2.83	0.00	0.23	0.21
<b>Total</b>	<b>0.39</b>	<b>2.22</b>	<b>2.83</b>	<b>0.00</b>	<b>0.23</b>	<b>0.21</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Bobcat	1.6	0.0	1.6
<b>Total</b>	<b>1.6</b>	<b>0.0</b>	<b>1.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Flatbed Truck	1	10	N/A	2
Crewcab Truck	1	10	N/A	1
<b>Offsite</b>				
Flatbed Truck	1	10	N/A	14
Crewcab Truck	1	10	N/A	14
Worker Commute	4	10	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Flatbed Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Crewcab Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
<b>Offsite</b>									
Flatbed Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Crewcab Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Flatbed Truck	0.00	0.03	0.03	0.00	0.00	0.00

**Table 9  
Substation Construction Emissions  
Fencing**

Crewcab Truck	0.00	0.02	0.02	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.01</b>	<b>0.05</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Flatbed Truck	0.03	0.22	0.24	0.00	0.01	0.01
Crewcab Truck	0.03	0.22	0.24	0.00	0.01	0.01
Worker Commute	0.19	1.84	0.19	0.00	0.02	0.01
<b>Offsite Total</b>	<b>0.25</b>	<b>2.27</b>	<b>0.67</b>	<b>0.00</b>	<b>0.04</b>	<b>0.03</b>
<b>Total</b>	<b>0.26</b>	<b>2.32</b>	<b>0.72</b>	<b>0.00</b>	<b>0.04</b>	<b>0.03</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Flatbed Truck	0.0	0.0	0.0
Crewcab Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Flatbed Truck	0.2	0.0	0.2
Crewcab Truck	0.2	0.0	0.2
Worker Commute	1.2	0.0	1.2
<b>Offsite Total</b>	<b>1.6</b>	<b>0.0</b>	<b>1.6</b>
<b>Total</b>	<b>1.6</b>	<b>0.0</b>	<b>1.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Flatbed Truck	1	Unpaved	2	0.922	0.092	1.84	0.18
Crewcab Truck	1	Unpaved	1	0.532	0.053	0.53	0.05
<b>Onsite Total</b>						<b>2.38</b>	<b>0.24</b>
<b>Offsite</b>							
Flatbed Truck	1	Paved	14	0.001	0.000	0.01	0.00
Crewcab Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
<b>Offsite Total</b>						<b>0.21</b>	<b>0.00</b>
<b>Total</b>						<b>2.59</b>	<b>0.24</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 10**  
**Substation Construction Emissions**  
**Civil**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.90	16.26	14.83	0.02	1.02	0.93	47.9
Onsite Motor Vehicle Exhaust	0.01	0.04	0.09	0.00	0.00	0.00	0.3
Onsite Motor Vehicle Fugitive PM	--	--	--	--	3.11	0.31	
Earthwork Fugitive PM	--	--	--	--	0.01	0.00	
<b>Onsite Total</b>	<b>1.90</b>	<b>16.30</b>	<b>14.92</b>	<b>0.02</b>	<b>4.14</b>	<b>1.25</b>	<b>48.2</b>
Offsite Motor Vehicle Exhaust	1.88	10.32	17.48	0.03	0.88	0.75	24.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.48	0.00	
<b>Offsite Total</b>	<b>1.88</b>	<b>10.32</b>	<b>17.48</b>	<b>0.03</b>	<b>1.36</b>	<b>0.75</b>	<b>24.7</b>
<b>Total</b>	<b>3.78</b>	<b>26.62</b>	<b>32.41</b>	<b>0.05</b>	<b>5.50</b>	<b>2.00</b>	<b>73.0</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Excavator	152	1	60	4
Foundation Auger	79	1	60	5
Backhoe	79	2	60	3
Skip Loader	75	1	60	3
Bobcat Skid Steer	75	2	60	3
Forklift	83	1	60	4
17-Ton Crane	125	1	45	2

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Excavator	152	0.129	0.668	0.961	0.001	0.057	0.052	112.222	0.012	Excavators
Foundation Auger	79	0.051	0.472	0.503	0.001	0.033	0.030	77.122	0.005	Bore/Drill Rigs
Backhoe	79	0.076	0.356	0.491	0.001	0.043	0.040	51.728	0.007	Tractors/Loaders/Backhoes
Skip Loader	75	0.048	0.277	0.354	0.001	0.029	0.026	42.762	0.004	Skid Steer Loaders
Bobcat Skid Steer	75	0.048	0.277	0.354	0.001	0.029	0.026	42.762	0.004	Skid Steer Loaders
Forklift	83	0.004	1.408	0.172	0.000	0.003	0.003	31.235	0.033	Forklifts-Propane
17-Ton Crane	125	0.109	0.484	0.826	0.001	0.048	0.044	80.345	0.010	Cranes

a From Table 48

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Excavator	0.52	2.67	3.85	0.01	0.23	0.21
Foundation Auger	0.26	2.36	2.51	0.00	0.16	0.15
Backhoe	0.46	2.13	2.95	0.00	0.26	0.24
Skip Loader	0.14	0.83	1.06	0.00	0.09	0.08
Bobcat Skid Steer	0.29	1.66	2.12	0.00	0.17	0.16
Forklift	0.02	5.63	0.69	0.00	0.01	0.01
17-Ton Crane	0.22	0.97	1.65	0.00	0.10	0.09
<b>Total</b>	<b>1.90</b>	<b>16.26</b>	<b>14.83</b>	<b>0.02</b>	<b>1.02</b>	<b>0.93</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Excavator	12.2	0.0	12.2
Foundation Auger	10.5	0.0	10.5
Backhoe	8.4	0.0	8.5
Skip Loader	3.5	0.0	3.5
Bobcat Skid Steer	13.1	0.0	13.2
Forklift	0.0	0.0	0.0
17-Ton Crane	0.0	0.0	0.0
<b>Total</b>	<b>47.8</b>	<b>0.0</b>	<b>47.9</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Dump Truck	1	60	N/A	1

**Table 10**  
**Substation Construction Emissions**  
**Civil**

Water Truck	1	60	N/A	1
Tool Truck	1	60	N/A	1
Concrete Truck	9	5	N/A	0.1
<b>Offsite</b>				
Water Truck	1	60	N/A	10
Concrete Truck	9	5	N/A	60
Tool Truck	1	60	N/A	14
Worker Commute	10	60	N/A	60

<sup>a</sup> Concrete trucks based on 445 CY over 5 days and 10 CY/truck = 445 / 5 / 10 = 8.9

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Tool Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Concrete Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Concrete Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Tool Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Dump Truck	0.00	0.01	0.03	0.00	0.00	0.00
Water Truck	0.00	0.01	0.03	0.00	0.00	0.00
Tool Truck	0.00	0.01	0.03	0.00	0.00	0.00
Concrete Truck	0.00	0.01	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.01</b>	<b>0.04</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Water Truck	0.03	0.10	0.31	0.00	0.01	0.01
Concrete Truck	1.36	5.52	16.70	0.02	0.81	0.70
Tool Truck	0.01	0.11	0.01	0.00	0.00	0.00
Worker Commute	0.48	4.59	0.47	0.01	0.05	0.03
<b>Offsite Total</b>	<b>1.88</b>	<b>10.32</b>	<b>17.48</b>	<b>0.03</b>	<b>0.88</b>	<b>0.75</b>
<b>Total</b>	<b>1.89</b>	<b>10.36</b>	<b>17.58</b>	<b>0.03</b>	<b>0.88</b>	<b>0.75</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Dump Truck	0.1	0.0	0.1
Water Truck	0.1	0.0	0.1
Tool Truck	0.1	0.0	0.1
Concrete Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>
<b>Offsite</b>			
Water Truck	1.1	0.0	1.1
Concrete Truck	5.2	0.0	5.2
Tool Truck	0.4	0.0	0.4
Worker Commute	18.0	0.0	18.0
<b>Offsite Total</b>	<b>24.7</b>	<b>0.0</b>	<b>24.7</b>
<b>Total</b>	<b>25.1</b>	<b>0.0</b>	<b>25.1</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Dump Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Water Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Tool Truck	1	Unpaved	1	0.435	0.043	0.43	0.04
Concrete Truck	9	Unpaved	0.1	0.922	0.092	0.83	0.08
<b>Onsite Total</b>						<b>3.11</b>	<b>0.31</b>
<b>Offsite</b>							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00

**Table 10**  
**Substation Construction Emissions**  
**Civil**

Concrete Truck	9	Paved	60	0.001	0.000	0.43	0.00
Tool Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	10	Paved	60	0.001	0.000	0.48	0.00
<b>Offsite Total</b>						<b>0.48</b>	<b>0.00</b>
<b>Total</b>						<b>3.59</b>	<b>0.31</b>

a From Table 51

b Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling <sup>c</sup>	CY/day	8	1.62E-03	3.36E-04	0.01	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.01</b>	<b>0.00</b>

a From Table 52

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

c Peak daily estimated from total of 450 CY over 60 days

**Table 11  
Substation Construction Emissions  
Substation MEER**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.03	0.03	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.84	0.18	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.00</b>	<b>1.85</b>	<b>0.19</b>	<b>0.1</b>
Offsite Motor Vehicle Exhaust	0.25	2.27	0.67	0.00	0.04	0.03	3.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.21	0.00	
<b>Offsite Total</b>	<b>0.25</b>	<b>2.27</b>	<b>0.67</b>	<b>0.00</b>	<b>0.25</b>	<b>0.03</b>	<b>3.1</b>
<b>Total</b>	<b>0.26</b>	<b>2.30</b>	<b>0.71</b>	<b>0.00</b>	<b>2.10</b>	<b>0.21</b>	<b>3.2</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Carry-all Truck	1	20	N/A	1
Stake Truck	1	20	N/A	1
<b>Offsite</b>				
Carry-all Truck	1	20	N/A	14
Stake Truck	1	20	N/A	14
Worker Commute	4	20	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
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**Table 11  
Substation Construction Emissions  
Substation MEER**

<b>Onsite</b>									
Carry-all Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Stake Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
<b>Offsite</b>									
Carry-all Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Stake Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Carry-all Truck	0.00	0.02	0.02	0.00	0.00	0.00
Stake Truck	0.00	0.02	0.02	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Carry-all Truck	0.03	0.22	0.24	0.00	0.01	0.01
Stake Truck	0.03	0.22	0.24	0.00	0.01	0.01
Worker Commute	0.19	1.84	0.19	0.00	0.02	0.01
<b>Offsite Total</b>	<b>0.25</b>	<b>2.27</b>	<b>0.67</b>	<b>0.00</b>	<b>0.04</b>	<b>0.03</b>
<b>Total</b>	<b>0.26</b>	<b>2.30</b>	<b>0.71</b>	<b>0.00</b>	<b>0.04</b>	<b>0.03</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Carry-all Truck	0.0	0.0	0.0
Stake Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Offsite</b>			
Carry-all Truck	0.4	0.0	0.4
Stake Truck	0.4	0.0	0.4
Worker Commute	2.4	0.0	2.4
<b>Offsite Total</b>	<b>3.1</b>	<b>0.0</b>	<b>3.1</b>
<b>Total</b>	<b>3.2</b>	<b>0.0</b>	<b>3.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Carry-all Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Stake Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
<b>Onsite Total</b>						<b>1.84</b>	<b>0.18</b>
<b>Offsite</b>							
Carry-all Truck	1	Paved	14	0.001	0.000	0.01	0.00
Stake Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
<b>Offsite Total</b>						<b>0.21</b>	<b>0.00</b>
<b>Total</b>						<b>2.06</b>	<b>0.18</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

**Table 11**  
**Substation Construction Emissions**  
**Substation MEER**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 12  
Substation Construction Emissions  
Electrical**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.46	36.82	3.45	0.00	0.25	0.23	15.0
Onsite Motor Vehicle Exhaust	0.00	0.02	0.00	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.06	0.11	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.46</b>	<b>36.83</b>	<b>3.45</b>	<b>0.00</b>	<b>1.31</b>	<b>0.34</b>	<b>15.1</b>
Offsite Motor Vehicle Exhaust	0.50	4.81	0.49	0.01	0.06	0.04	22.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.50	0.00	
<b>Offsite Total</b>	<b>0.50</b>	<b>4.81</b>	<b>0.49</b>	<b>0.01</b>	<b>0.56</b>	<b>0.04</b>	<b>22.0</b>
<b>Total</b>	<b>0.96</b>	<b>41.64</b>	<b>3.94</b>	<b>0.01</b>	<b>1.87</b>	<b>0.37</b>	<b>37.1</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Scissor Lift	25	2	70	3
Manlift	25	2	70	3
Reach Manlift	25	1	70	4
15-Ton Crane	125	1	70	3

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Scissor Lift	25	0.008	2.210	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane
Manlift	25	0.008	2.210	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane
Reach Manlift	25	0.008	2.210	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane
15-Ton Crane	125	0.109	0.484	0.826	0.001	0.048	0.044	80.345	0.010	Cranes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Scissor Lift	0.05	13.26	0.36	0.00	0.04	0.04
Manlift	0.05	13.26	0.36	0.00	0.04	0.04
Reach Manlift	0.03	8.84	0.24	0.00	0.03	0.02
15-Ton Crane	0.33	1.45	2.48	0.00	0.14	0.13
<b>Total</b>	<b>0.46</b>	<b>36.82</b>	<b>3.45</b>	<b>0.00</b>	<b>0.25</b>	<b>0.23</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Scissor Lift	2.5	0.0	2.8
Manlift	2.5	0.0	2.8
Reach Manlift	1.7	0.0	1.8
15-Ton Crane	7.7	0.0	7.7
<b>Total</b>	<b>14.3</b>	<b>0.0</b>	<b>15.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Crew Truck	2	70	N/A	1
<b>Offsite</b>				
Crew Truck	2	70	N/A	14
Worker Commute	10	70	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Table 12  
Substation Construction Emissions  
Electrical**

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Crew Truck	0.00	0.02	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.02	0.21	0.02	0.00	0.00	0.00
Worker Commute	0.48	4.59	0.47	0.01	0.05	0.03
<b>Offsite Total</b>	<b>0.50</b>	<b>4.81</b>	<b>0.49</b>	<b>0.01</b>	<b>0.06</b>	<b>0.04</b>
<b>Total</b>	<b>0.50</b>	<b>4.82</b>	<b>0.49</b>	<b>0.01</b>	<b>0.06</b>	<b>0.04</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Crew Truck	0.1	0.0	0.1
<b>Onsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Offsite</b>			
Crew Truck	1.0	0.0	1.0
Worker Commute	21.0	0.0	21.0
<b>Offsite Total</b>	<b>22.0</b>	<b>0.0</b>	<b>22.0</b>
<b>Total</b>	<b>22.0</b>	<b>0.0</b>	<b>22.1</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Crew Truck	2	Unpaved	1	0.532	0.053	1.06	0.11
<b>Onsite Total</b>						<b>1.06</b>	<b>0.11</b>
<b>Offsite</b>							
Crew Truck	2	Paved	14	0.001	0.000	0.02	0.00
Worker Commute	10	Paved	60	0.001	0.000	0.48	0.00
<b>Offsite Total</b>						<b>0.50</b>	<b>0.00</b>
<b>Total</b>						<b>1.57</b>	<b>0.11</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 13  
Substation Construction Emissions  
Wiring**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.03	8.84	0.24	0.00	0.03	0.02	0.7
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.03</b>	<b>8.84</b>	<b>0.24</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>	<b>0.7</b>
Offsite Motor Vehicle Exhaust	0.24	2.30	0.23	0.00	0.03	0.02	3.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.24	0.00	
<b>Offsite Total</b>	<b>0.24</b>	<b>2.30</b>	<b>0.23</b>	<b>0.00</b>	<b>0.27</b>	<b>0.02</b>	<b>3.8</b>
<b>Total</b>	<b>0.27</b>	<b>11.14</b>	<b>0.48</b>	<b>0.00</b>	<b>0.29</b>	<b>0.04</b>	<b>4.4</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Manlift	25	1	25	4

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Manlift	25	0.008	2.210	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Manlift	0.03	8.84	0.24	0.00	0.03	0.02
<b>Total</b>	<b>0.03</b>	<b>8.84</b>	<b>0.24</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Manlift	0.6	0.0	0.7
<b>Total</b>	<b>0.6</b>	<b>0.0</b>	<b>0.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				
<b>Offsite</b>				
Worker Commute	5	25	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None									
<b>Offsite</b>									
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.24</b>	<b>2.30</b>	<b>0.23</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>
<b>Total</b>	<b>0.24</b>	<b>2.30</b>	<b>0.23</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

**Table 13**  
**Substation Construction Emissions**  
**Wiring**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Worker Commute	3.7	0.0	3.8
<b>Offsite Total</b>	<b>3.7</b>	<b>0.0</b>	<b>3.8</b>
<b>Total</b>	<b>3.7</b>	<b>0.0</b>	<b>3.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None							
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
<b>Offsite Total</b>						<b>0.24</b>	<b>0.00</b>
<b>Total</b>						<b>0.24</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 14  
Substation Construction Emissions  
Transformers**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.68	11.35	5.99	0.01	0.30	0.28	9.2
Onsite Motor Vehicle Exhaust	0.00	0.03	0.03	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.99	0.20	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.68</b>	<b>11.38</b>	<b>6.02</b>	<b>0.01</b>	<b>2.29</b>	<b>0.48</b>	<b>9.3</b>
Offsite Motor Vehicle Exhaust	0.31	2.97	0.30	0.00	0.03	0.02	5.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.31	0.00	
<b>Offsite Total</b>	<b>0.31</b>	<b>2.97</b>	<b>0.30</b>	<b>0.00</b>	<b>0.35</b>	<b>0.02</b>	<b>5.8</b>
<b>Total</b>	<b>0.99</b>	<b>14.35</b>	<b>6.32</b>	<b>0.01</b>	<b>2.64</b>	<b>0.50</b>	<b>15.1</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Crane	125	1	30	6
Forklift	25	1	30	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Crane	125	0.109	0.484	0.826	0.001	0.048	0.044	80.345	0.010	Cranes
Forklift	83	0.004	1.408	0.172	0.000	0.003	0.003	31.235	0.033	Forklifts-Propane

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Crane	0.65	2.90	4.96	0.01	0.29	0.26
Forklift	0.02	8.45	1.03	0.00	0.02	0.02
<b>Total</b>	<b>0.68</b>	<b>11.35</b>	<b>5.99</b>	<b>0.01</b>	<b>0.30</b>	<b>0.28</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Crane	6.6	0.0	6.6
Forklift	2.6	0.0	2.6
<b>Total</b>	<b>9.1</b>	<b>0.0</b>	<b>9.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Crew Truck	2	30	N/A	1
Low Bed Truck	1	30	N/A	1
<b>Offsite</b>				
Crew Truck	2	30	N/A	14
Worker Commute	6	30	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Low Bed Truck	HHD	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
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**Table 14**  
**Substation Construction Emissions**  
**Transformers**

<b>Onsite</b>						
Crew Truck	0.00	0.02	0.00	0.00	0.00	0.00
Low Bed Truck	0.00	0.01	0.03	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.02	0.21	0.02	0.00	0.00	0.00
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.31</b>	<b>2.97</b>	<b>0.30</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>
<b>Total</b>	<b>0.31</b>	<b>3.00</b>	<b>0.33</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Crew Truck	0.0	0.0	0.0
Low Bed Truck	0.1	0.0	0.1
<b>Onsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Offsite</b>			
Crew Truck	0.4	0.0	0.4
Worker Commute	5.4	0.0	5.4
<b>Offsite Total</b>	<b>5.8</b>	<b>0.0</b>	<b>5.8</b>
<b>Total</b>	<b>5.9</b>	<b>0.0</b>	<b>5.9</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Crew Truck	2	Unpaved	1	0.532	0.053	1.06	0.11
Low Bed Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
<b>Onsite Total</b>						<b>1.99</b>	<b>0.20</b>
<b>Offsite</b>							
Crew Truck	2	Paved	14	0.001	0.000	0.02	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>0.31</b>	<b>0.00</b>
<b>Total</b>						<b>2.30</b>	<b>0.20</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 15  
Substation Construction Emissions  
Maintenance Crew Equipment Check**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.01	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.73	0.07	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.73</b>	<b>0.07</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.12	1.13	0.11	0.00	0.01	0.01	2.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.12	0.00	
<b>Offsite Total</b>	<b>0.12</b>	<b>1.13</b>	<b>0.11</b>	<b>0.00</b>	<b>0.13</b>	<b>0.01</b>	<b>2.2</b>
<b>Total</b>	<b>0.12</b>	<b>1.14</b>	<b>0.12</b>	<b>0.00</b>	<b>0.86</b>	<b>0.08</b>	<b>2.2</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
None										

a From Table 48

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, [http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Maintenance Truck	2	30	N/A	0.5
<b>Offsite</b>				
Maintenance Truck	2	30	N/A	14
Worker Commute	2	30	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Maintenance Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Maintenance Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Maintenance Truck	0.00	0.01	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Maintenance Truck	0.02	0.21	0.02	0.00	0.00	0.00
Worker Commute	0.10	0.92	0.09	0.00	0.01	0.01

**Table 15**  
**Substation Construction Emissions**  
**Maintenance Crew Equipment Check**

<b>Offsite Total</b>	<b>0.12</b>	<b>1.13</b>	<b>0.11</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Total</b>	<b>0.12</b>	<b>1.14</b>	<b>0.12</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Maintenance Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Maintenance Truck	0.4	0.0	0.4
Worker Commute	1.8	0.0	1.8
<b>Offsite Total</b>	<b>2.2</b>	<b>0.0</b>	<b>2.2</b>
<b>Total</b>	<b>2.2</b>	<b>0.0</b>	<b>2.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Maintenance Truck	2	Unpaved	0.5	0.726	0.073	0.73	0.07
<b>Onsite Total</b>						<b>0.73</b>	<b>0.07</b>
<b>Offsite</b>							
Maintenance Truck	2	Paved	14	0.001	0.000	0.02	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.10	0.00
<b>Offsite Total</b>						<b>0.12</b>	<b>0.00</b>
<b>Total</b>						<b>0.84</b>	<b>0.07</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 16**  
**Substation Construction Emissions**  
**Testing**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.27	0.03	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.27</b>	<b>0.03</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.11	1.03	0.10	0.00	0.01	0.01	5.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
<b>Offsite Total</b>	<b>0.11</b>	<b>1.03</b>	<b>0.10</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>5.4</b>
<b>Total</b>	<b>0.11</b>	<b>1.03</b>	<b>0.10</b>	<b>0.00</b>	<b>0.39</b>	<b>0.03</b>	<b>5.4</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
None										

a From Table 48

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, [http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh. <sup>a</sup>
<b>Onsite</b>				
Crew Truck	1	80	N/A	0.5
<b>Offsite</b>				
Crew Truck	1	80	N/A	14
Worker Commute	2	80	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Crew Truck	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.01	0.11	0.01	0.00	0.00	0.00
Worker Commute	0.10	0.92	0.09	0.00	0.01	0.01

**Table 16**  
**Substation Construction Emissions**  
**Testing**

<b>Offsite Total</b>	<b>0.11</b>	<b>1.03</b>	<b>0.10</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Total</b>	<b>0.11</b>	<b>1.03</b>	<b>0.10</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Crew Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Crew Truck	0.6	0.0	0.6
Worker Commute	4.8	0.0	4.8
<b>Offsite Total</b>	<b>5.4</b>	<b>0.0</b>	<b>5.4</b>
<b>Total</b>	<b>5.4</b>	<b>0.0</b>	<b>5.4</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Crew Truck	1	Unpaved	0.5	0.532	0.053	0.27	0.03
<b>Onsite Total</b>						<b>0.27</b>	<b>0.03</b>
<b>Offsite</b>							
Crew Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.10	0.00
<b>Offsite Total</b>						<b>0.11</b>	<b>0.00</b>
<b>Total</b>						<b>0.37</b>	<b>0.03</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 17**  
**Substation Construction Emissions**  
**Asphalting**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.30	7.46	9.63	0.01	0.70	0.65	6.0
Onsite Motor Vehicle Exhaust	0.01	0.03	0.06	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.38	0.24	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Asphaltic Paving VOC	0.7	--	--	--	--	--	--
<b>Onsite Total</b>	<b>2.99</b>	<b>7.49</b>	<b>9.69</b>	<b>0.01</b>	<b>3.08</b>	<b>0.89</b>	<b>6.1</b>
Offsite Motor Vehicle Exhaust	1.83	9.10	18.86	0.03	0.93	0.80	20.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.79	0.00	
<b>Offsite Total</b>	<b>1.83</b>	<b>9.10</b>	<b>18.86</b>	<b>0.03</b>	<b>1.72</b>	<b>0.80</b>	<b>20.1</b>
<b>Total</b>	<b>4.82</b>	<b>16.58</b>	<b>28.54</b>	<b>0.04</b>	<b>4.80</b>	<b>1.68</b>	<b>26.2</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Paving Roller	46	2	15	4
Asphalt Paver	152	1	15	4
Tractor	45	1	15	3
Asphalt Curb Machine	35	1	15	3

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Paving Roller	46	0.110	0.299	0.268	0.000	0.026	0.024	25.983	0.010	Rollers
Asphalt Paver	152	0.186	0.783	1.449	0.001	0.082	0.075	128.285	0.017	Pavers
Tractor	45	0.101	0.330	0.303	0.000	0.027	0.025	30.347	0.009	Tractors/Loaders/Backhoes
Asphalt Curb Machine	35	0.124	0.312	0.259	0.000	0.028	0.026	23.927	0.011	Paving Equipment

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Paving Roller	0.88	2.40	2.14	0.00	0.21	0.19
Asphalt Paver	0.75	3.13	5.80	0.01	0.33	0.30
Tractor	0.30	0.99	0.91	0.00	0.08	0.07
Asphalt Curb Machine	0.37	0.94	0.78	0.00	0.08	0.08
<b>Total</b>	<b>2.30</b>	<b>7.46</b>	<b>9.63</b>	<b>0.01</b>	<b>0.70</b>	<b>0.65</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Paving Roller	1.4	0.0	1.4
Asphalt Paver	3.5	0.0	3.5
Tractor	0.6	0.0	0.6
Asphalt Curb Machine	0.5	0.0	0.5
<b>Total</b>	<b>6.0</b>	<b>0.0</b>	<b>6.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>b</sup>	Days Used	Hours Used/Day	Miles/Day/Veh. <sup>a</sup>
<b>Onsite</b>				
Stake Truck	1	15	N/A	0.5
Dump Truck	1	15	N/A	0.5
Crew Truck	2	15	N/A	0.5
Asphalt Delivery Truck	4	15	N/A	0.1
Aggregate Base Delivery Truck	6	15	N/A	0.1
<b>Offsite</b>				
Crew Truck	2	15	N/A	14
Asphalt Delivery Truck	4	15	N/A	60
Aggregate Base Delivery Truck	6	15	N/A	60
Worker Commute	6	15	N/A	60

<sup>a</sup> Onsite travel based on 25% use at 10 mph average speed

<sup>b</sup> Asphalt delivery trucks based on 308 CY over 8 days and 10 CY/truck = 308 / 8 / 10 = 3.9

**Table 17**  
**Substation Construction Emissions**  
**Asphalting**

Aggregate base delivery trucks based on 370 CY over 7 days and 10 CY/truck = 370 / 7 / 10 = 5.3

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Stake Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Asphalt Delivery Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Aggregate Base Delivery Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Asphalt Delivery Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Aggregate Base Delivery Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Stake Truck	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Crew Truck	0.00	0.01	0.00	0.00	0.00	0.00
Asphalt Delivery Truck	0.00	0.00	0.01	0.00	0.00	0.00
Aggregate Base Delivery Truck	0.00	0.01	0.02	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.01</b>	<b>0.03</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.02	0.21	0.02	0.00	0.00	0.00
Asphalt Delivery Truck	0.61	2.45	7.42	0.01	0.36	0.31
Aggregate Base Delivery Truck	0.91	3.68	11.13	0.01	0.54	0.47
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>1.83</b>	<b>9.10</b>	<b>18.86</b>	<b>0.03</b>	<b>0.93</b>	<b>0.80</b>
<b>Total</b>	<b>1.83</b>	<b>9.13</b>	<b>18.92</b>	<b>0.03</b>	<b>0.94</b>	<b>0.80</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Stake Truck	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Crew Truck	0.0	0.0	0.0
Asphalt Delivery Truck	0.0	0.0	0.0
Aggregate Base Delivery Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Offsite</b>			
Crew Truck	0.2	0.0	0.2
Asphalt Delivery Truck	6.9	0.0	6.9
Aggregate Base Delivery Truck	10.3	0.0	10.3
Worker Commute	2.7	0.0	2.7
<b>Offsite Total</b>	<b>20.1</b>	<b>0.0</b>	<b>20.1</b>
<b>Total</b>	<b>20.2</b>	<b>0.0</b>	<b>20.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Stake Truck	1	Unpaved	0.5	0.922	0.092	0.46	0.05
Dump Truck	1	Unpaved	0.5	0.922	0.092	0.46	0.05
Crew Truck	2	Unpaved	0.5	0.532	0.053	0.53	0.05
Asphalt Delivery Truck	4	Unpaved	0.1	0.922	0.092	0.37	0.04
Aggregate Base Delivery Truck	6	Unpaved	0.1	0.922	0.092	0.55	0.06
<b>Onsite Total</b>						<b>2.38</b>	<b>0.24</b>
<b>Offsite</b>							
Crew Truck	2	Paved	14	0.001	0.000	0.02	0.00
Asphalt Delivery Truck	4	Paved	60	0.001	0.000	0.19	0.00
Aggregate Base Delivery Truck	6	Paved	60	0.001	0.000	0.29	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>0.79</b>	<b>0.00</b>

**Table 17**  
**Substation Construction Emissions**  
**Asphalting**

<b>Total</b>						<b>3.17</b>	<b>0.24</b>
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a From Table 51

b Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

a From Table 52

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Asphaltic Paving VOC Emissions**

Area Paved (acre/day) <sup>a</sup>	Emission Factor (lb/acre) <sup>b</sup>	VOC (lb/day) <sup>c</sup>
0.26	2.62	0.7

<sup>a</sup> Assumed 11,200 sq. ft. external driveway paved in one day

<sup>b</sup> From URBEMISS 2007 User's Guide, Appendix A,

<http://www.urbemis.com/software/download.html>

<sup>c</sup> Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

**Table 18**  
**Substation Construction Emissions**  
**Landscaping**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.60	1.98	1.82	0.00	0.16	0.15	1.2
Onsite Motor Vehicle Exhaust	0.00	0.02	0.05	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.57	0.16	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.61</b>	<b>2.00</b>	<b>1.87</b>	<b>0.00</b>	<b>1.73</b>	<b>0.31</b>	<b>1.3</b>
Offsite Motor Vehicle Exhaust	1.35	7.05	13.27	0.02	0.66	0.56	14.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.62	0.00	
<b>Offsite Total</b>	<b>1.35</b>	<b>7.05</b>	<b>13.27</b>	<b>0.02</b>	<b>1.29</b>	<b>0.56</b>	<b>14.8</b>
<b>Total</b>	<b>1.96</b>	<b>9.05</b>	<b>15.14</b>	<b>0.02</b>	<b>3.02</b>	<b>0.87</b>	<b>16.1</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Tractor	45	1	15	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Tractor	45	0.101	0.330	0.303	0.000	0.027	0.025	30.347	0.009	Tractors/Loaders/Backhoes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Tractor	0.60	1.98	1.82	0.00	0.16	0.15
<b>Total</b>	<b>0.60</b>	<b>1.98</b>	<b>1.82</b>	<b>0.00</b>	<b>0.16</b>	<b>0.15</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Tractor	1.2	0.0	1.2
<b>Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateaction.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateaction.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Dump Truck	1	15	N/A	1
Crushed Rock Delivery Truck	7	15	N/A	0.1
<b>Offsite</b>				
Crushed Rock Delivery Truck	7	15	N/A	60
Worker Commute	6	15	N/A	60

<sup>a</sup> Crushed rock delivery trucks based on 1,050 CY over 15 days and 10 CY/truck = 1,050 / 15 / 10 = 7

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Crushed Rock Delivery Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Crushed Rock Delivery Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Dump Truck	0.00	0.01	0.03	0.00	0.00	0.00
Crushed Rock Delivery Truck	0.00	0.01	0.02	0.00	0.00	0.00

**Table 18**  
**Substation Construction Emissions**  
**Landscaping**

<b>Onsite Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crushed Rock Delivery Truck	1.06	4.29	12.99	0.02	0.63	0.54
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>1.35</b>	<b>7.05</b>	<b>13.27</b>	<b>0.02</b>	<b>0.66</b>	<b>0.56</b>
<b>Total</b>	<b>1.35</b>	<b>7.06</b>	<b>13.32</b>	<b>0.02</b>	<b>0.66</b>	<b>0.57</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Dump Truck	0.0	0.0	0.0
Crushed Rock Delivery Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Crushed Rock Delivery Truck	12.0	0.0	12.1
Worker Commute	2.7	0.0	2.7
<b>Offsite Total</b>	<b>14.7</b>	<b>0.0</b>	<b>14.8</b>
<b>Total</b>	<b>14.8</b>	<b>0.0</b>	<b>14.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Dump Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Crushed Rock Delivery Truck	7	Unpaved	0.1	0.922	0.092	0.65	0.06
<b>Onsite Total</b>						<b>1.57</b>	<b>0.16</b>
<b>Offsite</b>							
Crushed Rock Delivery Truck	7	Paved	60	0.001	0.000	0.34	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>0.62</b>	<b>0.00</b>
<b>Total</b>						<b>2.19</b>	<b>0.16</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 19**  
**Substation Construction Emissions**  
**Irrigation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.80	5.21	4.75	0.01	0.44	0.41	4.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.27	0.03	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>1.80</b>	<b>5.21</b>	<b>4.75</b>	<b>0.01</b>	<b>0.71</b>	<b>0.43</b>	<b>4.3</b>
Offsite Motor Vehicle Exhaust	0.35	3.32	0.34	0.00	0.04	0.02	4.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.35	0.00	
<b>Offsite Total</b>	<b>0.35</b>	<b>3.32</b>	<b>0.34</b>	<b>0.00</b>	<b>0.39</b>	<b>0.02</b>	<b>4.3</b>
<b>Total</b>	<b>2.15</b>	<b>8.53</b>	<b>5.09</b>	<b>0.01</b>	<b>1.10</b>	<b>0.46</b>	<b>8.6</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Bobcat	45	1	20	8
Trencher	33	1	20	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Bobcat	45	0.060	0.233	0.240	0.000	0.018	0.017	25.519	0.005	Skid Steer Loaders
Trencher	33	0.166	0.418	0.354	0.000	0.037	0.034	32.918	0.015	Trenchers

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Bobcat	0.48	1.87	1.92	0.00	0.14	0.13
Trencher	1.32	3.34	2.83	0.00	0.30	0.27
<b>Total</b>	<b>1.80</b>	<b>5.21</b>	<b>4.75</b>	<b>0.01</b>	<b>0.44</b>	<b>0.41</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Bobcat	1.9	0.0	1.9
Trencher	2.4	0.0	2.4
<b>Total</b>	<b>4.2</b>	<b>0.0</b>	<b>4.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>b</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Crew Truck	1	20	N/A	0.5
<b>Offsite</b>				
Crew Truck	1	20	N/A	14
Worker Commute	7	20	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Crew Truck	0.00	0.00	0.00	0.00	0.00	0.00

**Table 19**  
**Substation Construction Emissions**  
**Irrigation**

<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.01	0.11	0.01	0.00	0.00	0.00
Worker Commute	0.33	3.21	0.33	0.00	0.04	0.02
<b>Offsite Total</b>	<b>0.35</b>	<b>3.32</b>	<b>0.34</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>
<b>Total</b>	<b>0.35</b>	<b>3.33</b>	<b>0.34</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Crew Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Crew Truck	0.1	0.0	0.1
Worker Commute	4.2	0.0	4.2
<b>Offsite Total</b>	<b>4.3</b>	<b>0.0</b>	<b>4.3</b>
<b>Total</b>	<b>4.3</b>	<b>0.0</b>	<b>4.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Crew Truck	1	Unpaved	0.5	0.532	0.053	0.27	0.03
<b>Onsite Total</b>						<b>0.27</b>	<b>0.03</b>
<b>Offsite</b>							
Crew Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
<b>Offsite Total</b>						<b>0.35</b>	<b>0.00</b>
<b>Total</b>						<b>0.61</b>	<b>0.03</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 20**  
**Distribution Construction Emissions**  
**Civil**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.99	9.44	29.38	0.04	1.03	0.94	32.6
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.06	0.01	
<b>Onsite Total</b>	<b>2.99</b>	<b>9.44</b>	<b>29.38</b>	<b>0.04</b>	<b>1.08</b>	<b>0.96</b>	<b>32.6</b>
Offsite Motor Vehicle Exhaust	1.28	6.90	12.40	0.02	0.60	0.52	9.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.58	0.00	
<b>Offsite Total</b>	<b>1.28</b>	<b>6.90</b>	<b>12.40</b>	<b>0.02</b>	<b>1.18</b>	<b>0.52</b>	<b>9.2</b>
<b>Total</b>	<b>4.27</b>	<b>16.34</b>	<b>41.78</b>	<b>0.06</b>	<b>2.26</b>	<b>1.47</b>	<b>41.8</b>

**Construction Equipment Summary**

Equipment	Horsepower	Number	Days Used	Hours Used/Day
Backhoe	350	1	18	8
Roller	250	1	18	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horsepower	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Backhoe	350	0.239	0.771	2.262	0.004	0.078	0.072	344.854	0.022	Tractors/Loaders/Backhoes
Roller	250	0.135	0.408	1.410	0.002	0.050	0.046	153.090	0.012	Rollers

a From Table 48

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Backhoe	1.91	6.17	18.10	0.03	0.63	0.58
Roller	1.08	3.27	11.28	0.01	0.40	0.37
<b>Total</b>	<b>2.99</b>	<b>9.44</b>	<b>29.38</b>	<b>0.04</b>	<b>1.03</b>	<b>0.94</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Backhoe	22.5	0.0	22.6
Roller	10.0	0.0	10.0
<b>Total</b>	<b>32.5</b>	<b>0.0</b>	<b>32.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				
<b>Offsite</b>				
Dump Truck	4	9	N/A	60
Delivery Truck	1	4	N/A	60
Concrete Truck	2	9	N/A	60
Worker Commute	5	18	N/A	60

<sup>a</sup> Dump truck based on 315 CY over 9 days and 10 CY/truck = 315 / 9 / 10 = 3.5

Concrete trucks based on 100 CY over 9 days and 10 CY/truck = 100 / 9 / 10 = 1.1

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Delivery Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Concrete Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Table 20**  
**Distribution Construction Emissions**  
**Civil**

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Dump Truck	0.61	2.45	7.42	0.01	0.36	0.31
Delivery Truck	0.13	0.93	1.04	0.00	0.04	0.03
Concrete Truck	0.30	1.23	3.71	0.00	0.18	0.16
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>1.28</b>	<b>6.90</b>	<b>12.40</b>	<b>0.02</b>	<b>0.60</b>	<b>0.52</b>
<b>Total</b>	<b>1.28</b>	<b>6.90</b>	<b>12.40</b>	<b>0.02</b>	<b>0.60</b>	<b>0.52</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Dump Truck	4.1	0.0	4.1
Delivery Truck	0.3	0.0	0.3
Concrete Truck	2.1	0.0	2.1
Worker Commute	2.7	0.0	2.7
<b>Offsite Total</b>	<b>9.2</b>	<b>0.0</b>	<b>9.2</b>
<b>Total</b>	<b>9.2</b>	<b>0.0</b>	<b>9.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None						0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Dump Truck	4	Paved	60	0.001	0.000	0.19	0.00
Delivery Truck	1	Paved	60	0.001	0.000	0.05	0.00
Concrete Truck	2	Paved	60	0.001	0.000	0.10	0.00
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
<b>Offsite Total</b>						<b>0.58</b>	<b>0.00</b>
<b>Total</b>						<b>0.58</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling <sup>c</sup>	CY/day	35	1.62E-03	3.36E-04	0.06	0.01
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.06</b>	<b>0.01</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

<sup>c</sup> Based on 315 CY over 9 days

**Table 21**  
**Distribution Construction Emissions**  
**Electrical**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.86	9.51	24.58	0.03	0.95	0.88	61.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>2.86</b>	<b>9.51</b>	<b>24.58</b>	<b>0.03</b>	<b>0.95</b>	<b>0.88</b>	<b>61.8</b>
Offsite Motor Vehicle Exhaust	0.56	4.64	2.17	0.01	0.13	0.10	15.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.45	0.00	
<b>Offsite Total</b>	<b>0.56</b>	<b>4.64</b>	<b>2.17</b>	<b>0.01</b>	<b>0.58</b>	<b>0.10</b>	<b>15.2</b>
<b>Total</b>	<b>3.43</b>	<b>14.15</b>	<b>26.75</b>	<b>0.04</b>	<b>1.53</b>	<b>0.97</b>	<b>77.0</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Rodder Truck	35	1	42	8
Cable Dolly	9	1	42	8
Reel Truck	210	1	42	8
Boom Truck	235	1	42	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Rodder Truck	35	0.084	0.274	0.271	0.000	0.023	0.021	27.990	0.008	Other Construction Equipment
Cable Dolly	9	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Reel Truck	210	0.152	0.543	1.657	0.002	0.055	0.050	254.238	0.014	Other Construction Equipment
Boom Truck	235	0.110	0.310	1.071	0.001	0.039	0.036	112.159	0.010	Cranes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Rodder Truck	0.67	2.19	2.17	0.00	0.18	0.17
Cable Dolly	0.09	0.49	0.59	0.00	0.02	0.02
Reel Truck	1.21	4.34	13.26	0.02	0.44	0.40
Boom Truck	0.88	2.48	8.57	0.01	0.31	0.29
<b>Total</b>	<b>2.86</b>	<b>9.51</b>	<b>24.58</b>	<b>0.03</b>	<b>0.95</b>	<b>0.88</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Rodder Truck	4.3	0.0	4.3
Cable Dolly	1.5	0.0	1.5
Reel Truck	38.7	0.0	38.8
Boom Truck	17.1	0.0	17.1
<b>Total</b>	<b>61.6</b>	<b>0.0</b>	<b>61.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
Rodder Truck	1	42	N/A	14
Reel Truck	1	42	N/A	14
Line Truck	1	42	N/A	14
Troubleman Truck	1	42	N/A	14
Boom Truck	1	42	N/A	14
Foreman Truck	1	42	N/A	14
Worker Commute	8	42	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
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**Table 21**  
**Distribution Construction Emissions**  
**Electrical**

Onsite									
None		0.00E+00							
Offsite									
Rodder Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Reel Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Line Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Troubleman Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Boom Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Foreman Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Offsite						
Rodder Truck	0.04	0.14	0.43	0.00	0.02	0.02
Reel Truck	0.04	0.14	0.43	0.00	0.02	0.02
Line Truck	0.03	0.22	0.24	0.00	0.01	0.01
Troubleman Truck	0.03	0.22	0.24	0.00	0.01	0.01
Boom Truck	0.04	0.14	0.43	0.00	0.02	0.02
Foreman Truck	0.01	0.11	0.01	0.00	0.00	0.00
Worker Commute	0.38	3.67	0.37	0.01	0.04	0.03
<b>Offsite Total</b>	<b>0.56</b>	<b>4.64</b>	<b>2.17</b>	<b>0.01</b>	<b>0.13</b>	<b>0.10</b>
<b>Total</b>	<b>0.56</b>	<b>4.64</b>	<b>2.17</b>	<b>0.01</b>	<b>0.13</b>	<b>0.10</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Onsite			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Offsite			
Rodder Truck	1.1	0.0	1.1
Reel Truck	1.1	0.0	1.1
Line Truck	0.7	0.0	0.7
Troubleman Truck	0.7	0.0	0.7
Boom Truck	1.1	0.0	1.1
Foreman Truck	0.3	0.0	0.3
Worker Commute	10.1	0.0	10.1
<b>Offsite Total</b>	<b>15.2</b>	<b>0.0</b>	<b>15.2</b>
<b>Total</b>	<b>15.2</b>	<b>0.0</b>	<b>15.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
Onsite							
None						0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
Offsite							
Rodder Truck	1	Paved	14	0.001	0.000	0.01	0.00
Reel Truck	1	Paved	14	0.001	0.000	0.01	0.00
Line Truck	1	Paved	14	0.001	0.000	0.01	0.00
Troubleman Truck	1	Paved	14	0.001	0.000	0.01	0.00
Boom Truck	1	Paved	14	0.001	0.000	0.01	0.00
Foreman Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
<b>Offsite Total</b>						<b>0.45</b>	<b>0.00</b>
<b>Total</b>						<b>0.45</b>	<b>0.00</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00

**Table 21**  
**Distribution Construction Emissions**  
**Electrical**

Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

a From Table 52

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 22  
Subtransmission Source Line Construction Emissions  
Survey**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.11	1.06	0.11	0.00	0.01	0.01	0.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	1.85	0.17	
<b>Offsite Total</b>	<b>0.11</b>	<b>1.06</b>	<b>0.11</b>	<b>0.00</b>	<b>1.86</b>	<b>0.18</b>	<b>0.3</b>
<b>Total</b>	<b>0.11</b>	<b>1.06</b>	<b>0.11</b>	<b>0.00</b>	<b>1.86</b>	<b>0.18</b>	<b>0.3</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				
<b>Offsite</b>				
1/2-Ton Pick-up Truck, 4x4	1	5	N/A	18
Worker Commute	2	5	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
1/2-Ton Pick-up Truck, 4x4	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
1/2-Ton Pick-up Truck, 4x4	0.01	0.14	0.01	0.00	0.00	0.00
Worker Commute	0.10	0.92	0.09	0.00	0.01	0.01
<b>Offsite Total</b>	<b>0.11</b>	<b>1.06</b>	<b>0.11</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Total</b>	<b>0.11</b>	<b>1.06</b>	<b>0.11</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Table 22**  
**Subtransmission Source Line Construction Emissions**  
**Survey**

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
1/2-Ton Pick-up Truck, 4x4	0.0	0.0	0.0
Worker Commute	0.3	0.0	0.3
<b>Offsite Total</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>
<b>Total</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None							
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
1/2-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1/2-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
Worker Commute	2	Paved	60	0.001	0.000	0.10	0.00
<b>Offsite Total</b>						<b>1.85</b>	<b>0.17</b>
<b>Total</b>						<b>1.85</b>	<b>0.17</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 23**  
**Subtransmission Source Line Construction Emissions**  
**Marshalling Yard**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.62	1.96	6.00	0.01	0.21	0.19	123.7
Onsite Motor Vehicle Exhaust	0.02	0.10	0.16	0.00	0.01	0.01	4.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.01	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.64</b>	<b>2.06</b>	<b>6.17</b>	<b>0.01</b>	<b>0.22</b>	<b>0.20</b>	<b>127.7</b>
Offsite Motor Vehicle Exhaust	0.19	1.84	0.19	0.00	0.02	0.01	43.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.19	0.00	
<b>Offsite Total</b>	<b>0.19</b>	<b>1.84</b>	<b>0.19</b>	<b>0.00</b>	<b>0.21</b>	<b>0.01</b>	<b>43.8</b>
<b>Total</b>	<b>0.83</b>	<b>3.90</b>	<b>6.35</b>	<b>0.01</b>	<b>0.43</b>	<b>0.21</b>	<b>171.5</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
30-Ton Crane Truck	300	1	365	2
10,000 lb Rough Terrain Forklift	200	1	365	5

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
30-Ton Crane Truck	300	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
10,000 lb Rough Terrain Forklift	200	0.059	0.164	0.587	0.001	0.019	0.017	77.122	0.005	Forklifts

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
30-Ton Crane Truck	0.33	1.14	3.07	0.00	0.11	0.11
10,000 lb Rough Terrain Forklift	0.30	0.82	2.94	0.00	0.09	0.09
<b>Total</b>	<b>0.62</b>	<b>1.96</b>	<b>6.00</b>	<b>0.01</b>	<b>0.21</b>	<b>0.19</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
30-Ton Crane Truck	59.6	0.0	59.7
10,000 lb Rough Terrain Forklift	63.8	0.0	63.9
<b>Total</b>	<b>123.5</b>	<b>0.0</b>	<b>123.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/ Veh. <sup>a</sup>
<b>Onsite</b>				
1-Ton Crew Cab, 4x4	1	365	2	5
Truck, Semi Tractor	1	365	1	2.5
<b>Offsite</b>				
Worker Commute	4	365	N/A	60

<sup>a</sup> Onsite travel based on 25% use at 10 mph average speed

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
1-Ton Crew Cab, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Truck, Semi Tractor	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						

**Table 23**  
**Subtransmission Source Line Construction Emissions**  
**Marshalling Yard**

1-Ton Crew Cab, 4x4	0.01	0.08	0.09	0.00	0.00	0.00
Truck, Semi Tractor	0.01	0.03	0.08	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.02</b>	<b>0.10</b>	<b>0.16</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Offsite</b>						
Worker Commute	0.19	1.84	0.19	0.00	0.02	0.01
<b>Offsite Total</b>	<b>0.19</b>	<b>1.84</b>	<b>0.19</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>
<b>Total</b>	<b>0.21</b>	<b>1.94</b>	<b>0.35</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
1-Ton Crew Cab, 4x4	2.3	0.0	2.3
Truck, Semi Tractor	1.7	0.0	1.7
<b>Onsite Total</b>	<b>4.0</b>	<b>0.0</b>	<b>4.0</b>
<b>Offsite</b>			
Worker Commute	43.8	0.0	43.8
<b>Offsite Total</b>	<b>43.8</b>	<b>0.0</b>	<b>43.8</b>
<b>Total</b>	<b>47.8</b>	<b>0.0</b>	<b>47.9</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
1-Ton Crew Cab, 4x4	1	Paved	5	0.001	0.000	0.00	0.00
Truck, Semi Tractor	1	Paved	2.5	0.001	0.000	0.00	0.00
<b>Onsite Total</b>						<b>0.01</b>	<b>0.00</b>
<b>Offsite</b>							
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
<b>Offsite Total</b>						<b>0.19</b>	<b>0.00</b>
<b>Total</b>						<b>0.20</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 24**  
**Subtransmission Source Line Construction Emissions**  
**Right-of-Way Clearing**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	4.20	14.74	38.84	0.05	1.44	1.32	31.8
Onsite Motor Vehicle Exhaust	0.01	0.04	0.12	0.00	0.01	0.01	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	3.69	0.37	
Earthwork Fugitive PM	--	--	--	--	18.09	3.76	
<b>Onsite Total</b>	<b>4.21</b>	<b>14.78</b>	<b>38.96</b>	<b>0.05</b>	<b>23.22</b>	<b>5.46</b>	<b>31.9</b>
Offsite Motor Vehicle Exhaust	0.46	3.29	2.71	0.01	0.14	0.12	4.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.18	1.69	
<b>Offsite Total</b>	<b>0.46</b>	<b>3.29</b>	<b>2.71</b>	<b>0.01</b>	<b>17.32</b>	<b>1.81</b>	<b>4.3</b>
<b>Total</b>	<b>4.66</b>	<b>18.07</b>	<b>41.67</b>	<b>0.06</b>	<b>40.55</b>	<b>7.27</b>	<b>36.2</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Road Grader	350	1	14	6
Backhoe/Front Loader	350	1	14	6
Track Type Dozer	350	1	14	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Road Grader	350	0.195	0.664	1.819	0.002	0.067	0.062	229.484	0.018	Graders
Backhoe/Front Loader	350	0.239	0.771	2.262	0.004	0.078	0.072	344.854	0.022	Tractors/Loaders/Backhoes
Track Type Dozer	350	0.266	1.022	2.391	0.003	0.094	0.087	259.229	0.024	Crawler Tractors

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Road Grader	1.17	3.98	10.92	0.01	0.40	0.37
Backhoe/Front Loader	1.43	4.63	13.57	0.02	0.47	0.43
Track Type Dozer	1.60	6.13	14.35	0.02	0.57	0.52
<b>Total</b>	<b>4.20</b>	<b>14.74</b>	<b>38.84</b>	<b>0.05</b>	<b>1.44</b>	<b>1.32</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Road Grader	8.7	0.0	8.8
Backhoe/Front Loader	13.1	0.0	13.2
Track Type Dozer	9.9	0.0	9.9
<b>Total</b>	<b>31.8</b>	<b>0.0</b>	<b>31.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Water Truck	4	14	N/A	1
<b>Offsite</b>				
Water Truck	4	14	N/A	13
1-Ton Crew Cab, 4x4	1	14	N/A	18
Lowboy Truck/Trailer	1	14	N/A	18
Worker Commute	5	14	N/A	60

<sup>a</sup> Water trucks based on 16,000 gal water per day and 4,000 gal/truck = 16,000 / 4,000 = 4

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
1-Ton Crew Cab, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Lowboy Truck/Trailer	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

**Table 24**  
**Subtransmission Source Line Construction Emissions**  
**Right-of-Way Clearing**

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Water Truck	0.01	0.04	0.12	0.00	0.01	0.01
<b>Onsite Total</b>	<b>0.01</b>	<b>0.04</b>	<b>0.12</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Offsite</b>						
Water Truck	0.13	0.53	1.61	0.00	0.08	0.07
1-Ton Crew Cab, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Lowboy Truck/Trailer	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.46</b>	<b>3.29</b>	<b>2.71</b>	<b>0.01</b>	<b>0.14</b>	<b>0.12</b>
<b>Total</b>	<b>0.47</b>	<b>3.33</b>	<b>2.83</b>	<b>0.01</b>	<b>0.15</b>	<b>0.12</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Water Truck	0.1	0.0	0.1
<b>Onsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Offsite</b>			
Water Truck	1.4	0.0	1.4
1-Ton Crew Cab, 4x4	0.3	0.0	0.3
Lowboy Truck/Trailer	0.5	0.0	0.5
Worker Commute	2.1	0.0	2.1
<b>Offsite Total</b>	<b>4.3</b>	<b>0.0</b>	<b>4.3</b>
<b>Total</b>	<b>4.4</b>	<b>0.0</b>	<b>4.4</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Water Truck	4	Unpaved	1	0.922	0.092	3.69	0.37
<b>Onsite Total</b>						<b>3.69</b>	<b>0.37</b>
<b>Offsite</b>							
Water Truck	4	Paved	10	0.001	0.000	0.03	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Water Truck	4	Unpaved	3	0.922	0.092	11.07	1.11
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Lowboy Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
<b>Offsite Total</b>						<b>17.18</b>	<b>1.69</b>
<b>Total</b>						<b>20.87</b>	<b>2.06</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling <sup>c</sup>	CY/day	200	1.62E-03	3.36E-04	0.32	0.07
Bulldozing, Scraping and Grading	hr/day	12	1.481	0.308	17.77	3.70
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>18.09</b>	<b>3.76</b>

a From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

<sup>c</sup> Based on clearing 10,800 ft. long x 14' wide x 6" deep = 2,800 CY over 14 days

**Table 25**  
**Subtransmission Source Line Construction Emissions**  
**Roads and Landing Work**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	5.43	18.34	50.51	0.07	1.85	1.70	41.7
Onsite Motor Vehicle Exhaust	0.02	0.08	0.25	0.00	0.01	0.01	0.2
Onsite Motor Vehicle Fugitive PM	--	--	--	--	7.38	0.74	
Earthwork Fugitive PM	--	--	--	--	28.73	5.98	
<b>Onsite Total</b>	<b>5.45</b>	<b>18.42</b>	<b>50.75</b>	<b>0.07</b>	<b>37.97</b>	<b>8.42</b>	<b>41.9</b>
Offsite Motor Vehicle Exhaust	5.25	23.33	60.30	0.08	2.91	2.51	54.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	136.65	13.49	
<b>Offsite Total</b>	<b>5.25</b>	<b>23.33</b>	<b>60.30</b>	<b>0.08</b>	<b>139.56</b>	<b>16.00</b>	<b>54.4</b>
<b>Total</b>	<b>10.70</b>	<b>41.75</b>	<b>111.05</b>	<b>0.15</b>	<b>177.53</b>	<b>24.43</b>	<b>96.4</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Road Grader	350	1	14	4
Backhoe/Front Loader	350	1	14	6
Drum Type Compactor	250	1	14	4
Track Type Dozer	350	1	14	6
Excavator	300	1	14	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Road Grader	350	0.195	0.664	1.819	0.002	0.067	0.062	229.484	0.018	Graders
Backhoe/Front Loader	350	0.239	0.771	2.262	0.004	0.078	0.072	344.854	0.022	Tractors/Loaders/Backhoes
Drum Type Compactor	250	0.135	0.408	1.410	0.002	0.050	0.046	153.090	0.012	Rollers
Track Type Dozer	350	0.266	1.022	2.391	0.003	0.094	0.087	259.229	0.024	Crawler Tractors
Excavator	300	0.180	0.549	1.611	0.002	0.057	0.053	233.735	0.016	Excavators

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Road Grader	0.78	2.66	7.28	0.01	0.27	0.25
Backhoe/Front Loader	1.43	4.63	13.57	0.02	0.47	0.43
Drum Type Compactor	0.54	1.63	5.64	0.01	0.20	0.18
Track Type Dozer	1.60	6.13	14.35	0.02	0.57	0.52
Excavator	1.08	3.30	9.67	0.01	0.34	0.32
<b>Total</b>	<b>5.43</b>	<b>18.34</b>	<b>50.51</b>	<b>0.07</b>	<b>1.85</b>	<b>1.70</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Road Grader	5.8	0.0	5.8
Backhoe/Front Loader	13.1	0.0	13.2
Drum Type Compactor	3.9	0.0	3.9
Track Type Dozer	9.9	0.0	9.9
Excavator	8.9	0.0	8.9
<b>Total</b>	<b>41.6</b>	<b>0.0</b>	<b>41.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Water Truck	8	14	N/A	1
<b>Offsite</b>				
Water Truck	8	14	N/A	13
1-Ton Crew Cab, 4x4	1	14	N/A	18
Lowboy Truck/Trailer	1	14	N/A	18
Aggregate Base Delivery Truck	29	14	N/A	64
Worker Commute	5	14	N/A	60

<sup>a</sup> Water trucks based on 32,000 gal water per day and 4,000 gal/truck = 32,000 / 4,000 = 8

**Table 25**  
**Subtransmission Source Line Construction Emissions**  
**Roads and Landing Work**

Aggregate base delivery trucks based on 4,000 CY over 14 days and 10 CY/truck = 4,000 / 14 / 10 = 28.6

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Water Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
1-Ton Crew Cab, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Lowboy Truck/Trailer	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Aggregate Base Delivery Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Water Truck	0.02	0.08	0.25	0.00	0.01	0.01
<b>Onsite Total</b>	<b>0.02</b>	<b>0.08</b>	<b>0.25</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Offsite</b>						
Water Truck	0.23	1.61	1.80	0.00	0.07	0.06
1-Ton Crew Cab, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Lowboy Truck/Trailer	0.05	0.18	0.56	0.00	0.03	0.02
Aggregate Base Delivery Truck	4.69	18.96	57.39	0.08	2.78	2.40
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>5.25</b>	<b>23.33</b>	<b>60.30</b>	<b>0.08</b>	<b>2.91</b>	<b>2.51</b>
<b>Total</b>	<b>5.27</b>	<b>23.41</b>	<b>60.54</b>	<b>0.08</b>	<b>2.92</b>	<b>2.52</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Water Truck	0.2	0.0	0.2
<b>Onsite Total</b>	<b>0.2</b>	<b>0.0</b>	<b>0.2</b>
<b>Offsite</b>			
Water Truck	1.8	0.0	1.8
1-Ton Crew Cab, 4x4	0.3	0.0	0.3
Lowboy Truck/Trailer	0.5	0.0	0.5
Aggregate Base Delivery Truck	49.7	0.0	49.7
Worker Commute	2.1	0.0	2.1
<b>Offsite Total</b>	<b>54.4</b>	<b>0.0</b>	<b>54.4</b>
<b>Total</b>	<b>54.6</b>	<b>0.0</b>	<b>54.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateaction.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateaction.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Water Truck	8	Unpaved	1	0.922	0.092	7.38	0.74
<b>Onsite Total</b>						<b>7.38</b>	<b>0.74</b>
<b>Offsite</b>							
Water Truck	8	Paved	10	0.001	0.000	0.06	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Aggregate Base Delivery Truck	29	Paved	60	0.001	0.000	1.39	0.00
Water Truck	8	Unpaved	3	0.922	0.092	22.13	2.21
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Lowboy Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Aggregate Base Delivery Truck	29	Unpaved	4	0.922	0.092	106.98	10.70
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
<b>Offsite Total</b>						<b>136.65</b>	<b>13.49</b>
<b>Total</b>						<b>144.03</b>	<b>14.23</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

**Table 25**  
**Subtransmission Source Line Construction Emissions**  
**Roads and Landing Work**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling <sup>c</sup>	CY/day	2,800	1.62E-03	3.36E-04	4.52	0.94
Bulldozing, Scraping and Grading	hr/day	10	1.481	0.308	14.81	3.08
Storage Pile Wind Erosion <sup>d</sup>	acres	0.6	15.7	3.26	9.40	1.96
<b>Total</b>					<b>28.73</b>	<b>5.98</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

<sup>c</sup> Based on excavating and backfilling 8.0 acres to 1.5' depth over 14 days

<sup>d</sup> Based on 8.0 acres total over 14 days

**Table 26**  
**Subtransmission Source Line Construction Emissions**  
**Guard Structure Installation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	4.74	16.75	43.06	0.07	1.71	1.58	5.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>4.74</b>	<b>16.75</b>	<b>43.06</b>	<b>0.07</b>	<b>1.71</b>	<b>1.58</b>	<b>5.8</b>
Offsite Motor Vehicle Exhaust	0.55	4.05	3.13	0.01	0.16	0.13	0.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	18.98	1.86	
<b>Offsite Total</b>	<b>0.55</b>	<b>4.05</b>	<b>3.13</b>	<b>0.01</b>	<b>19.14</b>	<b>2.00</b>	<b>0.7</b>
<b>Total</b>	<b>5.29</b>	<b>20.79</b>	<b>46.19</b>	<b>0.07</b>	<b>20.86</b>	<b>3.57</b>	<b>6.5</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Compressor Trailer	120	1	2	6
Auger Truck	500	1	2	6
30-Ton Crane Truck	300	1	2	8
80ft. Hydraulic Manlift/Bucket Truck	350	1	2	4
Backhoe/Front Loader	350	1	2	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Compressor Trailer	120	0.089	0.329	0.533	0.001	0.049	0.045	46.950	0.008	Air Compressors
Auger Truck	500	0.135	0.553	1.315	0.003	0.044	0.040	311.309	0.012	Bore/Drill Rigs
30-Ton Crane Truck	300	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
80ft. Hydraulic Manlift/Bucket Truck	350	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
Backhoe/Front Loader	350	0.239	0.771	2.262	0.004	0.078	0.072	344.854	0.022	Tractors/Loaders/Backhoes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Compressor Trailer	0.53	1.97	3.20	0.00	0.30	0.27
Auger Truck	0.81	3.32	7.89	0.02	0.26	0.24
30-Ton Crane Truck	1.31	4.55	12.26	0.01	0.46	0.42
80ft. Hydraulic Manlift/Bucket Truck	0.65	2.28	6.13	0.01	0.23	0.21
Backhoe/Front Loader	1.43	4.63	13.57	0.02	0.47	0.43
<b>Total</b>	<b>4.74</b>	<b>16.75</b>	<b>43.06</b>	<b>0.07</b>	<b>1.71</b>	<b>1.58</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Compressor Trailer	0.3	0.0	0.3
Auger Truck	1.7	0.0	1.7
30-Ton Crane Truck	1.3	0.0	1.3
80ft. Hydraulic Manlift/Bucket Truck	0.7	0.0	0.7
Backhoe/Front Loader	1.9	0.0	1.9
<b>Total</b>	<b>5.8</b>	<b>0.0</b>	<b>5.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				
<b>Offsite</b>				
3/4-Ton Pick-up Truck, 4x4	1	2	N/A	18
1-Ton Crew Cab Flat Bed, 4x4	1	2	N/A	18
Extendable Flat Bed Pole Truck	1	2	N/A	18
Auger Truck	1	2	N/A	18
30-Ton Crane Truck	1	2	N/A	18
80ft. Hydraulic Manlift/Bucket Truck	1	2	N/A	18
Worker Commute	6	2	N/A	60

**Table 26**  
**Subtransmission Source Line Construction Emissions**  
**Guard Structure Installation**

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
3/4-Ton Pick-up Truck, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
1-Ton Crew Cab Flat Bed, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Extendable Flat Bed Pole Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Auger Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
30-Ton Crane Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
80ft. Hydraulic Manlift/Bucket Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
3/4-Ton Pick-up Truck, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
1-Ton Crew Cab Flat Bed, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.05	0.18	0.56	0.00	0.03	0.02
Auger Truck	0.05	0.18	0.56	0.00	0.03	0.02
30-Ton Crane Truck	0.05	0.18	0.56	0.00	0.03	0.02
80ft. Hydraulic Manlift/Bucket Truck	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.55</b>	<b>4.05</b>	<b>3.13</b>	<b>0.01</b>	<b>0.16</b>	<b>0.13</b>
<b>Total</b>	<b>0.55</b>	<b>4.05</b>	<b>3.13</b>	<b>0.01</b>	<b>0.16</b>	<b>0.13</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0
1-Ton Crew Cab Flat Bed, 4x4	0.0	0.0	0.0
Extendable Flat Bed Pole Truck	0.1	0.0	0.1
Auger Truck	0.1	0.0	0.1
30-Ton Crane Truck	0.1	0.0	0.1
80ft. Hydraulic Manlift/Bucket Truck	0.1	0.0	0.1
Worker Commute	0.4	0.0	0.4
<b>Offsite Total</b>	<b>0.7</b>	<b>0.0</b>	<b>0.7</b>
<b>Total</b>	<b>0.7</b>	<b>0.0</b>	<b>0.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None							
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab Flat Bed, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	14	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	14	0.001	0.000	0.01	0.00
30-Ton Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
80ft. Hydraulic Manlift/Bucket Truck	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
1-Ton Crew Cab Flat Bed, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Extendable Flat Bed Pole Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Auger Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
30-Ton Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
80ft. Hydraulic Manlift/Bucket Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00

**Table 26**  
**Subtransmission Source Line Construction Emissions**  
**Guard Structure Installation**

<b>Offsite Total</b>						<b>18.98</b>	<b>1.86</b>
<b>Total</b>						<b>18.98</b>	<b>1.86</b>

a From Table 51

b Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

<b>Activity</b>	<b>Activity Units</b>	<b>Activity Level</b>	<b>PM10 Emission Factor<sup>a</sup></b>	<b>PM2.5 Emission Factor<sup>a</sup></b>	<b>PM10 (lb/day)<sup>b</sup></b>	<b>PM2.5 (lb/day)<sup>b</sup></b>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

a From Table 52

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 27**  
**Subtransmission Source Line Construction Emissions**  
**Existing Wood Poles Removal**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	3.19	10.67	28.32	0.04	1.18	1.09	1.7
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>3.19</b>	<b>10.67</b>	<b>28.32</b>	<b>0.04</b>	<b>1.18</b>	<b>1.09</b>	<b>1.7</b>
Offsite Motor Vehicle Exhaust	0.42	3.40	1.70	0.01	0.10	0.08	0.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	9.83	0.95	
<b>Offsite Total</b>	<b>0.42</b>	<b>3.40</b>	<b>1.70</b>	<b>0.01</b>	<b>9.92</b>	<b>1.03</b>	<b>0.3</b>
<b>Total</b>	<b>3.60</b>	<b>14.07</b>	<b>30.02</b>	<b>0.05</b>	<b>11.11</b>	<b>2.12</b>	<b>2.0</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
10-000 lb. Rough Terrain Forklift	200	1	1	4
30-Ton Crane Truck	300	1	1	6
Compressor Trailer	120	1	1	6
Backhoe/Front Loader	350	1	1	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
10-000 lb. Rough Terrain Forklift	200	0.059	0.164	0.587	0.001	0.019	0.017	77.122	0.005	Forklifts
30-Ton Crane Truck	300	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
Compressor Trailer	120	0.089	0.329	0.533	0.001	0.049	0.045	46.950	0.008	Air Compressors
Backhoe/Front Loader	350	0.239	0.771	2.262	0.004	0.078	0.072	344.854	0.022	Tractors/Loaders/Backhoes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
10-000 lb. Rough Terrain Forklift	0.24	0.66	2.35	0.00	0.07	0.07
30-Ton Crane Truck	0.98	3.41	9.20	0.01	0.34	0.32
Compressor Trailer	0.53	1.97	3.20	0.00	0.30	0.27
Backhoe/Front Loader	1.43	4.63	13.57	0.02	0.47	0.43
<b>Total</b>	<b>3.19</b>	<b>10.67</b>	<b>28.32</b>	<b>0.04</b>	<b>1.18</b>	<b>1.09</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
10-000 lb. Rough Terrain Forklift	0.1	0.0	0.1
30-Ton Crane Truck	0.5	0.0	0.5
Compressor Trailer	0.1	0.0	0.1
Backhoe/Front Loader	0.9	0.0	0.9
<b>Total</b>	<b>1.7</b>	<b>0.0</b>	<b>1.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				
<b>Offsite</b>				
1-Ton Crew Cab, 4x4	1	1	N/A	18
Flat Bed Truck/Trailer	1	1	N/A	18
30-Ton Crane Truck	1	1	N/A	18
Worker Commute	6	1	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									

**Table 27**  
**Subtransmission Source Line Construction Emissions**  
**Existing Wood Poles Removal**

1-Ton Crew Cab, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Flat Bed Truck/Trailer	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
30-Ton Crane Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
1-Ton Crew Cab, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.05	0.18	0.56	0.00	0.03	0.02
30-Ton Crane Truck	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.42</b>	<b>3.40</b>	<b>1.70</b>	<b>0.01</b>	<b>0.10</b>	<b>0.08</b>
<b>Total</b>	<b>0.42</b>	<b>3.40</b>	<b>1.70</b>	<b>0.01</b>	<b>0.10</b>	<b>0.08</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
1-Ton Crew Cab, 4x4	0.0	0.0	0.0
Flat Bed Truck/Trailer	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0
Worker Commute	0.2	0.0	0.2
<b>Offsite Total</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>
<b>Total</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None							
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Flat Bed Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
30-Ton Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Flat Bed Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
30-Ton Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>9.83</b>	<b>0.95</b>
<b>Total</b>						<b>9.83</b>	<b>0.95</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

a From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 28**  
**Subtransmission Source Line Construction Emissions**  
**Tubular Steel Pole Foundations Installation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.91	10.27	28.44	0.05	0.97	0.89	73.6
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.12	0.03	
<b>Onsite Total</b>	<b>2.91</b>	<b>10.27</b>	<b>28.44</b>	<b>0.05</b>	<b>1.09</b>	<b>0.92</b>	<b>73.6</b>
Offsite Motor Vehicle Exhaust	3.09	14.46	33.85	0.05	1.66	1.42	77.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	73.36	7.22	
<b>Offsite Total</b>	<b>3.09</b>	<b>14.46</b>	<b>33.85</b>	<b>0.05</b>	<b>75.02</b>	<b>8.65</b>	<b>77.8</b>
<b>Total</b>	<b>6.00</b>	<b>24.73</b>	<b>62.29</b>	<b>0.10</b>	<b>76.11</b>	<b>9.56</b>	<b>151.4</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
30-Ton Crane Truck	300	1	34	5
Backhoe/Front Loader	200	1	34	8
Auger Truck	500	1	34	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
30-Ton Crane Truck	300	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
Backhoe/Front Loader	200	0.126	0.375	1.281	0.002	0.042	0.038	171.737	0.011	Tractors/Loaders/Backhoes
Auger Truck	500	0.135	0.553	1.315	0.003	0.044	0.040	311.309	0.012	Bore/Drill Rigs

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
30-Ton Crane Truck	0.82	2.85	7.66	0.01	0.29	0.26
Backhoe/Front Loader	1.01	3.00	10.25	0.02	0.33	0.31
Auger Truck	1.08	4.42	10.52	0.02	0.35	0.32
<b>Total</b>	<b>2.91</b>	<b>10.27</b>	<b>28.44</b>	<b>0.05</b>	<b>0.97</b>	<b>0.89</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
30-Ton Crane Truck	13.9	0.0	13.9
Backhoe/Front Loader	21.2	0.0	21.2
Auger Truck	38.4	0.0	38.4
<b>Total</b>	<b>73.5</b>	<b>0.0</b>	<b>73.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				
<b>Offsite</b>				
Water Truck	1	34	N/A	14
1-Ton Crew Cab Flat Bed, 4x4	1	34	N/A	18
10-cu. yd. Dump Truck	8	34	N/A	64
10-cu. yd. Concrete Mixer Truck	8	34	N/A	64
30-Ton Crane Truck	1	34	N/A	18
Auger Truck	1	34	N/A	18
Worker Commute	7	34	N/A	60

<sup>a</sup> Concrete mixer and dump trucks based on 74.5 CY per foundation and 10 CY/truck = 74.5 / 10 = 7.5

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									

**Table 28**  
**Subtransmission Source Line Construction Emissions**  
**Tubular Steel Pole Foundations Installation**

Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
1-Ton Crew Cab Flat Bed, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
10-cu. yd. Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
10-cu. yd. Concrete Mixer Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
30-Ton Crane Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Auger Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Water Truck	0.04	0.14	0.43	0.00	0.02	0.02
1-Ton Crew Cab Flat Bed, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
10-cu. yd. Dump Truck	1.29	5.23	15.83	0.02	0.77	0.66
10-cu. yd. Concrete Mixer Truck	1.29	5.23	15.83	0.02	0.77	0.66
30-Ton Crane Truck	0.05	0.18	0.56	0.00	0.03	0.02
Auger Truck	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.33	3.21	0.33	0.00	0.04	0.02
<b>Offsite Total</b>	<b>3.09</b>	<b>14.46</b>	<b>33.85</b>	<b>0.05</b>	<b>1.66</b>	<b>1.42</b>
<b>Total</b>	<b>3.09</b>	<b>14.46</b>	<b>33.85</b>	<b>0.05</b>	<b>1.66</b>	<b>1.42</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Water Truck	0.9	0.0	0.9
1-Ton Crew Cab Flat Bed, 4x4	0.8	0.0	0.8
10-cu. yd. Dump Truck	33.3	0.0	33.3
10-cu. yd. Concrete Mixer Truck	33.3	0.0	33.3
30-Ton Crane Truck	1.2	0.0	1.2
Auger Truck	1.2	0.0	1.2
Worker Commute	7.1	0.0	7.1
<b>Offsite Total</b>	<b>77.7</b>	<b>0.0</b>	<b>77.8</b>
<b>Total</b>	<b>77.7</b>	<b>0.0</b>	<b>77.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None							
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
1-Ton Crew Cab Flat Bed, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
10-cu. yd. Dump Truck	8	Paved	60	0.001	0.000	0.38	0.00
10-cu. yd. Concrete Mixer Truck	8	Paved	60	0.001	0.000	0.38	0.00
30-Ton Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	14	0.001	0.000	0.01	0.00
Water Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab Flat Bed, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
10-cu. yd. Dump Truck	8	Unpaved	4	0.922	0.092	29.51	2.95
10-cu. yd. Concrete Mixer Truck	8	Unpaved	4	0.922	0.092	29.51	2.95
30-Ton Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Auger Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
<b>Offsite Total</b>						<b>73.36</b>	<b>7.22</b>
<b>Total</b>						<b>73.36</b>	<b>7.22</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

**Table 28**  
**Subtransmission Source Line Construction Emissions**  
**Tubular Steel Pole Foundations Installation**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling <sup>c</sup>	CY/day	75	1.62E-03	3.36E-04	0.12	0.03
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.12</b>	<b>0.03</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

<sup>c</sup> Based on excavating 8 ft. diameter x 40 ft. deep per foundation and one foundation per day

**Table 29**  
**Subtransmission Source Line Construction Emissions**  
**Wood Pole Installation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.19	7.31	19.55	0.02	0.84	0.77	20.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.02	0.00	
<b>Onsite Total</b>	<b>2.19</b>	<b>7.31</b>	<b>19.55</b>	<b>0.02</b>	<b>0.86</b>	<b>0.78</b>	<b>20.3</b>
Offsite Motor Vehicle Exhaust	0.46	4.23	1.00	0.01	0.07	0.05	5.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	4.27	0.39	
<b>Offsite Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>4.34</b>	<b>0.43</b>	<b>5.4</b>
<b>Total</b>	<b>2.65</b>	<b>11.54</b>	<b>20.55</b>	<b>0.03</b>	<b>5.20</b>	<b>1.21</b>	<b>25.7</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Compressor Trailer	120	1	19	5
80-Ton Rough Terrain Crane	350	1	19	6
Backhoe/Front Loader	200	1	19	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Compressor Trailer	120	0.089	0.329	0.533	0.001	0.049	0.045	46.950	0.008	Air Compressors
80-Ton Rough Terrain Crane	350	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
Backhoe/Front Loader	200	0.126	0.375	1.281	0.002	0.042	0.038	171.737	0.011	Tractors/Loaders/Backhoes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Compressor Trailer	0.45	1.64	2.67	0.00	0.25	0.23
80-Ton Rough Terrain Crane	0.98	3.41	9.20	0.01	0.34	0.32
Backhoe/Front Loader	0.76	2.25	7.69	0.01	0.25	0.23
<b>Total</b>	<b>2.19</b>	<b>7.31</b>	<b>19.55</b>	<b>0.02</b>	<b>0.84</b>	<b>0.77</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Compressor Trailer	2.0	0.0	2.0
80-Ton Rough Terrain Crane	9.3	0.0	9.3
Backhoe/Front Loader	8.9	0.0	8.9
<b>Total</b>	<b>20.2</b>	<b>0.0</b>	<b>20.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
3/4-Ton Pick-up Truck, 4x4	1	19	N/A	18
1-Ton Crew Cab Flat Bed, 4x4	1	19	N/A	18
Worker Commute	8	19	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
3/4-Ton Pick-up Truck, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
1-Ton Crew Cab Flat Bed, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

**Table 29**  
**Subtransmission Source Line Construction Emissions**  
**Wood Pole Installation**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
3/4-Ton Pick-up Truck, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
1-Ton Crew Cab Flat Bed, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Worker Commute	0.38	3.67	0.37	0.01	0.04	0.03
<b>Offsite Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>0.07</b>	<b>0.05</b>
<b>Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>0.07</b>	<b>0.05</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
3/4-Ton Pick-up Truck, 4x4	0.4	0.0	0.4
1-Ton Crew Cab Flat Bed, 4x4	0.4	0.0	0.4
Worker Commute	4.6	0.0	4.6
<b>Offsite Total</b>	<b>5.4</b>	<b>0.0</b>	<b>5.4</b>
<b>Total</b>	<b>5.4</b>	<b>0.0</b>	<b>5.4</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0						
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab Flat Bed, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
1-Ton Crew Cab Flat Bed, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
<b>Offsite Total</b>						<b>4.27</b>	<b>0.39</b>
<b>Total</b>						<b>4.27</b>	<b>0.39</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling <sup>c</sup>	CY/day	12	1.62E-03	3.36E-04	0.02	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.02</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

<sup>c</sup> Based on excavating 3 ft. diameter x 11 ft. deep per pole x 4 poles per day

**Table 30**  
**Subtransmission Source Line Construction Emissions**  
**Steel Pole Haul**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.98	3.41	9.20	0.01	0.34	0.32	2.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.98</b>	<b>3.41</b>	<b>9.20</b>	<b>0.01</b>	<b>0.34</b>	<b>0.32</b>	<b>2.5</b>
Offsite Motor Vehicle Exhaust	0.28	2.30	1.05	0.00	0.06	0.05	0.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	5.64	0.54	
<b>Offsite Total</b>	<b>0.28</b>	<b>2.30</b>	<b>1.05</b>	<b>0.00</b>	<b>5.70</b>	<b>0.59</b>	<b>0.9</b>
<b>Total</b>	<b>1.26</b>	<b>5.71</b>	<b>10.25</b>	<b>0.01</b>	<b>6.05</b>	<b>0.91</b>	<b>3.3</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
80-Ton Rough Terrain Crane	350	1	5	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
80-Ton Rough Terrain Crane	350	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
80-Ton Rough Terrain Crane	0.98	3.41	9.20	0.01	0.34	0.32
<b>Total</b>	<b>0.98</b>	<b>3.41</b>	<b>9.20</b>	<b>0.01</b>	<b>0.34</b>	<b>0.32</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
80-Ton Rough Terrain Crane	2.5	0.0	2.5
<b>Total</b>	<b>2.5</b>	<b>0.0</b>	<b>2.5</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
3/4-Ton Pick-up Truck, 4x4	1	5	N/A	18
40' Flat Bed Truck/Trailer	1	5	N/A	18
Worker Commute	4	5	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None									
<b>Offsite</b>									
3/4-Ton Pick-up Truck, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
40' Flat Bed Truck/Trailer	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
3/4-Ton Pick-up Truck, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
40' Flat Bed Truck/Trailer	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.19	1.84	0.19	0.00	0.02	0.01

**Table 30**  
**Subtransmission Source Line Construction Emissions**  
**Steel Pole Haul**

<b>Offsite Total</b>	<b>0.28</b>	<b>2.30</b>	<b>1.05</b>	<b>0.00</b>	<b>0.06</b>	<b>0.05</b>
<b>Total</b>	<b>0.28</b>	<b>2.30</b>	<b>1.05</b>	<b>0.00</b>	<b>0.06</b>	<b>0.05</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
3/4-Ton Pick-up Truck, 4x4	0.1	0.0	0.1
40' Flat Bed Truck/Trailer	0.2	0.0	0.2
Worker Commute	0.6	0.0	0.6
<b>Offsite Total</b>	<b>0.9</b>	<b>0.0</b>	<b>0.9</b>
<b>Total</b>	<b>0.9</b>	<b>0.0</b>	<b>0.9</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0						
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
40' Flat Bed Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
40' Flat Bed Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
<b>Offsite Total</b>						<b>5.64</b>	<b>0.54</b>
<b>Total</b>						<b>5.64</b>	<b>0.54</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 31**  
**Subtransmission Source Line Construction Emissions**  
**Steel Pole Assembly**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.43	5.06	11.86	0.01	0.59	0.54	3.6
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>1.43</b>	<b>5.06</b>	<b>11.86</b>	<b>0.01</b>	<b>0.59</b>	<b>0.54</b>	<b>3.6</b>
Offsite Motor Vehicle Exhaust	0.46	4.23	1.00	0.01	0.07	0.05	1.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	4.27	0.39	
<b>Offsite Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>4.34</b>	<b>0.43</b>	<b>1.7</b>
<b>Total</b>	<b>1.89</b>	<b>9.29</b>	<b>12.86</b>	<b>0.02</b>	<b>4.93</b>	<b>0.98</b>	<b>5.3</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Compressor Trailer	120	1	6	5
80-Ton Rough Terrain Crane	350	1	6	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Compressor Trailer	120	0.089	0.329	0.533	0.001	0.049	0.045	46.950	0.008	Air Compressors
80-Ton Rough Terrain Crane	350	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Compressor Trailer	0.45	1.64	2.67	0.00	0.25	0.23
80-Ton Rough Terrain Crane	0.98	3.41	9.20	0.01	0.34	0.32
<b>Total</b>	<b>1.43</b>	<b>5.06</b>	<b>11.86</b>	<b>0.01</b>	<b>0.59</b>	<b>0.54</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Compressor Trailer	0.6	0.0	0.6
80-Ton Rough Terrain Crane	2.9	0.0	2.9
<b>Total</b>	<b>3.6</b>	<b>0.0</b>	<b>3.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
3/4-Ton Pick-up Truck, 4x4	1	6	N/A	18
1-Ton Crew Cab Flat Bed, 4x4	1	6	N/A	18
Worker Commute	8	6	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
3/4-Ton Pick-up Truck, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
1-Ton Crew Cab Flat Bed, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Table 31**  
**Subtransmission Source Line Construction Emissions**  
**Steel Pole Assembly**

Offsite						
3/4-Ton Pick-up Truck, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
1-Ton Crew Cab Flat Bed, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Worker Commute	0.38	3.67	0.37	0.01	0.04	0.03
<b>Offsite Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>0.07</b>	<b>0.05</b>
<b>Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>0.07</b>	<b>0.05</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO <sub>2</sub> (MT) <sup>a</sup>	CH <sub>4</sub> (MT) <sup>a</sup>	CO <sub>2</sub> e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
3/4-Ton Pick-up Truck, 4x4	0.1	0.0	0.1
1-Ton Crew Cab Flat Bed, 4x4	0.1	0.0	0.1
Worker Commute	1.4	0.0	1.4
<b>Offsite Total</b>	<b>1.7</b>	<b>0.0</b>	<b>1.7</b>
<b>Total</b>	<b>1.7</b>	<b>0.0</b>	<b>1.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0						
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab Flat Bed, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
1-Ton Crew Cab Flat Bed, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
<b>Offsite Total</b>						<b>4.27</b>	<b>0.39</b>
<b>Total</b>						<b>4.27</b>	<b>0.39</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 32**  
**Subtransmission Source Line Construction Emissions**  
**Steel Pole Erection**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.43	5.06	11.86	0.01	0.59	0.54	3.6
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>1.43</b>	<b>5.06</b>	<b>11.86</b>	<b>0.01</b>	<b>0.59</b>	<b>0.54</b>	<b>3.6</b>
Offsite Motor Vehicle Exhaust	0.46	4.23	1.00	0.01	0.07	0.05	1.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	4.27	0.39	
<b>Offsite Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>4.34</b>	<b>0.43</b>	<b>1.7</b>
<b>Total</b>	<b>1.89</b>	<b>9.29</b>	<b>12.86</b>	<b>0.02</b>	<b>4.93</b>	<b>0.98</b>	<b>5.3</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Compressor Trailer	120	1	6	5
80-Ton Rough Terrain Crane	350	1	6	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Compressor Trailer	120	0.089	0.329	0.533	0.001	0.049	0.045	46.950	0.008	Air Compressors
80-Ton Rough Terrain Crane	350	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Compressor Trailer	0.45	1.64	2.67	0.00	0.25	0.23
80-Ton Rough Terrain Crane	0.98	3.41	9.20	0.01	0.34	0.32
<b>Total</b>	<b>1.43</b>	<b>5.06</b>	<b>11.86</b>	<b>0.01</b>	<b>0.59</b>	<b>0.54</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Compressor Trailer	0.6	0.0	0.6
80-Ton Rough Terrain Crane	2.9	0.0	2.9
<b>Total</b>	<b>3.6</b>	<b>0.0</b>	<b>3.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
3/4-Ton Pick-up Truck, 4x4	1	6	N/A	18
1-Ton Crew Cab Flat Bed, 4x4	1	6	N/A	18
Worker Commute	8	6	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
3/4-Ton Pick-up Truck, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
1-Ton Crew Cab Flat Bed, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Table 32**  
**Subtransmission Source Line Construction Emissions**  
**Steel Pole Erection**

Offsite						
3/4-Ton Pick-up Truck, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
1-Ton Crew Cab Flat Bed, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Worker Commute	0.38	3.67	0.37	0.01	0.04	0.03
<b>Offsite Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>0.07</b>	<b>0.05</b>
<b>Total</b>	<b>0.46</b>	<b>4.23</b>	<b>1.00</b>	<b>0.01</b>	<b>0.07</b>	<b>0.05</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO <sub>2</sub> (MT) <sup>a</sup>	CH <sub>4</sub> (MT) <sup>a</sup>	CO <sub>2</sub> e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
3/4-Ton Pick-up Truck, 4x4	0.1	0.0	0.1
1-Ton Crew Cab Flat Bed, 4x4	0.1	0.0	0.1
Worker Commute	1.4	0.0	1.4
<b>Offsite Total</b>	<b>1.7</b>	<b>0.0</b>	<b>1.7</b>
<b>Total</b>	<b>1.7</b>	<b>0.0</b>	<b>1.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
 Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0						
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab Flat Bed, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
1-Ton Crew Cab Flat Bed, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
<b>Offsite Total</b>						<b>4.27</b>	<b>0.39</b>
<b>Total</b>						<b>4.27</b>	<b>0.39</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 33**  
**Subtransmission Source Line Construction Emissions**  
**Conductor Installation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	4.23	15.33	45.87	0.06	1.53	1.41	28.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>4.23</b>	<b>15.33</b>	<b>45.87</b>	<b>0.06</b>	<b>1.53</b>	<b>1.41</b>	<b>28.4</b>
Offsite Motor Vehicle Exhaust	1.31	10.03	6.75	0.02	0.36	0.29	8.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	34.47	3.36	
<b>Offsite Total</b>	<b>1.31</b>	<b>10.03</b>	<b>6.75</b>	<b>0.02</b>	<b>34.83</b>	<b>3.65</b>	<b>8.7</b>
<b>Total</b>	<b>5.54</b>	<b>25.36</b>	<b>52.62</b>	<b>0.08</b>	<b>36.36</b>	<b>5.06</b>	<b>37.0</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Bucket Truck	350	1	10	8
22-Ton Manitex	350	1	10	8
Splicing Rig	10	1	10	2
Splicing Lab	16	1	10	2
3 Drum Straw Line Puller	300	1	10	6
Static Truck/Tensioner	350	1	10	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Bucket Truck	350	0.128	0.494	1.655	0.002	0.049	0.045	212.856	0.012	Aerial Lifts
22-Ton Manitex	350	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
Splicing Rig	10	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Splicing Lab	16	0.028	0.095	0.163	0.000	0.010	0.009	17.631	0.002	Generator Sets
3 Drum Straw Line Puller	300	0.152	0.543	1.657	0.002	0.055	0.050	254.238	0.014	Other Construction Equipment
Static Truck/Tensioner	350	0.152	0.543	1.657	0.002	0.055	0.050	254.238	0.014	Other Construction Equipment

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Bucket Truck	1.02	3.95	13.24	0.02	0.39	0.36
22-Ton Manitex	1.31	4.55	12.26	0.01	0.46	0.42
Splicing Rig	0.02	0.12	0.15	0.00	0.01	0.01
Splicing Lab	0.06	0.19	0.33	0.00	0.02	0.02
3 Drum Straw Line Puller	0.91	3.26	9.94	0.01	0.33	0.30
Static Truck/Tensioner	0.91	3.26	9.94	0.01	0.33	0.30
<b>Total</b>	<b>4.23</b>	<b>15.33</b>	<b>45.87</b>	<b>0.06</b>	<b>1.53</b>	<b>1.41</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Bucket Truck	7.7	0.0	7.7
22-Ton Manitex	6.5	0.0	6.5
Splicing Rig	0.1	0.0	0.1
Splicing Lab	0.2	0.0	0.2
3 Drum Straw Line Puller	6.9	0.0	6.9
Static Truck/Tensioner	6.9	0.0	6.9
<b>Total</b>	<b>28.3</b>	<b>0.0</b>	<b>28.4</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
3/4-Ton Pick-up Truck, 4x4	1	10	N/A	18
1-Ton Crew Cab Flat Bed, 4x4	1	10	N/A	18
Wire Truck/Trailer	1	10	N/A	18

**Table 33**  
**Subtransmission Source Line Construction Emissions**  
**Conductor Installation**

Dump Truck (Trash)	1	10	N/A	64
Bucket Truck	1	10	N/A	18
22-Ton Manitex	1	10	N/A	18
Splicing Rig	1	10	N/A	18
Splicing Lab	1	10	N/A	18
3 Drum Straw Line Puller	1	10	N/A	18
Static Truck/Tensioner	1	10	N/A	18
Worker Commute	16	10	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
3/4-Ton Pick-up Truck, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
1-Ton Crew Cab Flat Bed, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Wire Truck/Trailer	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Dump Truck (Trash)	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Bucket Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
22-Ton Manitex	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Splicing Rig	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Splicing Lab	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
3 Drum Straw Line Puller	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Static Truck/Tensioner	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
3/4-Ton Pick-up Truck, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
1-Ton Crew Cab Flat Bed, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Wire Truck/Trailer	0.05	0.18	0.56	0.00	0.03	0.02
Dump Truck (Trash)	0.16	0.65	1.98	0.00	0.10	0.08
Bucket Truck	0.05	0.18	0.56	0.00	0.03	0.02
22-Ton Manitex	0.05	0.18	0.56	0.00	0.03	0.02
Splicing Rig	0.04	0.28	0.31	0.00	0.01	0.01
Splicing Lab	0.04	0.28	0.31	0.00	0.01	0.01
3 Drum Straw Line Puller	0.05	0.18	0.56	0.00	0.03	0.02
Static Truck/Tensioner	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.76	7.35	0.74	0.01	0.09	0.06
<b>Offsite Total</b>	<b>1.31</b>	<b>10.03</b>	<b>6.75</b>	<b>0.02</b>	<b>0.36</b>	<b>0.29</b>
<b>Total</b>	<b>1.31</b>	<b>10.03</b>	<b>6.75</b>	<b>0.02</b>	<b>0.36</b>	<b>0.29</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
3/4-Ton Pick-up Truck, 4x4	0.2	0.0	0.2
1-Ton Crew Cab Flat Bed, 4x4	0.2	0.0	0.2
Wire Truck/Trailer	0.3	0.0	0.3
Dump Truck (Trash)	1.2	0.0	1.2
Bucket Truck	0.3	0.0	0.3
22-Ton Manitex	0.3	0.0	0.3
Splicing Rig	0.2	0.0	0.2
Splicing Lab	0.2	0.0	0.2
3 Drum Straw Line Puller	0.3	0.0	0.3
Static Truck/Tensioner	0.3	0.0	0.3
Worker Commute	4.8	0.0	4.8
<b>Offsite Total</b>	<b>8.6</b>	<b>0.0</b>	<b>8.7</b>
<b>Total</b>	<b>8.6</b>	<b>0.0</b>	<b>8.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

**Table 33**  
**Subtransmission Source Line Construction Emissions**  
**Conductor Installation**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0						
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab Flat Bed, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Wire Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Dump Truck (Trash)	1	Paved	60	0.001	0.000	0.05	0.00
Bucket Truck	1	Paved	14	0.001	0.000	0.01	0.00
22-Ton Manitex	1	Paved	14	0.001	0.000	0.01	0.00
Splicing Rig	1	Paved	14	0.001	0.000	0.01	0.00
Splicing Lab	1	Paved	14	0.001	0.000	0.01	0.00
3 Drum Straw Line Puller	1	Paved	14	0.001	0.000	0.01	0.00
Static Truck/Tensioner	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
1-Ton Crew Cab Flat Bed, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Wire Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Dump Truck (Trash)	1	Unpaved	4	0.922	0.092	3.69	0.37
Bucket Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
22-Ton Manitex	1	Unpaved	4	0.922	0.092	3.69	0.37
Splicing Rig	1	Unpaved	4	0.726	0.073	2.91	0.29
Splicing Lab	1	Unpaved	4	0.726	0.073	2.91	0.29
3 Drum Straw Line Puller	1	Unpaved	4	0.922	0.092	3.69	0.37
Static Truck/Tensioner	1	Unpaved	4	0.922	0.092	3.69	0.37
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
Worker Commute	16	Paved	60	0.001	0.000	0.77	0.00
<b>Offsite Total</b>						<b>34.47</b>	<b>3.36</b>
<b>Total</b>						<b>34.47</b>	<b>3.36</b>

a From Table 51

b Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

a From Table 52

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 34**  
**Subtransmission Source Line Construction Emissions**  
**Guard Structure Removal**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	3.11	10.75	29.77	0.04	1.20	1.10	3.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>3.11</b>	<b>10.75</b>	<b>29.77</b>	<b>0.04</b>	<b>1.20</b>	<b>1.10</b>	<b>3.3</b>
Offsite Motor Vehicle Exhaust	0.50	3.86	2.57	0.01	0.14	0.11	0.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	15.28	1.49	
<b>Offsite Total</b>	<b>0.50</b>	<b>3.86</b>	<b>2.57</b>	<b>0.01</b>	<b>15.41</b>	<b>1.60</b>	<b>0.7</b>
<b>Total</b>	<b>3.62</b>	<b>14.62</b>	<b>32.34</b>	<b>0.04</b>	<b>16.61</b>	<b>2.71</b>	<b>3.9</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Compressor Trailer	120	1	2	6
30-Ton Crane Truck	300	1	2	8
80ft. Hydraulic Manlift/Bucket Truck	350	1	2	4
Backhoe/Front Loader	200	1	2	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Compressor Trailer	120	0.089	0.329	0.533	0.001	0.049	0.045	46.950	0.008	Air Compressors
30-Ton Crane Truck	300	0.163	0.569	1.533	0.002	0.057	0.053	180.101	0.015	Cranes
80ft. Hydraulic Manlift/Bucket Truck	350	0.128	0.494	1.655	0.002	0.049	0.045	212.856	0.012	Aerial Lifts
Backhoe/Front Loader	200	0.126	0.375	1.281	0.002	0.042	0.038	171.737	0.011	Tractors/Loaders/Backhoes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Compressor Trailer	0.53	1.97	3.20	0.00	0.30	0.27
30-Ton Crane Truck	1.31	4.55	12.26	0.01	0.46	0.42
80ft. Hydraulic Manlift/Bucket Truck	0.51	1.98	6.62	0.01	0.20	0.18
Backhoe/Front Loader	0.76	2.25	7.69	0.01	0.25	0.23
<b>Total</b>	<b>3.11</b>	<b>10.75</b>	<b>29.77</b>	<b>0.04</b>	<b>1.20</b>	<b>1.10</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Compressor Trailer	0.3	0.0	0.3
30-Ton Crane Truck	1.3	0.0	1.3
80ft. Hydraulic Manlift/Bucket Truck	0.8	0.0	0.8
Backhoe/Front Loader	0.9	0.0	0.9
<b>Total</b>	<b>3.3</b>	<b>0.0</b>	<b>3.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
3/4-Ton Pick-up Truck, 4x4	1	2	N/A	18
1-Ton Crew Cab Flat Bed, 4x4	1	2	N/A	18
Extendable Flat Bed Pole Truck	1	2	N/A	18
30-Ton Crane Truck	1	2	N/A	18
80ft. Hydraulic Manlift/Bucket Truck	1	2	N/A	18
Worker Commute	6	2	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									

**Table 34**  
**Subtransmission Source Line Construction Emissions**  
**Guard Structure Removal**

None		0.00E+00							
<b>Offsite</b>									
3/4-Ton Pick-up Truck, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
1-Ton Crew Cab Flat Bed, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Extendable Flat Bed Pole Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
30-Ton Crane Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
80ft. Hydraulic Manlift/Bucket Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
3/4-Ton Pick-up Truck, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
1-Ton Crew Cab Flat Bed, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.05	0.18	0.56	0.00	0.03	0.02
30-Ton Crane Truck	0.05	0.18	0.56	0.00	0.03	0.02
80ft. Hydraulic Manlift/Bucket Truck	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.50</b>	<b>3.86</b>	<b>2.57</b>	<b>0.01</b>	<b>0.14</b>	<b>0.11</b>
<b>Total</b>	<b>0.50</b>	<b>3.86</b>	<b>2.57</b>	<b>0.01</b>	<b>0.14</b>	<b>0.11</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0
1-Ton Crew Cab Flat Bed, 4x4	0.0	0.0	0.0
Extendable Flat Bed Pole Truck	0.1	0.0	0.1
30-Ton Crane Truck	0.1	0.0	0.1
80ft. Hydraulic Manlift/Bucket Truck	0.1	0.0	0.1
Worker Commute	0.4	0.0	0.4
<b>Offsite Total</b>	<b>0.7</b>	<b>0.0</b>	<b>0.7</b>
<b>Total</b>	<b>0.7</b>	<b>0.0</b>	<b>0.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0						
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab Flat Bed, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	14	0.001	0.000	0.01	0.00
30-Ton Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
80ft. Hydraulic Manlift/Bucket Truck	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.435	0.043	1.74	0.17
1-Ton Crew Cab Flat Bed, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Extendable Flat Bed Pole Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
30-Ton Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
80ft. Hydraulic Manlift/Bucket Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>15.28</b>	<b>1.49</b>
<b>Total</b>						<b>15.28</b>	<b>1.49</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00

**Table 34**  
**Subtransmission Source Line Construction Emissions**  
**Guard Structure Removal**

Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

a From Table 52

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 35  
Subtransmission Source Line Construction Emissions  
Restoration**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	5.00	17.19	47.30	0.06	1.74	1.60	10.8
Onsite Motor Vehicle Exhaust	0.01	0.03	0.09	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.77	0.28	
Earthwork Fugitive PM	--	--	--	--	17.77	3.70	
<b>Onsite Total</b>	<b>5.01</b>	<b>17.22</b>	<b>47.39</b>	<b>0.06</b>	<b>22.28</b>	<b>5.57</b>	<b>10.8</b>
Offsite Motor Vehicle Exhaust	0.45	3.81	1.60	0.01	0.10	0.07	1.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	8.95	0.86	
<b>Offsite Total</b>	<b>0.45</b>	<b>3.81</b>	<b>1.60</b>	<b>0.01</b>	<b>9.05</b>	<b>0.93</b>	<b>1.2</b>
<b>Total</b>	<b>5.46</b>	<b>21.03</b>	<b>48.99</b>	<b>0.07</b>	<b>31.32</b>	<b>6.51</b>	<b>11.9</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Road Grader	350	1	4	6
Backhoe/Front Loader	350	1	4	6
Drum Type Compactor	250	1	4	6
Track Type Dozer	350	1	4	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Road Grader	350	0.195	0.664	1.819	0.002	0.067	0.062	229.484	0.018	Graders
Backhoe/Front Loader	350	0.239	0.771	2.262	0.004	0.078	0.072	344.854	0.022	Tractors/Loaders/Backhoes
Drum Type Compactor	250	0.135	0.408	1.410	0.002	0.050	0.046	153.090	0.012	Rollers
Track Type Dozer	350	0.266	1.022	2.391	0.003	0.094	0.087	259.229	0.024	Crawler Tractors

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Road Grader	1.17	3.98	10.92	0.01	0.40	0.37
Backhoe/Front Loader	1.43	4.63	13.57	0.02	0.47	0.43
Drum Type Compactor	0.81	2.45	8.46	0.01	0.30	0.28
Track Type Dozer	1.60	6.13	14.35	0.02	0.57	0.52
<b>Total</b>	<b>5.00</b>	<b>17.19</b>	<b>47.30</b>	<b>0.06</b>	<b>1.74</b>	<b>1.60</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Road Grader	2.5	0.0	2.5
Backhoe/Front Loader	3.8	0.0	3.8
Drum Type Compactor	1.7	0.0	1.7
Track Type Dozer	2.8	0.0	2.8
<b>Total</b>	<b>10.7</b>	<b>0.0</b>	<b>10.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Water Truck	1	4	N/A	3
<b>Offsite</b>				
Water Truck	1	4	N/A	13
1-Ton Crew Cab, 4x4	1	4	N/A	18
Lowboy Truck/Trailer	1	4	N/A	18
Worker Commute	7	4	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
1-Ton Crew Cab, 4x4	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04

**Table 35**  
**Subtransmission Source Line Construction Emissions**  
**Restoration**

Lowboy Truck/Trailer	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Water Truck	0.01	0.03	0.09	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.01</b>	<b>0.03</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Water Truck	0.03	0.13	0.40	0.00	0.02	0.02
1-Ton Crew Cab, 4x4	0.04	0.28	0.31	0.00	0.01	0.01
Lowboy Truck/Trailer	0.05	0.18	0.56	0.00	0.03	0.02
Worker Commute	0.33	3.21	0.33	0.00	0.04	0.02
<b>Offsite Total</b>	<b>0.45</b>	<b>3.81</b>	<b>1.60</b>	<b>0.01</b>	<b>0.10</b>	<b>0.07</b>
<b>Total</b>	<b>0.46</b>	<b>3.84</b>	<b>1.69</b>	<b>0.01</b>	<b>0.10</b>	<b>0.08</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Water Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Water Truck	0.1	0.0	0.1
1-Ton Crew Cab, 4x4	0.1	0.0	0.1
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	0.8	0.0	0.8
<b>Offsite Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>
<b>Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Water Truck	1	Unpaved	3	0.922	0.092	2.77	0.28
<b>Onsite Total</b>						<b>2.77</b>	<b>0.28</b>
<b>Offsite</b>							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Water Truck	1	Unpaved	3	0.922	0.092	2.77	0.28
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Lowboy Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
<b>Offsite Total</b>						<b>8.95</b>	<b>0.86</b>
<b>Total</b>						<b>11.72</b>	<b>1.13</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	12	1.481	0.308	17.77	3.70
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>17.77</b>	<b>3.70</b>

a From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 36**  
**Telecommunications Construction**  
**Control Building Communications Room**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.24	2.27	0.45	0.00	0.03	0.02	1.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.23	0.00	
<b>Offsite Total</b>	<b>0.24</b>	<b>2.27</b>	<b>0.45</b>	<b>0.00</b>	<b>0.26</b>	<b>0.02</b>	<b>1.4</b>
<b>Total</b>	<b>0.24</b>	<b>2.27</b>	<b>0.45</b>	<b>0.00</b>	<b>0.26</b>	<b>0.02</b>	<b>1.4</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, [http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
Van	2	10	N/A	14
Crew Truck	1	1	N/A	14
Worker Commute	4	10	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
Van	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Crew Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						

**Table 36**  
**Telecommunications Construction**  
**Control Building Communications Room**

Van	0.02	0.21	0.02	0.00	0.00	0.00
Crew Truck	0.03	0.22	0.24	0.00	0.01	0.01
Worker Commute	0.19	1.84	0.19	0.00	0.02	0.01
<b>Offsite Total</b>	<b>0.24</b>	<b>2.27</b>	<b>0.45</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>
<b>Total</b>	<b>0.24</b>	<b>2.27</b>	<b>0.45</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO <sub>2</sub> (MT) <sup>a</sup>	CH <sub>4</sub> (MT) <sup>a</sup>	CO <sub>2</sub> e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Van	0.1	0.0	0.1
Crew Truck	0.0	0.0	0.0
Worker Commute	1.2	0.0	1.2
<b>Offsite Total</b>	<b>1.4</b>	<b>0.0</b>	<b>1.4</b>
<b>Total</b>	<b>1.4</b>	<b>0.0</b>	<b>1.4</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0					0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Van	2	Paved	14	0.001	0.000	0.02	0.00
Crew Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
<b>Offsite Total</b>						<b>0.23</b>	<b>0.00</b>
<b>Total</b>						<b>0.23</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 37  
Telecommunications Construction  
Overhead Cable Installation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.26	8.67	27.79	0.04	0.86	0.79	70.9
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>2.26</b>	<b>8.67</b>	<b>27.79</b>	<b>0.04</b>	<b>0.86</b>	<b>0.79</b>	<b>70.9</b>
Offsite Motor Vehicle Exhaust	0.47	4.05	1.73	0.01	0.09	0.07	12.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	65.44	6.52	
<b>Offsite Total</b>	<b>0.47</b>	<b>4.05</b>	<b>1.73</b>	<b>0.01</b>	<b>65.53</b>	<b>6.58</b>	<b>12.6</b>
<b>Total</b>	<b>2.74</b>	<b>12.72</b>	<b>29.52</b>	<b>0.04</b>	<b>66.39</b>	<b>7.38</b>	<b>83.4</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Bucket Truck	350	2	44	8
Splice Lab Truck	16	1	44	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Bucket Truck	350	0.128	0.494	1.655	0.002	0.049	0.045	212.856	0.012	Aerial Lifts
Splice Lab Truck	16	0.028	0.095	0.163	0.000	0.010	0.009	17.631	0.002	Generator Sets

a From Table 48

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Bucket Truck	2.04	7.90	26.48	0.03	0.79	0.72
Splice Lab Truck	0.22	0.76	1.31	0.00	0.08	0.07
<b>Total</b>	<b>2.26</b>	<b>8.67</b>	<b>27.79</b>	<b>0.04</b>	<b>0.86</b>	<b>0.79</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Bucket Truck	68.0	0.0	68.0
Splice Lab Truck	2.8	0.0	2.8
<b>Total</b>	<b>70.8</b>	<b>0.0</b>	<b>70.9</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
Bucket Truck	2	44	N/A	21
Splice Lab Truck	1	44	N/A	21
Crew Truck	1	44	N/A	21
Worker Commute	6	44	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
Bucket Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Splice Lab Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Crew Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						

**Table 37**  
**Telecommunications Construction**  
**Overhead Cable Installation**

None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Bucket Truck	0.09	0.65	0.73	0.00	0.03	0.02
Splice Lab Truck	0.05	0.32	0.36	0.00	0.01	0.01
Crew Truck	0.05	0.32	0.36	0.00	0.01	0.01
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.47</b>	<b>4.05</b>	<b>1.73</b>	<b>0.01</b>	<b>0.09</b>	<b>0.07</b>
<b>Total</b>	<b>0.47</b>	<b>4.05</b>	<b>1.73</b>	<b>0.01</b>	<b>0.09</b>	<b>0.07</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Bucket Truck	2.3	0.0	2.3
Splice Lab Truck	1.2	0.0	1.2
Crew Truck	1.2	0.0	1.2
Worker Commute	7.9	0.0	7.9
<b>Offsite Total</b>	<b>12.6</b>	<b>0.0</b>	<b>12.6</b>
<b>Total</b>	<b>12.6</b>	<b>0.0</b>	<b>12.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0					0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Bucket Truck	2	Unpaved	21	0.922	0.092	38.73	3.87
Splice Lab Truck	1	Unpaved	21	0.726	0.073	15.25	1.53
Crew Truck	1	Unpaved	21	0.532	0.053	11.17	1.12
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>65.44</b>	<b>6.52</b>
<b>Total</b>						<b>65.44</b>	<b>6.52</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 38**  
**Telecommunications Construction**  
**Underground Facility Installation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.84	3.53	5.17	0.01	0.42	0.38	5.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.05	0.01	
<b>Onsite Total</b>	<b>0.84</b>	<b>3.53</b>	<b>5.17</b>	<b>0.01</b>	<b>0.47</b>	<b>0.40</b>	<b>5.0</b>
Offsite Motor Vehicle Exhaust	0.30	2.81	0.38	0.00	0.04	0.02	3.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.29	0.00	
<b>Offsite Total</b>	<b>0.30</b>	<b>2.81</b>	<b>0.38</b>	<b>0.00</b>	<b>0.33</b>	<b>0.02</b>	<b>3.7</b>
<b>Total</b>	<b>1.14</b>	<b>6.33</b>	<b>5.54</b>	<b>0.01</b>	<b>0.80</b>	<b>0.42</b>	<b>8.8</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Backhoe	79	1	20	8
Concrete Mixer	120	1	20	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Backhoe	79	0.076	0.356	0.491	0.001	0.043	0.040	51.728	0.007	Tractors/Loaders/Backhoes
Concrete Mixer	25	0.029	0.085	0.155	0.000	0.009	0.008	17.556	0.003	Cement and Mortar Mixers

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction = 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Backhoe	0.61	2.85	3.93	0.00	0.35	0.32
Concrete Mixer	0.23	0.68	1.24	0.00	0.07	0.07
<b>Total</b>	<b>0.84</b>	<b>3.53</b>	<b>5.17</b>	<b>0.01</b>	<b>0.42</b>	<b>0.38</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Backhoe	3.8	0.0	3.8
Concrete Mixer	1.3	0.0	1.3
<b>Total</b>	<b>5.0</b>	<b>0.0</b>	<b>5.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
Crew Truck	2	20	N/A	1
Flatbed Truck	1	20	N/A	1
Stake Truck	1	20	N/A	1
Worker Commute	6	20	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
Crew Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Flatbed Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Stake Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						

**Table 38**  
**Telecommunications Construction**  
**Underground Facility Installation**

None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.00	0.03	0.03	0.00	0.00	0.00
Flatbed Truck	0.00	0.01	0.03	0.00	0.00	0.00
Stake Truck	0.00	0.01	0.03	0.00	0.00	0.00
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.30</b>	<b>2.81</b>	<b>0.38</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>
<b>Total</b>	<b>0.30</b>	<b>2.81</b>	<b>0.38</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Crew Truck	0.1	0.0	0.1
Flatbed Truck	0.0	0.0	0.0
Stake Truck	0.0	0.0	0.0
Worker Commute	3.6	0.0	3.6
<b>Offsite Total</b>	<b>3.7</b>	<b>0.0</b>	<b>3.7</b>
<b>Total</b>	<b>3.7</b>	<b>0.0</b>	<b>3.7</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
 Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0					0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Crew Truck	2	Paved	1	0.001	0.000	0.00	0.00
Flatbed Truck	1	Paved	1	0.001	0.000	0.00	0.00
Stake Truck	1	Paved	1	0.001	0.000	0.00	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>0.29</b>	<b>0.00</b>
<b>Total</b>						<b>0.29</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling <sup>c</sup>	CY/day	34	1.62E-03	3.36E-04	0.05	0.01
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.05</b>	<b>0.01</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

<sup>c</sup> Based on 671 CY over 20 days

**Table 39  
Telecommunications Construction  
Underground Cable Installation**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.65	9.44	27.82	0.04	0.95	0.87	11.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>2.65</b>	<b>9.44</b>	<b>27.82</b>	<b>0.04</b>	<b>0.95</b>	<b>0.87</b>	<b>11.5</b>
Offsite Motor Vehicle Exhaust	0.30	2.81	0.38	0.00	0.04	0.02	1.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.29	0.00	
<b>Offsite Total</b>	<b>0.30</b>	<b>2.81</b>	<b>0.38</b>	<b>0.00</b>	<b>0.33</b>	<b>0.02</b>	<b>1.1</b>
<b>Total</b>	<b>2.95</b>	<b>12.25</b>	<b>28.20</b>	<b>0.05</b>	<b>1.28</b>	<b>0.90</b>	<b>12.6</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Reel Truck	210	2	6	8
Splice Lab Truck	16	1	6	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Reel Truck	210	0.152	0.543	1.657	0.002	0.055	0.050	254.238	0.014	Other Construction Equipment
Splice Lab Truck	16	0.028	0.095	0.163	0.000	0.010	0.009	17.631	0.002	Generator Sets

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Reel Truck	2.43	8.68	26.52	0.04	0.87	0.80
Splice Lab Truck	0.22	0.76	1.31	0.00	0.08	0.07
<b>Total</b>	<b>2.65</b>	<b>9.44</b>	<b>27.82</b>	<b>0.04</b>	<b>0.95</b>	<b>0.87</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Reel Truck	11.1	0.0	11.1
Splice Lab Truck	0.4	0.0	0.4
<b>Total</b>	<b>11.5</b>	<b>0.0</b>	<b>11.5</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh. <sup>a</sup>
<b>Onsite</b>				
None				0
<b>Offsite</b>				
Reel Truck	2	6	N/A	1
Crew Truck	1	6	N/A	1
Splice Lab Truck	1	6	N/A	1
Worker Commute	6	6	N/A	60

<sup>a</sup> Onsite travel based on 25% use at 10 mph average speed

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
Reel Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Crew Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Splice Lab Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
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**Table 39**  
**Telecommunications Construction**  
**Underground Cable Installation**

<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Reel Truck	0.01	0.02	0.06	0.00	0.00	0.00
Crew Truck	0.00	0.02	0.02	0.00	0.00	0.00
Splice Lab Truck	0.00	0.02	0.02	0.00	0.00	0.00
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.30</b>	<b>2.81</b>	<b>0.38</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>
<b>Total</b>	<b>0.30</b>	<b>2.81</b>	<b>0.38</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Reel Truck	0.0	0.0	0.0
Crew Truck	0.0	0.0	0.0
Splice Lab Truck	0.0	0.0	0.0
Worker Commute	1.1	0.0	1.1
<b>Offsite Total</b>	<b>1.1</b>	<b>0.0</b>	<b>1.1</b>
<b>Total</b>	<b>1.1</b>	<b>0.0</b>	<b>1.1</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0					0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Reel Truck	2	Paved	1	0.001	0.000	0.00	0.00
Crew Truck	1	Paved	1	0.001	0.000	0.00	0.00
Splice Lab Truck	1	Paved	1	0.001	0.000	0.00	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>0.29</b>	<b>0.00</b>
<b>Total</b>						<b>0.29</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 40**  
**Telecommunications Construction**  
**Optical Systems Installation at Other Locations**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.57	5.51	0.56	0.01	0.06	0.04	4.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.58	0.00	
<b>Offsite Total</b>	<b>0.57</b>	<b>5.51</b>	<b>0.56</b>	<b>0.01</b>	<b>0.64</b>	<b>0.04</b>	<b>4.3</b>
<b>Total</b>	<b>0.57</b>	<b>5.51</b>	<b>0.56</b>	<b>0.01</b>	<b>0.64</b>	<b>0.04</b>	<b>4.3</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
None				0
<b>Offsite</b>				
Van	6	12	N/A	60
Worker Commute	6	12	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Offsite</b>									
Van	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Van	0.29	2.76	0.28	0.00	0.03	0.02
Worker Commute	0.29	2.76	0.28	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.57</b>	<b>5.51</b>	<b>0.56</b>	<b>0.01</b>	<b>0.06</b>	<b>0.04</b>
<b>Total</b>	<b>0.57</b>	<b>5.51</b>	<b>0.56</b>	<b>0.01</b>	<b>0.06</b>	<b>0.04</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Table 40**  
**Telecommunications Construction**  
**Optical Systems Installation at Other Locations**

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
None	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Van	2.2	0.0	2.2
Worker Commute	2.2	0.0	2.2
<b>Offsite Total</b>	<b>4.3</b>	<b>0.0</b>	<b>4.3</b>
<b>Total</b>	<b>4.3</b>	<b>0.0</b>	<b>4.3</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
 Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
None	0					0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Van	6	Paved	60	0.001	0.000	0.29	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
<b>Offsite Total</b>						<b>0.58</b>	<b>0.00</b>
<b>Total</b>						<b>0.58</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 41**  
**Nuevo Substation Demolition Emissions**  
**Civil**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.90	4.51	6.05	0.01	0.52	0.48	1.5
Onsite Motor Vehicle Exhaust	0.01	0.04	0.09	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.91</b>	<b>4.55</b>	<b>6.14</b>	<b>0.01</b>	<b>0.52</b>	<b>0.48</b>	<b>1.6</b>
Offsite Motor Vehicle Exhaust	0.57	3.62	4.25	0.01	0.22	0.19	2.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.24	0.00	
<b>Offsite Total</b>	<b>0.57</b>	<b>3.62</b>	<b>4.25</b>	<b>0.01</b>	<b>0.46</b>	<b>0.19</b>	<b>2.0</b>
<b>Total</b>	<b>1.47</b>	<b>8.17</b>	<b>10.40</b>	<b>0.02</b>	<b>0.99</b>	<b>0.67</b>	<b>3.5</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Backhoe	79	1	5	8
Bobcat Skid Steer	75	1	5	6

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Backhoe	79	0.076	0.356	0.491	0.001	0.043	0.040	51.728	0.007	Tractors/Loaders/Backhoes
Bobcat Skid Steer	75	0.048	0.277	0.354	0.001	0.029	0.026	42.762	0.004	Skid Steer Loaders

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Backhoe	0.61	2.85	3.93	0.00	0.35	0.32
Bobcat Skid Steer	0.29	1.66	2.12	0.00	0.17	0.16
<b>Total</b>	<b>0.90</b>	<b>4.51</b>	<b>6.05</b>	<b>0.01</b>	<b>0.52</b>	<b>0.48</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Backhoe	0.9	0.0	0.9
Bobcat Skid Steer	0.6	0.0	0.6
<b>Total</b>	<b>1.5</b>	<b>0.0</b>	<b>1.5</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Dump Truck	2	5	N/A	1
Water Truck	1	5	N/A	1
Tool Truck	1	5	N/A	1
<b>Offsite</b>				
Dump Truck	2	5	N/A	60
Water Truck	1	5	N/A	10
Worker Commute	5	5	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Tool Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Water Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Table 41**  
**Nuevo Substation Demolition Emissions**  
**Civil**

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Dump Truck	0.01	0.02	0.06	0.00	0.00	0.00
Water Truck	0.00	0.01	0.03	0.00	0.00	0.00
Tool Truck	0.00	0.01	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.01</b>	<b>0.04</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Dump Truck	0.30	1.23	3.71	0.00	0.18	0.16
Water Truck	0.03	0.10	0.31	0.00	0.01	0.01
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.57</b>	<b>3.62</b>	<b>4.25</b>	<b>0.01</b>	<b>0.22</b>	<b>0.19</b>
<b>Total</b>	<b>0.58</b>	<b>3.66</b>	<b>4.35</b>	<b>0.01</b>	<b>0.23</b>	<b>0.19</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Dump Truck	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Tool Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Dump Truck	1.1	0.0	1.1
Water Truck	0.1	0.0	0.1
Worker Commute	0.7	0.0	0.8
<b>Offsite Total</b>	<b>2.0</b>	<b>0.0</b>	<b>2.0</b>
<b>Total</b>	<b>2.0</b>	<b>0.0</b>	<b>2.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
 Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Dump Truck	2	Paved	1	0.001	0.000	0.00	0.00
Water Truck	1	Paved	1	0.001	0.000	0.00	0.00
Tool Truck	1	Paved	1	0.001	0.000	0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Dump Truck	2	Paved	60	0.001	0.000	0.10	0.00
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
<b>Offsite Total</b>						<b>0.24</b>	<b>0.00</b>
<b>Total</b>						<b>0.24</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 42**  
**Nuevo Substation Demolition Emissions**  
**Electrical**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.54	28.46	4.03	0.00	0.27	0.25	1.6
Onsite Motor Vehicle Exhaust	0.00	0.02	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.54</b>	<b>28.48</b>	<b>4.04</b>	<b>0.00</b>	<b>0.27</b>	<b>0.25</b>	<b>1.6</b>
Offsite Motor Vehicle Exhaust	0.26	2.48	0.25	0.00	0.03	0.02	1.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.26	0.00	
<b>Offsite Total</b>	<b>0.26</b>	<b>2.48</b>	<b>0.25</b>	<b>0.00</b>	<b>0.29</b>	<b>0.02</b>	<b>1.1</b>
<b>Total</b>	<b>0.80</b>	<b>30.96</b>	<b>4.29</b>	<b>0.01</b>	<b>0.56</b>	<b>0.27</b>	<b>2.7</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Manlift	25	2	7	6
15-Ton Crane	125	1	7	4

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Manlift	25	0.008	2.210	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane
15-Ton Crane	125	0.109	0.484	0.826	0.001	0.048	0.044	80.345	0.010	Cranes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Manlift	0.10	26.53	0.73	0.00	0.08	0.07
15-Ton Crane	0.44	1.94	3.30	0.00	0.19	0.18
<b>Total</b>	<b>0.54</b>	<b>28.46</b>	<b>4.03</b>	<b>0.00</b>	<b>0.27</b>	<b>0.25</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Manlift	0.5	0.0	0.6
15-Ton Crane	1.0	0.0	1.0
<b>Total</b>	<b>1.5</b>	<b>0.0</b>	<b>1.6</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Tool Trailer	1	7	N/A	1
Crew Truck	2	7	N/A	1
<b>Offsite</b>				
Crew Truck	2	7	N/A	12
Worker Commute	5	7	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Tool Trailer	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
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**Table 42**  
**Nuevo Substation Demolition Emissions**  
**Electrical**

<b>Onsite</b>						
Tool Trailer	0.00	0.01	0.00	0.00	0.00	0.00
Crew Truck	0.00	0.02	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.02	0.18	0.02	0.00	0.00	0.00
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.26</b>	<b>2.48</b>	<b>0.25</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>
<b>Total</b>	<b>0.26</b>	<b>2.50</b>	<b>0.25</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Tool Trailer	0.0	0.0	0.0
Crew Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Crew Truck	0.1	0.0	0.1
Worker Commute	1.0	0.0	1.1
<b>Offsite Total</b>	<b>1.1</b>	<b>0.0</b>	<b>1.1</b>
<b>Total</b>	<b>1.1</b>	<b>0.0</b>	<b>1.1</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Tool Trailer	1	Paved	1	0.001	0.000	0.00	0.00
Crew Truck	2	Paved	1	0.001	0.000	0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Crew Truck	2	Paved	12	0.001	0.000	0.02	0.00
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
<b>Offsite Total</b>						<b>0.26</b>	<b>0.00</b>
<b>Total</b>						<b>0.26</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 43**  
**Nuevo Substation Demolition Emissions**  
**Maintenance Crew Equipment Check**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.11	1.01	0.10	0.00	0.01	0.01	0.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
<b>Offsite Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>0.1</b>
<b>Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>0.1</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
None										

a From Table 48

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, [http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Maintenance Truck	1	2	N/A	0.5
<b>Offsite</b>				
Maintenance Truck	1	2	N/A	12
Worker Commute	2	2	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Maintenance Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Maintenance Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Maintenance Truck	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Maintenance Truck	0.01	0.09	0.01	0.00	0.00	0.00
Worker Commute	0.10	0.92	0.09	0.00	0.01	0.01

**Table 43**  
**Nuevo Substation Demolition Emissions**  
**Maintenance Crew Equipment Check**

<b>Offsite Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Maintenance Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Maintenance Truck	0.0	0.0	0.0
Worker Commute	0.1	0.0	0.1
<b>Offsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Maintenance Truck	1	Paved	0.5	0.001	0.000	0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Maintenance Truck	1	Paved	12	0.001	0.000	0.01	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.10	0.00
<b>Offsite Total</b>						<b>0.11</b>	<b>0.00</b>
<b>Total</b>						<b>0.11</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 44**  
**Nuevo Substation Demolition Emissions**  
**Testing**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.27	0.03	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.27</b>	<b>0.03</b>	<b>0.0</b>
Offsite Motor Vehicle Exhaust	0.11	1.01	0.10	0.00	0.01	0.01	0.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
<b>Offsite Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>0.1</b>
<b>Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.38</b>	<b>0.03</b>	<b>0.1</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
None				

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
None										

a From Table 48

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, [http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
None	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
None	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Crew Truck	1	2	N/A	0.5
<b>Offsite</b>				
Crew Truck	1	2	N/A	12
Worker Commute	2	2	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Crew Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Crew Truck	0.00	0.00	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Crew Truck	0.01	0.09	0.01	0.00	0.00	0.00
Worker Commute	0.10	0.92	0.09	0.00	0.01	0.01

**Table 44**  
**Nuevo Substation Demolition Emissions**  
**Testing**

<b>Offsite Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
<b>Total</b>	<b>0.11</b>	<b>1.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Crew Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Crew Truck	0.0	0.0	0.0
Worker Commute	0.1	0.0	0.1
<b>Offsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climate registry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climate registry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Crew Truck	1	Unpaved	0.5	0.532	0.053	0.27	0.03
<b>Onsite Total</b>						<b>0.27</b>	<b>0.03</b>
<b>Offsite</b>							
Crew Truck	1	Paved	12	0.001	0.000	0.01	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.10	0.00
<b>Offsite Total</b>						<b>0.11</b>	<b>0.00</b>
<b>Total</b>						<b>0.37</b>	<b>0.03</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 45**  
**Model P.T. Substation Demolition Emissions**  
**Civil**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.61	2.85	3.93	0.00	0.35	0.32	0.8
Onsite Motor Vehicle Exhaust	0.01	0.03	0.06	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>0.61</b>	<b>2.87</b>	<b>3.99</b>	<b>0.00</b>	<b>0.35</b>	<b>0.32</b>	<b>0.8</b>
Offsite Motor Vehicle Exhaust	0.43	3.12	2.47	0.01	0.14	0.11	1.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.24	0.00	
<b>Offsite Total</b>	<b>0.43</b>	<b>3.12</b>	<b>2.47</b>	<b>0.01</b>	<b>0.38</b>	<b>0.11</b>	<b>1.2</b>
<b>Total</b>	<b>1.04</b>	<b>6.00</b>	<b>6.46</b>	<b>0.01</b>	<b>0.73</b>	<b>0.43</b>	<b>1.9</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Backhoe	79	1	4	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Backhoe	79	0.076	0.356	0.491	0.001	0.043	0.040	51.728	0.007	Tractors/Loaders/Backhoes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Backhoe	0.61	2.85	3.93	0.00	0.35	0.32
<b>Total</b>	<b>0.61</b>	<b>2.85</b>	<b>3.93</b>	<b>0.00</b>	<b>0.35</b>	<b>0.32</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Backhoe	0.8	0.0	0.8
<b>Total</b>	<b>0.8</b>	<b>0.0</b>	<b>0.8</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number <sup>a</sup>	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Dump Truck	1	4	N/A	1
Flatbed Truck	1	4	N/A	1
Foreman Truck	1	4	N/A	1
<b>Offsite</b>				
Dump Truck	1	4	N/A	60
Flatbed Truck	1	4	N/A	12
Foreman Truck	1	4	N/A	12
Worker Commute	5	4	N/A	60

<sup>a</sup> Concrete trucks based on 430 CY over 5 days and 10 CY/truck = 430 / 5 / 10 = 8.6

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Flatbed Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Foreman Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
<b>Offsite</b>									
Dump Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Flatbed Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Foreman Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

<sup>a</sup> From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

**Table 45**  
**Model P.T. Substation Demolition Emissions**  
**Civil**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Dump Truck	0.00	0.01	0.03	0.00	0.00	0.00
Flatbed Truck	0.00	0.01	0.03	0.00	0.00	0.00
Foreman Truck	0.00	0.01	0.00	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.01</b>	<b>0.03</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Dump Truck	0.15	0.61	1.86	0.00	0.09	0.08
Flatbed Truck	0.03	0.12	0.37	0.00	0.02	0.02
Foreman Truck	0.01	0.09	0.01	0.00	0.00	0.00
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.43</b>	<b>3.12</b>	<b>2.47</b>	<b>0.01</b>	<b>0.14</b>	<b>0.11</b>
<b>Total</b>	<b>0.44</b>	<b>3.15</b>	<b>2.53</b>	<b>0.01</b>	<b>0.14</b>	<b>0.11</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Dump Truck	0.0	0.0	0.0
Flatbed Truck	0.0	0.0	0.0
Foreman Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Offsite</b>			
Dump Truck	0.5	0.0	0.5
Flatbed Truck	0.1	0.0	0.1
Foreman Truck	0.0	0.0	0.0
Worker Commute	0.6	0.0	0.6
<b>Offsite Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>
<b>Total</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]  
Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Dump Truck	1	Paved	1	0.001	0.000	0.00	0.00
Flatbed Truck	1	Paved	1	0.001	0.000	0.00	0.00
Foreman Truck	1	Paved	1	0.001	0.000	0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Dump Truck	1	Paved	60	0.001	0.000	0.05	0.00
Flatbed Truck	1	Paved	12	0.001	0.000	0.01	0.00
Foreman Truck	1	Paved	12	0.001	0.000	0.01	0.00
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
<b>Offsite Total</b>						<b>0.24</b>	<b>0.00</b>
<b>Total</b>						<b>0.24</b>	<b>0.00</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 46**  
**Model P.T. Substation Demolition Emissions**  
**Electrical**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	3.06	11.19	29.03	0.04	1.15	1.06	36.5
Onsite Motor Vehicle Exhaust	0.01	0.03	0.06	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
<b>Onsite Total</b>	<b>3.07</b>	<b>11.22</b>	<b>29.09</b>	<b>0.04</b>	<b>1.16</b>	<b>1.07</b>	<b>36.6</b>
Offsite Motor Vehicle Exhaust	0.40	3.41	1.48	0.01	0.07	0.06	5.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.30	0.30	
<b>Offsite Total</b>	<b>0.40</b>	<b>3.41</b>	<b>1.48</b>	<b>0.01</b>	<b>0.37</b>	<b>0.35</b>	<b>5.3</b>
<b>Total</b>	<b>3.47</b>	<b>14.63</b>	<b>30.57</b>	<b>0.04</b>	<b>1.53</b>	<b>1.42</b>	<b>41.9</b>

**Construction Equipment Summary**

Equipment	Horse-power	Number	Days Used	Hours Used/Day
Wire Dolly	9	1	22	8
Boom Truck	235	1	22	8
Pumper/Tanker Truck	200	1	22	8
Crane	125	1	22	8

**Construction Equipment Exhaust Emission Factors**

Equipment	Horse-power	VOC (lb/hr) <sup>a</sup>	CO (lb/hr) <sup>a</sup>	NOX (lb/hr) <sup>a</sup>	SOX (lb/hr) <sup>a</sup>	PM10 (lb/hr) <sup>a</sup>	PM2.5 (lb/hr) <sup>b</sup>	CO2 (lb/hr) <sup>a</sup>	CH4 (lb/hr) <sup>a</sup>	Category
Wire Dolly	9	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Boom Truck	235	0.110	0.310	1.071	0.001	0.039	0.036	112.159	0.010	Cranes
Pumper/Tanker Truck	200	0.152	0.543	1.657	0.002	0.055	0.050	254.238	0.014	Other Construction Equipment
Crane	125	0.109	0.484	0.826	0.001	0.048	0.044	80.345	0.010	Cranes

<sup>a</sup> From Table 48

<sup>b</sup> Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction=

0.920

From Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5

and PM 2.5 Significance Thresholds, SCAQMD, October 2006,

[http://www.aqmd.gov/ceqa/handbook/PM2\\_5/PM2\\_5.html](http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html)

**Construction Equipment Daily Criteria Pollutant Exhaust Emissions**

Equipment	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Wire Dolly	0.09	0.49	0.59	0.00	0.02	0.02
Boom Truck	0.88	2.48	8.57	0.01	0.31	0.29
Pumper/Tanker Truck	1.21	4.34	13.26	0.02	0.44	0.40
Crane	0.87	3.87	6.61	0.01	0.38	0.35
<b>Total</b>	<b>3.06</b>	<b>11.19</b>	<b>29.03</b>	<b>0.04</b>	<b>1.15</b>	<b>1.06</b>

<sup>a</sup> Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

**Construction Equipment Total Greenhouse Gas Emissions**

Equipment	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
Wire Dolly	0.8	0.0	0.8
Boom Truck	9.0	0.0	9.0
Pumper/Tanker Truck	20.3	0.0	20.3
Crane	6.4	0.0	6.4
<b>Total</b>	<b>36.5</b>	<b>0.0</b>	<b>36.5</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x

days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 48

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action

Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Usage**

Vehicle	Number	Days Used	Hours Used/Day	Miles/Day/Veh.
<b>Onsite</b>				
Line Truck	1	22	N/A	0.5
Troubleman Truck	1	22	N/A	0.5
Boom Truck	1	22	N/A	0.5
Foreman Truck	1	22	N/A	0.5
Flatbed Truck	1	22	N/A	0.5
Pumper/Tanker Truck	1	22	N/A	0.5
<b>Offsite</b>				
Line Truck	1	22	N/A	12
Troubleman Truck	1	22	N/A	12

**Table 46**  
**Model P.T. Substation Demolition Emissions**  
**Electrical**

Boom Truck	1	22	N/A	12
Foreman Truck	1	22	N/A	12
Flatbed Truck	1	22	N/A	12
Pumper/Tanker Truck	1	22	N/A	12
Worker Commute	5	22	N/A	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
<b>Onsite</b>									
Line Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Troubleman Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Boom Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Foreman Truck	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Flatbed Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
Pumper/Tanker Truck	HHDT	2.53E-03	1.02E-02	3.09E-02	4.04E-05	1.50E-03	1.29E-03	4.22E+00	1.17E-04
<b>Offsite</b>									
Line Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Troubleman Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Boom Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Foreman Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Flatbed Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Pumper/Tanker Truck	Delivery	2.24E-03	1.55E-02	1.73E-02	2.67E-05	6.50E-04	5.50E-04	2.77E+00	1.07E-04
Worker Commute	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
<b>Onsite</b>						
Line Truck	0.00	0.01	0.01	0.00	0.00	0.00
Troubleman Truck	0.00	0.01	0.01	0.00	0.00	0.00
Boom Truck	0.00	0.01	0.02	0.00	0.00	0.00
Foreman Truck	0.00	0.00	0.00	0.00	0.00	0.00
Flatbed Truck	0.00	0.01	0.02	0.00	0.00	0.00
Pumper/Tanker Truck	0.00	0.01	0.02	0.00	0.00	0.00
<b>Onsite Total</b>	<b>0.01</b>	<b>0.03</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>						
Line Truck	0.03	0.19	0.21	0.00	0.01	0.01
Troubleman Truck	0.03	0.19	0.21	0.00	0.01	0.01
Boom Truck	0.03	0.19	0.21	0.00	0.01	0.01
Foreman Truck	0.03	0.19	0.21	0.00	0.01	0.01
Flatbed Truck	0.03	0.19	0.21	0.00	0.01	0.01
Pumper/Tanker Truck	0.03	0.19	0.21	0.00	0.01	0.01
Worker Commute	0.24	2.30	0.23	0.00	0.03	0.02
<b>Offsite Total</b>	<b>0.40</b>	<b>3.41</b>	<b>1.48</b>	<b>0.01</b>	<b>0.07</b>	<b>0.06</b>
<b>Total</b>	<b>0.41</b>	<b>3.44</b>	<b>1.54</b>	<b>0.01</b>	<b>0.08</b>	<b>0.06</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Total Greenhouse Gas Emissions**

Vehicle	CO2 (MT) <sup>a</sup>	CH4 (MT) <sup>a</sup>	CO2e (MT) <sup>b</sup>
<b>Onsite</b>			
Line Truck	0.0	0.0	0.0
Troubleman Truck	0.0	0.0	0.0
Boom Truck	0.0	0.0	0.0
Foreman Truck	0.0	0.0	0.0
Flatbed Truck	0.0	0.0	0.0
Pumper/Tanker Truck	0.0	0.0	0.0
<b>Onsite Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Offsite</b>			
Line Truck	0.3	0.0	0.3
Troubleman Truck	0.3	0.0	0.3
Boom Truck	0.3	0.0	0.3
Foreman Truck	0.3	0.0	0.3
Flatbed Truck	0.3	0.0	0.3
Pumper/Tanker Truck	0.3	0.0	0.3
Worker Commute	3.3	0.0	3.3
<b>Offsite Total</b>	<b>5.3</b>	<b>0.0</b>	<b>5.3</b>
<b>Total</b>	<b>5.4</b>	<b>0.0</b>	<b>5.4</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Table 46**  
**Model P.T. Substation Demolition Emissions**  
**Electrical**

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/Day/Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
<b>Onsite</b>							
Line Truck	1	Paved	0.5	0.001	0.001	0.00	0.00
Troubleman Truck	1	Paved	0.5	0.001	0.001	0.00	0.00
Boom Truck	1	Paved	0.5	0.001	0.001	0.00	0.00
Foreman Truck	1	Paved	0.5	0.001	0.001	0.00	0.00
Flatbed Truck	1	Paved	0.5	0.001	0.001	0.00	0.00
Pumper/Tanker Truck	1	Paved	0.5	0.001	0.001	0.00	0.00
<b>Onsite Total</b>						<b>0.00</b>	<b>0.00</b>
<b>Offsite</b>							
Line Truck	1	Paved	12	0.001	0.001	0.01	0.01
Troubleman Truck	1	Paved	12	0.001	0.001	0.01	0.01
Boom Truck	1	Paved	12	0.001	0.001	0.01	0.01
Foreman Truck	1	Paved	12	0.001	0.001	0.01	0.01
Flatbed Truck	1	Paved	12	0.001	0.001	0.01	0.01
Pumper/Tanker Truck	1	Paved	12	0.001	0.001	0.01	0.01
Worker Commute	5	Paved	60	0.001	0.001	0.24	0.24
<b>Offsite Total</b>						<b>0.30</b>	<b>0.30</b>
<b>Total</b>						<b>0.30</b>	<b>0.30</b>

<sup>a</sup> From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Earthwork Fugitive Particulate Matter Emissions**

Activity	Activity Units	Activity Level	PM10 Emission Factor <sup>a</sup>	PM2.5 Emission Factor <sup>a</sup>	PM10 (lb/day) <sup>b</sup>	PM2.5 (lb/day) <sup>b</sup>
Soil Handling	CY/day		1.62E-03	3.36E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.481	0.308	0.00	0.00
Storage Pile Wind Erosion	acres		15.7	3.26	0.00	0.00
<b>Total</b>					<b>0.00</b>	<b>0.00</b>

<sup>a</sup> From Table 52

<sup>b</sup> Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

**Table 47  
Operational Emissions**

**Emissions Summary**

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT/yr)
Motor Vehicle Exhaust	0.10	0.97	0.10	0.00	0.01	0.01	1
Motor Vehicle Fugitive PM	--	--	--	--	3.15	0.30	--
SF6 Leakage	--	--	--	--	--	--	20
<b>Total</b>	<b>0.10</b>	<b>0.97</b>	<b>0.10</b>	<b>0.00</b>	<b>3.16</b>	<b>0.31</b>	<b>21</b>

**Motor Vehicle Usage**

Vehicle	Number	Days Used/ Year	Miles/ Day/ Veh.
Subtransmission Line Inspection	1	1	67
Substation Site Visit	1	48	60

**Motor Vehicle Exhaust Emission Factors**

Vehicle	Category	VOC (lb/mi) <sup>a</sup>	CO (lb/mi) <sup>a</sup>	NOX (lb/mi) <sup>a</sup>	SOX (lb/mi) <sup>a</sup>	PM10 (lb/mi) <sup>a</sup>	PM2.5 (lb/mi) <sup>b</sup>	CO2 (lb/mi) <sup>a</sup>	CH4 (lb/mi) <sup>a</sup>
Subtransmission Line Inspection	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05
Substation Site Visit	Passenger	7.96E-04	7.65E-03	7.76E-04	1.07E-05	8.98E-05	5.75E-05	1.10E+00	7.17E-05

a From Table 49 or Table 50

**Motor Vehicle Daily Criteria Pollutant Exhaust Emissions**

Vehicle	VOC (lb/day) <sup>a</sup>	CO (lb/day) <sup>a</sup>	NOX (lb/day) <sup>a</sup>	SOX (lb/day) <sup>a</sup>	PM10 (lb/day) <sup>a</sup>	PM2.5 (lb/day) <sup>a</sup>
Subtransmission Line Inspection	0.05	0.51	0.05	0.00	0.01	0.00
Substation Site Visit	0.05	0.46	0.05	0.00	0.01	0.00
<b>Total</b>	<b>0.10</b>	<b>0.97</b>	<b>0.10</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>

<sup>a</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**Motor Vehicle Annual Greenhouse Gas Emissions**

Vehicle	CO2 (MT/yr) <sup>a</sup>	CH4 (MT/yr) <sup>a</sup>	CO2e (MT/yr) <sup>b</sup>
Subtransmission Line Inspection	0.0	0.0	0.0
Substation Site Visit	1.4	0.0	1.4
<b>Total</b>	<b>1.5</b>	<b>0.0</b>	<b>1.5</b>

<sup>a</sup> Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 49 and Table 50

<sup>b</sup> CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emission factors are CO<sub>2</sub> emissions plus 21 x CH<sub>4</sub> emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

**Motor Vehicle Fugitive Particulate Matter Emissions**

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi) <sup>a</sup>	PM2.5 Emission Factor (lb/mi) <sup>a</sup>	PM10 Emissions (lb/day) <sup>b</sup>	PM2.5 Emissions (lb/day) <sup>b</sup>
Subtransmission Line Inspection	1	Paved	67	0.001	0.000	0.05	0.00
Subtransmission Line Inspection	1	Unpaved	7	0.435	0.043	3.04	0.30
Substation Site Visit	1	Paved	60	0.001	0.000	0.05	0.00
<b>Total</b>						<b>3.15</b>	<b>0.30</b>

a From Table 51

<sup>b</sup> Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

**SF6 Leakage Greenhouse Gas Emissions**

Item	Value	Units
Total SF6	378	pounds
SF6 Leakage Rate	0.5	%/year
SF6 Emissions	1.89	pounds
SF6 Global Warming Potential <sup>a</sup>	23,200	
<b>CO2e Emissions<sup>b</sup></b>	<b>20</b>	<b>MT/yr</b>

<sup>a</sup> Based on Table C.1 from California Climate Action

**Table 47**  
**Operational Emissions**

Registry General Reporting Protocol, Version 3.0,  
April 2008.

[http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_V3\\_April2008\\_FINAL.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf)

<sup>b</sup> CO<sub>2</sub>e emissions [metric tons] = SF<sub>6</sub> emissions [lb] x  
Global warming potential [lb CO<sub>2</sub>e/lb SF<sub>6</sub>] x 453.6 [g/lb] /  
1,000,000 [g/MT]

**Table 48**  
**SCAB Fleet Average Emission Factors (Diesel)**

2012

Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Aerial Lifts	15	0.0102	0.0528	0.0642	0.0001	0.0030	8.7	0.0009
	25	0.0175	0.0517	0.0957	0.0001	0.0055	11.0	0.0016
	50	0.0650	0.1822	0.1916	0.0003	0.0169	19.6	0.0059
	120	0.0607	0.2451	0.4012	0.0004	0.0324	38.1	0.0055
	500	0.1276	0.4941	1.6553	0.0021	0.0491	213	0.0115
	750	0.2379	0.8930	3.0795	0.0039	0.0903	385	0.0215
Aerial Lifts Composite		0.0576	0.1976	0.3249	0.0004	0.0219	34.7	0.0052
Aerial Lifts-Propane	15	0.0037	1.4362	0.0393	0.0000	0.0041	8.9	0.0311
	25	0.0083	2.2104	0.0608	0.0000	0.0067	13.0	0.0697
Aerial Lifts-Propane Composite								
Air Compressors	15	0.0129	0.0494	0.0768	0.0001	0.0052	7.2	0.0012
	25	0.0286	0.0779	0.1337	0.0002	0.0087	14.4	0.0026
	50	0.1010	0.2646	0.2310	0.0003	0.0239	22.3	0.0091
	120	0.0891	0.3287	0.5333	0.0006	0.0492	47.0	0.0080
	175	0.1135	0.5074	0.8954	0.0010	0.0512	88.5	0.0102
	250	0.1066	0.3052	1.2194	0.0015	0.0379	131	0.0096
	500	0.1709	0.5726	1.9077	0.0023	0.0623	232	0.0154
	750	0.2681	0.8849	3.0371	0.0036	0.0980	358	0.0242
	1000	0.4533	1.5617	5.4098	0.0049	0.1589	486	0.0409
Air Compressors Composite		0.0984	0.3445	0.6494	0.0007	0.0469	63.6	0.0089
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011
	25	0.0194	0.0658	0.1233	0.0002	0.0054	16.0	0.0017
	50	0.0351	0.2335	0.2768	0.0004	0.0149	31.0	0.0032
	120	0.0514	0.4724	0.5026	0.0009	0.0328	77.1	0.0046
	175	0.0750	0.7538	0.7479	0.0016	0.0366	141	0.0068
	250	0.0838	0.3435	0.8722	0.0021	0.0268	188	0.0076
	500	0.1354	0.5526	1.3152	0.0031	0.0437	311	0.0122
	750	0.2685	1.0916	2.6320	0.0062	0.0865	615	0.0242
1000	0.4491	1.6773	6.6123	0.0093	0.1699	928	0.0405	
Bore/Drill Rigs Composite		0.0854	0.5068	0.9013	0.0017	0.0367	165	0.0077
Cement and Mortar Mixers	15	0.0075	0.0386	0.0475	0.0001	0.0023	6.3	0.0007
	25	0.0293	0.0852	0.1548	0.0002	0.0091	17.6	0.0026
Cement and Mortar Mixers Composite		0.0093	0.0425	0.0564	0.0001	0.0029	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1261	0.0002	0.0050	16.5	0.0018
	50	0.1047	0.3015	0.2972	0.0004	0.0268	30.2	0.0094
	120	0.1155	0.4880	0.7625	0.0009	0.0639	74.1	0.0104
	175	0.1685	0.8723	1.4507	0.0018	0.0767	160	0.0152
Concrete/Industrial Saws Composite		0.1090	0.4148	0.5910	0.0007	0.0491	58.5	0.0098
Cranes	50	0.1101	0.2979	0.2478	0.0003	0.0258	23.2	0.0099
	120	0.0982	0.3650	0.5844	0.0006	0.0533	50.1	50.1
	175	0.1089	0.4838	0.8259	0.0009	0.0479	80.3	0.0098
	250	0.1103	0.3103	1.0712	0.0013	0.0388	112	0.0100
	500	0.1635	0.5691	1.5327	0.0018	0.0571	180	0.0148
	750	0.2767	0.9554	2.6486	0.0030	0.0974	303	0.0250
	9999	0.9905	3.5715	10.9484	0.0098	0.3384	971	0.0894
Cranes Composite		0.1425	0.4946	1.2753	0.0014	0.0553	129	0.0129
Crawler Tractors	50	0.1262	0.3333	0.2713	0.0003	0.0289	24.9	0.0114
	120	0.1374	0.4906	0.8120	0.0008	0.0729	65.8	0.0124
	175	0.1758	0.7491	1.3245	0.0014	0.0765	121	0.0159
	250	0.1854	0.5225	1.7044	0.0019	0.0667	166	0.0167
	500	0.2659	1.0217	2.3914	0.0025	0.0942	259	0.0240
	750	0.4784	1.8248	4.3817	0.0047	0.1705	465	0.0432
1000	0.7229	2.8959	7.7626	0.0066	0.2503	658	0.0652	
Crawler Tractors Composite		0.1671	0.6051	1.2309	0.0013	0.0752	114	0.0151
Crushing/Proc. Equipment	50	0.1927	0.5215	0.4545	0.0006	0.0462	44.0	0.0174

**Table 48**  
**SCAB Fleet Average Emission Factors (Diesel)**

2012

Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	120	0.1525	0.5829	0.9172	0.0010	0.0851	83.1	0.0138
	175	0.2088	0.9654	1.6343	0.0019	0.0946	167	0.0188
	250	0.1953	0.5592	2.1896	0.0028	0.0682	245	0.0176
	500	0.2733	0.8961	2.9457	0.0037	0.0972	374	0.0247
	750	0.4361	1.3892	4.8387	0.0059	0.1560	589	0.0394
	9999	1.2112	4.0327	14.2648	0.0131	0.4203	1,308	0.1093
Crushing/Proc. Equipment Composite		0.1872	0.6911	1.2633	0.0015	0.0819	132	0.0169
Dumpers/Tenders	25	0.0100	0.0324	0.0614	0.0001	0.0031	7.6	0.0009
Dumpers/Tenders Composite		0.0100	0.0324	0.0614	0.0001	0.0031	7.6	0.0009
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0048	16.4	0.0018
	50	0.0912	0.2933	0.2568	0.0003	0.0237	25.0	0.0082
	120	0.1183	0.5220	0.7300	0.0009	0.0657	73.6	0.0107
	175	0.1288	0.6678	0.9613	0.0013	0.0569	112	0.0116
	250	0.1301	0.3630	1.2438	0.0018	0.0415	159	0.0117
	500	0.1805	0.5493	1.6112	0.0023	0.0574	234	0.0163
	750	0.3013	0.9096	2.7605	0.0039	0.0969	387	0.0272
Excavators Composite		0.1300	0.5401	0.9817	0.0013	0.0536	120	0.0117
Forklifts	50	0.0514	0.1682	0.1488	0.0002	0.0136	14.7	0.0046
	120	0.0489	0.2195	0.3017	0.0004	0.0277	31.2	0.0044
	175	0.0624	0.3304	0.4664	0.0006	0.0278	56.1	0.0056
	250	0.0595	0.1638	0.5872	0.0009	0.0187	77.1	0.0054
	500	0.0806	0.2241	0.7257	0.0011	0.0252	111	0.0073
Forklifts Composite		0.0585	0.2257	0.4330	0.0006	0.0231	54.4	0.0053
Forklifts-Propane	25	0.0124	1.9683	0.0550	0.0000	0.0068	10.3	0.1042
	50	0.0023	0.2932	0.0984	0.0000	0.0016	18.3	0.0191
	120	0.0039	1.4083	0.1724	0.0000	0.0028	31.2	0.0330
	175	0.0055	2.2550	0.2663	0.0000	0.0058	65.1	0.0460
Forklifts-Propane Composite								
Generator Sets	15	0.0157	0.0698	0.1063	0.0002	0.0061	10.2	0.0014
	25	0.0276	0.0951	0.1632	0.0002	0.0096	17.6	0.0025
	50	0.0959	0.2734	0.2966	0.0004	0.0255	30.6	0.0087
	120	0.1206	0.4956	0.8099	0.0009	0.0640	77.9	0.0109
	175	0.1460	0.7413	1.3131	0.0016	0.0644	142	0.0132
	250	0.1372	0.4502	1.8047	0.0024	0.0508	213	0.0124
	500	0.1952	0.7617	2.5896	0.0033	0.0756	337	0.0176
	750	0.3257	1.2296	4.3019	0.0055	0.1241	544	0.0294
	9999	0.8673	3.0642	10.8871	0.0105	0.3104	1,049	0.0783
Generator Sets Composite		0.0832	0.3121	0.5779	0.0007	0.0351	61.0	0.0075
Graders	50	0.1182	0.3365	0.2882	0.0004	0.0286	27.5	0.0107
	120	0.1348	0.5355	0.8223	0.0009	0.0740	75.0	0.0122
	175	0.1554	0.7363	1.1931	0.0014	0.0688	124	0.0140
	250	0.1575	0.4508	1.5344	0.0019	0.0547	172	0.0142
	500	0.1947	0.6639	1.8193	0.0023	0.0671	229	0.0176
	750	0.4147	1.4022	3.9602	0.0049	0.1439	486	0.0374
Graders Composite		0.1533	0.6129	1.2503	0.0015	0.0649	133	0.0138
Off-Highway Tractors	120	0.2224	0.7269	1.2964	0.0011	0.1143	93.7	0.0201
	175	0.2135	0.8404	1.6085	0.0015	0.0923	130	0.0193
	250	0.1718	0.4896	1.5282	0.0015	0.0644	130	0.0155
	750	0.6814	3.0883	6.1417	0.0057	0.2515	568	0.0615
	1000	1.0246	4.8137	10.5080	0.0082	0.3620	814	0.0924
Off-Highway Tractors Composite		0.2170	0.7878	1.7969	0.0017	0.0871	151	0.0196
Off-Highway Trucks	175	0.1533	0.7593	1.1072	0.0014	0.0666	125	0.0138
	250	0.1469	0.3944	1.3513	0.0019	0.0461	167	0.0133
	500	0.2263	0.6661	1.9463	0.0027	0.0705	272	0.0204
	750	0.3695	1.0792	3.2612	0.0044	0.1164	442	0.0333

**Table 48**  
**SCAB Fleet Average Emission Factors (Diesel)**

2012

Air Basin      SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	1000	0.5790	1.7854	6.4025	0.0063	0.1933	625	0.0522
Off-Highway Trucks Composite		0.2241	0.6635	2.0158	0.0027	0.0715	260	0.0202
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0028	10.1	0.0011
	25	0.0160	0.0544	0.1019	0.0002	0.0044	13.2	0.0014
	50	0.0842	0.2740	0.2707	0.0004	0.0228	28.0	0.0076
	120	0.1104	0.5320	0.7540	0.0009	0.0633	80.9	0.0100
	175	0.1008	0.5880	0.8599	0.0012	0.0467	107	0.0091
	500	0.1517	0.5426	1.6573	0.0025	0.0545	254	0.0137
Other Construction Equipment Composite		0.0925	0.3847	0.8599	0.0013	0.0366	123	0.0083
Other General Industrial Equipment	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0045	15.3	0.0017
	50	0.1085	0.2856	0.2332	0.0003	0.0253	21.7	0.0098
	120	0.1274	0.4542	0.7277	0.0007	0.0703	62.0	0.0115
	175	0.1349	0.5757	1.0001	0.0011	0.0599	95.9	0.0122
	250	0.1235	0.3281	1.2983	0.0015	0.0417	136	0.0111
	500	0.2232	0.6772	2.2367	0.0026	0.0758	265	0.0201
	750	0.3707	1.1162	3.8016	0.0044	0.1273	437	0.0334
	1000	0.5621	1.8453	6.4018	0.0056	0.1947	560	0.0507
Other General Industrial Equipment Composite		0.1635	0.5362	1.4520	0.0016	0.0632	152	0.0148
Other Material Handling Equipment	50	0.1506	0.3950	0.3243	0.0004	0.0352	30.3	0.0136
	120	0.1239	0.4423	0.7103	0.0007	0.0684	60.7	0.0112
	175	0.1703	0.7292	1.2706	0.0014	0.0759	122	0.0154
	250	0.1305	0.3496	1.3863	0.0016	0.0443	145	0.0118
	500	0.1590	0.4876	1.6124	0.0019	0.0545	192	0.0143
	9999	0.7467	2.4395	8.4619	0.0073	0.2565	741	0.0674
Other Material Handling Equipment Composite		0.1566	0.5108	1.4125	0.0015	0.0613	141	0.0141
Pavers	25	0.0255	0.0811	0.1531	0.0002	0.0080	18.7	0.0023
	50	0.1451	0.3680	0.3038	0.0004	0.0327	28.0	0.0131
	120	0.1467	0.5107	0.8788	0.0008	0.0776	69.2	0.0132
	175	0.1864	0.7833	1.4495	0.0014	0.0819	128	0.0168
	250	0.2182	0.6365	2.0698	0.0022	0.0818	194	0.0197
	500	0.2383	0.9957	2.2418	0.0023	0.0883	233	0.0215
Pavers Composite		0.1596	0.5445	0.8980	0.0009	0.0642	77.9	0.0144
Paving Equipment	25	0.0153	0.0520	0.0974	0.0002	0.0042	12.6	0.0014
	50	0.1239	0.3124	0.2591	0.0003	0.0279	23.9	0.0112
	120	0.1150	0.3997	0.6897	0.0006	0.0610	54.5	0.0104
	175	0.1455	0.6114	1.1384	0.0011	0.0640	101	0.0131
	250	0.1349	0.3946	1.2976	0.0014	0.0507	122	0.0122
Paving Equipment Composite		0.1204	0.4365	0.8114	0.0008	0.0570	68.9	0.0109
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0013	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0013	4.3	0.0005
Pressure Washers	15	0.0075	0.0334	0.0509	0.0001	0.0029	4.9	0.0007
	25	0.0112	0.0385	0.0662	0.0001	0.0039	7.1	0.0010
	50	0.0349	0.1074	0.1339	0.0002	0.0102	14.3	0.0032
	120	0.0332	0.1458	0.2385	0.0003	0.0172	24.1	0.0030
Pressure Washers Composite		0.0173	0.0635	0.0921	0.0001	0.0063	9.4	0.0016
Pumps	15	0.0133	0.0508	0.0790	0.0001	0.0054	7.4	0.0012
	25	0.0386	0.1051	0.1803	0.0002	0.0117	19.5	0.0035
	50	0.1155	0.3229	0.3362	0.0004	0.0299	34.3	0.0104
	120	0.1250	0.5036	0.8226	0.0009	0.0669	77.9	0.0113
	175	0.1498	0.7431	1.3164	0.0016	0.0664	140	0.0135
	250	0.1357	0.4345	1.7375	0.0023	0.0501	201	0.0122
	500	0.2089	0.8032	2.6861	0.0034	0.0803	345	0.0188
	750	0.3557	1.3279	4.5700	0.0057	0.1350	571	0.0321
	9999	1.1456	4.0641	14.2305	0.0136	0.4081	1,355	0.1034

**Table 48**  
**SCAB Fleet Average Emission Factors (Diesel)**

2012

Air Basin      SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Pumps Composite		0.0813	0.2983	0.4999	0.0006	0.0351	49.6	0.0073
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0162	0.0549	0.1029	0.0002	0.0045	13.3	0.0015
	50	0.1105	0.2994	0.2677	0.0003	0.0263	26.0	0.0100
	120	0.1054	0.4098	0.6619	0.0007	0.0574	59.0	0.0095
	175	0.1320	0.6220	1.0725	0.0012	0.0591	108	0.0119
	250	0.1347	0.4083	1.4103	0.0017	0.0498	153	0.0122
500	0.1755	0.6752	1.8093	0.0022	0.0652	219	0.0158	
Rollers Composite		0.1038	0.4107	0.6936	0.0008	0.0488	67.1	0.0094
Rough Terrain Forklifts	50	0.1315	0.3910	0.3455	0.0004	0.0330	33.9	0.0119
	120	0.1038	0.4364	0.6425	0.0007	0.0585	62.4	0.0094
	175	0.1444	0.7268	1.1204	0.0014	0.0652	125	0.0130
	250	0.1353	0.3896	1.4082	0.0019	0.0458	171	0.0122
	500	0.1894	0.5985	1.8577	0.0025	0.0642	257	0.0171
Rough Terrain Forklifts Composite		0.1093	0.4680	0.6995	0.0008	0.0587	70.3	0.0099
Rubber Tired Dozers	175	0.2209	0.8528	1.6304	0.0015	0.0945	129	0.0199
	250	0.2545	0.7124	2.1985	0.0021	0.0942	183	0.0230
	500	0.3345	1.5220	2.8822	0.0026	0.1210	265	0.0302
	750	0.5042	2.2809	4.4100	0.0040	0.1832	399	0.0455
	1000	0.7807	3.6654	7.7816	0.0060	0.2729	592	0.0704
Rubber Tired Dozers Composite		0.3114	1.2491	2.6866	0.0025	0.1137	239	0.0281
Rubber Tired Loaders	25	0.0205	0.0697	0.1295	0.0002	0.0052	16.9	0.0018
	50	0.1315	0.3756	0.3242	0.0004	0.0319	31.1	0.0119
	120	0.1045	0.4187	0.6404	0.0007	0.0576	58.9	0.0094
	175	0.1312	0.6288	1.0135	0.0012	0.0583	106	0.0118
	250	0.1330	0.3838	1.3129	0.0017	0.0462	149	0.0120
	500	0.1961	0.6755	1.8555	0.0023	0.0677	237	0.0177
	750	0.4044	1.3812	3.9115	0.0049	0.1408	486	0.0365
	1000	0.5480	1.9543	6.3337	0.0060	0.1909	594	0.0494
Rubber Tired Loaders Composite		0.1272	0.4855	1.0034	0.0012	0.0558	109	0.0115
Scrapers	120	0.1990	0.7011	1.1749	0.0011	0.1054	93.9	0.0180
	175	0.2172	0.9158	1.6429	0.0017	0.0945	148	0.0196
	250	0.2367	0.6699	2.1849	0.0024	0.0859	209	0.0214
	500	0.3333	1.3000	3.0162	0.0032	0.1190	321	0.0301
	750	0.5779	2.2380	5.3231	0.0056	0.2075	555	0.0521
Scrapers Composite		0.2916	1.0984	2.5680	0.0027	0.1087	262	0.0263
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0017	6.2	0.0006
	50	0.1270	0.3587	0.3564	0.0005	0.0324	36.2	0.0115
	120	0.1284	0.5269	0.8360	0.0009	0.0703	80.2	0.0116
	175	0.1661	0.8370	1.4268	0.0017	0.0750	155	0.0150
	250	0.1746	0.5516	2.1599	0.0029	0.0639	255	0.0158
Signal Boards Composite		0.0203	0.0940	0.1470	0.0002	0.0083	16.7	0.0018
Skid Steer Loaders	25	0.0211	0.0635	0.1189	0.0002	0.0067	13.8	0.0019
	50	0.0596	0.2332	0.2402	0.0003	0.0180	25.5	0.0054
	120	0.0482	0.2769	0.3536	0.0005	0.0286	42.8	0.0043
Skid Steer Loaders Composite		0.0534	0.2360	0.2686	0.0004	0.0207	30.3	0.0048
Surfacing Equipment	50	0.0513	0.1441	0.1411	0.0002	0.0128	14.1	0.0046
	120	0.1040	0.4251	0.6895	0.0007	0.0557	63.8	0.0094
	175	0.0950	0.4745	0.8195	0.0010	0.0422	85.8	0.0086
	250	0.1095	0.3526	1.1993	0.0015	0.0413	135	0.0099
	500	0.1631	0.6813	1.7819	0.0022	0.0622	221	0.0147
	750	0.2601	1.0660	2.8642	0.0035	0.0986	347	0.0235
Surfacing Equipment Composite		0.1362	0.5467	1.3678	0.0017	0.0512	166	0.0123
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011
	25	0.0237	0.0808	0.1501	0.0002	0.0060	19.6	0.0021

**Table 48**  
**SCAB Fleet Average Emission Factors (Diesel)**

2012

Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	50	0.1195	0.3565	0.3179	0.0004	0.0302	31.6	0.0108
	120	0.1233	0.5204	0.7534	0.0009	0.0706	75.0	0.0111
	175	0.1575	0.8008	1.2212	0.0016	0.0717	139	0.0142
	250	0.1205	0.3447	1.3019	0.0018	0.0402	162	0.0109
Sweepers/Scrubbers Composite		0.1278	0.5215	0.7403	0.0009	0.0576	78.5	0.0115
Tractors/Loaders/Backhoes	25	0.0199	0.0662	0.1250	0.0002	0.0061	15.9	0.0018
	50	0.1006	0.3305	0.3030	0.0004	0.0267	30.3	0.0091
	120	0.0760	0.3557	0.4910	0.0006	0.0432	51.7	0.0069
	175	0.1058	0.5866	0.8294	0.0011	0.0478	101	0.0095
	250	0.1264	0.3755	1.2813	0.0019	0.0415	172	0.0114
	500	0.2386	0.7714	2.2621	0.0039	0.0784	345	0.0215
	750	0.3611	1.1563	3.5105	0.0058	0.1199	517	0.0326
Tractors/Loaders/Backhoes Composite		0.0862	0.3824	0.5816	0.0008	0.0435	66.8	0.0078
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009
	25	0.0398	0.1355	0.2519	0.0004	0.0101	32.9	0.0036
	50	0.1656	0.4176	0.3536	0.0004	0.0374	32.9	0.0149
	120	0.1354	0.4732	0.8257	0.0008	0.0709	64.9	0.0122
	175	0.2050	0.8694	1.6306	0.0016	0.0901	144	0.0185
	250	0.2483	0.7418	2.3854	0.0025	0.0951	223	0.0224
	500	0.3135	1.4011	3.0220	0.0031	0.1190	311	0.0283
	750	0.5949	2.6307	5.8034	0.0059	0.2259	587	0.0537
Trenchers Composite		0.1507	0.4749	0.6995	0.0007	0.0582	58.7	0.0136
Welders	15	0.0111	0.0425	0.0660	0.0001	0.0045	6.2	0.0010
	25	0.0224	0.0609	0.1044	0.0001	0.0068	11.3	0.0020
	50	0.1071	0.2854	0.2637	0.0003	0.0260	26.0	0.0097
	120	0.0708	0.2687	0.4376	0.0005	0.0387	39.5	0.0064
	175	0.1183	0.5475	0.9688	0.0011	0.0531	98.2	0.0107
	250	0.0909	0.2704	1.0791	0.0013	0.0329	119	0.0082
	500	0.1154	0.4072	1.3538	0.0016	0.0431	168	0.0104
Welders Composite		0.0703	0.2150	0.2702	0.0003	0.0243	25.6	0.0063

Source: File offroadEF07\_25.xls, downloaded from <http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html>

**Table 49**  
**Highest (Most Conservative) EMFAC2007 (version 2.3)**  
**Emission Factors for On-Road Passenger Vehicles & Delivery Trucks**  
 Projects in the SCAQMD (Scenario Years 2007 - 2026)  
 Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

**Vehicle Class:**  
**Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)**

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:  
**Passenger Vehicles & Delivery Trucks.**

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

$$\text{Emissions (pounds per day)} = N \times TL \times EF$$

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2012**

All model years in the range 1968 to 2012

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00765475	CO	0.01545741
NOx	0.00077583	NOx	0.01732423
ROG	0.00079628	ROG	0.00223776
SOx	0.00001073	SOx	0.00002667
PM10	0.00008979	PM10	0.00064975
PM2.5	0.00005750	PM2.5	0.00054954
CO2	1.10152540	CO2	2.76628414
CH4	0.00007169	CH4	0.00010668

Source: File onroadEF07\_26.xls, downloaded from <http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>

**Table 50**  
**Highest (Most Conservative) EMFAC2007 (version 2.3)**  
**Emission Factors for On-Road Heavy-Heavy-Duty Diesel Trucks**  
 Projects in the SCAQMD (Scenario Years 2007 - 2026)  
 Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

**Vehicle Class:**  
**Heavy-Heavy-Duty Diesel Trucks (33,001 to 60,000 pounds)**

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy-Heavy-Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

$$\text{Emissions (pounds per day)} = N \times TL \times EF$$

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy-heavy-duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy-heavy-duty diesel trucks.

Scenario Year: **2012**

All model years in the range 1968 to 2012

HHDT-DSL (pounds/mile)		HHDT-DSL, Exh (pounds/mile)	
CO	0.01021519	PM10	0.00135537
NOx	0.03092379	PM2.5	0.00124837
ROG	0.00252764		
SOx	0.00004042		
PM10	0.00149566		
PM2.5	0.00129354		
CO2	4.21590774		
CH4	0.00011651		

Source: File onroadEFHHDT07\_26.xls, downloaded from <http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>

**Table 51  
Motor Vehicle Entrained Road Dust Emission Factors**

Vehicle Type	Surface	Silt Loading (sL, g/m <sup>2</sup> ) or Silt Content (s, %) <sup>a</sup>	Average Weight (W) (tons) <sup>b</sup>	Un-controlled PM10 Emission Factor (lb/VMT) <sup>c</sup>	Un-controlled PM2.5 Emission Factor (lb/VMT) <sup>c</sup>	Control Efficiency (%) <sup>d</sup>	Controlled PM10 Emission Factor (lb/VMT) <sup>e</sup>	Controlled PM2.5 Emission Factor (lb/VMT) <sup>e</sup>
1/2-Ton Pick-up Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1/2-Ton Pick-up Truck, 4x4	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
Tool Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Tool Truck	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
Pickup 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pickup 4x4	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
Survey Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Survey Truck	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
10-cu. yd. Concrete Mixer Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
10-cu. yd. Concrete Mixer Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
10-cu. yd. Dump Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
10-cu. yd. Dump Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
1-Ton Crew Cab Flat Bed, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1-Ton Crew Cab Flat Bed, 4x4	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
1-Ton Crew Cab, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1-Ton Crew Cab, 4x4	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
22-Ton Manlitex	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
22-Ton Manlitex	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
3/4-Ton Pick-up Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
3/4-Ton Pick-up Truck, 4x4	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
30-Ton Crane Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
30-Ton Crane Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
3 Drum Straw Line Puller	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
3 Drum Straw Line Puller	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
40' Flat Bed Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
40' Flat Bed Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
80ft. Hydraulic Manlift/Bucket Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
80ft. Hydraulic Manlift/Bucket Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Aggregate Base Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Aggregate Base Delivery Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Asphalt Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Asphalt Delivery Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Auger Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Auger Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Boom Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Boom Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Bucket Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Bucket Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Carry-all Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Carry-all Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Concrete Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Concrete Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Crew Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crew Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Crewcab Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crewcab Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Crushed Rock Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crushed Rock Delivery Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Dump Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Dump Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Delivery Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Dump Truck (Trash)	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Dump Truck (Trash)	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02

**Table 51  
Motor Vehicle Entrained Road Dust Emission Factors**

Vehicle Type	Surface	Silt Loading (sL, g/m <sup>2</sup> ) or Silt Content (s, %) <sup>a</sup>	Average Weight (W) (tons) <sup>b</sup>	Un-controlled PM10 Emission Factor (lb/VMT) <sup>c</sup>	Un-controlled PM2.5 Emission Factor (lb/VMT) <sup>c</sup>	Control Efficiency (%) <sup>d</sup>	Controlled PM10 Emission Factor (lb/VMT) <sup>e</sup>	Controlled PM2.5 Emission Factor (lb/VMT) <sup>e</sup>
Extendable Flat Bed Pole Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Extendable Flat Bed Pole Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Flat Bed Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flat Bed Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Flatbed Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flatbed Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Foreman Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Foreman Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Line Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Line Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Low Bed Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Low Bed Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Lowboy Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Lowboy Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Maintenance Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Maintenance Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Pumper/Tanker Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pumper/Tanker Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Reel Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Reel Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Rodder Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Rodder Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Splice Lab Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splice Lab Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Splicing Lab	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splicing Lab	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Splicing Rig	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splicing Rig	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Stake Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Stake Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Static Truck/Tensioner	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Static Truck/Tensioner	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Tool Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Tool Trailer	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
Troubleman Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Troubleman Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Truck, Semi Tractor	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Truck, Semi Tractor	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Van	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Van	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
Water Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Water Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Wire Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Wire Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Worker Commute	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Worker Commute	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
Subtransmission Line Inspection	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Subtransmission Line Inspection	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02
Substation Site Visit	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Substation Site Visit	Unpaved	7.5	3.2	1.01E+00	1.01E-01	57%	4.35E-01	4.35E-02

<sup>a</sup> Paved road silt loading from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997) for collector roads,

<http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9.pdf>

Unpaved road silt content from SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden

<sup>b</sup> Average paved on-road vehicle weight in Riverside County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)

**Table 51  
Motor Vehicle Entrained Road Dust Emission Factors**

Vehicle Type	Surface	Silt Loading (sL, g/m2) or Silt Content (s, %) <sup>a</sup>	Average Weight (W) (tons) <sup>b</sup>	Un-controlled PM10 Emission Factor (lb/VMT) <sup>c</sup>	Un-controlled PM2.5 Emission Factor (lb/VMT) <sup>c</sup>	Control Efficiency (%) <sup>d</sup>	Controlled PM10 Emission Factor (lb/VMT) <sup>e</sup>	Controlled PM2.5 Emission Factor (lb/VMT) <sup>e</sup>
--------------	---------	---	--	--	---	-------------------------------------	---	--

Unpaved worker commuting weight on access road assumed to be same as paved road weight

Unpaved weight for other trucks is based on upper limit of 33,000 lbs for medium heavy-duty trucks.

<sup>c</sup> Equations:

$$EF(\text{paved}) = k_p (sL/2)^{0.65} (W/3)^{1.5} - C$$

Ref: AP-42, Section 13.2.1, "Paved Rods," November 2006

$$EF(\text{unpaved}) = k_u (s/12)^a (W/3)^b$$

Ref: AP-42, Section 13.2.2, "Unpaved Rods," November 2006

Constants:

$k_p =$	0.016	(Particle size multiplier for PM10)
	0.0024	(Particle size multiplier for PM2.5)
$C =$	0.00047	(Exhaust, brake wear and tire wear adjustment, PM10)
	0.00036	(Exhaust, brake wear and tire wear adjustment, PM2.5)
$k_u =$	1.5	(Particle size multiplier for PM)
	0.15	(Particle size multiplier for PM2.5)
$a =$	0.9	for PM10
	0.9	for PM2.5
$b =$	0.45	for PM10
	0.45	for PM2.5

<sup>d</sup> Control efficiency from limiting speeds on unpaved roads to 15 mph, from Table XI-A, Mitigation Measure Examples,

Fugitive Dust from Construction & Demolition, [http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM\\_fugitive.html](http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html)

<sup>e</sup> Controlled emission factor [lb/mi] = Uncontrolled emission factor [lb/mi] x (1 - Control efficiency [%] / 100)

**Table 52**  
**Fugitive Dust Emission Factors**  
**Soil Dropping During Excavation**

Emission Factor [lb/cu. yd] = 0.0011 x (mean wind speed [mi/hr] / 5)<sup>1.3</sup> / (moisture [%] / 2)<sup>1.4</sup> x (number drops per ton) x (density [ton/cu. yd])  
 Reference: AP-42, Equation (1), Section 13.2.4, November 2006

Parameter	Value	Basis
Mean Wind Speed	12	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G, default
Moisture	10.6	Preliminary geotechnical investigation of substation site
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

PM10 Emission Factor (Uncontrolled) 1.62E-03 lb/cu. yd  
 Reduction from Watering Twice/Day<sup>b</sup> 0%  
 Controlled PM10 Emission Factor 1.62E-03 lb/cu. yd  
 Controlled PM2.5 Emission Factor<sup>a</sup> 3.36E-04 lb/cu. yd

<sup>a</sup> PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

<sup>b</sup> Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per cubic yard] x Volume soil handled [cubic yards per day]

**Storage Pile Wind Erosion**

Emission Factor [lb/day-acre] = 0.85 x (silt content [%] / 1.5) x (365 / 235) x (percentage of time unobstructed wind exceeds 12 mph / 15)  
 Reference: SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-E

Parameter	Value	Basis
Silt Content	26.7	Preliminary geotechnical investigation of substation site
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled) 156.7 lb/day-acre  
 Reduction from Watering Twice/Day 90% Control efficiency from watering storage pile by hand at a rate of 1.4 gallons/hour-yard<sup>2</sup>, Table XI-B, Mitigation Measure Examples, Fugitive Dust from Materials Handling, [http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM\\_fugitive.html](http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html)  
 Controlled PM10 Emission Factor 15.7 lb/day-acre  
 Controlled PM2.5 Emission Factor<sup>a</sup> 3.3 lb/day-acre

<sup>a</sup> PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per acre-day] x Storage pile surface area [acres]

**Bulldozing, Scraping and Grading**

Emission Factor [lb/hr] = 0.75 x (silt content [%])<sup>1.5</sup> / (moisture)<sup>1.4</sup>  
 Reference: AP-42, Table 11.9-1, July 1998

Parameter	Value	Basis
Silt Content	26.7	Preliminary geotechnical investigation of substation site
Moisture	10.6	Preliminary geotechnical investigation of substation site

PM10 Emission Factor (Uncontrolled) 3.797 lb/hr  
 Reduction from Watering Twice/Day 61% Control efficiency from watering three times per day, Table XI-A, Mitigation Measure Examples, Fugitive Dust from Construction & Demolition, [http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM\\_fugitive.html](http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html)  
 Controlled PM10 Emission Factor 1.481 lb/hr  
 Controlled PM2.5 Emission Factor<sup>a</sup> 0.308 lb/hr

<sup>a</sup> PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

<sup>b</sup> Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing, scraping or grading time [hours/day]

**APPENDIX D**

**LAKEVIEW SUBSTATION BIOLOGICAL RESOURCES**

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**APPENDIX A  
VEGETATION TYPES AND OTHER AREAS WITHIN EACH  
PORTION OF THE SURVEY AREA**

<b>Vegetation Type or Other Area</b>	<b>Proposed Substation Site</b>	<b>Alternative Substation Site</b>	<b>Proposed Subtransmission Source Line Route 1</b>	<b>Proposed Subtransmission Source Line Route 2</b>	<b>Alternative Subtransmission Source Line Route 3</b>	<b>Proposed Telecommunications Route</b>	<b>Proposed Overhead Route 1</b>	<b>Proposed Overhead Route 2</b>
Alkali Grassland	-	-	0.77	-	-	-	0.77	-
Annual Grassland	-	-	0.22	-	-	50.66	0.22	-
Alkali Scrub Playa	-	-	-	0.29	1.27	-	-	-
Disturbed Alkali Scrub Playa	-	-	-	0.03	-	-	-	-
Alkali Wetland	-	-	-	-	0.06	-	-	-
Disturbed Mulefat Scrub	-	-	-	-	-	-	-	-
Riversidean Sage Scrub	-	-	-	-	-	3.68	-	-
Disturbed Riversidean Sage Scrub	-	-	-	-	-	5.42	-	-
Southern Willow Scrub	-	-	-	0.06	-	-	-	-
Ruderal	-	-	0.29	0.74	0.47	11.85	0.29	1.71
Agriculture	7.09	10.60	18.70	7.90	9.47	9.01	14.17	0.79
Ornamental	-	-	0.21	-	-	1.09	-	0.07
Detention Basin	-	-	-	0.19	-	-	-	-
Irrigation Ditch	-	-	-	-	-	1.22	-	-
Disturbed	0.98	1.13	2.67	5.73	4.43	24.32	1.72	4.11
Developed	-	0.01	0.84	-	0.40	11.50	-	0.57
<b>Total</b>	<b>8.07</b>	<b>11.74</b>	<b>23.71</b>	<b>14.94</b>	<b>16.09</b>	<b>118.75</b>	<b>17.17</b>	<b>9.54</b>



## BIOLOGICAL TECHNICAL REPORT

### LAKEVIEW SUBSTATION AND TRANSMISSION LINE PROJECT, RIVERSIDE COUNTY, CALIFORNIA

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June 2010

## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1.0 Introduction .....</b>	<b>1</b>
1.1 Project Description and Location.....	1
1.1.1 Site-Specific Information.....	1
1.2 Regional Environmental Setting.....	3
1.3 Regulatory Setting.....	3
1.3.1 Federal .....	3
1.3.2 State .....	4
1.3.3 County .....	6
<b>2.0 Survey Methodologies.....</b>	<b>9</b>
2.1 Literature Review .....	9
2.2 Vegetation Mapping and General Biological Surveys .....	9
2.3 General Wildlife Surveys .....	10
2.4 Focused Surveys.....	10
2.4.1 Special Status Plant Species.....	10
2.4.2 Quino Checkerspot Butterfly.....	10
2.4.3 Burrowing Owl .....	11
2.4.4 Coastal California Gnatcatcher.....	12
<b>3.0 Existing Biological Resources.....</b>	<b>12</b>
3.1 Vegetation Types and other areas.....	13
3.1.1 Alkali Grassland.....	13
3.1.2 Annual Grassland .....	14
3.1.3 Alkali Scrub Playa.....	14
3.1.4 Disturbed Alkali Scrub Playa .....	14
3.1.5 Alkali Wetland .....	14
3.1.6 Riversidean Sage Scrub.....	14
3.1.7 Disturbed Riversidean Sage Scrub.....	14
3.1.8 Southern Willow Scrub .....	15
3.1.9 Ruderal .....	15
3.1.10 Agriculture.....	15
3.1.11 Ornamental .....	15
3.1.12 Detention Basin .....	15
3.1.13 Irrigation Ditch.....	15
3.1.14 Disturbed .....	15
3.1.15 Developed .....	15
3.2 Common Wildlife .....	16
3.2.1 Wildlife Movement .....	16
3.3 Special Status Biological Resources.....	18
3.3.1 Definitions of Special Status Biological Resources .....	18
3.3.2 Special Status Vegetation Types.....	20
3.3.3 Special Status Plants.....	22
3.3.4 Special Status Wildlife .....	29
<b>4.0 Project Impacts .....</b>	<b>47</b>
4.1 Introduction.....	47
4.2 Significance Criteria .....	48
4.3 Direct Impacts .....	50
4.3.1 Vegetation Types.....	50
4.3.2 Wildlife Impacts.....	55
4.3.3 Special Status Biological Resource Impacts .....	56
4.3.4 Special Status Wildlife .....	58

**TABLE OF CONTENTS  
(Continued)**

<b><u>Section</u></b>		<b><u>Page</u></b>
4.4	Indirect Impacts .....	62
4.4.1	Noise .....	62
4.4.2	Night Lighting.....	62
<b>5.0</b>	<b>Mitigation Measures.....</b>	<b>63</b>
5.1	Mitigation Measures .....	63
5.1.1	Mitigation Measure No. 1: Pre-Construction Surveys for Nesting Birds/Raptors .....	63
5.1.2	Mitigation Measure No. 2: Pre-Construction Surveys and Biological Monitoring .....	63
5.1.3	Mitigation Measure No. 3: Burrowing Owl .....	63
5.1.4	Mitigation Measure No. 4: Stephens' Kangaroo Rat.....	64
5.1.5	Mitigation Measure No. 5: Riverside Fairy Shrimp .....	64
5.1.6	Mitigation Measure No. 6: Native or Special Status Vegetation and Special Status Plant Populations Avoidance .....	64
5.1.7	Mitigation Measure No. 7: Avoidance of San Jacinto Valley Crownscale Populations .....	64
<b>6.0</b>	<b>References.....</b>	<b>65</b>

**LIST OF TABLES**

<b><u>Table</u></b>		<b><u>Page</u></b>
1	MSHCP Criteria Cells Within the Project Limits .....	8
2	Vegetation Types and Other Areas Within Each Portion of the Survey Area.....	13
3	Project Locations Potentially Containing Jurisdictional Resources .....	22
4	Special Status Plant Species Known to Occur in the Project Vicinity .....	23
5	Special Status Wildlife Species Known to Occur in the Project Vicinity .....	30
6	Vegetation Types and Other Areas Impacted By the Proposed Substation Site .....	50
7	Vegetation Types and Other Areas Impacted By the Alternative Substation Site.....	50
8	Vegetation Types and Other Areas Impacted By the Proposed Subtransmission Source Line Route, Segment 1 .....	51
9	Vegetation Types and Other Areas Impacted By the Proposed Subtransmission Source Line Route, Segment 2 .....	52
10	Vegetation Types and Other Areas Impacted By the Alternative Subtransmission Source Line Route, Segment 3 .....	53
11	Vegetation Types and Other Areas Impacted By the New Cable to Moval.....	53
12	Vegetation Types and Other Areas Impacted By the Proposed Overhead Route 1 .....	54
13	Vegetation Types and Other Areas Impacted By the Proposed Overhead Route 2 .....	55

**LIST OF EXHIBITS**

<b><u>Exhibit</u></b>		<b><u>Follows Page</u></b>
1	Regional Location .....	1
2	Local Vicinity .....	1
3A-O	Soil Types .....	1
4	MSHCP Criteria Cells.....	7
5A-O	Soil Types .....	13
6	San Jacinto Valley Crownscale .....	25
7	Smooth Tarplant.....	26
8	Coulter's Goldfields .....	27

**APPENDICES**

A	Plant and Wildlife Compendia
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## EXECUTIVE SUMMARY

Project: Lakeview Substation and Transmission Line Project  
Project Proponent: Southern California Edison  
Principal Investigator: BonTerra Consulting  
151 Kalmus Drive, Suite E-200  
Costa Mesa, California 92626  
(714) 444-9199

At the request of Southern California Edison (SCE), BonTerra Consulting conducted a biological resources assessment for the Lakeview Substation and Transmission Line Project (hereafter referred to as “the Project”) which proposes to create a new substation and a new transmission line segment to connect the substation to SCE’s existing telecommunications system. The assessment included focused biological surveys and habitat suitability assessments for special status plant and wildlife species within two potential substation sites and six potential transmission line segments selected for the Project. The sites are referred to in this Biological Technical Report as the Proposed Substation Site, the Alternative Substation Site, the Proposed Subtransmission Source Line Route (Segments 1 and 2), the Alternative Subtransmission Source Line Route (Segment 3), and the Proposed Telecommunications Route (New Cable to Moval and Proposed Overhead Routes 1 and 2); these correspond with the Proponent’s Environmental Assessment (PEA). A 50-foot buffer is also included on either side of all the Subtransmission Source Line Routes and the Proposed Telecommunications Routes.

The purpose of the biological resources assessment is to provide an overview-level assessment of the biological resources present and potentially present in the Survey Area, and to determine which focused surveys and pre-construction biological clearance surveys may be necessary prior to construction to minimize impacts on special status species that may be present in the Survey Area.

## **1.0 INTRODUCTION**

This Biological Technical Report has been prepared to support California Environmental Quality Act (CEQA) documentation for the proposed Lakeview Substation and Transmission Line Project (hereafter referred to as “the Project”). This information has been reported in accordance with accepted scientific and technical standards that are consistent with the requirements of the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG).

### **1.1 PROJECT DESCRIPTION AND LOCATION**

The purpose of this study is to document the biological resources associated with the proposed Project located in Riverside County, California (Exhibit 1). The Project’s purpose is to construct a new substation and a new transmission line segment to connect the substation to Southern California Edison’s (SCE’s) existing telecommunication system. The Project’s Survey Area consists of the following: the Proposed Substation Site, the Alternative Substation Site, the Proposed Subtransmission Source Line Route (Segments 1 and 2), the Alternative Subtransmission Source Line Route (Segment 3), and the Proposed Telecommunications Route (New Cable to Moval and Proposed Overhead Routes 1 and 2). A 50-foot buffer is also included on either side of all the Subtransmission Source Line Routes and the Proposed Telecommunications Routes (Exhibit 2).

The Survey Area is located on the U.S. Geological Survey’s (USGS’s) Perris, Lakeview, Romoland, Winchester, Sunnymead, and El Casco 7.5-minute quadrangle maps. The Survey Area is bordered by the Ramona Expressway to the north, Lakeview Avenue to the east, 12<sup>th</sup> Street to the south, and the Valley-Moval Subtransmission Line to the west. Additionally, the Proposed Telecommunications Route (New Cable to Moval) runs from the Moval Substation (on Moreno Beach Drive in the City of Moreno Beach) to Brodiaea Avenue, along Brodiaea Avenue to the east, and then south along the foot of the Bernasconi Hills to the Ramona Expressway.

Land uses in the immediate Project vicinity are primarily agricultural and residential. Open space is present in the Bernasconi Hills in the northwestern portion of the Survey Area and the Lakeview Mountains to the southeast of the Survey Area. Topography in the Survey Area is mostly flat in the northern portion and varied in the southern portion with an approximate range of elevation from 1,400 feet to 2,200 feet above mean sea level (msl). Soils in the Survey Area consist of Domino fine sandy loam, saline-alkali; Domino silt loam; Domino silt loam, saline-alkali; Exeter sandy loam; Exeter sandy loam, deep; Gorgonio loamy sand; Gorgonio loamy sand, deep; Greenfield sandy loam; Hanford coarse sandy loam; Metz loamy fine sand, sandy loam substratum; Metz loamy sand; Pachappa fine sandy loam; Placentia fine sandy loam; Ramona sandy loam; Riverwash; Rockland; San Emigdio fine sandy loam; San Emigdio loam; Terrace escarpments; Willows silty clay; Willows silty clay, saline-alkali; Willows silty clay, strongly saline-alkali; and Willows silty clay, deep, strongly saline-alkali (USDA NRCS 2007; Exhibits 3A–3O).

#### **1.1.1 Site-Specific Information**

##### ***Proposed Substation Site***

The Proposed Substation Site is located on the southwestern corner of Reservoir Avenue and 10<sup>th</sup> Street. Soils on the Proposed Substation Site consist of Exeter sandy loam, deep; Hanford coarse sandy loam; and Pachappa fine sandy loam (Exhibit 3L).



## Regional Location

Lakeview Substation and Transmission Line Project

Exhibit 1



**Substation Sites**

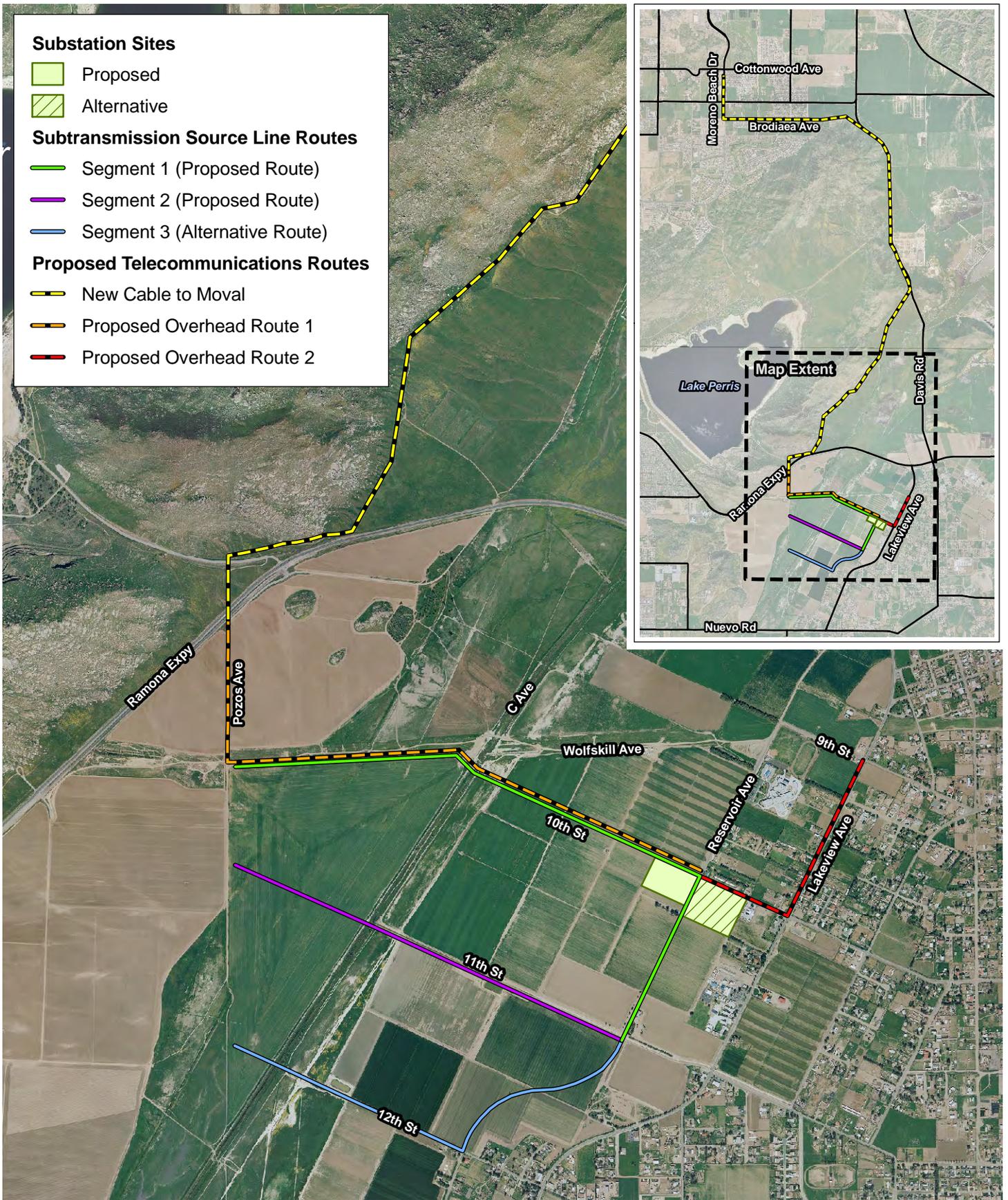
- Proposed
- Alternative

**Subtransmission Source Line Routes**

- Segment 1 (Proposed Route)
- Segment 2 (Proposed Route)
- Segment 3 (Alternative Route)

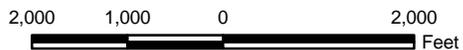
**Proposed Telecommunications Routes**

- New Cable to Moval
- Proposed Overhead Route 1
- Proposed Overhead Route 2



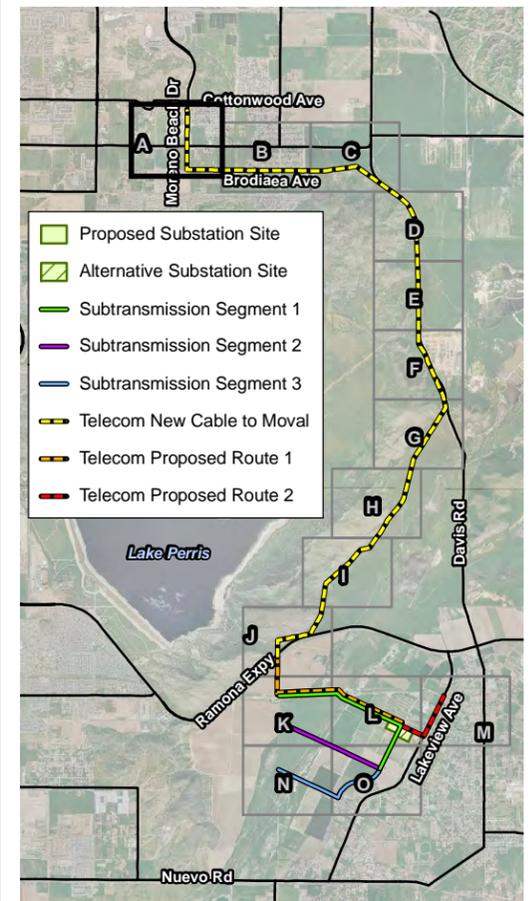
**Local Vicinity**

Lakeview Substation and Transmission Line Project



**Exhibit 2**





- Proposed Substation Site
- Alternative Substation Site
- Subtransmission Segment 1
- Subtransmission Segment 2
- Subtransmission Segment 3
- Telecom New Cable to Moval
- Telecom Proposed Route 1
- Telecom Proposed Route 2

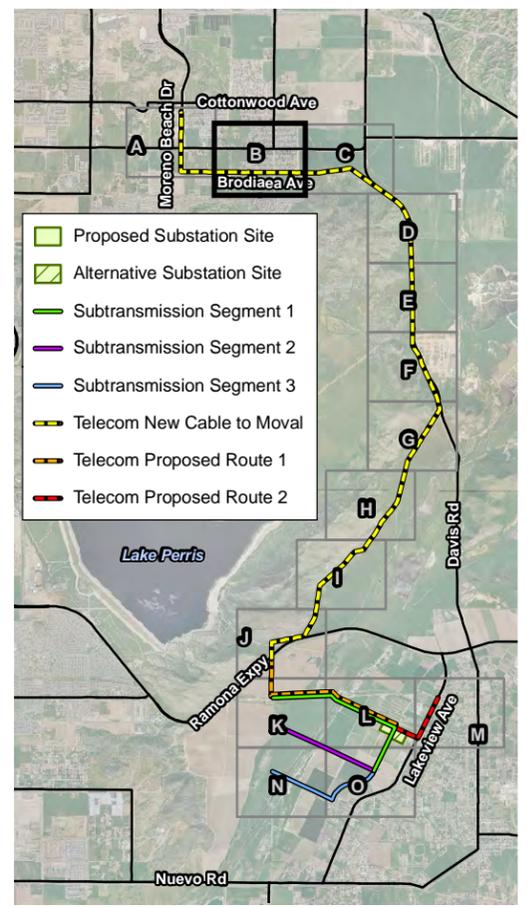
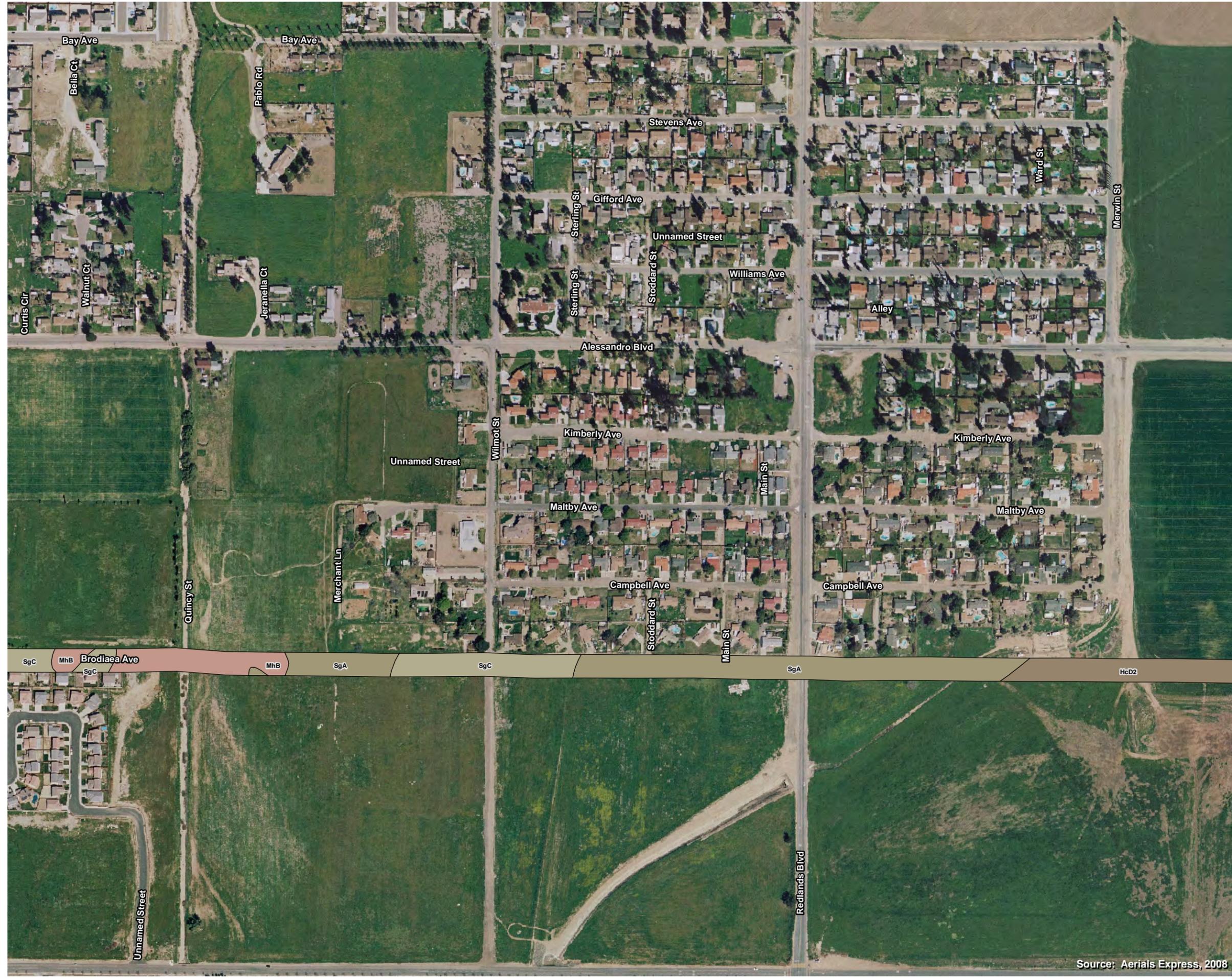
**Soil Types**

- GyC2, Greenfield sandy loam, 2 to 8 percent slopes, eroded
- PaC2, Pachappa fine sandy loam, 2 to 8 percent slopes, eroded
- SeA, San Emigdio fine sandy loam, 0 to 2 percent slopes
- SeC2, San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded
- SgC, San Emigdio loam, 2 to 8 percent slopes

**Soil Types Exhibit 3A**

Lakeview Substation and Transmission Line Project





**Soil Types**

- HcD2, Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
- MhB, Metz loamy fine sand, sandy loam substratum, 0 to 5 percent slopes
- SgA, San Emigdio loam, 0 to 2 percent slopes
- SgC, San Emigdio loam, 2 to 8 percent slopes

**Soil Types** **Exhibit 3B**

*Lakeview Substation and Transmission Line Project*

0 400  
 Feet

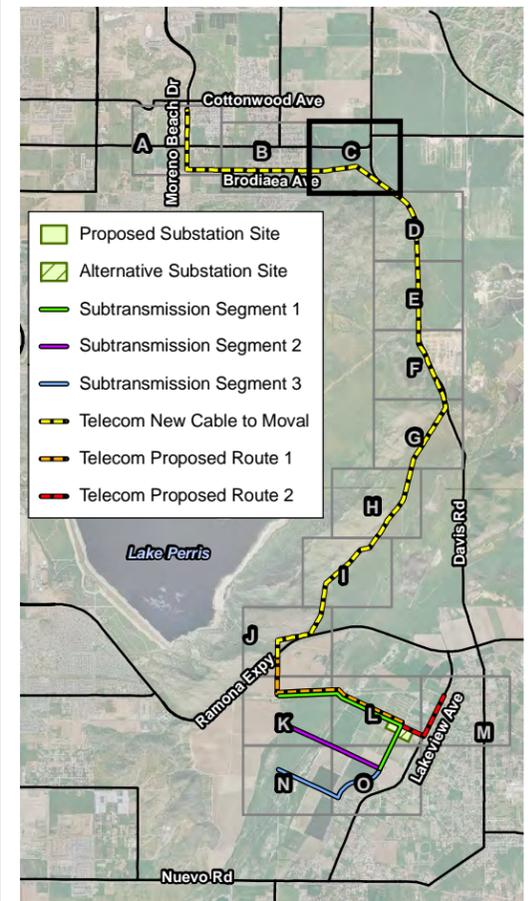
**Bonterra**  
CONSULTING

D:\Projects\Edison\025\MXD\Ex\_veg\_mapbook.mxd

Source: Aerials Express, 2008



Source: Aerials Express, 2008



**Soil Types**

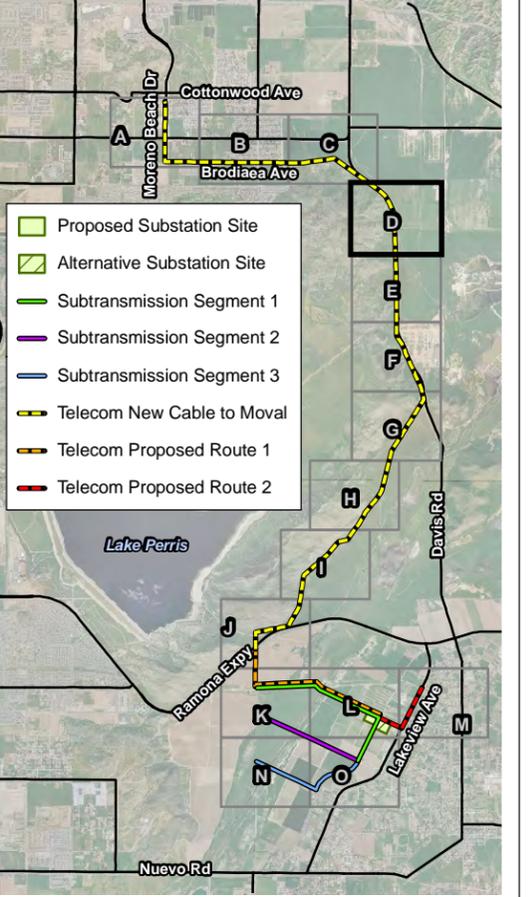
-  GhC, Gorgonio loamy sand, 0 to 8 percent slopes
-  GyC2, Greenfield sandy loam, 2 to 8 percent slopes, eroded
-  HcC, Hanford coarse sandy loam, 2 to 8 percent slopes
-  HcD2, Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
-  MdC, Metz loamy sand, 2 to 8 percent slopes
-  R1F, Rockland
-  SgC, San Emigdio loam, 2 to 8 percent slopes

**Soil Types**

**Exhibit 3C**

Lakeview Substation and Transmission Line Project





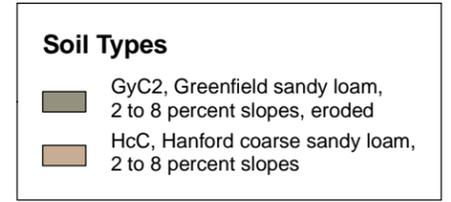
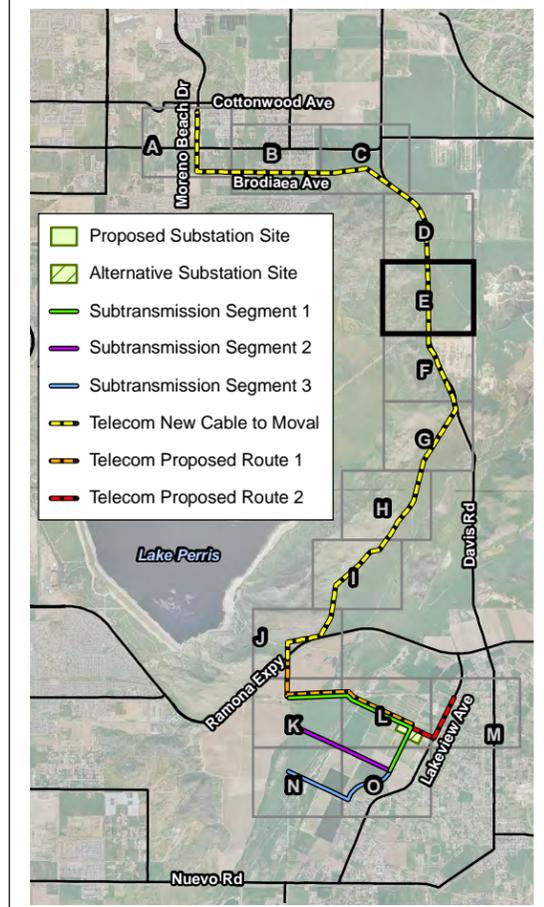
**Soil Types**

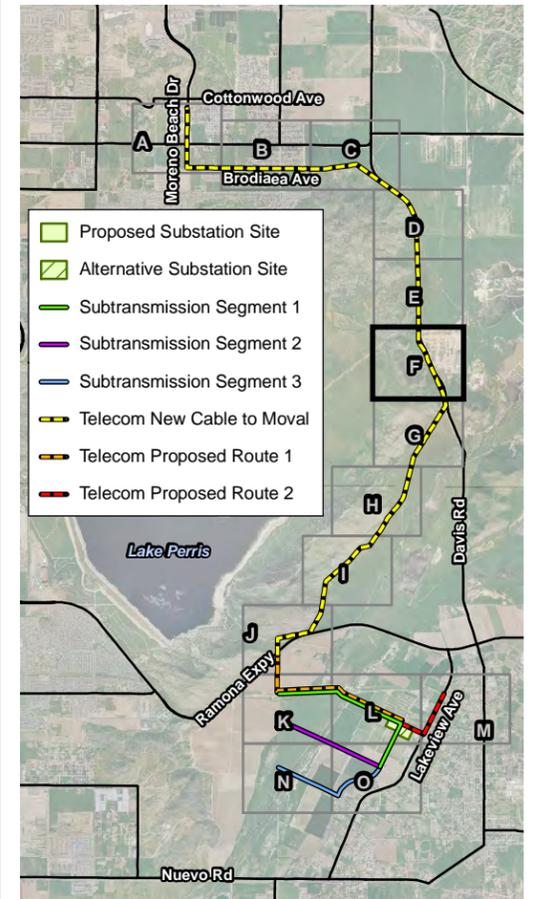
	GyA, Greenfield sandy loam, 0 to 2 percent slopes
	GyC2, Greenfield sandy loam, 2 to 8 percent slopes, eroded
	HcC, Hanford coarse sandy loam, 2 to 8 percent slopes
	RtF, Rockland

**Soil Types** Exhibit 3D

Lakeview Substation and Transmission Line Project







**Soil Types**

-  GIC, Gorgonio loamy sand, deep, 2 to 8 percent slopes
-  HcC, Hanford coarse sandy loam, 2 to 8 percent slopes
-  HcD2, Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
-  RiF, Rockland
-  TeG, Terrace escarpments

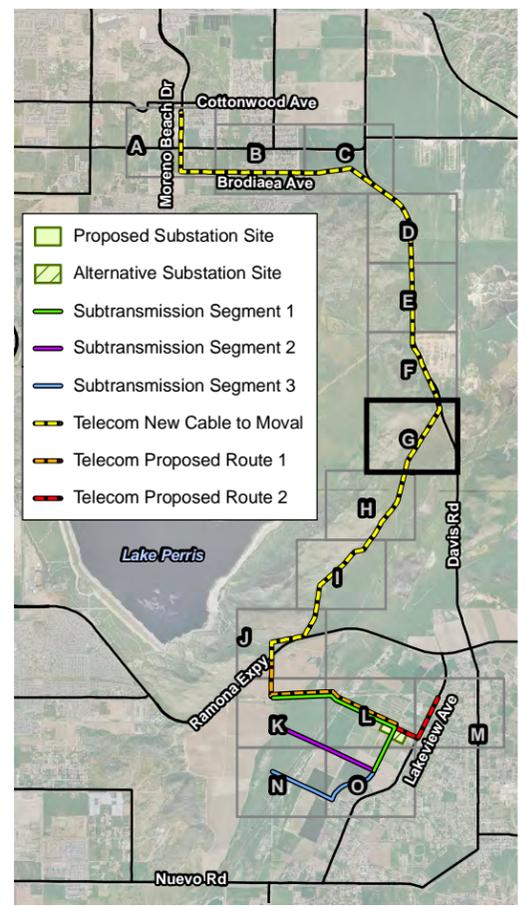
**Soil Types**

**Exhibit 3F**

Lakeview Substation and Transmission Line Project



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**Soil Types**

	GyC2, Greenfield sandy loam, 2 to 8 percent slopes, eroded
	HcD2, Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
	PIB, Placentia fine sandy loam, 0 to 5 percent slopes
	RtF, Rockland
	TeG, Terrace escarpments

**Soil Types** Exhibit 3G

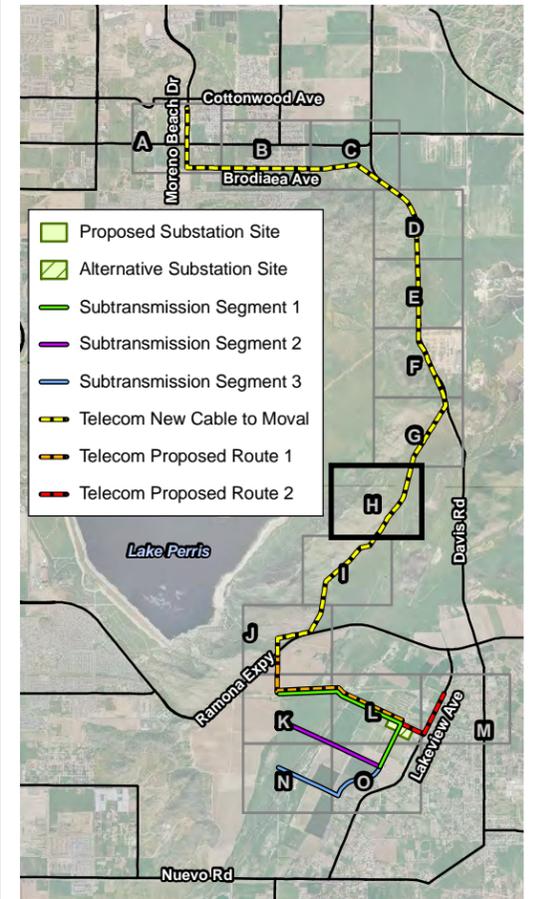
Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008



Source: Aerials Express, 2008



**Soil Types**

- GyC2, Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC, Hanford coarse sandy loam, 2 to 8 percent slopes
- HcD2, Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
- RfF, Rockland
- TeG, Terrace escarpments

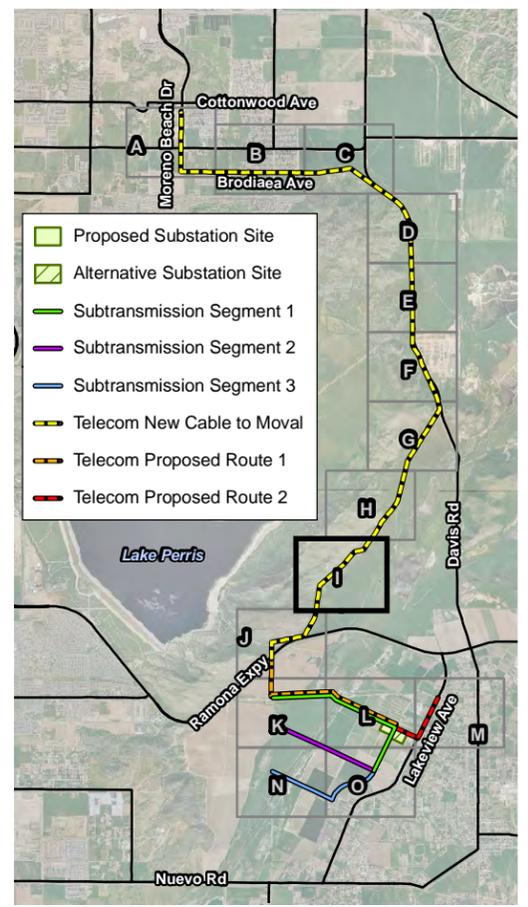
**Soil Types**

**Exhibit 3H**

Lakeview Substation and Transmission Line Project



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**Soil Types**

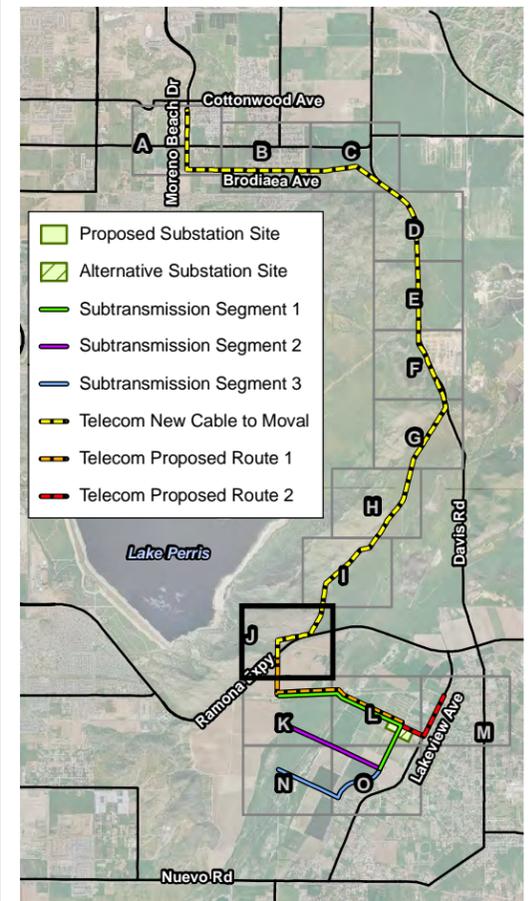
	HcD2, Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
	RtF, Rockland
	TeG, Terrace escarpments

**Soil Types** Exhibit 31

Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008



**Soil Types**

-  EnC2, Exeter sandy loam, 2 to 8 percent slopes, eroded
-  HcC, Hanford coarse sandy loam, 2 to 8 percent slopes
-  HcD2, Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
-  RtF, Rockland
-  TeG, Terrace escarpments

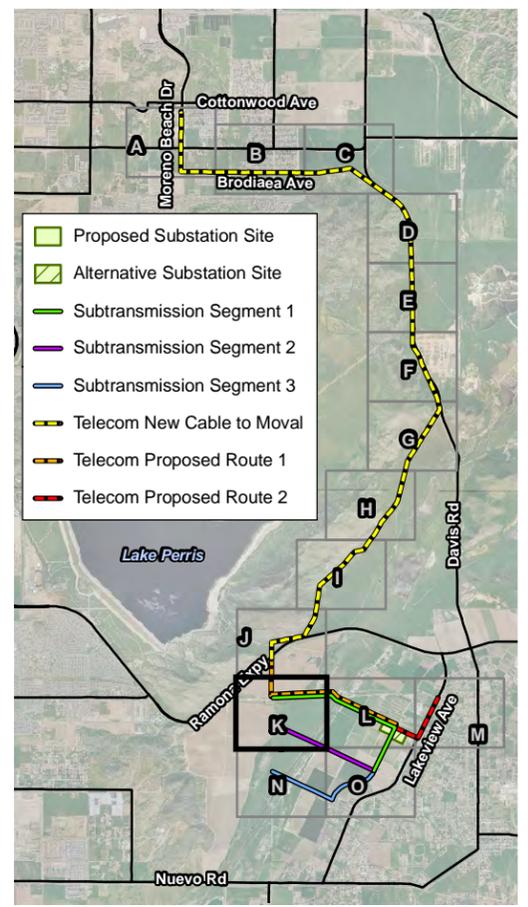
**Soil Types**

**Exhibit 3J**

Lakeview Substation and Transmission Line Project



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**Soil Types**

Dv, Domino silt loam, saline-alkali
HcC, Hanford coarse sandy loam, 2 to 8 percent slopes
RsC, Riverwash
Wf, Willows silty clay
Wg, Willows silty clay, saline-alkali
Wh, Willows silty clay, strongly saline-alkali
Wn, Willows silty clay, deep, strongly saline-alkali

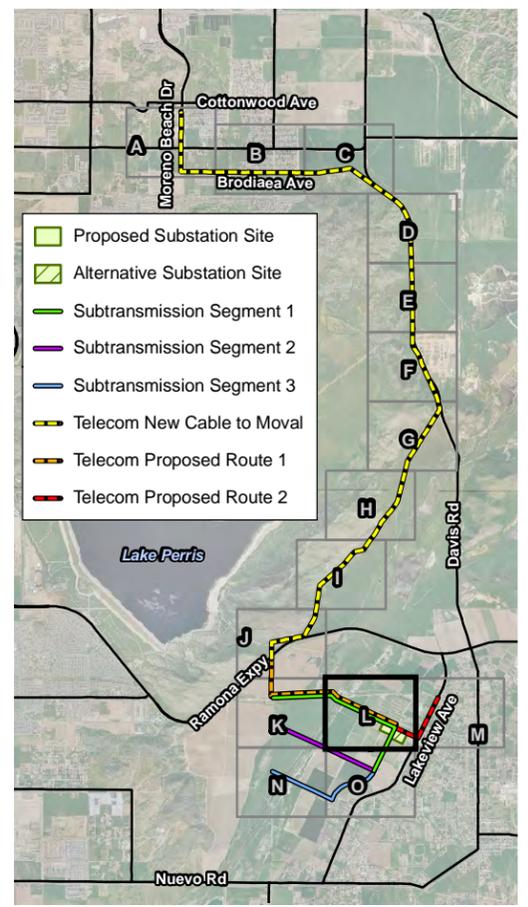
**Soil Types** Exhibit 3K

*Lakeview Substation and Transmission Line Project*

0 400 Feet

**Bonterra**  
CONSULTING

Source: Aerials Express, 2008



**Soil Types**

Dt	Domino fine sandy loam, saline-alkali
Du	Domino silt loam
Dv	Domino silt loam, saline-alkali
EpC2	Exeter sandy loam, deep, 2 to 8 percent slopes, eroded
GyA	Greenfield sandy loam, 0 to 2 percent slopes
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes
PaA	Pachappa fine sandy loam, 0 to 2 percent slopes
PaC2	Pachappa fine sandy loam, 2 to 8 percent slopes, eroded
RaA	Ramona sandy loam, 0 to 2 percent slopes
RsC	Riverwash
Wg	Willows silty clay, saline-alkali
Wh	Willows silty clay, strongly saline-alkali
Wn	Willows silty clay, deep, strongly saline-alkali

**Soil Types** **Exhibit 3L**

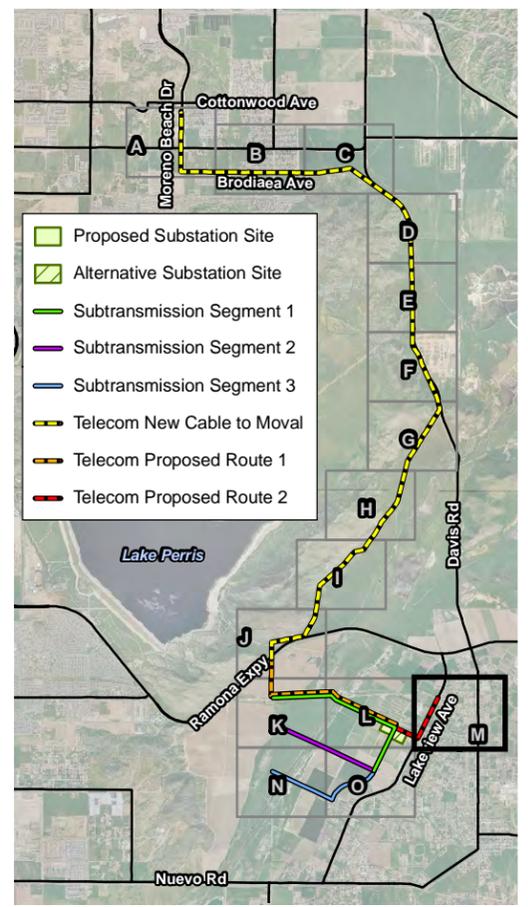
*Lakeview Substation and Transmission Line Project*

0 400 Feet

**Bonterra**  
CONSULTING

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Source: Aerials Express, 2008



**Soil Types**

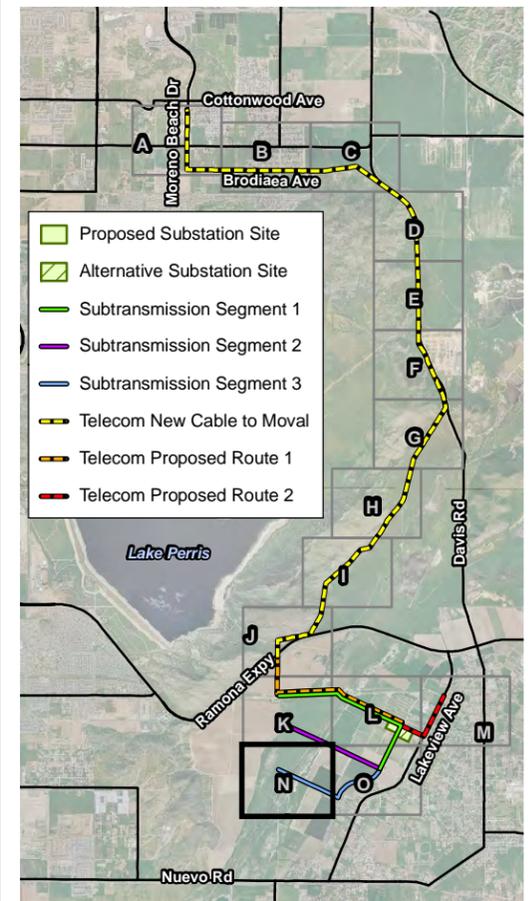
- GyA, Greenfield sandy loam, 0 to 2 percent slopes
- GyC2, Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HgA, Hanford fine sandy loam, 0 to 2 percent slopes

**Soil Types** Exhibit 3M

Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008



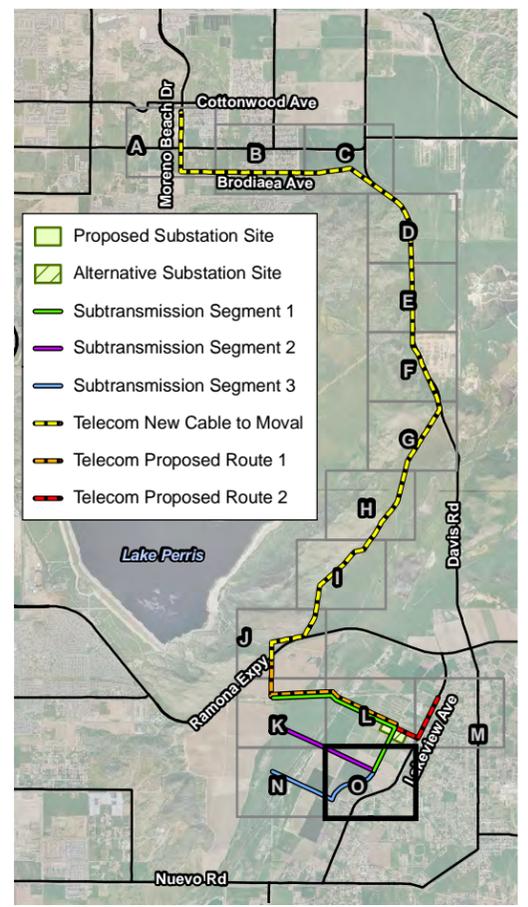
**Soil Types**

Dv	Domino silt loam, saline-alkali
EpA	Exeter sandy loam, deep, 0 to 2 percent slopes
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded
RsC	Riverwash
Wf	Willows silty clay
Wg	Willows silty clay, saline-alkali
Wn	Willows silty clay, deep, strongly saline-alkali

**Soil Types** **Exhibit 3N**

Lakeview Substation and Transmission Line Project





**Soil Types**

- Dv, Domino silt loam, saline-alkali
- EpA, Exeter sandy loam, deep, 0 to 2 percent slopes
- GyC2, Greenfield sandy loam, 2 to 8 percent slopes, eroded
- PaA, Pachappa fine sandy loam, 0 to 2 percent slopes
- RaA, Ramona sandy loam, 0 to 2 percent slopes
- Wh, Willows silty clay, strongly saline-alkali

**Soil Types**

**Exhibit 30**

Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008

### **Alternative Substation Site**

The Alternative Substation Site is located on the southeast corner of Reservoir Avenue and 10<sup>th</sup> Street. Soils on the Alternative Substation Site consist of Greenfield sandy loam; Hanford coarse sandy loam; and Pachappa fine sandy loam (Exhibit 3L).

### **Proposed Subtransmission Source Line Route, Segment 1**

Segment 1 is located along Reservoir Avenue between 11<sup>th</sup> Street and 10<sup>th</sup> Street, then runs along 10<sup>th</sup> Street to Pozos Avenue. Soils along the Proposed Subtransmission Source Line Route, Segment 1 consist of Domino silt loam; Domino silt loam, saline-alkali; Domino fine sandy loam, saline-alkali; Exeter sandy loam, deep; Greenfield sandy loam; Hanford coarse sandy loam; Pachappa fine sandy loam; Ramona sandy loam; Riverwash; Willows silty clay, saline-alkali; Willows silty clay, strongly saline-alkali; and Willows silty clay, deep, strongly saline-alkali (Exhibits 3K and 3L).

### **Proposed Subtransmission Source Line Route, Segment 2**

The Proposed Subtransmission Source Line Route, Segment 2 is located along 11<sup>th</sup> Street between Reservoir Avenue and Pozos Avenue. Soils along the Proposed Subtransmission Source Line Route, Segment 2 consist of Domino silt loam, saline-alkali; Exeter sandy loam, deep; Hanford coarse sandy loam; Ramona sandy loam; Riverwash; Willows silty clay; Willows silty clay, strongly saline-alkali; and Willows silty clay, deep, strongly saline-alkali (Exhibits 3K and 3O).

### **Alternative Subtransmission Source Line Route, Segment 3**

The Alternative Subtransmission Source Line Route, Segment 3 is located along 12<sup>th</sup> Street and then crosses agricultural fields to join Segments 1 and 2. Soils along the Alternative Subtransmission Source Line Route, Segment 3 consist of Domino silty loam, saline-alkali; Exeter sandy loam, deep; Greenfield sandy loam; Riverwash; Willows silty clay; Willows silty clay, saline-alkali; and Willows silty clay, deep, strongly saline-alkali (Exhibits 3N and 3O).

### **Proposed Telecommunications Route, New Cable to Moval**

The New Cable to Moval runs along Pozos Avenue north of the terminus of the Proposed Subtransmission Source Line Route, Segment 1. It then runs northeasterly along the Bernasconi Hills after crossing the Ramona Expressway. It follows Davis Road, crosses to Moreno Beach Drive to the west, and then runs along Moreno Beach Drive and ends north of Alessandro Boulevard. Soils along the New Cable to Moval consist of Greenfield sandy loam; Gorgonio loamy sand; Gorgonio loamy sand, deep; Hanford coarse sandy loam; Metz loamy fine sand, sandy loam; Metz loamy sand; Pachappa fine sandy loam; Rockland; Placentia fine sandy loam; San Emigdio fine sandy loam; San Emigdio loam; and Terrace escarpments (Exhibits 3A–3J).

### **Proposed Telecommunications Route, Proposed Overhead Route 1**

The Proposed Overhead Route 1 is located along Reservoir Avenue between 11<sup>th</sup> Street and 10<sup>th</sup> Street, then runs along 10<sup>th</sup> Street to Pozos Avenue. Soils along the Proposed Overhead Route 1 consist of Domino silt loam; Domino fine sandy loam, saline-alkali; Exeter sandy loam, deep; Exeter sandy loam; Greenfield sandy loam; Hanford coarse sandy loam; Pachappa fine sandy loam; Riverwash; Willows silty clay, saline-alkali; Willows silty clay, strongly saline-alkali; and Willows silty clay, deep, strongly saline-alkali (Exhibits 3J–3L).

## ***Proposed Telecommunications Route, Proposed Overhead Route 2***

The Proposed Overhead Route 2 is located along Lakeview Avenue between 9<sup>th</sup> Street and 10<sup>th</sup> Street. Soils along the Proposed Overhead Route 2 consist of Greenfield sandy loam and Hanford fine sandy loam (Exhibit 3L and 3M).

### **1.2 REGIONAL ENVIRONMENTAL SETTING**

The Survey Area is located along the San Jacinto River between Perris Valley to the west and San Jacinto Valley to the east. The Bernasconi Hills/Lake Perris State Recreation Area borders the northwestern portion of the Survey Area and the Lakeview Mountains are located to the southeast. Farther west lie the the Santa Ana Mountains/Cleveland National Forest, and farther east lie the San Jacinto Mountains/San Bernardino National Forest.

The Survey Area is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area. In the MSHCP, the Survey Area is considered to be within the Riverside Lowlands Bioregion. This bioregion generally occurs at elevations below 2,000 feet and is characterized by Riversidean sage scrub and annual grasslands. It has a relatively arid climate, in part as a result of the rain shadow cast by the Santa Ana Mountains. This bioregion has a high level of disturbance and urbanization.

### **1.3 REGULATORY SETTING**

#### **1.3.1 Federal**

##### ***Federal Endangered Species Act (16 United States Code [USC] 153 et seq.)***

The Federal Endangered Species Act of 1973 (FESA) protects plants and animals that are listed by the federal government as “Endangered” or “Threatened”. The FESA is implemented by enforcing Sections 7 and 9 of the Act. A federally listed species is protected from unauthorized “take” pursuant to Section 9 of the FESA. “Take”, as defined by the FESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt to engage in any such conduct”. All persons are presently prohibited from taking a federally listed species unless and until: (1) the appropriate Section 10(a) permit has been issued by the USFWS or (2) an incidental Take Statement is obtained as a result of formal consultation between a federal agency and the USFWS pursuant to Section 7 of the FESA and the implementing regulations that pertain to it (50 *Code of Federal Regulations* [CFR] 402). “Person” is defined in the FESA as “an individual, corporation, partnership, trust, association, or any private entity; any officer, employee, agent, department or instrument of the federal government; any State, Municipality, or political subdivision of the state; or any other entity subject to the jurisdiction of the United States”. The Project Applicant is a “person” for purposes of the FESA.

##### ***Section 404 and 401 of the Clean Water Act of 1972 (33 USC 1251 et seq.)***

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into “Waters of the U.S.”, including wetlands. The U.S. Army Corps of Engineers (USACE) is the designated regulatory agency responsible for administering the 404 permit program and for making jurisdictional determinations. This permitting authority applies to all “Waters of the U.S.” where the material has the effect of (1) replacing any portion of “Waters of the U.S.” with dry land or (2) changing the bottom elevation of any portion of “Waters of the U.S.”. These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in “Waters of the U.S.”. Dredge and fill activities are

typically associated with development projects; water-resource related projects; infrastructure development and wetland conversion to farming; forestry; and urban development.

Under Section 401 of the CWA, an activity requiring a USACE Section 404 permit must obtain a State Water Quality Certification (or waiver thereof) to ensure that the activity will not violate established State water quality standards. The State Water Resources Control Board (SWRCB), in conjunction with the nine California Regional Water Quality Control Boards (RWQCBs), is responsible for administering the Section 401 water quality certification program.

Under Section 401 of the federal CWA, an activity involving discharge into a water body must obtain a federal permit and a State Water Quality Certification to ensure that the activity will not violate established water quality standards. The U.S. Environmental Protection Agency (USEPA) is the federal regulatory agency responsible for implementing the CWA. However, it is the SWRCB in conjunction with the nine RWQCBs who essentially have been delegated the responsibility to administer the water quality certification (401) program.

### ***Migratory Bird Treaty Act of 1918 (16 USC 703–711)***

The Migratory Bird Treaty Act of 1918, as amended in 1972 (MBTA), makes it unlawful, unless permitted by regulations, to "pursue; hunt; take; capture; kill; attempt to take, capture or kill; possess; offer for sale; sell; offer to purchase; purchase; deliver for shipment; ship; cause to be shipped; deliver for transportation; transport; cause to be transported; carry or cause to be carried by any means whatever; receive for shipment, transportation, or carriage; or export, at any time, or in any manner, any migratory bird. . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird" (16 USC 703).

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles), Cathartidae (New World vultures), Falconidae (falcons and caracaras), Pandionidae (ospreys), Strigidae (typical owls), and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protect all species and subspecies of these families.

### ***Bald and Golden Eagle Protection Act (16 USC 668)***

This Act provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of these bird species. The 1972 amendments increased penalties for violating provisions of the Act and strengthened other enforcement measures. A 1978 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. A 1994 Memorandum (59 CFR 22953, April 29, 1994) from President William J. Clinton to the heads of Executive Agencies and Departments sets out the policy concerning collection and distribution of eagle feathers for Native American religious purposes.

## **1.3.2 State**

### ***California Endangered Species Act (California Fish and Game Code, Section 2050 et seq.)***

Pursuant to the California Endangered Species Act (CESA) and Section 2081 of the *California Fish and Game Code*, an incidental take permit from the CDFG is required for projects that could result in the take of a State-listed Threatened or Endangered species. Under the CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass", as the federal act does. As a result, the

threshold for a take under the CESA is higher than that under the FESA. A CDFG-authorized Incidental Take Permit would be required where a project could result in the take of a State-listed Threatened or Endangered species. The application for an incidental take permit under Section 2081(b) has a number of requirements including the preparation of a conservation plan, generally referred to as a Habitat Conservation Plan.

The State of California considers an Endangered Species to be one whose prospects of survival and reproduction are in immediate jeopardy; a Threatened Species as one present in such small numbers throughout its range that it is likely to become an Endangered Species in the near future in the absence of special protection or management; and a Rare Species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. The Rare Species designation applies only to California native plants. The CESA authorizes the CDFG to issue permits authorizing incidental take of Threatened and Endangered Species. A California Species of Special Concern is an informal designation which the CDFG uses for some declining wildlife species that are not State Candidates for listing. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFG.

### ***California Environmental Quality Act (California Fish and Game Code, Section 1802)***

State law confers upon the CDFG the trustee responsibility and authority for the public trust resource of wildlife in California. The CDFG may play various roles under the CEQA process. By State law, the CDFG has jurisdiction over the conservation, protection, and management of the wildlife, native plants, and habitat necessary to maintain biologically sustainable populations. The CDFG shall consult with lead and responsible agencies and shall provide the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities.

As a trustee agency, the CDFG has jurisdiction over certain resources held in trust for the people of California. Trustee agencies are generally required to be notified of CEQA documents relevant to their jurisdiction, whether or not these agencies have actual permitting authority or approval power over aspects of the underlying project (14 *California Code of Regulations* [CCR], §15386). The CDFG, as a trustee agency, must be notified of CEQA documents regarding projects involving fish and wildlife of the State, as well as Rare and Endangered native plants, wildlife areas, and ecological reserves. Although as a trustee agency the CDFG cannot approve or disapprove a project, lead and responsible agencies are required to consult with the CDFG. The CDFG, as the trustee agency for fish and wildlife resources, shall provide the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities, and shall make recommendations regarding those resources held in trust for the people of California (*California Fish and Game Code*, §1802).

### ***California Fish and Game Code (Sections 1600 through 1616)***

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that support wildlife resources and/or riparian vegetation are subject to CDFG regulations pursuant to Sections 1600 through 1603 of the *California Fish and Game Code*. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream, or lake designated by the CDFG as waters within their jurisdiction. Additionally, a person cannot use any material from the streambeds without first notifying the CDFG of such activity. For a project that may affect stream channels and/or riparian vegetation regulated under Sections 1600 through 1603, CDFG authorization is required in the form of a Streambed Alteration Agreement.

### ***Additional Fish and Game Codes***

#### Sections 1900 et seq., or Native Plant Protection Act

This section lists Threatened, Endangered, and Rare plants so designated by the California Fish and Game Commission.

#### Sections 3511, 4700, 5050, and 5515

These sections provide a provision for the protection of bird, mammal, reptile, amphibian, and fish species that are “fully protected”. Fully protected animals may not be harmed, taken, or possessed.

#### Sections 3503, 3503.5, and 3513

This section states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by any regulation made pursuant to this code. Section 3503.5 explicitly provides protection for all birds of prey, including their eggs and nests. Section 3513 makes it unlawful to take or possess any migratory non-game bird as designated in the MBTA.

#### Title 14, California Code of Regulations, Sections 670.2 and 670.5

These sections list animals designated as Threatened or Endangered in California. The CDFG designates species considered to be indicators of regional habitat changes or candidate species for future State listing as “California Species of Special Concern” (SSC).

### ***California Porter-Cologne Water Quality Control Act***

Pursuant to the California Porter-Cologne Water Quality Control Act, the SWRCB and the nine RWQCBs may require permits (known as “Waste Discharge Requirements” or “WDRs”) for the fill or alteration of the “Waters of the State”. The term “Waters of the State” is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (*California Water Code*, §13050[e]). The SWRCB and RWQCBs have interpreted their authority to require WDRs to extend to any proposal to fill or alter “Waters of the State”, even if those same waters are not under USACE jurisdiction. Pursuant to this authority, the SWRCB and RWQCBs may require the submission of a “report of waste discharge” under Section 13260, which is treated as an application for WDRs.

### **1.3.3 County**

#### ***Western Riverside County Multiple Species Habitat Conservation Plan***

The Western Riverside MSHCP is a comprehensive, multi-jurisdictional plan that focuses on conservation of species and their associated habitats in western Riverside County. The MSHCP allows Riverside County and its cities to better control local land use decisions and to maintain a strong economic climate in the region while addressing the requirements of the CESA and FESA. The MSHCP Plan Area encompasses 1.26 million acres in western Riverside County. The MSHCP serves as a Habitat Conservation Plan pursuant to Section 10(a)(1)(B) of the FESA, and as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The MSHCP is used to allow the participating jurisdictions to authorize “take” of plant and wildlife species identified within the Plan Area. Under the MSHCP, the wildlife agencies (i.e., the

USFWS and the CDFG) will grant “Take Authorization” for otherwise lawful actions. Southern California Edison is given the option of utilizing the MSHCP as a “Participating Special Entity”.<sup>1</sup>

The MSHCP has 146 “Covered Species” (including 14 Narrow Endemic plant species). Of the 146 “covered species”, 118 species (including 13 of the 14 Narrow Endemic plant species) are considered “adequately conserved” within the MSHCP area. A covered species is considered adequately conserved when enough designated “Criteria Area” (i.e., geographic area, soils, and/or habitat that supports, or has the potential to support, the Covered Species) has been acquired, or designated for acquisition, for that species in the MSHCP. For species not deemed adequately conserved, additional dedication and/or purchase of conservation land may be required, as determined on a case-by-case basis. A Narrow Endemic species has a limited geographic distribution (e.g., Santa Rosa Plateau or San Jacinto River Valley), an affinity for a particular soil-type (e.g., Domino, Travers, or Willow), and/or is restricted to a specific habitat (e.g., coastal sage scrub, vernal pools).

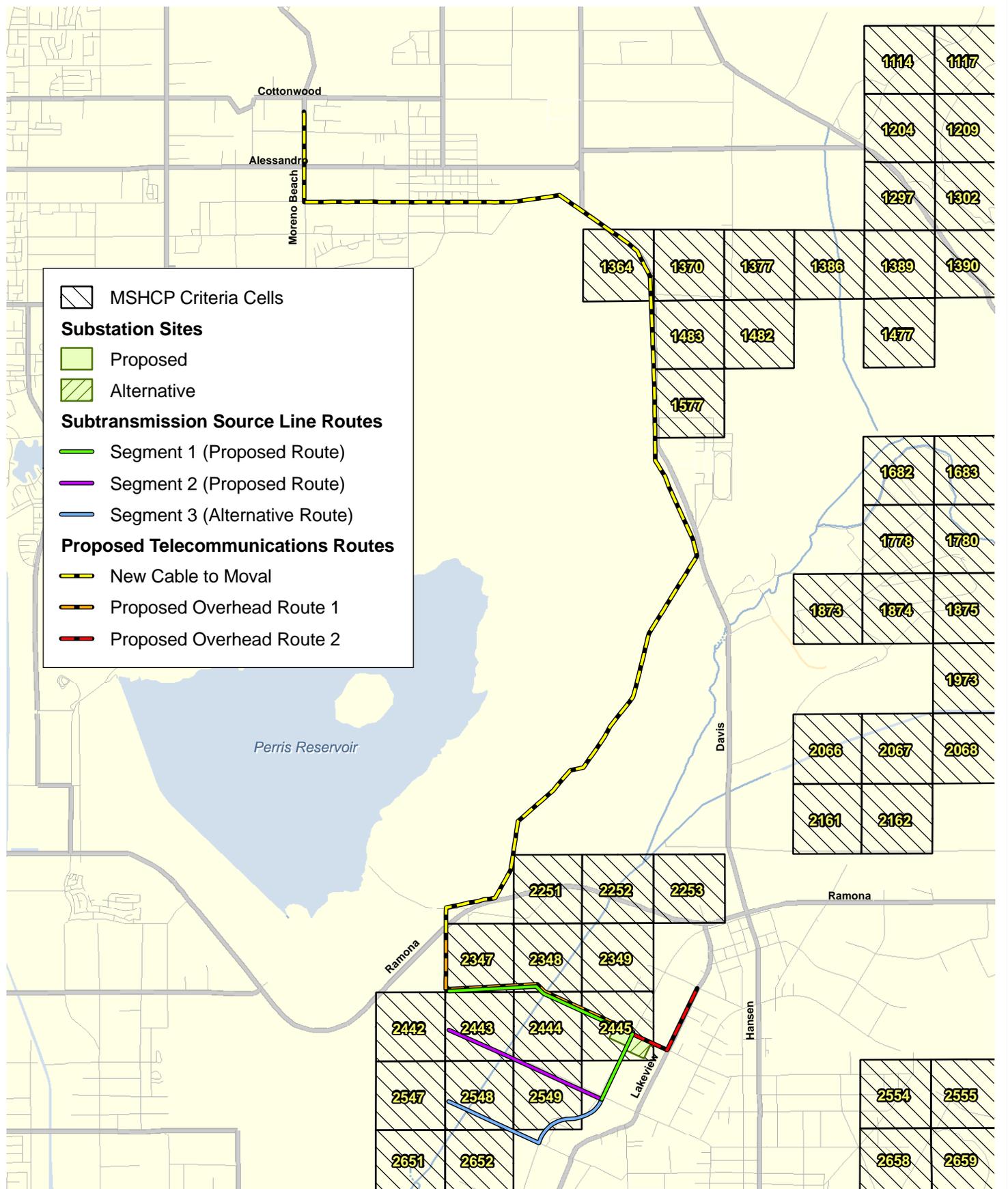
The MSHCP requires that project sites be evaluated for a number of factors to assess how they meet the criteria identified in the MSHCP. As part of this evaluation, the Survey Area has been assessed for riparian/riverine resources, vernal pools, areas under USACE and/or CDFG jurisdiction, urban/wildlands interface issues, and potential for special status species. If it is determined that there is potential for one of these resources and/or if the site is located within a Criteria Area that indicates potential for particular wildlife species or narrow endemic plant species, focused surveys may be required. Focused surveys must follow MSHCP protocol guidelines, which typically limit surveys to certain seasonal time periods and require a set number of surveys to be conducted. In addition, Criteria Area requirements may restrict the level of development allowable within the site.

The Survey Area occurs within the Lakeview/Nuevo Area Plan of the MSHCP. The target conservation acreage range for this area is 7,390–10,975 acres. This Area Plan contains a large portion of Proposed Constrained Linkage 20, a large portion of Proposed Extension of Existing Core 4, the western two-thirds of Proposed Noncontiguous Habitat Block 5, and a portion of Existing Core H. A total of 13 MSHCP Criteria Cells and 6 Cell Groups overlap the Survey Area (Exhibit 4). Table 1 lists these Criteria Cells, the Cell Groups, and the conservation criteria for each portion of the Survey Area. The planning species considered for these Cells and Cell Groups include Coulter’s goldfields (*Lasthenia glabrata* ssp. *coulteri*), Davidson’s saltscale (*Atriplex serenana* var. *davidsonii*), San Jacinto Valley crownscale (*Atriplex coronata* var. *notatio*), Moran’s navarretia (*Navarretia fossalis*), thread-leaved brodiaea (*Brodiaea filifolia*), vernal barley (*Hordeum intercedens*), Wright’s trichocoronis (*Trichocoronis wrightii* var. *wrightii*), Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Brachinecta lynchi*), Quino checkerspot butterfly (*Euphydryas editha quino*), arroyo toad (*Anaxyrus californicus* [*Bufo*] *microscaphus californicus*), western pond turtle (*Actinemys mamorata pallida*), Bell’s sage sparrow (*Amphispiza belli belli*), white-faced ibis (*Plegadis chihi*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell’s vireo (*Vireo bellii pusillus*), loggerhead shrike (*Lanius ludovicianus*), mountain plover (*Charadrius montanus*), tricolored blackbird (*Agelaius tricolor*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), southwestern willow flycatcher (*Empidonax trallii extimus*), bobcat (*Lynx rufus*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), and Stephens’ kangaroo rat (*Dipodomys stephensi*).

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<sup>1</sup> A “Participating Special Entity” is any regional public facility provider, such as a utility company, a public district or agency, that operates and/or owns land within the MSHCP Plan Area and that applies for Take Authorization pursuant to Section 11.8 of the Implementing Agreement.

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### MSHCP Criteria Cells

Lakeview Substation and Transmission Line Project



### Exhibit 4



**TABLE 1**  
**MSHCP CRITERIA CELLS WITHIN THE PROJECT LIMITS**

Project Section	Criteria Cell	Cell Group	Target Criteria
Proposed Substation Site	2445	H	Conservation contributes to the assembly of Proposed Extension of Existing Core 4; conservation will focus on playas/vernal pool habitat and agricultural land adjacent to the San Jacinto River. Conservation within this Cell Group will range from 55% to 65% and focus on the western portion of the Cell Group.
Alternative Substation Site	2445	H	Conservation contributes to the assembly of Proposed Extension of Existing Core 4; conservation will focus on playas/vernal pool habitat and agricultural land adjacent to the San Jacinto River. Conservation within this Cell Group will range from 55% to 65% and focus on the western portion of the Cell Group.
Proposed Subtransmission Source Line Route, Segment 1	2347, 2348, 2443, 2444, 2445	G, H, I	Conservation contributes to the assembly of Proposed Extension of Existing Core 4; conservation will focus on playas/vernal pool habitat, agricultural land, and grassland habitat adjacent to the San Jacinto River. Conservation within Cell Group G will range from 50% to 60% and focus on the eastern portion of the Cell Group. Conservation within Cell Group H will range from 55% to 65% and focus on the western portion of the Cell Group. Conservation within Cell Group I will range from 60% to 70% and focus on the eastern portion of the Cell Group.
Proposed Subtransmission Source Line Route, Segment 2	2443, 2444, 2549	G, H	Conservation contributes to the assembly of Proposed Extension of Existing Core 4; conservation will focus on playas/vernal pool habitat, agricultural land, and grassland habitat adjacent to the San Jacinto River. Conservation within Cell Group G will range from 50% to 60% and focus on the eastern portion of the Cell Group. Conservation within Cell Group H will range from 55% to 65% and focus on the western portion of the Cell Group. Conservation within Cell 2549 will range from 25% to 35% and focus on the northwestern portion of the Cell.
Alternative Subtransmission Source Line Route, Segment 3	2548, 2549, 2652	E, F	Conservation contributes to the assembly of Proposed Extension of Existing Core 4; conservation will focus on playas/vernal pool habitat and agricultural land adjacent to the San Jacinto River. Conservation within Cell Group E will range from 70% to 80% and focus on the western portion of the Cell Group. Conservation within Cell Group F will range from 60% to 70% and focus on the eastern portion of the Cell Group. Conservation within Cell 2549 will range from 25% to 35% and focus on the northwestern portion of the Cell.
New Cable to Moval	1364, 1370, 1483, 1577, 2251, 2347	I, D	Conservation contributes to the assembly of Proposed Extension of Existing Core 4 and Existing Core H; conservation will focus on playas/vernal pool habitat and grassland adjacent to the San Jacinto River and agricultural land. Conservation within Cell Group I will range from 60% to 70% and focus on the eastern portion of the Cell Group. Conservation within Cell Group D will be approximately 5% and focus on the southeastern portion of the Cell Group. Conservation within Cell 2251 will range from 35% to 45% and focus on the southern portion of the Cell.

**TABLE 1 (Continued)**  
**MSHCP CRITERIA CELLS WITHIN THE PROJECT LIMITS**

Project Section	Criteria Cell	Cell Group	Target Criteria
Proposed Overhead Route 1	2347, 2348, 2443, 2444, 2445	G, H, I	Conservation contributes to the assembly of Proposed Extension of Existing Core 4; conservation will focus on playas/vernal pool habitat, agricultural land, and grassland habitat adjacent to the San Jacinto River. Conservation within Cell Group G will range from 50% to 60% and focus on the eastern portion of the Cell Group. Conservation within Cell Group H will range from 55% to 65% and focus on the western portion of the Cell Group. Conservation within Cell Group I will range from 60% to 70% and focus on the eastern portion of the Cell Group.
Proposed Overhead Route 2	2445	H	Conservation contributes to the assembly of Proposed Extension of Existing Core 4; conservation will focus on playas/vernal pool habitat and agricultural land adjacent to the San Jacinto River. Conservation within this Cell Group will range from 55% to 65% and focus on the western portion of the Cell Group.

## 2.0 SURVEY METHODOLOGIES

The data provided in this report is derived from general and focused surveys of the Project site conducted by BonTerra Consulting in 2009 and 2010.

### 2.1 LITERATURE REVIEW

The biological resources section is based on background data review and field reconnaissance surveys. Prior to field surveys, a literature review was performed to identify special status plants, wildlife, and habitats known to occur in the vicinity of the Survey Area. This search included a review of the USGS's Perris, Lakeview, Romoland, Winchester, Sunnymead, and El Casco 7.5-minute quadrangles in the California Native Plant Society's (CNPS's) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2010) and the CDFG's California Natural Diversity Database (CNDDB) (CDFG 2010a). In addition, the Assessor's Parcel Numbers (APNs) for the Survey Area were run through the Riverside County Integrated Project (RCIP) Conservation Summary Report Generator for the Western Riverside County MSHCP (RCIP 2010).

### 2.2 VEGETATION MAPPING AND GENERAL BIOLOGICAL SURVEYS

Biological reconnaissance surveys were conducted to describe and map the vegetation present in the Survey Area and to evaluate the potential of the habitats to support special status plant and wildlife species. BonTerra Consulting Botanist/Restoration Ecologist Jeff Crain and Biologists Kim Oldehoeft and Lindsay Messett performed general plant and wildlife surveys on the Substation Sites, Subtransmission Source Line Routes, and Proposed Overhead Routes 1 and 2 in February and June of 2009, and in February of 2010 for the New Cable to Moval (Exhibit 2). Vegetation was mapped in the field on an aerial photograph at a scale of 1 inch equals 200 feet (1"=200'). Nomenclature for vegetation types generally follows that of *The Vegetation Classification and Mapping Program: List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (CDFG 2003).

Plant species were identified in the field or collected for subsequent identification using keys in Hickman (1993) and Munz (1974). Taxonomy follows Hickman (1993) and current scientific data

(e.g., scientific journals) for scientific and common names. A list of observed plant species is included as Appendix A-1.

## **2.3 GENERAL WILDLIFE SURVEYS**

Vegetation mapping and general wildlife surveys were conducted concurrently. General observations of wildlife were also noted during all focused surveys in 2009 and 2010. All wildlife species observed were recorded in field notes and are listed in Appendix A-2.

During the surveys, each vegetation type was evaluated for its potential to support special status species that are known or expected to occur in the region. Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and involved searching for and identifying diagnostic signs including scat, footprints, scratch-outs, dust bowls, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows Stebbins (2003) for amphibians and reptiles, American Ornithologists Union (2009) for birds, and Baker et al. (2003) for mammals.

## **2.4 FOCUSED SURVEYS**

Due to the presence of suitable habitat and/or soils, focused surveys for special status plant species were conducted (1) in 2009 for the Proposed Subtransmission Source Route, Segment 2; Proposed Overhead Routes 1 and 2; and Alternative Subtransmission Source Line Route, Segment 3 and (2) in 2010 for the Proposed Subtransmission Source Line Route, Segment 1 and New Cable to Moval. Focused burrowing owl (*Athene cunicularia*) surveys were conducted in 2009 for the Proposed Substation Site; the Proposed Subtransmission Source Line Routes; the Alternative Substation Site; and the Alternative Subtransmission Source Line Route, Segment 3. Focused Quino checkerspot butterfly and California gnatcatcher surveys were conducted in 2010 along the New Cable to Moval.

### **2.4.1 Special Status Plant Species**

Special status plant surveys were conducted on April 7, 2009 by BonTerra Consulting Botanist Jeff Crain and Ecologist Allison Rudalevige; May 18, 2009 by Mr. Crain and Botanist David Bramlet; April 1, 2010 by Mr. Crain, Senior Botanist Sandy Leatherman, Ms. Rudalevige, and Ecologist Jennifer Pareti; May 4, 2010 by Mr. Crain, Ms. Leatherman, and Senior Biologist Amber Oneal; May 5, 2010 by Ms. Leatherman and Mr. Crain; and June 2 and 3, 2009, and February 18, 2010, by Mr. Crain. The 2010 surveys are in progress and only partial results are given in this report. Prior to the surveys, known reference populations of the focal species were visited to ensure survey times were appropriate. All areas of the Project site with potentially suitable habitat for special status plant species were surveyed using meandering transects. Field notes were taken during the surveys. The location of each special status plant population found on the Project site was mapped using a hand-held Garmin Global Positioning System (GPS) unit. Voucher specimens were collected and will be deposited in the Rancho Santa Ana Botanic Garden Herbarium or at the University of California, Riverside Herbarium.

### **2.4.2 Quino Checkerspot Butterfly**

Quino checkerspot butterfly focused surveys were conducted utilizing guidelines from the 2002 USFWS Survey Protocol Information (USFWS 2002) to maximize detection of adults during the flight season. The Carlsbad USFWS officeweb page for monitored Quino checkerspot butterfly reference site information was checked periodically to determine the likely "beginning" of the flight season in the vicinity of Survey Area.

Protocol surveys consist of an initial site assessment to determine if the site contains areas recommended for butterfly surveys. If the site is determined to be comprised solely of excluded areas (described below), surveys are not recommended. If a site has areas suitable for butterfly surveys (non-excluded areas), then surveys should be conducted for those portions of the site. Butterfly emergence from pupae varies according to environmental factors, so the butterfly flight season varies regionally and annually. Generally, the Quino checkerspot butterfly usually begins flying in February or early March.

### **Site Assessments**

Site assessments should be conducted before the first butterfly survey to identify which portions of a site should be surveyed for the Quino checkerspot. These assessments involve conducting a general field survey of the site and broadly mapping excluded areas and butterfly survey areas on a USGS 7.5-minute (1:24,000) topographic quadrangle map that has been enlarged 200 percent.

### **Excluded Areas**

The following areas are not recommended for butterfly surveys: orchards, developed areas, or small in-fill parcels (plots smaller than one acre that are completely surrounded by urban development) largely dominated by non-native vegetation; active/in-use agricultural fields without natural or remnant inclusions of native vegetation (i.e., fields completely without any fallow sections, unplowed areas, and/or rocky outcrops); closed-canopy forests; or riparian areas, dense chaparral, and small openings (less than one acre) completely enclosed within dense chaparral.

### **Butterfly Survey Areas**

All areas that are not excluded should be surveyed for butterflies, regardless of Quino checkerspot butterfly host plant presence, absence, and/or density. The Quino checkerspot butterfly is generally associated with sage scrub, open chaparral, grasslands, and vernal pools. Within these communities, they are usually observed in open or sparsely vegetated areas (including trails and dirt roads) and on hilltops and ridgelines.

Ms. Messett conducted surveys for Quino checkerspot butterflies once per week for five weeks throughout the flight season on March 19 and 26, and on April 8, 14, and 19, 2010. Quino checkerspot protocol surveys were not conducted concurrently with any other focused survey (e.g., a coastal California gnatcatcher survey). All non-excluded portions of the site were thoroughly surveyed for butterflies during each weekly survey at an average rate of 10 to 15 acres (4.05–6.07 hectares) per hour.

#### **2.4.3 Burrowing Owl**

Focused surveys for burrowing owl followed a methodology based on the Burrowing Owl Survey Instructions for the Western Riverside County MSHCP (County of Riverside 2006). The Western Riverside County MSHCP survey instructions are the most current protocol described for the species. The guidelines outline a survey methodology that has been officially approved by the CDFG and the USFWS. Surveys for the burrowing owl are conducted during the breeding season, which extends from March 1 to August 31. These surveys are done in three phases: (1) habitat assessment; (2) burrow surveys; and (3) focused owl surveys.

## **Habitat Assessment**

A habitat assessment was conducted in winter 2009 by BonTerra Consulting Biological Resources Manager Marc Blain. Mr. Blain conducted the assessment by walking and/or driving the Project site to visually inspect the Survey Area and assess its potential for burrowing owls.

### **Burrow Survey**

Ms. Oldehoeft conducted burrow surveys on May 19, June 29, July 3, and August 11, 2009. Ms. Odehoeft walked transects at regularly spaced intervals to achieve 100 percent visual coverage of all potential habitat within the Survey Area. Any natural or man-made cavities large enough to allow entry to a burrowing owl were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. The burrow survey was not conducted within five days of rain, which could have washed away potential sign.

### **Focused Burrowing Owl Surveys**

If owls or potentially occupied burrows or cavities are located during the burrow survey, then crepuscular (dawn or dusk) focused burrowing owl surveys are required. Focused surveys were conducted within several portions of the Survey Area where burrowing owl had a potential to occur based on the results of the habitat assessment and burrow survey. These surveys were conducted from either one hour before sunrise to two hours after, or from two hours before sunset to one hour after. These surveys are conducted only with sufficient light to follow burrowing owl flights. Ms. Oldehoeft conducted focused surveys on July 10, 13, 14, 15, and 16 and on August 11, 17, 18, 26, and 31, 2009. All potential habitat within the Survey Area was surveyed to achieve 100 percent visual coverage of the area. Binoculars were used to inspect holes; crevices; and potential perches such as rocks, fence posts, and other elevated structures for the presence of owls while listening for owl calls.

#### **2.4.4 Coastal California Gnatcatcher**

Focused surveys for the coastal California gnatcatcher followed USFWS presence/absence survey protocol (USFWS 1997). Ms. Messett (TE-067064-1) conducted surveys on April 9, 16, and 27, and on May 4, 20 and 27, 2010. Six surveys were conducted at least one week apart during the breeding season (between March 15 and June 30). These surveys covered all potentially suitable habitat for the coastal California gnatcatcher in the Survey Area. Tape recordings of coastal California gnatcatcher songs and other vocalizations were played in appropriate habitat to solicit a response. The locations where gnatcatchers were first observed were plotted on an aerial photograph. The number of birds (individuals or pairs) was noted at each sighting. Data regarding general habitat characteristics for each gnatcatcher was also collected. The surveys were conducted during appropriate weather conditions and generally between dawn and noon.

## **3.0 EXISTING BIOLOGICAL RESOURCES**

This section describes the biological resources that occur or potentially occur in the Survey Area. Vegetation types, wildlife populations, and movement patterns; special status vegetation types; and special status plant and wildlife species that are either known to occur or have the potential to occur in the Survey Area are discussed below.

### 3.1 VEGETATION TYPES AND OTHER AREAS

Fifteen vegetation types and other areas occur in the Survey Area (Exhibits 5A–5O; Table 2). Vegetation types and other areas mapped in the Survey Area include alkali grassland, annual grassland, alkali scrub playa, disturbed alkali scrub playa, alkali wetland, Riversidean sage scrub, disturbed Riversidean sage scrub, southern willow scrub, ruderal, agriculture, ornamental, detention basin, irrigation ditch, disturbed, and developed.

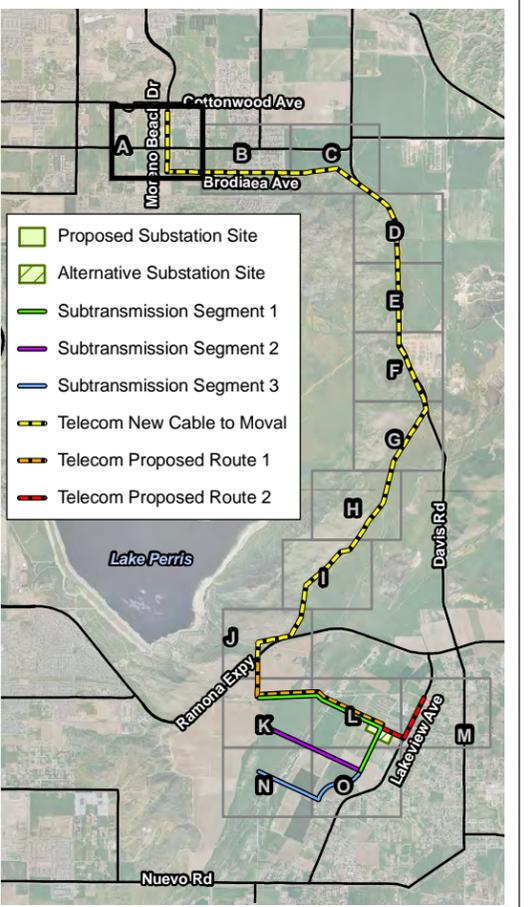
**TABLE 2  
VEGETATION TYPES AND OTHER AREAS WITHIN EACH  
PORTION OF THE SURVEY AREA**

Vegetation Types or Other Areas	Proposed Substation Site	Alternative Substation Site	Proposed Subtransmission Source Line Route, Segment 1	Proposed Subtransmission Source Line Route, Segment 2	Alternative Subtransmission Source Line Route, Segment 3	New Cable to Moval	Proposed Overhead Route 1	Proposed Overhead Route 2
Alkali Grassland	-	-	0.77	-	-	-	0.77	-
Annual Grassland	-	-	0.22	-	-	50.66	0.22	-
Alkali Scrub Playa	-	-	-	0.29	1.27	-	-	-
Disturbed Alkali Scrub Playa	-	-	-	0.03	-	-	-	-
Alkali Wetland	-	-	-	-	0.06	-	-	-
Riversidean Sage Scrub	-	-	-	-	-	3.68	-	-
Disturbed Riversidean Sage Scrub	-	-	-	-	-	5.42	-	-
Southern Willow Scrub	-	-	-	0.06	-	-	-	-
Ruderal	-	-	0.29	0.74	0.47	11.85	0.29	1.71
Agriculture	7.09	10.60	18.70	7.90	9.47	9.01	14.17	0.79
Ornamental	-	-	0.21	-	-	1.09	-	0.07
Detention Basin	-	-	-	0.19	-	-	-	-
Irrigation Ditch	-	-	-	-	-	1.22	-	-
Disturbed	0.98	1.13	2.67	5.73	4.43	24.32	1.72	4.11
Developed	-	0.01	0.84	-	0.40	11.50	-	0.57
<b>Total</b>	<b>8.07</b>	<b>11.74</b>	<b>23.70</b>	<b>14.94</b>	<b>16.10</b>	<b>118.75</b>	<b>17.17</b>	<b>7.25</b>

#### 3.1.1 Alkali Grassland

Alkali grassland occurs along the Proposed Subtransmission Source Line Route, Segment 1 and the Proposed Overhead Route 1. This vegetation type is dominated by non-native grasses including Mediterranean barley (*Hordeum murinum* var. *gussoneanum*) and foxtail barley (*Hordeum murinum* var. *leporinum*); however, the native component of this vegetation type includes salt grass (*Distichilis spicata*), vernal barley (*Hordeum intercedens*), and alkali weed (*Cressa truxillensis*). The area is fairly disturbed but maintains at least ten percent cover by native grasses and forbs.

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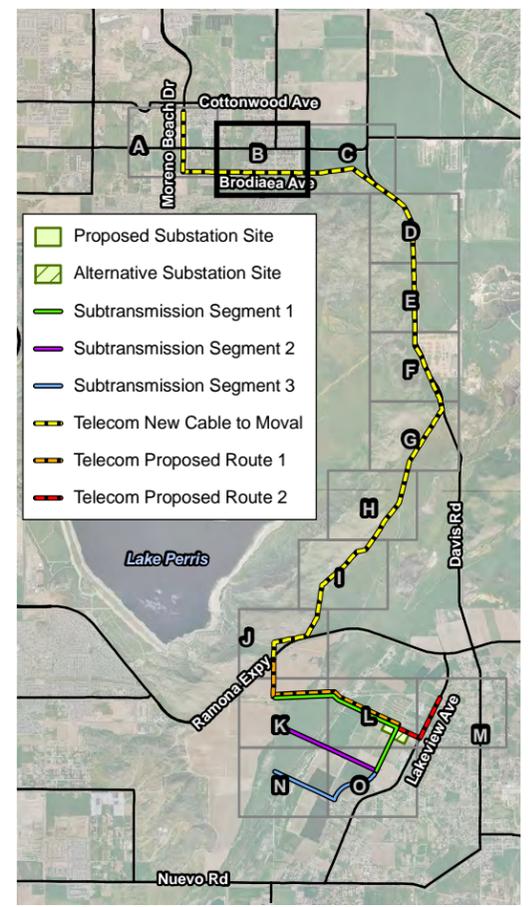
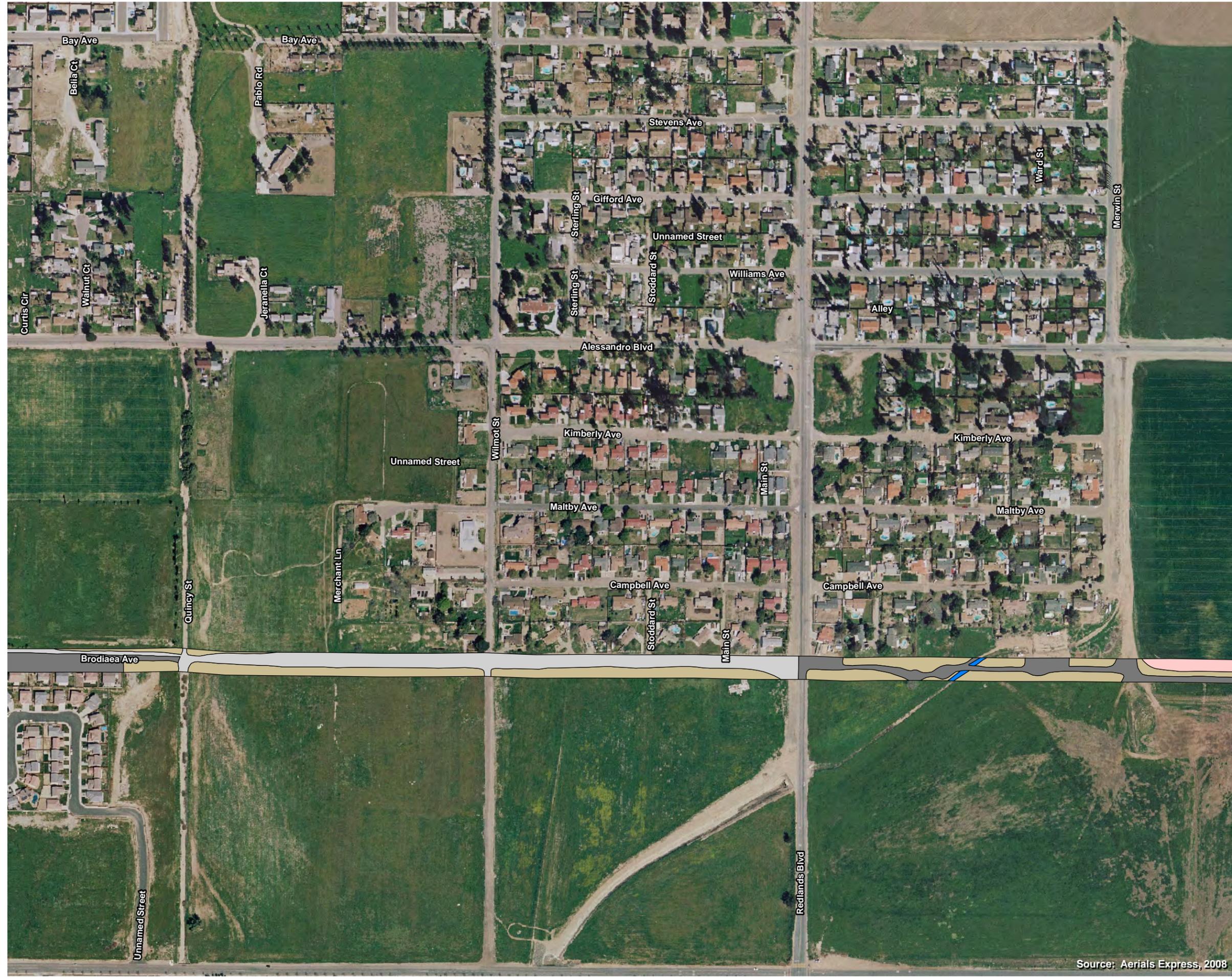
## Vegetation Types Exhibit 5A

Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008

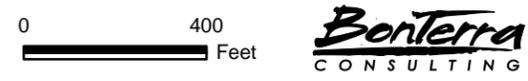
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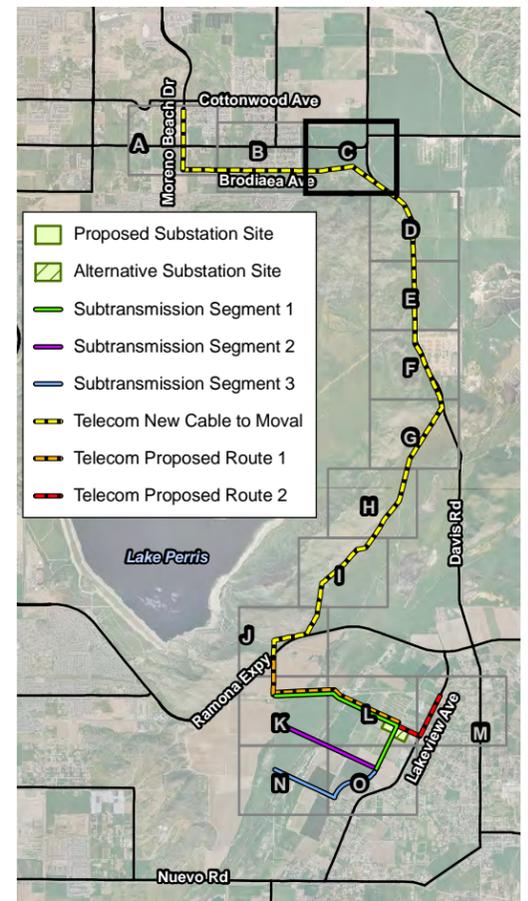
- Vegetation Types and Other Areas**
- Alkali Grassland
  - Annual Grassland
  - Alkali Scrub Playa
  - Disturbed Alkali Scrub Playa
  - Alkali Wetland
  - Riversidean Sage Scrub
  - Disturbed Riversidean Sage Scrub
  - Southern Willow Scrub
  - Ruderal
  - Agriculture
  - Ornamental
  - Irrigation Ditch
  - Detention Basin
  - Disturbed
  - Developed

**Vegetation Types Exhibit 5B**

Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008



**Vegetation Types and Other Areas**

	Alkali Grassland
	Annual Grassland
	Alkali Scrub Playa
	Disturbed Alkali Scrub Playa
	Alkali Wetland
	Riversidean Sage Scrub
	Disturbed Riversidean Sage Scrub
	Southern Willow Scrub
	Ruderal
	Agriculture
	Ornamental
	Irrigation Ditch
	Detention Basin
	Disturbed
	Developed

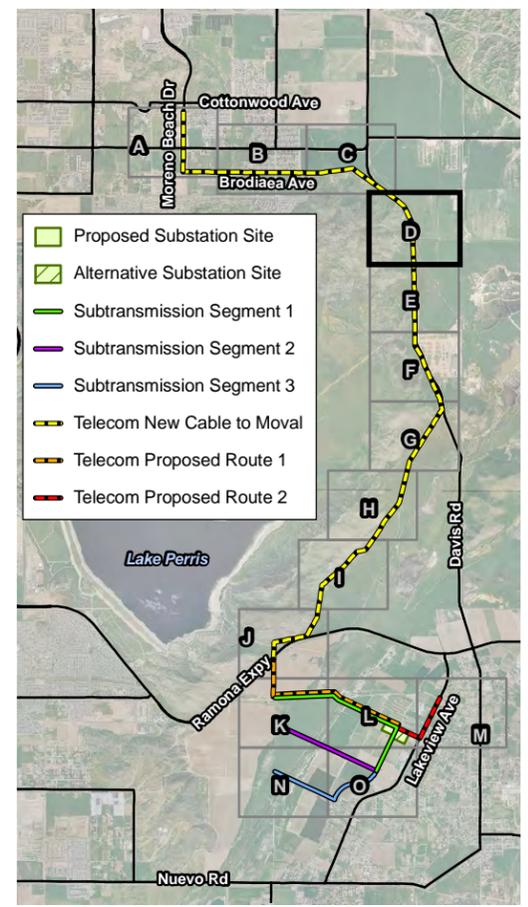
**Vegetation Types Exhibit 5C**

Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008

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- Vegetation Types and Other Areas**
- Alkali Grassland
  - Annual Grassland
  - Alkali Scrub Playa
  - Disturbed Alkali Scrub Playa
  - Alkali Wetland
  - Riversidean Sage Scrub
  - Disturbed Riversidean Sage Scrub
  - Southern Willow Scrub
  - Ruderal
  - Agriculture
  - Ornamental
  - Irrigation Ditch
  - Detention Basin
  - Disturbed
  - Developed

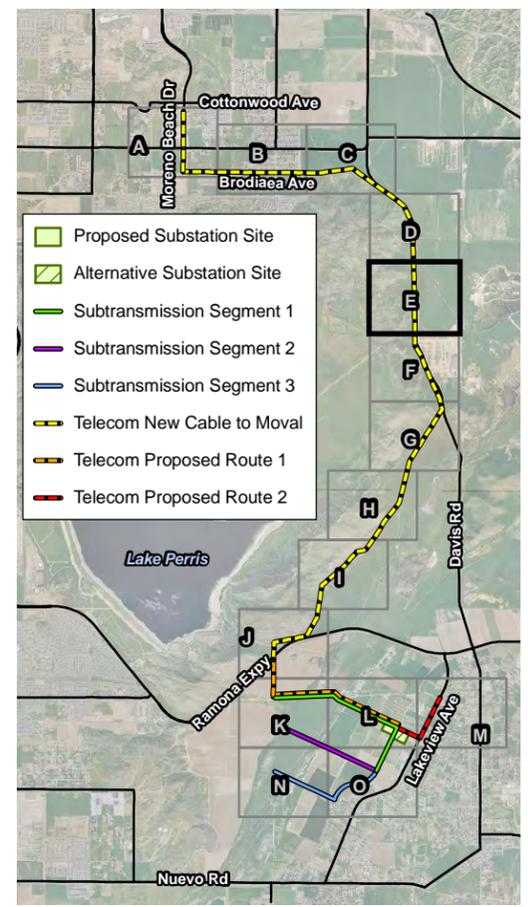
**Vegetation Types Exhibit 5D**

Lakeview Substation and Transmission Line Project



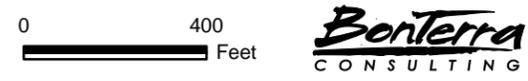
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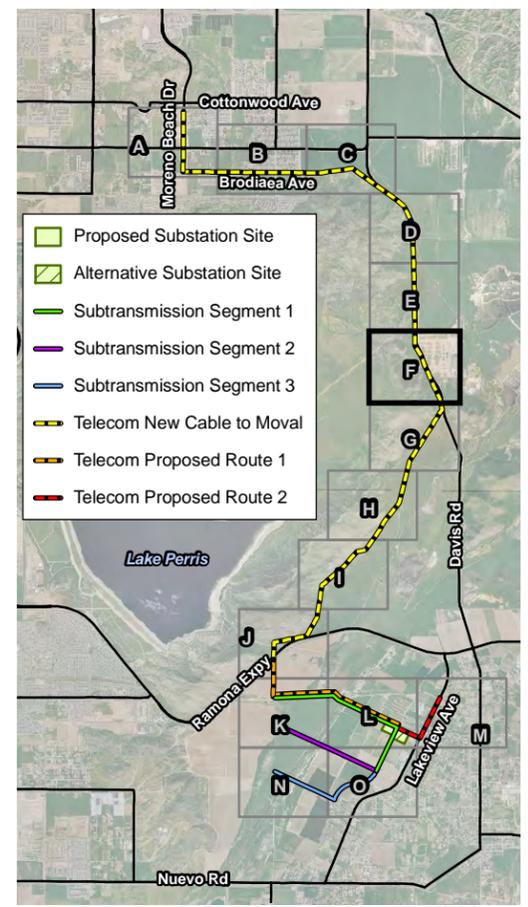
**Vegetation Types Exhibit 5E**

*Lakeview Substation and Transmission Line Project*



Source: Aerials Express, 2008

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**Vegetation Types Exhibit 5F**

Lakeview Substation and Transmission Line Project

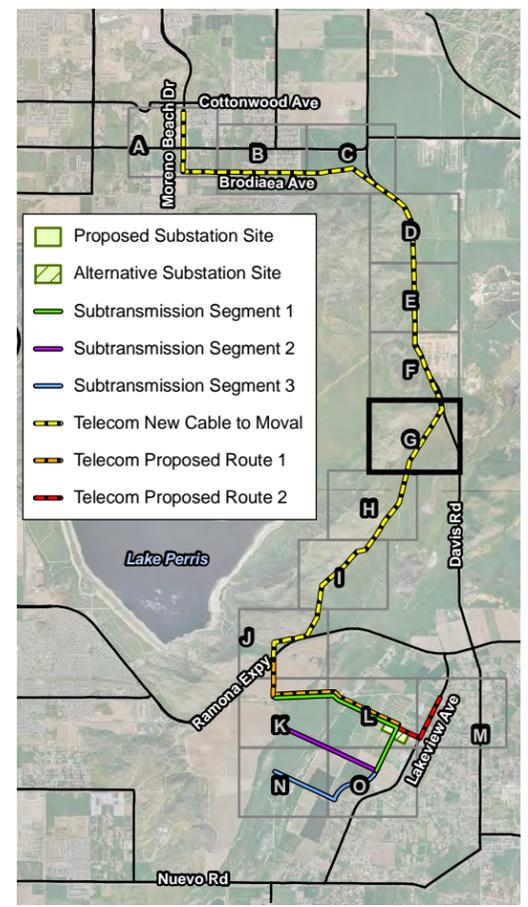


Source: Aerials Express, 2008.

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Source: Aerials Express, 2008



**Vegetation Types and Other Areas**

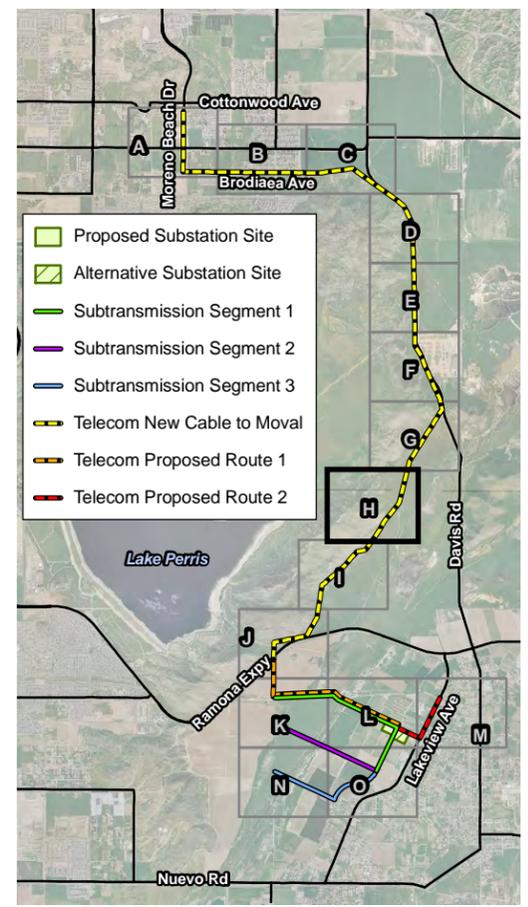
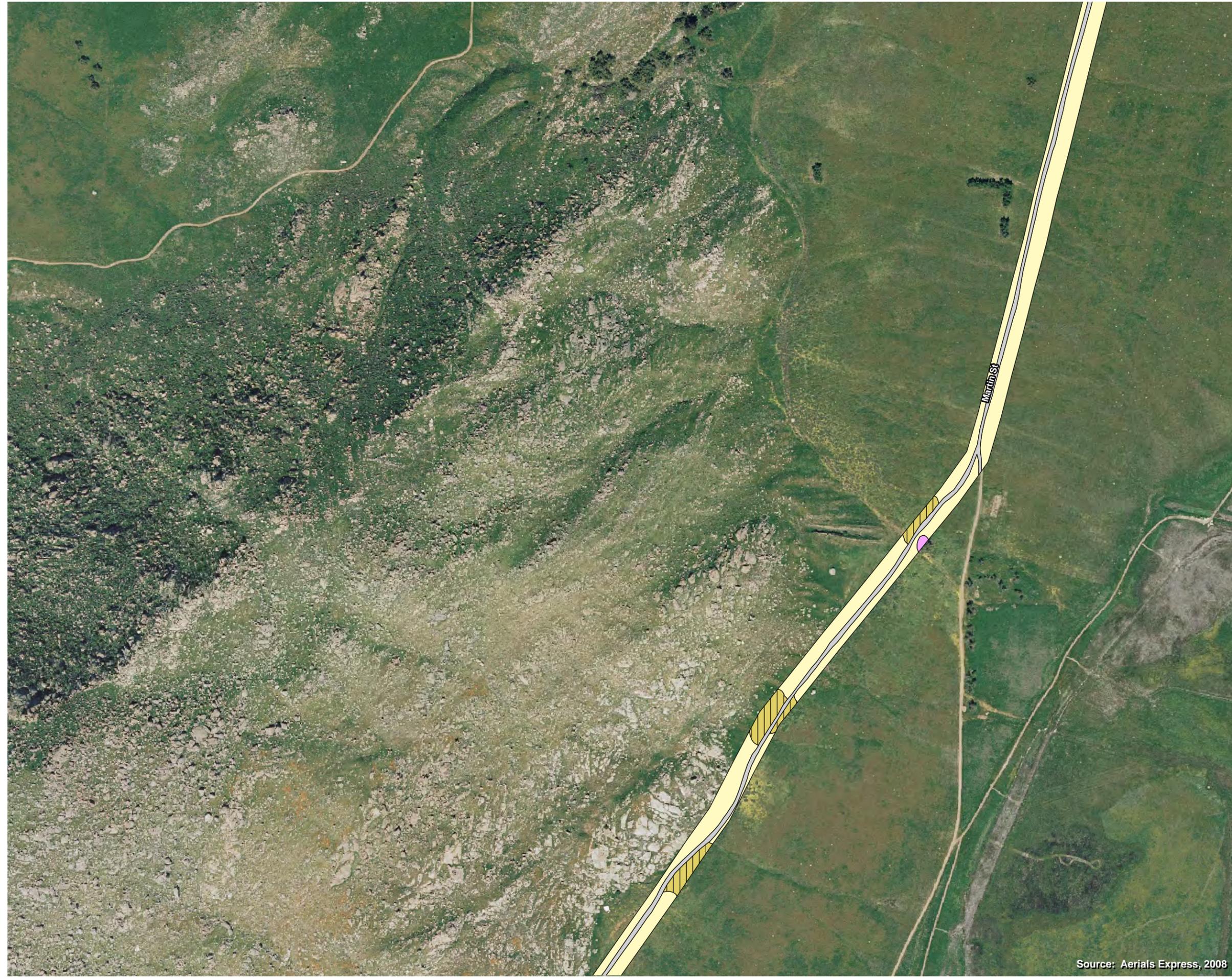
- Alkali Grassland
- Annual Grassland
- Alkali Scrub Playa
- Disturbed Alkali Scrub Playa
- Alkali Wetland
- Riversidean Sage Scrub
- Disturbed Riversidean Sage Scrub
- Southern Willow Scrub
- Ruderal
- Agriculture
- Ornamental
- Irrigation Ditch
- Detention Basin
- Disturbed
- Developed

**Vegetation Types Exhibit 5G**

Lakeview Substation and Transmission Line Project

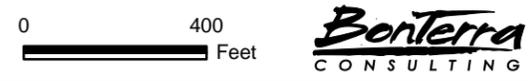


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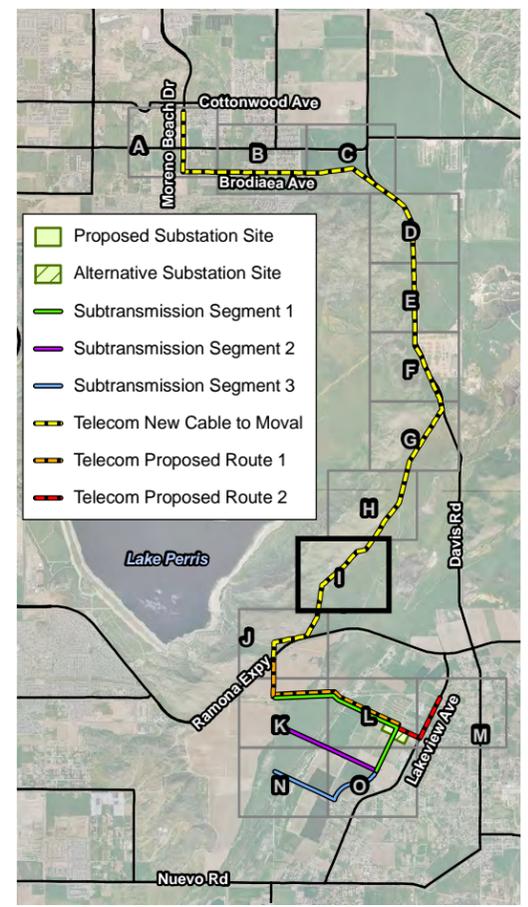
**Vegetation Types Exhibit 5H**

*Lakeview Substation and Transmission Line Project*



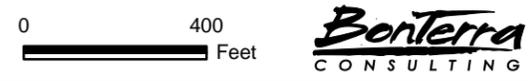
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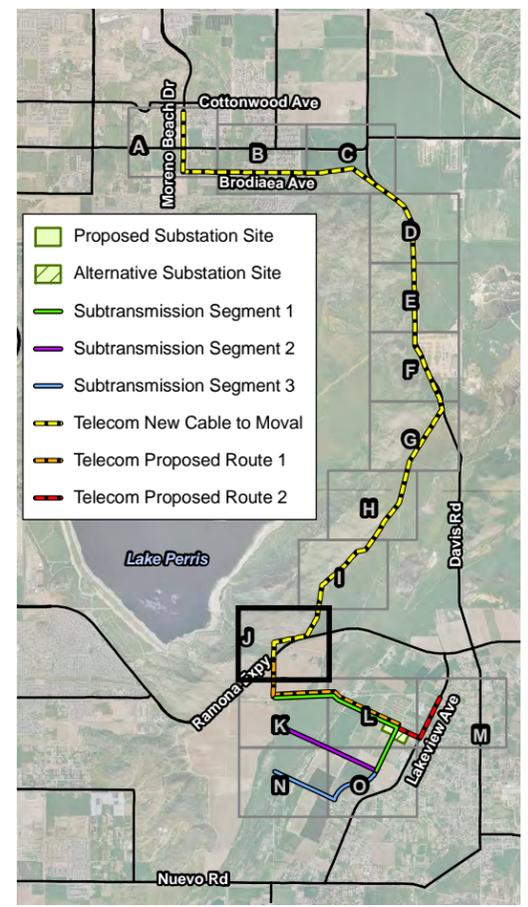
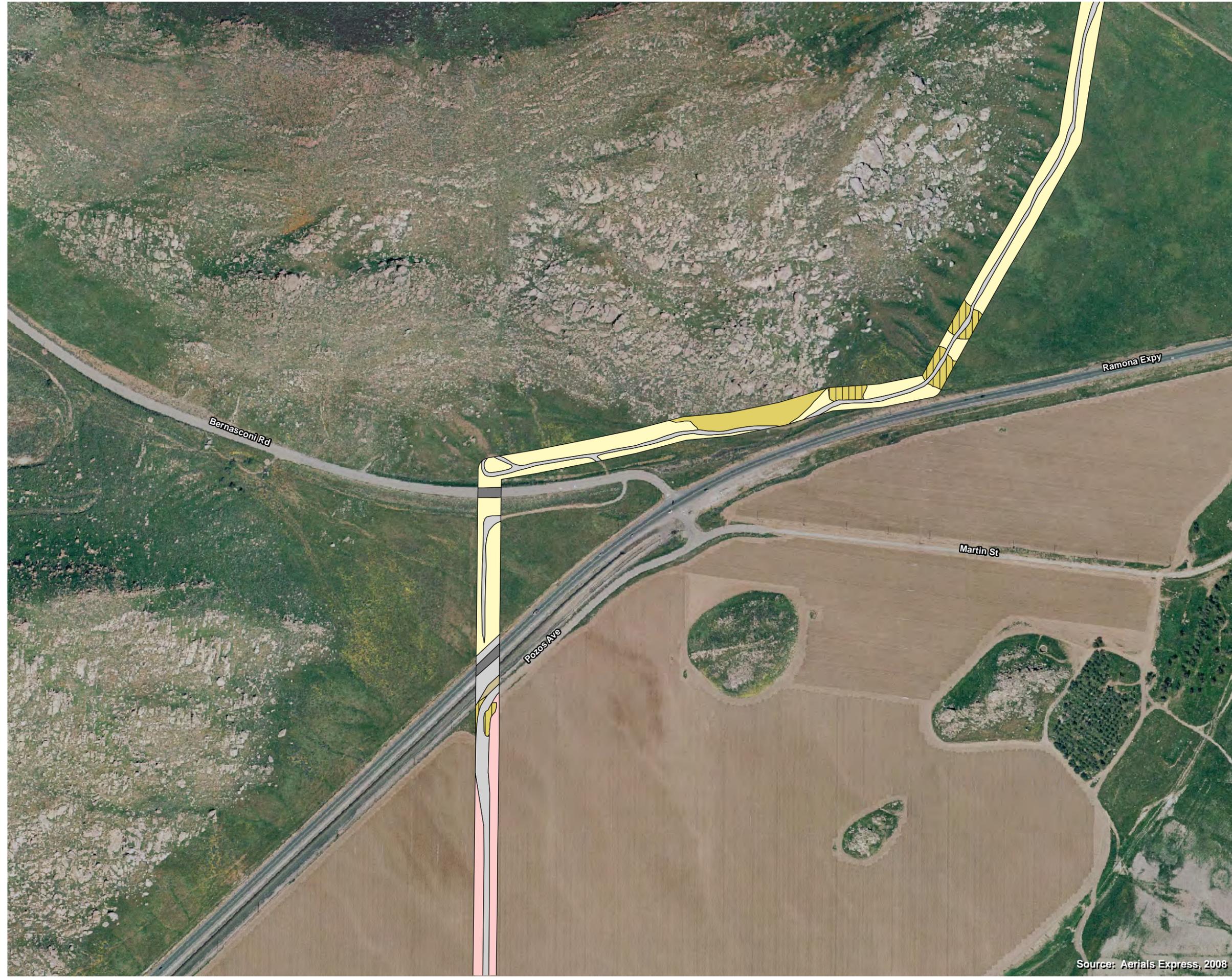
**Vegetation Types Exhibit 51**

*Lakeview Substation and Transmission Line Project*



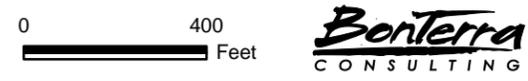
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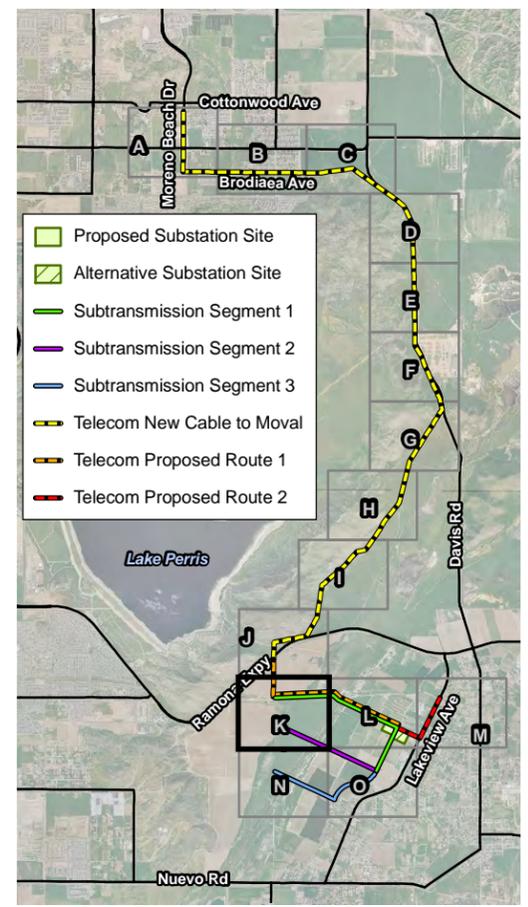


**Vegetation Types Exhibit 5J**

*Lakeview Substation and Transmission Line Project*



Source: Aerials Express, 2008



**Vegetation Types and Other Areas**

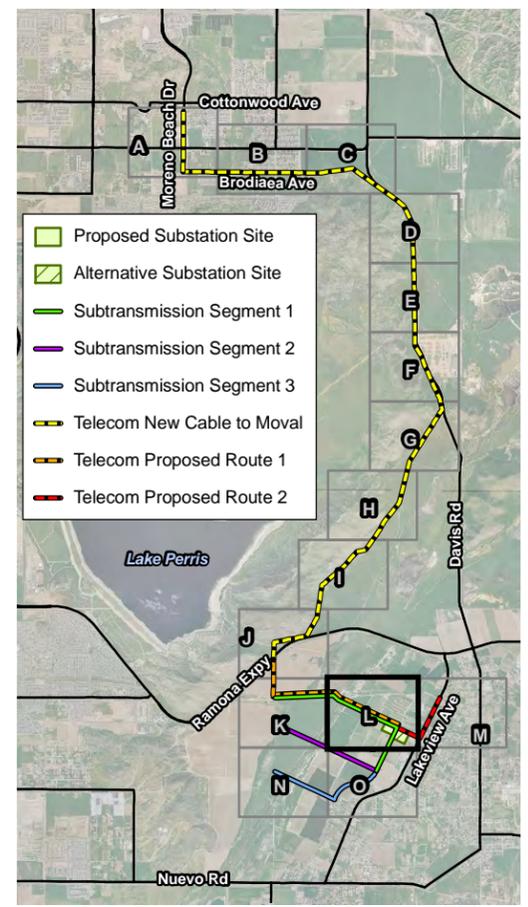
	Alkali Grassland
	Annual Grassland
	Alkali Scrub Playa
	Disturbed Alkali Scrub Playa
	Alkali Wetland
	Riversidean Sage Scrub
	Disturbed Riversidean Sage Scrub
	Southern Willow Scrub
	Ruderal
	Agriculture
	Ornamental
	Irrigation Ditch
	Detention Basin
	Disturbed
	Developed

**Vegetation Types**      **Exhibit 5K**

*Lakeview Substation and Transmission Line Project*

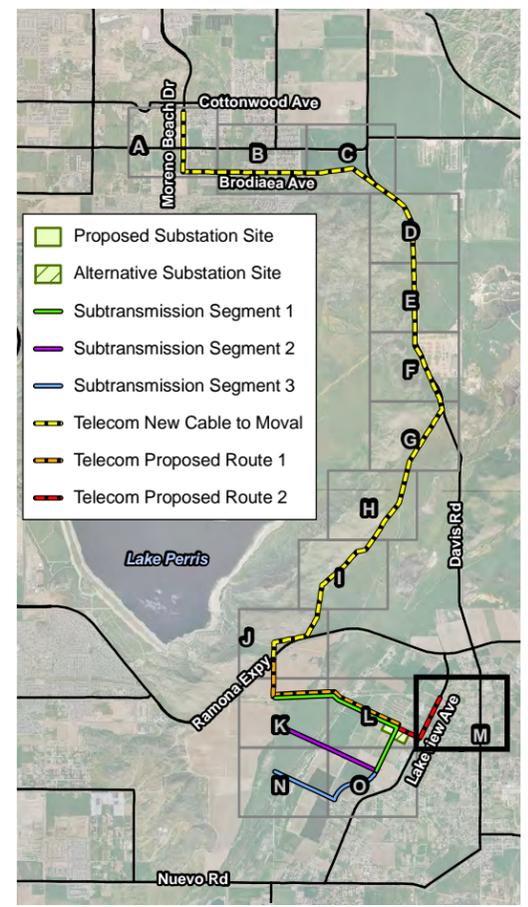
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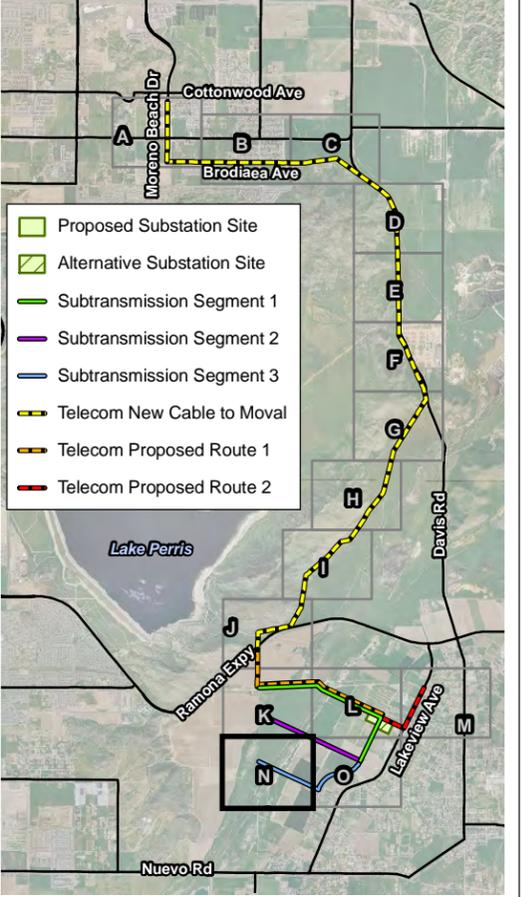
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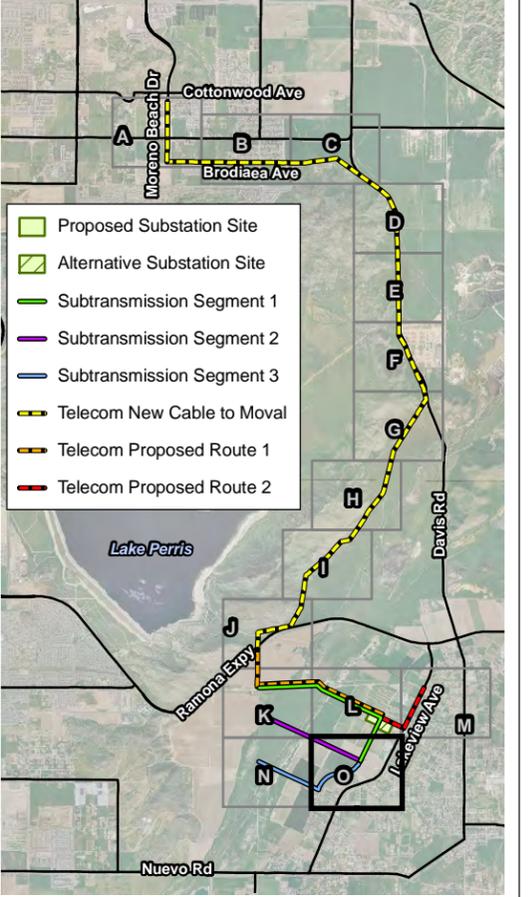
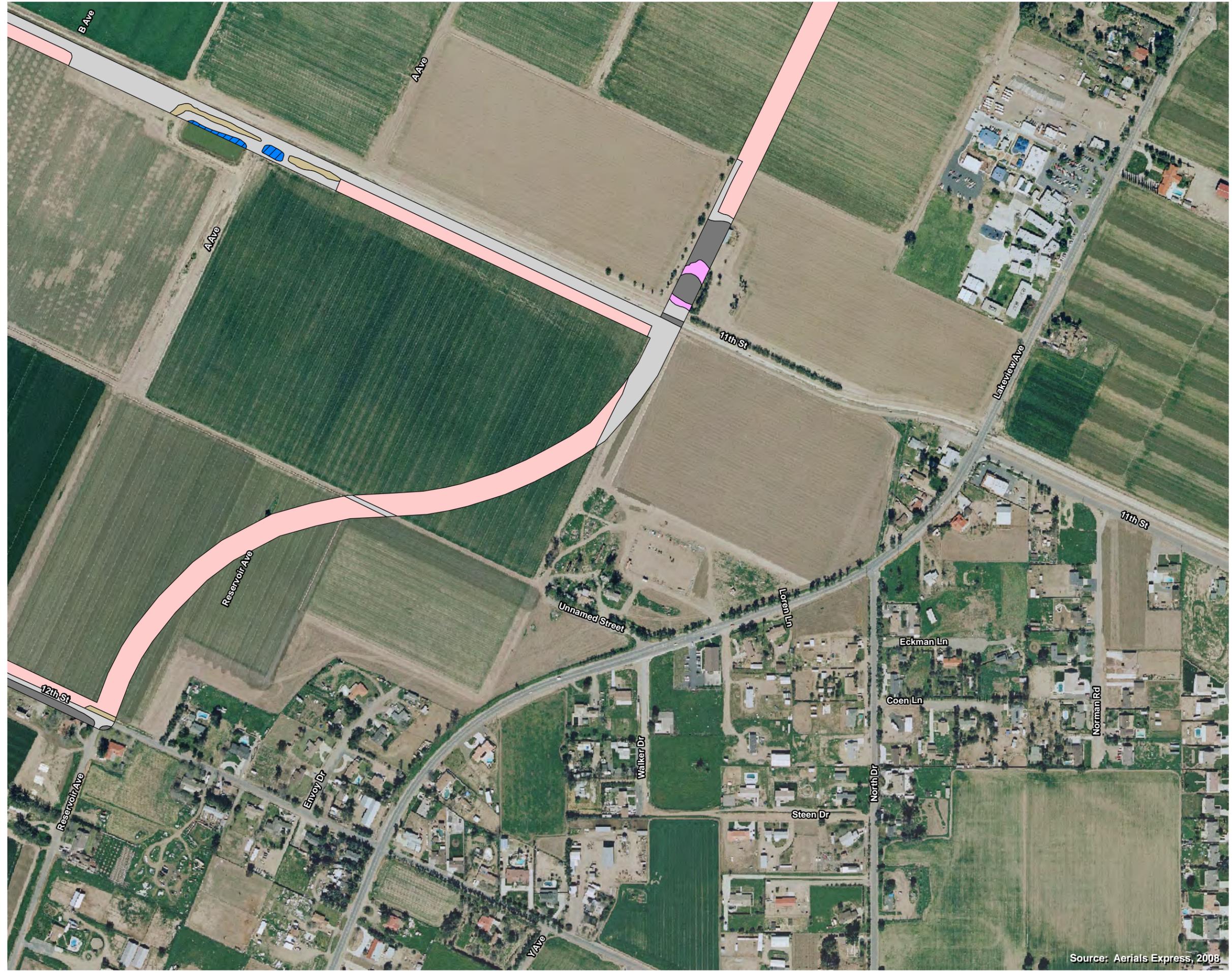
**Vegetation Types Exhibit 5N**

Lakeview Substation and Transmission Line Project



Source: Aerials Express, 2008

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Source: Aerials Express, 2008

### **3.1.2 Annual Grassland**

Annual grassland occurs along the Proposed Subtransmission Source Line Route, Segment 1, the New Cable to Moval, and the Proposed Overhead Route 1. This vegetation type is dominated by non-native grasses and forbs including ripgut grass (*Bromus diandrus*), Mediterranean barley, foxtail barley, perennial ryegrass (*Lolium perenne*), little-seed canary grass (*Phalaris minor*), small saltbush (*Atriplex suberecta*), five-hook bassia (*Bassia hyssopifolia*), and Russian thistle (*Salsola tragus*). Native components include Mojave silver scale (*Atriplex argentea* ssp. *mohavensis*), alkali weed, summer cypress (*Kochia scoparia*), and bush seepweed (*Suaeda moquini*).

### **3.1.3 Alkali Scrub Playa**

Alkali scrub playa occurs in flat alkali clay soils along the Proposed Subtransmission Source Line Route, Segment 2 and the Alternative Subtransmission Source Line Route, Segment 3. This vegetation type is dominated by native, alkali-tolerant shrubs including Mojave silver scale, alkali weed, summer cypress, Nuttall's monolepis (*Monolepis nuttalliana*), and bush seepweed. Non-native components include five-hook bassia, garden beet (*Beta vulgaris*), and Russian thistle.

### **3.1.4 Disturbed Alkali Scrub Playa**

Disturbed alkali scrub playa occurs along the Proposed Subtransmission Source Line Route, Segment 2. Species composition was similar to alkali scrub playa above; however, these areas have been subject to disturbance from off-road activity and had much higher non-native cover than the alkali scrub playa. Species present include Mediterranean barley and foxtail barley.

### **3.1.5 Alkali Wetland**

Alkali wetland occurs along the Alternative Subtransmission Source Route, Segment 3. This vegetation type is associated with the San Jacinto River and is dominated by native species including mule fat (*Baccharis salicifolia*), alkali heliotrope (*Heliotropium curassavicum*), alkali heath (*Frankenia salina*), California bulrush (*Scirpus californica*), and bush seepweed. Non-native components include black mustard (*Brassica nigra*) and bull thistle (*Cirsium vulgare*).

### **3.1.6 Riversidean Sage Scrub**

Riversidean sage scrub occurs along the New Cable to Moval. This vegetation type is dominated by native shrubs including California sagebrush (*Artemisia californica*), brittlebush (*Encelia farinosa*), interior flat-topped buckwheat (*Eriogonum fasciculatum* var. *foliolosum*), deerweed (*Lotus scoparius*), and white sage (*Salvia apiana*).

### **3.1.7 Disturbed Riversidean Sage Scrub**

Disturbed Riversidean sage scrub occurs along the New Cable to Moval. This vegetation type has identical dominant shrubs to Riversidean sage scrub above; however, these areas have been disturbed to varying degrees by off-road vehicle use and are now dominated by non-native grasses including ripgut grass, Mediterranean barley, and shortpod mustard (*Hirschfeldia incana*).

### **3.1.8 Southern Willow Scrub**

Southern willow scrub occurs along the Proposed Subtransmission Source Line Route, Segment 2. This vegetation type is dominated by native trees and shrubs including black willow (*Salix gooddingii*) and mule fat. The understory consists of native herbs, including southern cattail (*Typha domingensis*) and California bulrush, and non-native herbs, including black mustard and Italian thistle (*Carduus pycnocephalus*).

### **3.1.9 Ruderal**

Ruderal occurs in nearly every segment of the Survey Area and are associated with heavy disturbance. This vegetation type is dominated by non-native grasses and forbs including black mustard, riggut grass, foxtail chess, wild radish (*Raphanus sativus*), field charlock (*Sinapsis arvensis*), and London rocket (*Sisymbrium irio*).

### **3.1.10 Agriculture**

Agriculture occurs throughout the Survey Area. Common fields include alfalfa and sod farms or dry farming with barley.

### **3.1.11 Ornamental**

Ornamental vegetation occurs along the Proposed Subtransmission Source Line Route, Segment 1, the New Cable to Moval, and the Proposed Overhead Route 2, and is most often associated with developed areas. Ornamental species observed include oleander (*Nerium oleander*), gum tree (*Eucalyptus* sp.), Canary Island date palm (*Phoenix canariensis*), and Mexican fan palm (*Washingtonia robusta*).

### **3.1.12 Detention Basin**

A detention basin occurs along the Proposed Subtransmission Source Line Route, Segment 2 as part of the adjacent agricultural fields. The basin consists of an earthen berm and filled basin. There was no vegetation present within the basin or on the berm at the time of the survey.

### **3.1.13 Irrigation Ditch**

An irrigation ditch occurs along the New Cable to Moval. This area is regularly cleared of vegetation to enhance water flow. The sparse vegetation that does occur includes common knotweed (*Polygonum arenastrum*) and Persian knotweed (*Polygonum argyrocoleon*).

### **3.1.14 Disturbed**

Disturbed areas are mostly unvegetated and are used as access roads for equipment and vehicle movement around active fields, residential dirt roads, and the shoulders of paved roads. They are found throughout the Survey Area.

### **3.1.15 Developed**

Developed areas are found throughout the Survey Area. This mapping unit includes paved roads, parking areas, and buildings (e.g., residences, commercial buildings, and dairy facilities). These areas are mostly unvegetated or contain ornamental landscaping.

## 3.2 COMMON WILDLIFE

The Survey Area provides suitable habitat for several wildlife species. No fish or amphibian species were observed or detected in the Survey Area during the biological survey, and only limited habitat is present. One reptile species, side-blotched lizard (*Uta stansburiana*), was observed in the Survey Area during the biological survey. Common reptile species such as western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis catenifer*) are expected to occur in the Survey Area as well.

Bird species observed include California quail (*Callipepla californica*), common peafowl (*Pavo cristatus*), great egret (*Ardea alba*), white-faced ibis, northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), killdeer (*Charadrius vociferus*), long-billed curlew (*Numenius americanus*), rock pigeon (*Columba livia*), band-tailed pigeon (*Patagioenas fasciata*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), Cassin's kingbird (*Tyrannus vociferans*), western kingbird (*Tyrannus verticalis*), loggerhead shrike, American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), California horned lark (*Eremophila alpestris*), cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), lark sparrow (*Chondestes grammacus*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), brown-headed cowbird (*Molothrus ater*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Spinus [Carduelis] psaltria*), American goldfinch (*Spinus [Carduelis] tristis*), and house sparrow (*Passer domesticus*).

Mammals, or their sign, observed in the Survey Area include desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), coyote (*Canis latrans*), domestic dog (*Canis familiaris*), raccoon (*Procyon lotor*), domestic cat (*Felis catus*), horse (*Equus ferus caballus*), and domestic goat (*Capra aegagrus hircus*).

### 3.2.1 Wildlife Movement

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990). Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators and human disturbances, thus reducing the risk that catastrophic events, such as fire or disease, will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move in their home ranges in search of food, water, mates, and other necessary resources (Noss 1983; Farhig and Merriam 1985; Simberloff and Cox 1987; Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (e.g., foraging for

food or water, defending territories, or searching for mates, breeding areas, or cover). A number of terms such as “wildlife corridor”, “travel route”, “habitat linkage”, and “wildlife crossing” have been used in various wildlife movement studies to refer to areas where wildlife move from one area to another. To clarify the meaning of these terms and to facilitate the discussion on wildlife movement in this analysis, these terms are defined as follows:

- **Travel route:** A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and to provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another. It contains adequate food, water, and/or cover while moving among habitat areas and provides a relatively direct link between target habitat areas.
- **Wildlife corridor:** A piece of habitat, usually linear in nature, that connects two or more habitat patches and would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bound by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and to facilitate movement while in the corridor. Larger, landscape-level corridors, often referred to as “habitat or landscape linkages”, can provide both transitory and residential habitat for a variety of species.
- **Wildlife crossing:** A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are man made and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These often represent “choke points” along a movement corridor and may impede wildlife movement and increase the risk of predation.

In a large open space area where there are few or no man-made or naturally occurring physical constraints to wildlife movement, wildlife corridors (as defined above) may not yet exist. Given an open space area that is both large enough to maintain viable populations of species and to provide a variety of travel routes (e.g., canyons, ridgelines, trails, riverbeds, and others), wildlife will use these “local” routes while searching for food, water, shelter, and mates and will not need to cross into other large open space areas. Based on their size, location, vegetative composition, and availability of food, some of these movement areas (e.g., large drainages and canyons) are used for longer lengths of time and serve as source areas for food, water, and cover, particularly for small- and medium-sized animals. This is especially true if the travel route is within a larger open space area. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles (e.g., roads and highways), the remaining landscape features or travel routes that connect the larger open space areas become corridors as long as they provide adequate space, cover, food, and water and do not contain obstacles or distractions (e.g., man-made noise, lighting) that would generally hinder wildlife movement.

The Project occurs within a land use matrix of primarily agricultural and residential areas. Open space occurs around Lake Perris to the northwest, with the Bernasconi Hills and the San Jacinto River adjacent to the New Cable to Moval. This area occurs within the MSHCP Existing Core H (Dudek 2003). These areas may provide a connection to core areas in the Badlands and the middle reach of the San Jacinto River. Open space also occurs in the Lakeview Mountains to the southeast. This area is Proposed Noncontiguous Habitat Block 5 in the MSHCP (Dudek 2003). It is connected to other MSHCP conservation lands via Proposed

Constrained Linkage 20 (i.e., the connection between Lake Perris in the north and the Lakeview Mountains in the south). This connection is important to reduce the likelihood of species extirpation as a result of population isolation in the Lakeview Mountains.

The abundance of active agriculture surrounding the proposed Project, the fact that the majority of transmission routes run along existing roads, and the adjacency to existing indirect effects of urban development (e.g., night lighting, noise, and general human activity) presently limit the movement of wildlife species in the Survey Area.

The Proposed Subtransmission Source Line Route, Segment 1; the Proposed Subtransmission Source Line Route, Segment 2; the Alternative Subtransmission Source Line Route, Segment 3; and the Proposed Overhead Route 1 cross the San Jacinto River. This river functions as a wildlife movement corridor and live-in habitat for wildlife species. It is identified in the MSHCP as an example of a landscape linkage that serves as a movement corridor across the central portion of the MSHCP Plan Area for species such as the bobcat (Dudek 2003). The construction of these segments may temporarily impact wildlife movement along the San Jacinto River.

### 3.3 SPECIAL STATUS BIOLOGICAL RESOURCES

The following section addresses special status biological resources observed, reported, or that have the potential to occur in the vicinity of the Project. These resources include plant and wildlife species that have been afforded special status and/or are recognized by federal and State resource agencies, as well as private conservation organizations. In general, the principal reason an individual taxon (i.e., species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitations of its population size, geographic range, and/or distribution resulting in most cases from habitat loss. Tables 4 and 5 provide a summary of special status plant and wildlife species known to occur in the Project vicinity, including information on the status, likelihood for occurrence, and definitions for the various status designations. In addition, special status biological resources include vegetation types and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. These resources have been defined by federal, State, and local government conservation programs. Sources used to determine the special status of biological resources are as follows:

- **Plants:** Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2010); California Natural Diversity Database (CDFG 2010a); various Federal Register notices from the USFWS regarding listing status of plant species; and *List of Special Vascular Plants, Bryophytes, and Lichens* (CDFG 2010b).
- **Wildlife:** California Natural Diversity Database (CDFG 2010a); various Federal Register notices from the USFWS regarding listing status of wildlife species; and *List of Special Animals* (CDFG 2009b).
- **Habitats:** California Natural Diversity Database (CDFG 2010a).

#### 3.3.1 Definitions of Special Status Biological Resources

A **federally listed Endangered species** is one facing extinction throughout all, or a significant portion of, its geographic range. A **federally listed Threatened species** is one likely to become Endangered within the foreseeable future throughout all or a significant portion of its range. The presence of any federally Threatened or Endangered species on a project site generally imposes severe constraints on development, particularly if development would result in “take” of the species or its habitat. The definition of the term “take” is “to harass, harm, pursue, hunt,

shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct". "Harm" in this sense can include any disturbance of habitats used by the species during any portion of its life history.

**Proposed species** or **Candidate species** are those officially proposed by the USFWS for addition to the federal Threatened and Endangered species list. Because proposed species may soon be listed as Threatened or Endangered, these species could become listed prior to or during implementation of a proposed development project.

The State of California considers an **Endangered species** as one whose prospects of survival and reproduction are in immediate jeopardy, a **Threatened species** as one present in such small numbers throughout its range that it is likely to become an Endangered species in the near future in the absence of special protection or management, and a **Rare species** as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. "Rare species" only applies to California native plants. State Threatened and Endangered species are fully protected against take unless an Incidental Take Permit is obtained from the wildlife agencies.

**California Species of Special Concern** is an informal designation used by the CDFG for some declining wildlife species that are not State Candidates. This designation does not provide legal protection but signifies that these species are recognized as special status by the CDFG. Recently, the CDFG downlisted several species from Species of Special Concern to the **Watch List**. Although not considered special status, Watch List species are tracked by the CNDDDB.

Species that are **California Fully Protected** and **Protected** include those protected by special legislation for various reasons, such as the mountain lion (*Felis concolor*) and white-tailed kite (*Elanus leucurus*). Fully Protected species may not be taken or possessed at any time. California Protected species include those species that may not be taken or possessed at any time except under special permit from the CDFG, issued pursuant to Sections 650 and 670.7 of the *California Code of Regulations* or Section 2081 of the *California Fish and Game Code*.

A species that is considered a **Special Animal** is one that is tracked by the California Natural Diversity Database (CDFG 2010a). **Species of Local Concern** are those that have no official status with the resource agencies, but are being watched because either there is a unique population in the region or the species is declining in the region.

The CNPS is a local resource conservation organization that has developed an inventory of California's special status plant species (CNPS 2010). This inventory is a summary of information on the distribution, rarity, and endangerment of California's vascular plants, and is comprised of four lists. The CNPS presumes that **List 1A** plant species are extinct in California because they have not been seen in the wild for many years. The CNPS considers **List 1B** plants as Rare, Threatened, or Endangered throughout their range. **List 2** plant species are considered Rare, Threatened, or Endangered in California but more common in other states. **List 3** is a "review" list of plants for which more information is needed, and **List 4** is a "watch" list of plants that have limited distribution. The CNPS also assigns a threat rank extension to the List categories. An extension of **.1** is assigned to plants that are considered "seriously threatened" in California (high degree/immediacy of threat). Extension **.2** indicates the plant is "fairly threatened" in California (moderate degree/immediacy of threat). Extension **.3** is assigned to plants that are considered "not very threatened" in California (low degree/immediacy of threat or no current threats known).

### **3.3.2 Special Status Vegetation Types**

In addition to providing an inventory of special status plant and wildlife species, the CNDDDB also provides an inventory of vegetation types that are considered special status by the State and federal resource agencies, academic institutions, and various conservation groups (such as the CNPS). Determination of the sensitivity level is based on the Nature Conservancy Heritage Program Status Ranks that rank both species and vegetation types on a global and statewide basis according to the number and size of remaining occurrences and recognized threats (e.g., proposed developments, habitat degradation, and non-native species invasion).

The CNDDDB reports the following special status vegetation types in the Project vicinity: southern coast live oak riparian forest, southern cottonwood willow riparian forest, southern riparian scrub, and southern sycamore alder riparian woodland. None of these vegetation types have been reported from the Survey Area. Resource agencies generally consider vegetation types to have special status if they support concentrations of special status plant or wildlife species, are of relatively limited distribution, or offer particular value to wildlife. While some special status vegetation types are not afforded legal protection unless they support protected species, others may be protected by ordinance, code, or regulation under which conformance typically requires a permit or other discretionary action prior to impacting the vegetation. Alkali scrub playa, disturbed alkali scrub playa, alkali wetland, Riversidean sage scrub, disturbed Riversidean sage scrub, and southern willow scrub may be considered special status vegetation types by the CDFG on the Project site.

#### **Alkali Playa Community**

Alkali playa communities are considered rare by the CDFG. Alkali scrub playa or disturbed alkali scrub playa occur in the Survey Area along the Proposed Subtransmission Source Line Route, Segment 2 and the Alternative Subtransmission Source Line Route, Segment 3.

#### **Coastal Sage Scrub**

Coastal sage scrub has declined by approximately 70 to 90 percent in its historic range in California (Noss and Peters 1995). It has largely been lost to land use changes in Southern California basins and foothills. This vegetation type supports many special status plant and wildlife species. The ecological function in Southern California's remaining coastal sage scrub is threatened by habitat fragmentation, invasive non-native species, livestock grazing, off-highway vehicles, altered fire regime, and perhaps air pollution (O'Leary 1995). Coastal sage scrub vegetation types in the Survey Area include Riversidean sage scrub and disturbed Riversidean sage scrub along the New Cable to Moval.

#### **Southern Willow Scrub**

Southern willow scrub is considered rare by the CDFG. This vegetation type occurs along the Proposed Subtransmission Source Line Route, Segment 2. This vegetation type, along with other riparian vegetation (e.g., alkali wetland) that occurs along perennial or intermittent drainages subject to seasonal flooding, are ranked as special status by the CDFG. Most natural riparian vegetation in Southern California has been lost or degraded by land use conversions to agricultural, urban, and recreational uses; channelization for flood control; sand and gravel mining; ground water pumping; water impoundments; and various other changes. It is estimated that as much as 95 to 97 percent of historic riparian habitats in Southern California have been lost (Faber et al. 1989). Riparian habitats are biologically productive as well as diverse, and are the exclusive habitat of several special status species.

## Jurisdictional Areas

Riparian habitats are often under USACE and/or CDFG jurisdiction due to their association with wetlands, “Waters of the U.S.”, or streambeds. However, it should be noted that the riparian habitats described above are not equivalent to delineated areas subject to USACE and/or CDFG jurisdiction. Only the portion of these habitats associated within a discernable streambed and/or adjacent wetlands that meet certain criteria are within USACE and/or CDFG jurisdiction.

Drainages, which include “Waters of the U.S.”, are protected under Section 404 of the CWA and are under the jurisdiction of the USACE. “Waters of the U.S.” include navigable coastal and inland waters, lakes, rivers, streams and their tributaries; interstate waters and their tributaries; wetlands adjacent to such waters; intermittent streams; and other waters that could affect interstate commerce. According to the USACE, areas considered to be a “wetland” (and subject to the regulatory jurisdiction of the USACE) must exhibit hydrology, hydric soils, and hydrophilic vegetation that meet federal criteria, as indicated in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008).

The RWQCB is the primary agency responsible for protecting water quality within California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB’s jurisdiction extends to all “Waters of the State” and to all “Waters of the U.S.”, including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide “certification that there is reasonable assurance that an activity which may result in the discharge to ‘waters of the U.S.’ will not violate water quality standards”. Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the nine RWQCBs’ Basin Plans.

An RWQCB CWA Section 401 Water Quality Certification is required before the USACE will issue a Section 404 permit. In addition, if drainages in the Survey Area meet the criteria established by Section 1600 of the *California Fish and Game Code*, the CDFG may require a Streambed Alteration Agreement prior to any modification of the bed, bank, or channel of streambeds in the Survey Area. CDFG jurisdiction generally includes the streambed and the canopy of associated riparian vegetation.

Multiple features in the Survey Area may be under the jurisdiction of the USACE and/or the CDFG (Table 3). These features include the San Jacinto River, the detention basin, and the irrigation ditch. The irrigation ditch empties into the San Jacinto River.

**TABLE 3  
PROJECT LOCATIONS POTENTIALLY CONTAINING  
JURISDICTIONAL RESOURCES**

Location	Areas potentially under the jurisdiction of:		
	USACE	CDFG	RWQCB
Proposed Substation Site			
Alternative Substation Site			
Proposed Subtransmission Source Line Route, Segment 1	X	X	X
Proposed Subtransmission Source Line Route, Segment 2	X	X	X
Alternative Subtransmission Source Line Route, Segment 3	X	X	X
New Cable to Moval	X	X	X
Proposed Overhead Route 1	X	X	X
Proposed Overhead Route 2			

### 3.3.3 Special Status Plants

Special status plant species that are known to occur in the vicinity of the Project are discussed below and summarized in Table 4, along with habitat suitability and the potential for occurrence on each portion of the Survey Area. A brief description of special status plant species that are known from the region are listed below alphabetically according to their scientific name. Some species may occur on some sites due to the presence of potentially suitable habitat or were observed while conducting various field surveys. Plant surveys have been completed for the Proposed Subtransmission Source Line Route, Segments 1 and 2; the Proposed Overhead Routes 1 and 2; and the Alternative Subtransmission Source Line Route, Segment 3. Surveys are in progress for the New Cable to Moval. Of these potentially occurring species, five are listed species and include Munz's onion (*Allium munzii*), San Jacinto Valley crownscale, thread-leaved brodiaea, Moran's navarretia, and California Orcutt grass (*Orcuttia californica*).

**TABLE 4  
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY**

Species	Status			Potential For Occurrence on Each Site							
	USFWS	CDFG	CNPS	Proposed Substation Site	Alternative Substation Site	Proposed Subtransmission Source Line Route, Segment 1	Proposed Subtransmission Source Line Route, Segment 2	Alternative Subtransmission Source Line Route, Segment 3	New Cable to Moval	Proposed Overhead Route 1	Proposed Overhead Route 2
Chaparral sand-verbena ( <i>Abronia villosa</i> var. <i>aurita</i> )	—	—	1B.1	N	N	N	N	N	NOS	N	N
Munz's Onion ( <i>Allium munzii</i> )	FE	ST	1B.1	N	N	N	N	N	NOS	N	N
San Jacinto Valley crownscale ( <i>Atriplex coronata</i> var. <i>notator</i> )	FE	—	1B.1	N	N	O (1,999)	NOS	O (532)	NOS	O (1,999)	N
South Coast saltscale ( <i>Atriplex pacifica</i> )	—	—	1B.2	N	N	NOS	NOS	NOS	NOS	NOS	N
Parish's brittlescale ( <i>Atriplex parishii</i> )	—	—	1B.1	N	N	NOS	N	NOS	NOS	NOS	N
Davidson's saltscale ( <i>Atriplex serenana</i> var. <i>davidsonii</i> )	—	—	1B.2	N	N	NOS	NOS	NOS	NOS	NOS	N
Thread-leaved brodiaea ( <i>Brodiaea filifolia</i> )	FT	SE	1B.1	N	N	NOS	N	NOS	NOS	NOS	N
Intermediate mariposa lily ( <i>Calochortus weedii</i> var. <i>intermedius</i> )	—	—	1B.2	N	N	N	N	N	Y	N	N
Smooth tarplant ( <i>Centromadia pungens</i> ssp. <i>laevis</i> )	—	—	1B.1	N	N	O (75)	O (65)	NOS	Y	O (75)	N
Parry's spineflower ( <i>Chorizanthe parryi</i> var. <i>parryi</i> )	—	—	1B.1	N	N	NOS	NOS	NOS	NOS	NOS	N
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	—	—	1B.2	N	N	NOS	N	N	NOS	NOS	N
Slender-horned spineflower ( <i>Dodecahema leptoceras</i> )	FE	SE	1B.1	N	N	N	N	N	NOS	N	N
Vernal barley ( <i>Hordeum intercedens</i> )	—	—	3.2	N	N	O (4,000)	O (150)	O (9,200)	NOS	O (4,000)	N
Coulter's goldfields ( <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> )	—	—	1B.1	N	N	NOS	O (1)	O (6,250)	NOS	NOS	N
Robinson's pepper-grass ( <i>Lepidium virginicum</i> var. <i>robinsonii</i> )	—	—	1B.2	N	N	N	N	N	NOS	N	N
Mud nama ( <i>Nama stenocarpum</i> )	—	—	2.2	N	N	N	N	N	N	N	N
Moran's navarretia ( <i>Navarretia fossalis</i> )	FT	—	1B.1	N	N	NOS	NOS	NOS	N	NOS	N
California Orcutt grass ( <i>Orcuttia californica</i> )	FE	SE	1B.1	N	N	N	N	NOS	N	N	N
Salt Spring checkerbloom ( <i>Sidalcea neomexicana</i> )	—	—	2.2	N	N	NOS	NOS	NOS	N	NOS	N

**TABLE 4 (Continued)**  
**SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY**

Species	Status			Potential For Occurrence on Each Site							
	USFWS	CDFG	CNPS	Proposed Substation Site	Alternative Substation Site	Proposed Subtransmission Source Line Route, Segment 1	Proposed Subtransmission Source Line Route, Segment 2	Alternative Subtransmission Source Line Route, Segment 3	New Cable to Moval	Proposed Overhead Route 1	Proposed Overhead Route 2
Wright's trichocoronis ( <i>Trichocoronis wrightii</i> var. <i>wrightii</i> )	—	—	2.1	N	N	Y	NOS	NOS	Y	Y	N
<b>LEGEND:</b>											
<b>Federal (USFWS)</b>				<b>State (CDFG)</b>				<b>Potential to Occur on the Site</b>			
FE	Endangered	SE	Endangered	Y	Potential to occur, suitable habitat						
FT	Threatened	ST	Threatened	N	Not expected to occur; no suitable habitat						
				O	Observed, number observed in parenthesis						
				NOS	Not observed, suitable habitat						
<b>California Native Plant Society (CNPS) List Categories</b>											
List 1A	Plants Presumed Extinct in California										
List 1B	Plants Rare, Threatened, or Endangered in California and Elsewhere										
List 2	Plants Rare, Threatened, or Endangered in California But More Common Elsewhere										
List 3	Plants About Which We Need More Information – A Review List										
List 4	Plants of Limited Distribution – A Watch List										
<b>California Native Plant Society (CNPS) Threat Code Extensions</b>											
None	Plants lacking any threat information										
.1	Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)										
.2	Fairly Endangered in California (20–80% of occurrences threatened)										

Chaparral Sand Verbena (*Abronia villosa* var. *aurita*)

Chaparral sand verbena is a CNPS List 1B.1 species (CNPS 2010). It typically blooms January through September (CNPS 2010). This annual herb occurs in chaparral, coastal scrub, and desert dunes (CNPS 2010). Historically, this variety is known from Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties as well as parts of Arizona and Baja California (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; chaparral sand verbena was not observed within the Survey Area.

Munz's Onion (*Allium munzii*)

Munz's onion is a federally Endangered, State-Threatened, and CNPS List 1B.1 species (CNPS 2010). It typically blooms from March through May (CNPS 2010). This bulbiferous herb occurs in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, and mesic, clay valley and foothill grasslands (CNPS 2010). Historically, this species is known only from Riverside County (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Munz's onion was not observed within the Survey Area.

San Jacinto Valley Crownscale (*Atriplex coronata* var. *notatior*)

San Jacinto Valley crownscale is a federally Endangered and CNPS List 1B.1 species (CNPS 2010). It typically blooms from April through August (CNPS 2010). This annual herb occurs in playas, mesic valley and foothill grasslands, and alkaline vernal pools (CNPS 2010). Historically, this variety is known from Kern and Riverside Counties (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; San Jacinto Valley crownscale was observed adjacent to the Proposed Subtransmission Source Line Route, Segment 1 (1,999 individuals) and the Proposed Overhead Route 1 (1,999 individuals); and on the Alternative Subtransmission Source Line Route, Segment 3 (532 individuals) (Exhibit 6).

South Coast Saltscale (*Atriplex pacifica*)

South Coast saltscale is a CNPS List 1B.2 species (CNPS 2010). It typically blooms March through October (CNPS 2010). This annual herb occurs in coastal bluff scrub, coastal dunes, coastal scrub, and playas (CNPS 2010). Historically, this species is known from Los Angeles, Orange, Riverside, Santa Barbara, San Diego and Ventura Counties; Anacapa, San Clemente, Santa Catalina, Santa Cruz, San Nicholas, and Santa Rosa Islands; and parts of Arizona, Baja California, and Sonora, Mexico (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; south coast saltscale was not observed within the Survey Area.

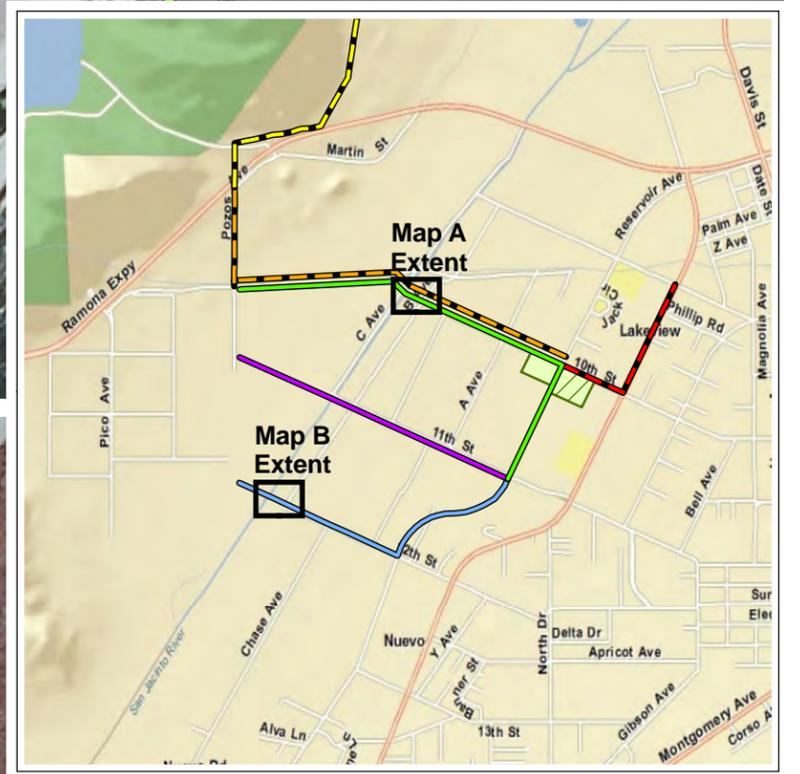
Parish's Brittle scale (*Atriplex parishii*)

Parish's brittle scale is a CNPS List 1B.1 species (CNPS 2010). It typically blooms June through October (CNPS 2010). This annual herb occurs in chenopod scrub, playas, and alkaline vernal pools (CNPS 2010). Historically, this species is known from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties, as well as parts of Baja California (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Parish's brittle scale was not observed within the Survey Area.



MAP A

MAP B

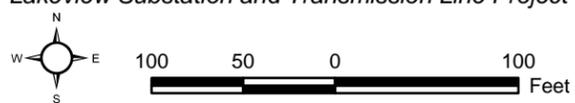


- San Jacinto Valley Crownscale Point\*
- San Jacinto Valley Crownscale\*
- Substation Sites**
- Proposed
- Alternative
- Subtransmission Source Line Routes**
- Segment 1 (Proposed Route)
- Segment 2 (Proposed Route)
- Segment 3 (Alternative Route)
- Proposed Telecommunications Routes**
- New Cable to Moval
- Proposed Overhead Route 1
- Proposed Overhead Route 2

\*Note: Data is based on 2009 focused surveys and incomplete 2010 surveys. Additional rare plant populations may be added as 2010 surveys are completed.

San Jacinto Valley Crownscale

Lakeview Substation and Transmission Line Project



Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)

Davidson's saltscale is a CNPS List 1B.2 species (CNPS 2010). It typically blooms April through October (CNPS 2010). This annual herb occurs in coastal bluff scrub and alkaline coastal scrub (CNPS 2010). Historically, this variety is known from Los Angeles, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, and Ventura Counties; Santa Catalina, Santa Cruz, and Santa Rosa Islands; and parts of Baja California, Mexico (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Davidson's saltscale was not observed within the Survey Area.

Thread-leaved Brodiaea (*Brodiaea filifolia*)

Thread-leaved brodiaea is a federally Threatened, State-Endangered, and CNPS List 1B.1 species (CNPS 2010). It typically blooms March through June (CNPS 2010). This perennial bulbiferous herb occurs in chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grasslands, and vernal pools (CNPS 2010). Historically, this species is known from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo Counties (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; thread-leaved brodiaea; was not observed within the Survey Area.

Intermediate Mariposa Lily (*Calochortus weedii* var. *intermedius*)

Intermediate mariposa lily is a CNPS List 1B.2 species (CNPS 2010). It typically blooms May through July (CNPS 2010). This perennial bulbiferous herb occurs in chaparral, coastal scrub, and calcareous valley and foothill grasslands (CNPS 2010). Historically, this variety is known from Los Angeles, Orange, Riverside, and San Bernardino Counties (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Intermediate mariposa lily was not observed within the Survey Area.

Smooth Tarplant (*Centromadia pungens* ssp. *laevis*)

Smooth tarplant is a CNPS List 1B.1 species (CNPS 2010). It typically blooms April through September (CNPS 2010). This annual herb occurs in chenopod scrub, meadows and seeps, playas, riparian woodland, and alkaline valley and foothill grasslands (CNPS 2010). Historically, this subspecies is known from Riverside, San Bernardino, and San Diego Counties (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; smooth tarplant was observed adjacent to or on the Proposed Subtransmission Source Line Route, Segment 1 (75 individuals) and Segment 2 (65 individuals); and Proposed Overhead Route 1 (75 individuals) (Exhibit 7).

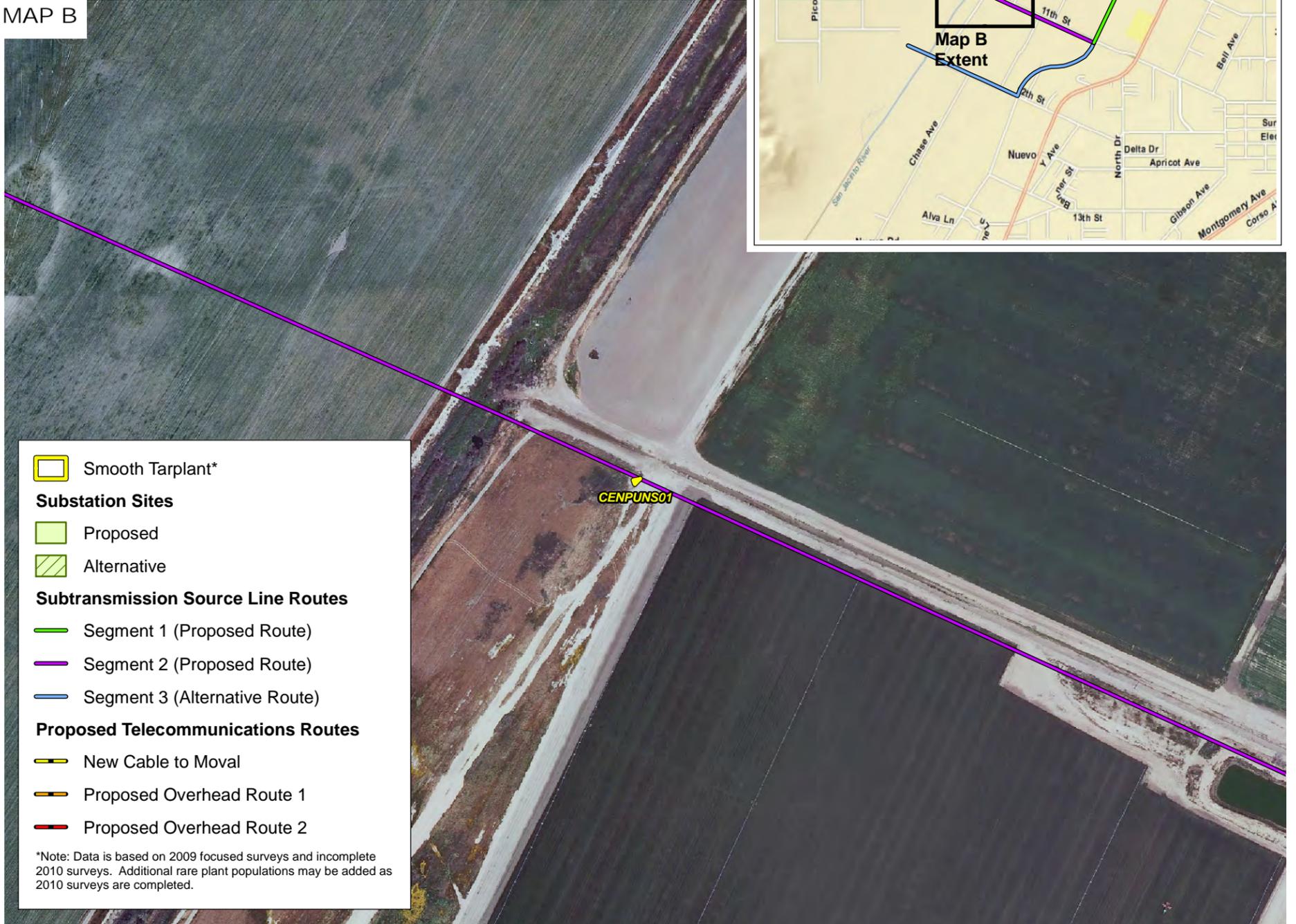
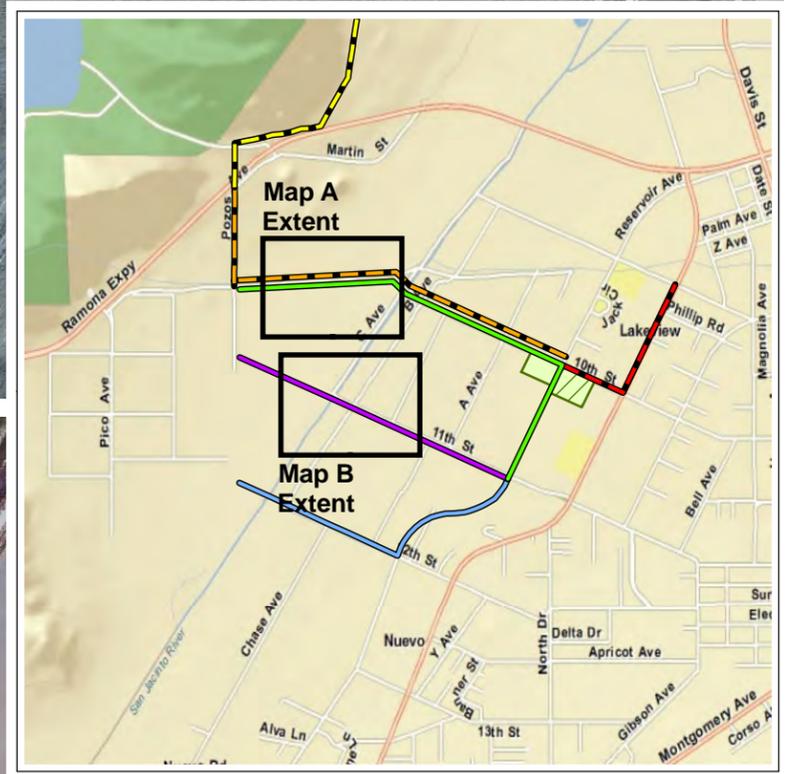
Parry's Spineflower (*Chorizanthe parryi* var. *parryi*)

Parry's spineflower is a CNPS List 1B.1 species (CNPS 2010). It typically blooms April through June (CNPS 2010). This annual herb occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands in sandy or rocky openings (CNPS 2010). Historically, this variety is known from Los Angeles, Riverside, and San Bernardino Counties (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Parry's spineflower was not observed within the Survey Area.



MAP A

MAP B



- Smooth Tarplant\*
- Substation Sites**
- Proposed
- Alternative
- Subtransmission Source Line Routes**
- Segment 1 (Proposed Route)
- Segment 2 (Proposed Route)
- Segment 3 (Alternative Route)
- Proposed Telecommunications Routes**
- New Cable to Moval
- Proposed Overhead Route 1
- Proposed Overhead Route 2

\*Note: Data is based on 2009 focused surveys and incomplete 2010 surveys. Additional rare plant populations may be added as 2010 surveys are completed.

## Smooth Tarplant

Lakeview Substation and Transmission Line Project

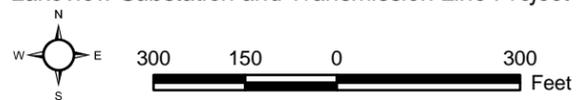


Exhibit 7



Long-spined Spineflower (*Chorizanthe polygonoides* var. *longispina*)

Long-spined spineflower is a CNPS List 1B.2 species (CNPS 2010). It typically blooms April through July (CNPS 2010). This annual herb occurs in chaparral, coastal scrub, meadows and seeps, valley and foothill grasslands, and vernal pools (CNPS 2010). Historically, this variety is known from Orange, Riverside, Santa Barbara, and San Diego Counties, as well as parts of Baja California, Mexico (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; long-spined spineflower was not observed within the Survey Area.

Slender-horned Spineflower (*Dodecahema leptoceras*)

Slender-horned spineflower is a federally and State-listed Endangered species and a CNPS List 1B.1 species. It typically blooms April through June (CNPS 2010). This annual herb occurs in chaparral, cismontane woodland, and sandy areas of coastal scrub in alluvial fans (CNPS 2010). Historically, this species is found in Los Angeles, Riverside, and San Bernardino Counties (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; slender-horned spineflower was not observed within the Survey Area.

Vernal Barley (*Hordeum intercedens*)

Vernal barley is a CNPS List 3.2 species (CNPS 2010). It typically blooms March through June (CNPS 2010). This annual herb occurs in coastal dunes, coastal scrub, saline flats and depressions in valley and foothill grasslands, and vernal pools. Historically, this species is found in Fresno, Kings, Los Angeles, Mono, Orange, Riverside, Santa Barbara, San Benito, San Diego, San Mateo, and Ventura Counties; Anacapa, Santa Barbara, San Clemente, Santa Catalina, Santa Cruz, San Miguel, San Nicolas, and Santa Rosa Islands; and Baja California, Mexico (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; vernal barley was observed on the Proposed Subtransmission Source Line Route, Segment 1 (4,000 individuals) and Segment 2 (150 individuals); the Alternative Subtransmission Source Line Route, Segment 3 (9,200 individuals); and the Proposed Overhead Route 1 (4,000 individuals).

Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)

Coulter's goldfields is a CNPS List 1B.1 species (CNPS 2010). It typically blooms February through June (CNPS 2010). This annual herb occurs in marshes and swamps, playas, and vernal pools (CNPS 2010). Historically, this subspecies is known from Colusa, Kern, Los Angeles, Merced, Orange, Riverside, Santa Barbara, San Luis Obispo, Tulare, San Bernardino, Ventura, and San Diego Counties; Santa Rosa Island; and parts of Baja California, Mexico (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Coulter's goldfields was observed adjacent to the Proposed Subtransmission Source Line Route, Segment 2 (1 individual) and on the Alternative Subtransmission Source Line Route, Segment 3 (6,250 individuals) (Exhibit 8).

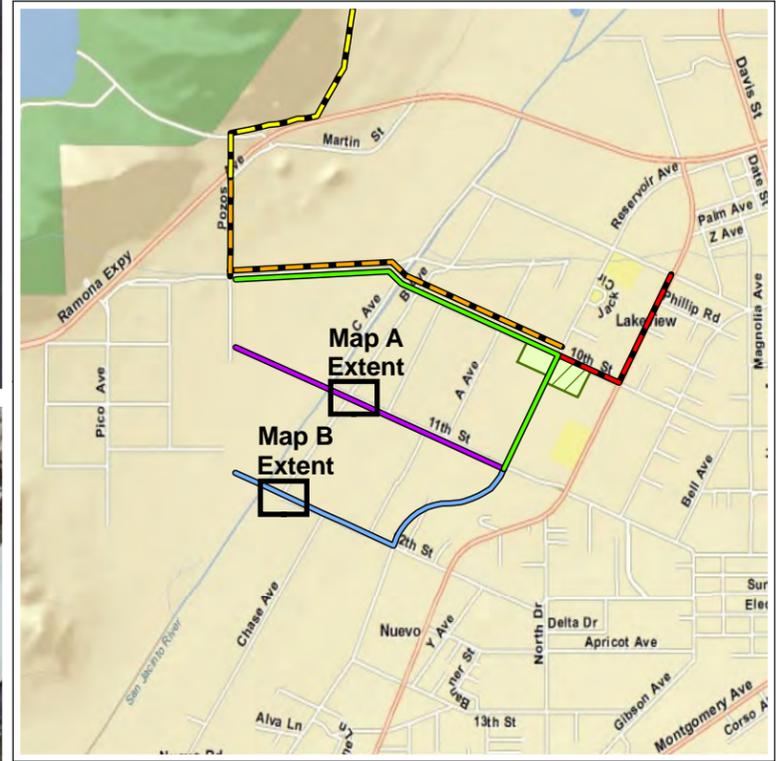
Robinson's Pepper-grass (*Lepidium virginicum* var. *robinsonii*)

Robinson's pepper-grass is a CNPS List 1B.2 species (CNPS 2010). It typically blooms January through July (CNPS 2010). This annual herb occurs in chaparral and coastal scrub (CNPS 2010). Historically, this variety is known from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego Counties; Santa Cruz Island; and parts of Baja California, Mexico (CNPS 2010). Focused surveys for special status plant species were



MAP A

MAP B



**Coulter's goldfields\***

**Substation Sites**

- Proposed
- Alternative

**Subtransmission Source Line Routes**

- Segment 1 (Proposed Route)
- Segment 2 (Proposed Route)
- Segment 3 (Alternative Route)

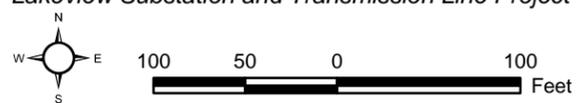
**Proposed Telecommunications Routes**

- New Cable to Moval
- Proposed Overhead Route 1
- Proposed Overhead Route 2

\*Note: Data is based on 2009 focused surveys and incomplete 2010 surveys. Additional rare plant populations may be added as 2010 surveys are completed.

**Coulter's Goldfields**

Lakeview Substation and Transmission Line Project



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conducted in spring/summer 2009 and 2010; Robinson's pepper-grass was not observed within the Survey Area.

Mud nama (*Nama stenocarpum*)

Mud nama is a CNPS List 2.2 species (CNPS 2010). It typically blooms January through July (CNPS 2010). This perennial herb occurs in marshes and swamps (CNPS 2010). Historically, this species is known from Imperial, Los Angeles, Orange, Riverside, and San Diego Counties; San Clemente Island; and parts of Arizona and Baja California, Mexico (CNPS 2010). There is no suitable habitat for mud nama on the Project site.

Moran's navarretia (*Navarretia fossalis*)

Moran's navarretia is a federally Threatened and a CNPS List 1B.1 species (CNPS 2010). It typically blooms April through June (CNPS 2010). This annual herb occurs in chenopod scrub, marshes and swamps, playas and vernal pools (CNPS 2010). Historically, this species is known from Los Angeles, Riverside, San Luis Obispo and San Diego Counties as well as parts of Baja California, Mexico (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Moran's navarretia was not observed within the Survey Area.

California Orcutt Grass (*Orcuttia californica*)

California Orcutt grass is a federally and State-listed Endangered species and a CNPS List 1B.1 species (CNPS 2010). It typically blooms April through August (CNPS 2010). This annual herb occurs in vernal pools (CNPS 2010). Historically, this species is found in Los Angeles, Riverside, San Diego, and Ventura Counties as well as Baja California, Mexico (CNPS 2010). There is no suitable habitat for California Orcutt grass within the Survey Area with the exception of the Alternative Subtransmission Source Line Route, Segment 3.

Salt Spring checkerbloom (*Sidalcea neomexicana*)

Salt Spring checkerbloom is a CNPS List 2.2 species (CNPS 2010). It typically blooms March through June (CNPS 2010). This perennial herb occurs in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and alkaline playas (CNPS 2010). Historically, this species is known from Kern, Los Angeles, Orange, Riverside, San Bernardino, Ventura, and San Diego Counties; parts of Arizona, Nevada, Utah, and New Mexico; and Sonora and Baja California, Mexico (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010; Salt Spring checkerbloom was not observed within the Survey Area.

Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*)

Wright's trichocoronis is a CNPS List 2.1 species (CNPS 2010). It typically blooms May through September (CNPS 2010). This annual herb occurs in meadows and seeps, marshes and swamps, riparian forest, and alkaline vernal pools (CNPS 2010). Historically, this variety is known from Colusa, Merced, Riverside, San Joaquin, and Sutter Counties, as well as parts of Texas (CNPS 2010). Focused surveys for special status plant species were conducted in spring/summer 2009 and 2010. Wright's trichocoronis was not observed within the Survey Area; however, the 2010 surveys are still in progress. Wright's trichocoronis has potential to occur on the Proposed Subtransmission Source Line Route, Segment 1; the Proposed Overhead Route 1; and the New Cable to Moval.

### **3.3.4 Special Status Wildlife**

Several special status wildlife species have been reported in the vicinity of the Project based on the results of the literature review described above. A brief description of these special status wildlife species and their potential to occur in the Survey Area are discussed below (Table 5). Note that they are grouped by type and listed in taxonomic order.

Focused efforts to determine the presence or absence were conducted for the Quino checkerspot butterfly, burrowing owl, and coastal California gnatcatcher for the Proposed Substation Site, Alternative Substation Site, Subtransmission Source Line Routes, and the Proposed Telecommunications Routes. These surveys were limited to the areas that contain potentially suitable habitat.

**TABLE 5  
SPECIAL STATUS WILDLIFE SPECIES  
KNOWN TO OCCUR IN THE PROJECT VICINITY**

Species	Status		Potential For Occurrence on Each Site							
	USFWS	CDFG	Proposed Substation Site	Alternative Substation Site	Proposed Subtransmission Source Line Route, Segment 1	Proposed Subtransmission Source Line Route, Segment 2	Alternative Subtransmission Source Line Route, Segment 3	New Cable to Moval	Proposed Overhead Route 1	Proposed Overhead Route 2
<b>Invertebrates</b>										
Vernal pool fairy shrimp ( <i>Brachinecta lynchi</i> )	FT	-	NE	NE	NE	NE	NE	NE	NE	NE
Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> )	FE	-	NE	NE	NE	NE	MAY	NE	NE	NE
Quino checkerspot butterfly ( <i>Euphydryas editha quino</i> )	FE	-	NE	NE	NE	NE	NE	NEF	NE	NE
<b>Amphibians</b>										
Western spadefoot ( <i>Spea [Scaphiopus] hammondi</i> )	-	SSC	NE	NE	NE	NE	NE	MAY	NE	NE
Arroyo toad ( <i>Anaxyrus californicus [Bufo microscaphus californicus]</i> )	FE	SSC	NE	NE	NE	NE	NE	NE	NE	NE
<b>Reptiles</b>										
Southwestern pond turtle ( <i>Actinemys [Emys] marmorata pallida</i> )	-	SSC	NE	NE	NE	NE	NE	NE	NE	NE
Coast [San Diego] horned lizard ( <i>Phrynosoma coronatum [blainvillii population]</i> )	-	SSC	NE	NE	NE	NE	NE	MAY	NE	NE
Orange-throated whiptail ( <i>Aspidoscelis hyperythra [Cnemidophorus hyperythrus beldingi]</i> )	-	SSC	NE	NE	NE	NE	NE	MAY	MAY	NE
Silvery legless lizard ( <i>Anniella pulchra pulchra</i> )	-	SSC	NE	NE	NE	NE	NE	MAY	MAY	NE
Coast patch-nosed snake ( <i>Salvadora hexalepis virgultea</i> )	-	SSC	NE	NE	NE	NE	NE	MAY	NE	NE
Two-striped garter snake ( <i>Thamnophis hammondi</i> )	-	SSC	NE	NE	NE	NE	NE	NE	NE	NE
Northern red-diamond rattlesnake ( <i>Crotalus ruber ruber</i> )	-	SSC	NE	NE	NE	NE	NE	MAY	NE	NE
<b>Birds</b>										
White-faced ibis ( <i>Plegadis chihi</i> )	-	WL	NEB, MAYF	NEB, MAYF	MAY	MAY	NEB, MAYF	NEB, MAYF	MAY	MAY
Cooper's hawk ( <i>Accipiter cooperii</i> ) (nesting)	-	WL	NEB, MAYF	NEB, MAYF	NEB, MAYF	NEB, MAYF	NEB, MAYF	RO	NEB, MAYF	MAY
Golden eagle ( <i>Aquila chrysaetos</i> ) (nesting & nonbreeding/wintering)	-	WL/FP	NEB, MAYF	NEB, MAYF	RO	NEB, MAYF	NEB, MAYF	RO	RO	NE
Ferruginous hawk ( <i>Buteo regalis</i> ) (nonbreeding/wintering)	-	WL	EXP	EXP	RO, FO	NEB, MAYF	NEB, MAYF	EXP	RO, FO	NE
Swainson's hawk ( <i>Buteo swainsoni</i> ) (nesting)	-	ST	NEB, TO	NEB, TO	NEB, TO	NEB, TO	NEB, TO	NEB, TO	NEB, TO	NE

**TABLE 5 (Continued)  
SPECIAL STATUS WILDLIFE SPECIES  
KNOWN TO OCCUR IN THE PROJECT VICINITY**

Species	Status		Potential For Occurrence on Each Site							
	USFWS	CDFG	Proposed Substation Site	Alternative Substation Site	Proposed Subtransmission Source Line Route, Segment 1	Proposed Subtransmission Source Line Route, Segment 2	Alternative Subtransmission Source Line Route, Segment 3	New Cable to Moval	Proposed Overhead Route 1	Proposed Overhead Route 2
Northern harrier ( <i>Circus cyaneus</i> ) (nesting)	-	SSC	EXP	EXP	NEB, MAYF	NEB, MAYF	EXP	RO	NEB, MAYF	NE
White-tailed kite ( <i>Elanus leucurus</i> ) (nesting)	-	FP	EXP	EXP	NEB, MAYF	MAY	EXP	RO	NEB, MAYF	NE
Bald eagle ( <i>Haliaeetus leucocephalus</i> ) (nesting and wintering)	Delisted	SE, FP	NE	NE	NE	NE	NE	NE	NE	NE
Merlin ( <i>Falco columbarius</i> ) (nonbreeding/wintering)	-	WL	EXP	EXP	NEB, MAYF	NEB, MAYF	EXP	RO	NEB, MAYF	NE
Prairie falcon ( <i>Falco mexicanus</i> ) (nesting)	-	WL	EXP	EXP	NEB, MAYF	NEB, MAYF	EXP	RO	NEB, MAYF	NE
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	Delisted	SCD/FP	EXP	EXP	NEB, MAYF	NEB, MAYF	NEB, MAYF	RO	NEB, MAYF	NE
mountain plover ( <i>Charadrius montanus</i> ) (nonbreeding/wintering)	-	SSC	RO	RO	RO	RO	RO	NE	RO	RO
Western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> ) (nesting)	FC	SE	NE	NE	NE	NE	NE	NE	NE	NE
Long-eared owl ( <i>Asio otus</i> ) (nesting)	-	SSC	NE	NE	NE	NE	NE	RO	NE	NE
Burrowing owl ( <i>Athene cunicularia</i> ) (burrow sites and some wintering sites)	-	SSC	NEF	NEF	NEF	NEF	NEF	MAY	NEF	MAY
Southwestern willow flycatcher ( <i>Empidonax traillii extimus</i> ) (nesting)	FE	SE	NE	NE	NE	NE	NE	NE	NE	NE
Loggerhead shrike ( <i>Lanius ludovicianus</i> ) (nesting)	-	SSC	MAY	MAY	OBS	MAY	MAY	MAY	OBS	MAY
Least Bell's vireo ( <i>Vireo bellii pusillus</i> ) (nesting)	FE	SE	NE	NE	NE	NE	NE	NE	NE	NE
California horned lark ( <i>Eremophila alpestris actia</i> )	-	WL	EXP	EXP	EXP	EXP	EXP	NE	EXP	NE
Cactus wren ( <i>Campylorhynchus brunneicapillus sandiegensis</i> [coastal population])	-	<sup>a</sup>	NE	NE	NE	NE	NE	NE	NE	NE
Coastal California gnatcatcher ( <i>Polioptila californica californica</i> )	FT	SSC	NE	NE	NE	NE	NE	NEF	NES	NE
Yellow warbler ( <i>Dendroica petechia brewsteri</i> ) (nesting)	-	SSC	NE	NE	NE	NE	NE	NE	NE	NE
Yellow-breasted chat ( <i>Icteria virens</i> ) (nesting)	-	SSC	NE	NE	NE	NE	NE	NE	NE	NE

**TABLE 5 (Continued)  
SPECIAL STATUS WILDLIFE SPECIES  
KNOWN TO OCCUR IN THE PROJECT VICINITY**

Species	Status		Potential For Occurrence on Each Site							
	USFWS	CDFG	Proposed Substation Site	Alternative Substation Site	Proposed Subtransmission Source Line Route, Segment 1	Proposed Subtransmission Source Line Route, Segment 2	Alternative Subtransmission Source Line Route, Segment 3	New Cable to Moval	Proposed Overhead Route 1	Proposed Overhead Route 2
Southern California rufous-crowned sparrow ( <i>Aimophila ruficeps canescens</i> )	–	WL	NE	NE	NES	NE	NE	RO	NES	NE
Oregon vesper sparrow ( <i>Pooecetes gramineus affinis</i> ) (wintering)	–	SSC	NE	NE	MAY	LIM	MAY	MAY	MAY	NE
Grasshopper sparrow ( <i>Ammodramus savannarum</i> ) (nesting)	–	SSC	NE	NE	MAY	NE	NE	MAY	MAY	NE
Bell's sage sparrow ( <i>Amphispiza belli belli</i> ) (nesting)	–	WL	NE	NE	NE	NE	NE	RO	NE	NE
Tricolored blackbird ( <i>Agelaius tricolor</i> ) (nesting colony)	–	SSC	NEB, MAYF	NEB, MAYF	NEB, MAYF	NEB, MAYF	NEB, MAYF	NEB, MAYF	NEB, MAYF	NE
<b>Mammals</b>										
Western yellow bat ( <i>Lasiurus xathinus</i> )	–	SSC	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NE
Western mastiff bat ( <i>Eumops perotis californicus</i> )	–	SSC	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NER, MAYF	NE
San Diego black-tailed jackrabbit ( <i>Lepus californicus bennettii</i> )	–	SSC	MAY	MAY	MAY	MAY	MAY	MAY	MAY	NES
Northwestern San Diego pocket mouse ( <i>Chaetodipus fallax fallax</i> )	–	SSC	NE	NE	MAY	LIM	NE	MAY	MAY	NE
Stephens' kangaroo rat ( <i>Dipodomys stephensi</i> )	FE	ST	NE	NE	MAY	LIM	NE	RO	MAY	NE
Los Angeles pocket mouse ( <i>Perognathus longimembris brevinasus</i> )	–	SSC	NE	NE	MAY	LIM	NE	MAY	MAY	NE
San Diego desert woodrat ( <i>Neotoma lepida intermedia</i> )	–	SSC	NE	NE	NES	NE	NE	MAY	NES	NE
Southern grasshopper mouse ( <i>Onychomys torridus ramona</i> )	–	SSC	NE	NE	MAY	LIM	NE	MAY	MAY	NE
American badger ( <i>Taxidea taxus</i> )	–	SSC	NES	NES	LIM	NE	NE	MAY	LIM	NE
<b>LEGEND:</b>										
<b>Federal (USFWS)</b>			<b>State (CDFG)</b>			<b>Potential to Occur on the Site</b>				
FE	Endangered	SE	Endangered	OBS	Observed foraging on site					
FT	Threatened	ST	Threatened	EXP	Expected to occur; suitable habitat					
FC	Candidate	SSC	Species of Special Concern	MAY	May occur; potentially suitable habitat					
FP	Fully Protected			LIM	Limited potential to occur; limited potentially suitable habitat					
SCD	State Candidate for delisting			NEB, MAYF	Not expected for breeding; may occur for foraging					
				NEB, TO	Not expected for breeding; transient only					
				NER, MAYF	Not expected for roosting; may occur for foraging					
				NE	Not expected to occur; no suitable habitat					
				NEF	Not expected to occur; suitable habitat present, but not observed during focused surveys					
				NES	Not expected to occur; limited suitable habitat present, other factors preclude occupation					
				RO	Recent occurrences in vicinity; suitable habitat and expected to occur					
				RO, FO	Recent occurrences, may occur for foraging					
<sup>a</sup> The coastal cactus wren ( <i>Campylorhynchus brunneicapillus sandiegensis</i> ) is restricted to San Diego and Orange Counties; however, the taxonomy is not yet settled and all coastal populations of cactus wren appear to be declining.										

## ***Invertebrates***

### **Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)**

Vernal pool fairy shrimp is a federally listed Threatened species. It is found primarily in the Central Valley and the foothills of the Sierra Nevada Mountains in Northern California north to Oregon (Eriksen and Belk 1999; USFWS 2003). In Southern California, the species is known only from western Riverside County (Dudek 2003). This species is restricted to seasonal vernal pools, preferring cool-water pools that have low to moderate dissolved solids, are unpredictable, and are often short lived (Dudek 2003). In the vicinity of the Survey Area, this species is known from Skunk Hollow, the Santa Rosa Plateau, Salt Creek, and near the Pechanga Indian Reservation (Dudek 2003). There is no suitable habitat for this species in the Survey Area.

On August 6, 2003, the USFWS published a final rule designating 839,460 acres of land as critical habitat for the vernal pool fairy shrimp in Oregon south to Ventura County, California (USFWS 2003). Following lawsuits, the USFWS proposed a revised critical habitat designation on December 28, 2004. This proposed rule was finalized on February 10, 2006. The current final critical habitat designation covers 597,821 acres from Oregon south to Ventura County, California (USFWS 2005b). The Survey Area is not located in final critical habitat for the vernal pool fairy shrimp.

### **Riverside Fairy Shrimp (*Streptocephalus woottoni*)**

Riverside fairy shrimp is a federally listed Endangered species. This species occurs in vernal pools and ephemeral ponds in coastal Southern California from Ventura County south to northwestern Baja California, Mexico (USFWS 2005d). Riverside fairy shrimp typically occur in deep, long-lived vernal pools on coastal plateaus and terraces that have emergent vegetation (USFWS 2005d). In the vicinity of the Survey Area, this species has been reported from the Santa Rosa Plateau, Skunk Hollow, Murrieta, Wildomar, Lake Elsinore, and Alberhill (Dudek 2003). Suitable habitat for this species occurs in the Survey Area along the Alternative Subtransmission Source Line Route, Segment 3. Therefore, Riverside fairy shrimp may occur at this site.

On May 30, 2001, the USFWS published a final rule designating 6,870 acres of land as critical habitat for the Riverside fairy shrimp in Los Angeles, Orange, Riverside, San Diego, and Ventura Counties (USFWS 2001). Following lawsuits, the USFWS proposed a revised critical habitat designation on April 27, 2004. This proposed rule was finalized on April 12, 2005. The current final critical habitat designation covers 306 acres of land in Orange, San Diego, and Ventura Counties (USFWS 2005d). The Survey Area is not located in final critical habitat for Riverside fairy shrimp.

### **Quino Checkerspot Butterfly (*Euphydryas editha quino*)**

Quino checkerspot butterfly is a federally listed Endangered species. This butterfly is associated with meadow habitats or clearings in scrub or chaparral vegetation types. Other habitat characteristics are clay soils with low-growing herbaceous annuals that include the larval host plants dwarf plantain (*Plantago erecta*) and owl's clover (*Castilleja exserta*). Throughout its range, the Quino checkerspot is restricted to areas that support its larval host plants (Mattoni et al. 1997). Adults often occur on open or sparsely vegetated rounded hilltops, ridgelines, and occasionally rocky outcrops (Dudek 2003). This butterfly is currently known from southern San Diego County, western Riverside County, and northwestern Baja California, Mexico (USFWS 1999b). In the vicinity of the Survey Area, this subspecies has been reported approximately three miles southwest of Winchester and five miles southwest of Sun City

(CDFG 2010a). Focused surveys were conducted for the QCB during the 2010 flight season along the New Cable to Moval and this species was not observed.

On April 15, 2002, the USFWS published the final rule on critical habitat for Quino checkerspot. This final rule designated as critical habitat a total of 171,605 acres of land in Riverside and San Diego Counties, California. Following lawsuits, the USFWS published a revised critical habitat designation on January 17, 2008. This proposed rule was finalized on June 17, 2009. The current final critical habitat designation covers 62,125 acres of land in San Diego and Riverside Counties (USFWS 2009b). The Survey Area is not located in final critical habitat for the Quino checkerspot butterfly.

## ***Amphibians***

### Western Spadefoot (*Spea [Scaphiopus] hammondi*)

Western spadefoot is a California Species of Special Concern. It occurs in the Great Valley and bordering foothills, and in the Coast Ranges from Monterey Bay south to Baja California, Mexico (Stebbins 2003). From the Santa Clara River Valley in Los Angeles and Ventura Counties southward, an estimated 80 percent of habitat for this species has been lost (Stebbins 2003). The western spadefoot breeds in quiet streams, vernal pools and temporary ponds, and is rarely encountered outside of the breeding season (January to March) given that it aestivates and hibernates in burrows during the driest summer months and coldest winter months, respectively, emerging occasionally to forage during suitable conditions (Lannoo 2005). In the vicinity of the Survey Area, this species has been reported near the San Jacinto River one mile north of Nuevo and in the vicinity of the Perris Reservoir (CDFG 2010a). Suitable habitat for this species occurs in the Survey Area along the New Cable to Moval. Therefore, western spadefoot may occur at this site.

### Arroyo Toad (*Anaxyrus californicus [Bufo microscaphus californicus]*)

Arroyo toad is a federally listed Endangered species and a California Species of Special Concern. This toad only occurs in streams of southwestern California and northwestern Baja California, Mexico (USFWS 1994a). In California, it primarily occurs along the Coast Ranges from San Luis Obispo County south to San Diego County, but also occurs at a few locations on the western edge of the desert (Jennings and Hayes 1994). The arroyo toad is generally found in semi-arid regions near washes or intermittent streams (Zeiner et al. 1988). However, this species has highly specialized habitat requirements such as breeding pools within approximately 300 feet of juvenile and adult habitat consisting of shoreline with stable, sandy terraces and little herbaceous cover (Jennings and Hayes 1994). Streams must be of low velocity with sand or gravel substrate (Dudek 2003). In the vicinity of the Survey Area, this species has been reported from the San Jacinto River (Dudek 2003). The arroyo toad is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

On April 13, 2005, the USFWS published a final rule designating critical habitat for arroyo toad (USFWS 2005c). This final rule designated 11,695 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, and Riverside Counties as critical habitat. Following lawsuits, the USFWS proposed a revised designation of critical habitat on October 13, 2009. The revised critical habitat would cover 109,110 acres of land in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. The Survey Area is not located in designated or newly proposed critical habitat for this species.

## **Reptiles**

### Southwestern Pond Turtle (*Actinemys [Emys] marmorata pallida*)

Southwestern pond turtle is a California Species of Special Concern. The southwestern pond turtle occurs primarily in freshwater rivers, streams, lakes, ponds, vernal pools, and seasonal wetlands, and requires basking sites such as logs, banks, or other suitable areas above water level. This subspecies of the western pond turtle (*Actinemys [Emys] marmorata*) occurs from approximately the San Francisco Bay area south through the Coast Ranges to northern Baja California, Mexico (Stebbins 2003). The western pond turtle is estimated to be in decline throughout 75 to 80 percent of its range (Stebbins 2003). The current range is similar to the historic range, but populations have become fragmented by agriculture and urban development. In addition to loss of habitat, this species is also threatened by grazing, non-native species, and disease (Jennings and Hayes 1994). In the vicinity of the Survey Area, the western pond turtle has been historically reported from Perris (CDFG 2010a; 1933 record). The southwestern pond turtle is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

### Coast [San Diego] Horned Lizard (*Phrynosoma coronatum [blainvillii population]*)

Coast [San Diego] horned lizard (blainvillii population) is a California Species of Special Concern. The two former subspecies of the coast horned lizard, (*P. c. blainvillii* and *P. c. frontale*) have recently been eliminated in scientific literature, such as Stebbins (2003), based on current scientific studies on this species. Coast horned lizard is a small, spiny, somewhat rounded lizard that occurs in scrubland, grassland, coniferous forests, and broadleaf woodland vegetation types. The coast horned lizard prefers open areas for basking and loose, friable soil for burrowing (Stebbins 2003). The coast horned lizard occurs throughout much of California, west of the desert and Cascade-Sierra highlands south to Baja California, Mexico (Stebbins 2003). However, many of the populations in lowland areas have been reduced or eliminated due to urbanization and agricultural expansion (Stebbins 2003). Three factors have contributed to its decline: loss of habitat, overcollecting, and the introduction of exotic ants. In the vicinity of the Survey Area, this species has been reported from Perris (CDFG 2010a). Suitable habitat for this species occurs in the Survey Area along the New Cable to Moval. Therefore, coast [San Diego] horned lizard may occur at this site.

### Orange-throated Whiptail (*Aspidoscelis hyperythra [Cnemidophorus hyperythrus beldingi]*)

Orange-throated whiptail is a California Species of Special Concern. The two former subspecies of the orange-throated whiptail (*C. h. hyperythrus* and *C. h. beldingi*) have recently been eliminated in scientific literature, such as Stebbins (2003), based on current scientific studies on this species. The orange-throated whiptail occurs in washes and in open areas of sage scrub and chaparral with gravelly soils, often with rocks. It prefers the well drained, friable soil on slopes that are barren or only sparsely covered with vegetation and that have a southern exposure. This species occurs between sea level and 2,000 feet above msl in the western Peninsular Ranges from Orange and San Bernardino Counties south to Baja California, Mexico (Stebbins 2003). Approximately 75 percent of the former range has been lost to development, and remaining populations are highly fragmented (Stebbins 2003). In the vicinity of the Survey Area, this species has been reported from approximately 2.5 miles south of the Perris Reservoir and from the Lakeview Mountains (CDFG 2010a). Suitable habitat for this species occurs in the Survey Area along the New Cable to Moval and the Proposed Overhead Route 1. Therefore, orange-throated whiptail may occur at these two sites.

### Silvery Legless Lizard (*Anniella pulchra pulchra*)

Silvery legless lizard is a California Species of Special Concern. It is a small, secretive lizard that spends most of its life beneath the soil; under stones, logs, or debris; or in leaf litter. The silvery legless lizard requires areas with loose sandy soil, moisture, warmth, and plant cover. It occurs in chaparral, pine-oak woodland, beach, and riparian vegetation types at elevations ranging from sea level to approximately 5,100 feet above msl (Stebbins 2003). The silvery legless lizard occurs in the Coast, Transverse, and Peninsular ranges from Contra Costa County south to Baja California, Mexico (Stebbins 2003). This species is naturally rare since it specializes in substrates with a high sand content, but it is also threatened by grazing, off-road vehicle activity, sand mining, beach erosion, excessive recreational use of coastal dunes, and the introduction of exotic plants (Jennings and Hayes 1994). Suitable habitat for this species occurs in the Survey Area along the New Cable to Moval and the Proposed Overhead Route 1. Therefore, silvery legless lizard may occur at these two sites.

### Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*)

Coast patch-nosed snake is a California Species of Special Concern. It inhabits open sandy areas and rocky outcrops in scrub, chaparral, grassland, and woodland vegetation types. It occurs from sea level to approximately 7,000 feet above msl (Stebbins 2003). The coast patch-nosed snake ranges along the coast of California from San Luis Obispo County south into Baja California, Mexico. This subspecies is threatened by development, grazing, and fire control activities (Jennings and Hayes 1994). Suitable habitat for this species occurs in the Survey Area along the New Cable to Moval. Therefore, coast patch-nosed snake may occur at this site.

### Two-striped Garter Snake (*Thamnophis hammondi*)

Two-striped garter snake is a California Species of Special Concern. It occurs primarily in wetlands and is found in freshwater marsh and riparian habitats with perennial water. The two-striped garter snake feeds on small fishes, frogs, and tadpoles (Stebbins 2003). This highly aquatic species occurs from Monterey County south to Rio Rosario in Baja California, Mexico (Stebbins 2003). It is considered locally rare in southwestern California. The two-striped garter snake is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

### Northern Red-diamond Rattlesnake (*Crotalus ruber ruber*)

Northern red-diamond rattlesnake is a California Species of Special Concern. It inhabits open scrub, chaparral, woodland, and grassland vegetation types. This species ranges from approximately eastern Orange County and Riverside County south to Baja California, Mexico at elevations from sea level to about 5,000 feet above msl (Stebbins 2003; Zeiner 1988). This species is threatened by development and human disturbance (Jennings and Hayes 1994). In the vicinity of the Survey Area, this species has been reported from less than 0.5 mile from the Perris Reservoir (CDFG 2010a). Suitable habitat for this species occurs in the Survey Area along the New Cable to Moval. Therefore, northern red-diamond rattlesnake may occur at this site.

## **Birds**

### White-faced Ibis (*Plegadis chihi*)

White-faced ibis is a CDFG Watch List species; rookery sites are protected. This former California Species of Special Concern has increased substantially in the region since the 1980s (Shuford and Gardali 2008) and now nests locally in the region (Unitt 2004). This species nests

in extensive marshes with tall marsh plants (Garrett and Dunn 1981). The ibis feeds in fresh emergent wetland, shallow ponds or lakes, and the muddy ground of wet meadows of irrigated pastures and croplands (Zeiner et al. 1990a). It feeds by probing into the mud or in shallow water, consuming earthworms, insects, crustaceans, amphibians, small fish, and other miscellaneous invertebrates (Zeiner et al. 1990a). In the vicinity of the Survey Area, this species has been reported near San Jacinto Lake and Mystic Lake (CDFG 2010a). This species was observed within one mile of the Survey Area. This species may occur for foraging only at the Proposed Substation Site; the Alternative Substation Site; the Alternative Subtransmission Source Line Route, Segment 3; and the New Cable to Moval. Potentially suitable habitat for this species occurs in the Survey Area along the Proposed Subtransmission Source Line Route, Segment 1; Proposed Subtransmission Source Line Route, Segment 2; and Proposed Overhead Routes 1 and 2. Therefore, white-faced ibis may occur at these four sites.

#### Cooper's Hawk (*Accipiter cooperi*)

Cooper's hawk is a CDFG Watch List species; nesting individuals are protected. Breeding populations of this former California Species of Special Concern have increased in recent years as they have expanded into urban areas (Shuford and Gardali 2008). Wintering Cooper's hawks are often seen in wooded urban areas and native woodland vegetation types. Preferred nesting habitats are oak and riparian woodlands dominated by sycamores (*Platanus* sp.) and willows. Cooper's hawks prey on small birds and rodents that live in woodland, scrub, and chaparral vegetation types. This species breeds throughout the contiguous U.S., southern Canada, and northwestern and north-central Mexico (Rosenfield and Bielefeldt 2006). This species is relatively tolerant of man-altered landscapes; however, threats to this species include the loss of appropriate woodlots for breeding and foraging, collisions with man-made objects, and possibly pesticides (Curtis and Rosenfield 2006). In the vicinity of the Survey Area, this species has been reported nesting near the intersection of Highway 79 and Highway 60 (CDFG 2010a). This species was observed in the immediate vicinity of the Survey Area and has potential to occur for foraging throughout the Survey Area due the presence of suitable foraging habitat. Suitable habitat for this species occurs in the Survey Area along the New Cable to Moval and Proposed Overhead Route 2. Therefore, Cooper's hawk may occur for nesting at these two sites.

#### Golden Eagle (*Aquila chrysaetos*)

Golden eagle is a CDFG Watch List species and a California Fully Protected species, and is protected by the federal Bald Eagle Act; both nesting and wintering individuals are protected. Habitat for this species generally consists of grasslands, deserts, savannas, and early successional stages of forest and shrub habitats. Broad expanses of open country are required for foraging while nesting is primarily restricted to rugged mountainous areas with large trees or on cliffs (Johnsgard 2001). The golden eagle is an uncommon resident throughout Southern California except in the Colorado Desert and Colorado River where it is a casual winter visitor (Garrett and Dunn 1981). In the vicinity of the Survey Area, this species has been reported nesting approximately six miles west of Winchester. Suitable foraging habitat is present throughout the Survey Area, except along Proposed Overhead Route 2. Suitable habitat for this species occurs in the Survey Area along Proposed Subtransmission Source Line Route, Segment 1 and the New Cable to Moval. Therefore, golden eagle may occur for nesting at these two sites.

#### Ferruginous Hawk (*Buteo regalis*)

Ferruginous hawk is a CDFG Watch List species; wintering individuals are protected. It occupies open, dry habitats such as grasslands, shrublands, rangelands, and plowed agricultural fields. This raptor only occurs as a winter resident in California (Bechard and Schmutz 1995). Along

the coast of Southern California, it is rare to uncommon during the winter season (Garrett and Dunn 1981). In the vicinity of the Survey Area, this species has been reported near Moreno, Homeland, San Jacinto, and Winchester (CDFG 2010a). Suitable foraging, but not nesting, habitat is present along Proposed Subtransmission Source Line Route, Segment 1; Proposed Subtransmission Source Line Route, Segment 2; and Alternative Subtransmission Source Line Route, Segment 3. Suitable foraging and nesting habitat is present at the Proposed Substation Site; the Alternative Substation Site; the New Cable to Moval; and the Proposed Overhead Route 1.

#### Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk is a State-listed Threatened species; nesting individuals are protected. It forages over the grassland and ruderal vegetation types during migration to and from South America, primarily feeding on small rodents, reptiles, and some insects within these habitats. It is a very rare migrant along the coast of Southern California (Garrett and Dunn 1981). This species formerly bred along the coast in Southern California, but breeding is now mostly limited to the Sacramento and San Joaquin Valleys, the extreme northeastern part of California, as well as Mono and Inyo Counties (England et al. 1997). This species is threatened by loss of habitat, habitat deterioration on the South American wintering grounds, human disturbance at nest sites, shooting, and possibly pesticides (Remsen 1978). In the vicinity of the Survey Area, migrating individuals have been reported from the Prado Basin, Temecula, the Badlands, Wildomar, Winchester, Sycamore Canyon Regional Park, Box Springs Mountain, and Vail Lake/Wilson Valley (Dudek 2003). Swainson's hawk does not breed in western Riverside County; therefore, this species is not expected to breed in the Survey Area. It may occur as a transient in all portions of the Survey Area except Proposed Overhead Route 2.

#### Northern Harrier (*Circus cyaneus*)

Northern harrier is a California Species of Special Concern; nesting individuals are protected. It is a regular winter migrant in marshes and fields throughout Southern California, but is very scarce as a local breeder (Garrett and Dunn 1981). Breeding habitat includes prairie, savannah, slough, wet meadow, and marsh vegetation types. The northern harrier can be expected at any time of the year and can be seen foraging in grassland, scrub, and riparian vegetation types. This species is threatened by loss of habitat, pesticides (Ehrlich et al. 1988), and loss of suitable breeding habitat (Grinnell and Miller 1944). In the vicinity of the Survey Area, this species has been reported nesting approximately 1.5 miles southeast of Winchester (CDFG 2010a). This species may occur for foraging, but not nesting, at the Proposed Subtransmission Source Line Route, Segment 1; the Proposed Subtransmission Source Line Route, Segment 2; and the Proposed Overhead Route 1. Suitable foraging and nesting habitat occurs at the Proposed Substation Site; the Alternative Substation Site; the Alternative Subtransmission Source Line Route, Segment 3; and the New Cable to Moval. Therefore, northern harrier may forage and nest at these four sites.

#### White-tailed Kite (*Elanus leucurus*)

White-tailed kite is a California Fully Protected species; nesting individuals are protected. Kites nest primarily in oaks, willows, and sycamores; they forage in grassland and scrub vegetation types. White-tailed kites show strong site fidelity to nest groves and trees. This species is an uncommon to locally fairly common resident in coastal Southern California as well as a rare visitor and local nester on the western edge of the deserts (Garrett and Dunn 1981). Many populations in North America declined in the 1980s and 1990s, including those in Southern California (Dunk 1995). In the vicinity of the Survey Area, this species has been reported near Winchester. This species may occur for foraging, but not nesting, at Proposed

Subtransmission Source Line Route, Segment 1. Suitable foraging and nesting habitat occurs at the Proposed Substation Site; the Alternative Substation Site; the Proposed Subtransmission Source Line Route, Segment 2; the Alternative Subtransmission Source Line Route, Segment 3; the New Cable to Moval; and the Proposed Overhead Route 1. Therefore, white-tailed kite may forage and nest at these six sites.

#### Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagle is a State-listed Endangered Species, a California Fully Protected species, and is also protected by the federal Bald Eagle Act; nesting and wintering individuals are protected. This species was delisted by the USFWS in 2007, and will be monitored for 20 years as part of the Post-delisting Monitoring Plan for the species, currently in draft form (USFWS 2007a). This species requires large bodies of water or free-flowing rivers with abundant fish with adjacent snags or perches (Zeiner et al. 1990a). The bald eagle nests in large, old-growth trees or snags in remote stands near water (Zeiner et al. 1990a). In western Riverside County, the bald eagle is primarily a migrant and wintering species (Dudek 2003). In the vicinity of the Survey Area, this species has been reported from Lake Perris and attempting to breed at Lake Skinner (Dudek 2003). The bald eagle is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

#### Merlin (*Falco columbarius*)

Merlin is a CDFG Watch List species; wintering individuals are protected. The species breeds throughout Canada and the northwestern U.S., and winters in the western and southern U.S., south to northern South America (Warkentin et al. 2005). The merlin occupies a wide variety of habitats, breeding in open country and wintering in open woodland, grasslands, cultivated fields, marshes, estuaries, and sea coasts (Dudek 2003). In California, it is an uncommon winter migrant from September to May (Dudek 2003). In the vicinity of the Survey Area, this species has been reported from the Lakeview Mountains (Dudek 2003). This species may occur for foraging, but not nesting, at the Proposed Subtransmission Source Line Route, Segment 1; the Proposed Subtransmission Source Line Route, Segment 2; and the Proposed Overhead Route 1. Suitable nesting habitat occurs at Proposed Substation Site; the Alternative Substation Site; the Alternative Subtransmission Source Line Route, Segment 3; and the New Cable to Moval. Therefore, merlin may forage and nest at these four sites.

#### Prairie Falcon (*Falco mexicanus*)

Prairie falcon is a CDFG Watch List species; nesting individuals are protected. Preferred foraging habitats include grassland and scrub vegetation types. Prairie falcons nest almost exclusively on cliffs (Clark and Wheeler 2001). It is an uncommon year-round resident in the interior of Southern California (Garrett and Dunn 1981). The prairie falcon has become an increasingly scarce winter resident and very rare summer resident along the Southern California coast (Unitt 1984; Lehman 1994; Hamilton and Willick 1996). In the vicinity of the Survey Area, wintering individuals have been reported from Lake Perris; a breeding record is documented historically for the Hemet area (possibly the Lakeview Mountains) and potentially in the Vail Lake area (Dudek 2003). This species may occur for foraging, but not nesting, at the Proposed Subtransmission Source Line Route, Segment 1; the Proposed Subtransmission Source Line Route, Segment 2; and the Proposed Overhead Route 1. Suitable nesting habitat occurs at the Proposed Substation Site; the Alternative Substation Site; the Alternative Subtransmission Source Line Route, Segment 3; and the New Cable to Moval. Therefore, prairie falcon may forage and nest at these four sites.

### American Peregrine Falcon (*Falco peregrinus anatum*)

American peregrine falcon is a California Fully Protected species; nesting individuals are protected. It was formerly a federally and State-listed Endangered species, but has since recovered and was delisted by the USFWS and the CDFG in 1999 and 2009, respectively. As a delisted species, the peregrine falcon will continue to be periodically monitored until 2015 (USFWS 2006). Peregrine falcons prey almost exclusively on birds and use a variety of habitats, particularly wetlands and coastal areas. This falcon is a rare summer resident in Southern California although it is more common during migration and the winter season. For nesting, this falcon prefers inaccessible areas such as cliffs, high building ledges, bridges, or other such structures. In the vicinity of the Survey Area, this species has been reported from Lake Perris; a nesting pair was reported on a County Building in downtown Riverside (Dudek 2003). This species may occur for foraging, but not nesting, at the Proposed Subtransmission Source Line Route, Segment 1; the Proposed Subtransmission Source Line Route, Segment 2; the Alternative Subtransmission Source Line Route, Segment 3; and the Proposed Overhead Route 1. Suitable nesting habitat occurs at the Proposed Substation Site; the Alternative Substation Site; and the New Cable to Moval. Therefore, prairie falcon may forage and nest at these three sites.

All designated critical habitat for American peregrine falcon was removed upon publication of the final rule delisting this species (USFWS 1999a).

### Mountain Plover (*Charadrius montanus*)

Mountain plover is a California Species of Special Concern; wintering individuals are protected. This species winters from California south to Baja California, Mexico and east to Texas and northern mainland Mexico; it does not breed in California (Dudek 2003). This species winters in shortgrass plains, plowed fields, open sagebrush areas, and sandy deserts (Dudek 2003). In the vicinity of the Survey Area, this species has been reported from the Lake Perris/San Jacinto Wildlife Area and the San Jacinto River (Dudek 2003). Suitable habitat is present throughout the Survey Area, except along the New Cable to Moval. Therefore, mountain plover may occur throughout the Survey Area, with the exception of the New Cable to Moval.

### Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

Western yellow-billed cuckoo is a State-listed Endangered species and a federal Candidate for listing by the USFWS; nesting individuals are protected. The western yellow-billed cuckoo requires broad areas of old-growth riparian habitats dominated by willows and cottonwoods (*Populus* sp.) with dense understory vegetation. California's population was once estimated to be over 15,000 pairs, but in less than 100 years, it has declined to less than 30 pairs (Hughes 1999). Along the coast, breeding cuckoos currently persist along the Santa Ana River in Riverside County and perhaps along the San Luis Rey River in San Diego County (Zeiner et al. 1990a). Transients are rarely observed away from known breeding populations (Garrett and Dunn 1981). The Santa Ana River, specifically Prado Basin, is the only area in the region with riparian woodlands extensive enough to support breeding western yellow-billed cuckoos, and a few birds have persisted there until recently. In the vicinity of the Survey Area, this species has been reported from the Poorman Reservoir in Moreno Valley (CDFG 2010a). Western yellow-billed cuckoo is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

### Long-eared Owl (*Asio otus*)

Long-eared owl is a California Species of Special Concern; nesting individuals are protected. This owl hunts mostly at night over grasslands and other open habitats (Marks et al. 1994). Nesting occurs in dense trees such as oaks and willows where it occupies the stick nests of other species, particularly raptors and corvids (Marks et al. 1994; Bloom 1994). This species is an uncommon resident in the deserts, and is quite rare coastally (Garrett and Dunn 1981). Long-eared owls have declined in Southern California due to the loss of riparian and grassland habitats to development (Marks et al. 1994). Suitable habitat for this species is present in the Survey Area along the New Cable to Moval. Therefore, long-eared owl may occur at this site.

### Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a California Species of Special Concern; burrow sites are protected. Although the burrowing owl was recently proposed as a State Candidate for listing, the CDFG determined that the species did not warrant listing in consideration of its population throughout the State. However, this species is considered a species of local concern because it is much less common in Southern California than in the Central Valley. In Southern California, burrowing owls breed and forage in grasslands and prefer flat to low, rolling hills in treeless terrain. They are small owls that nest in burrows, typically in open habitats most often along banks and roadsides. There is a historical record of burrowing owls in the immediate vicinity of the Survey Area and suitable habitat is present throughout the Survey Area. However, focused surveys for this species were conducted in some portions of the Survey Area, and the burrowing owl was not observed. Suitable habitat is present along the New Cable to Moval and the Proposed Overhead Routes 1 and 2. Therefore, burrowing owl may occur at these sites.

### Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Southwestern willow flycatcher is a federally and State-listed Endangered species; nesting individuals are protected. This subspecies was once considered a common breeder in coastal Southern California. However, it has declined drastically due to loss of breeding habitat and nest parasitism by the brown-headed cowbird (*Molothrus ater*). It occurs in riparian habitats along rivers, streams, or other wetlands where dense growths of willows, baccharis (*Baccharis* sp.), arrowweed (*Pluchea* sp.), tamarisk (*Tamarix* sp.), or other plants are present, often with a scattered overstory of cottonwood (USFWS 2005a). In the vicinity of the Survey Area, this species has been reported from approximately two miles west of Beaumont (CDFG 2010a). The southwestern willow flycatcher is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

On October 19, 2005, the USFWS published a final rule designating critical habitat for the southwestern willow flycatcher (USFWS 2005a). This final rule designated 120,824 acres in Arizona, California, Nevada, New Mexico, and Utah as critical habitat. Of that, 17,212 acres were designated in Kern, Santa Barbara, San Bernardino, and San Diego Counties. The Survey Area is not located in designated critical habitat for this species.

### Loggerhead Shrike (*Lanius ludovicianus*)

Loggerhead shrike is a California Species of Special Concern; nesting individuals are protected. Shrikes inhabit open habitats with short vegetation such as pastures, agricultural fields, riparian areas, and open woodlands (Yosef 1996). They can often be found perched on fences and posts from which prey items (e.g., large insects, small mammals, and lizards) can be seen. This species was widely distributed across North America but has declined throughout most of its range in recent decades (Yosef 1996). It was considered to be a fairly common year-round

resident in Southern California (Garrett and Dunn 1981), but has recently shown declines in its California population (Small 1994; Hamilton and Willick 1996). In the vicinity of the Survey Area, this species has been reported breeding in the vicinity of Winchester and the Lakeview Mountains (CDFG 2010a). Suitable habitat for this species is present in all portions of the Survey Area; this species was observed along the Proposed Subtransmission Source Line Route, Segment 1 and the Proposed Overhead Route 1. Therefore, loggerhead shrike may occur throughout the Survey Area.

#### Least Bell's Vireo (*Vireo bellii pusillus*)

Least Bell's vireo is a federally and State-listed Endangered species; nesting individuals are protected. This subspecies was formerly considered to be a common breeder in riparian habitats throughout the Central Valley and other low-elevation river systems in California and Baja California, Mexico (Franzreb 1989). It is now a rare and local summer resident of Southern California's lowland riparian woodlands. The least Bell's vireo breeds primarily in riparian habitats dominated by willows with dense understory vegetation (USFWS 1986). A dense shrub layer two to ten feet above ground is the most important habitat characteristic for this subspecies (Goldwasser 1981; Franzreb 1989). While destruction of lowland riparian habitats has played a large role in driving this subspecies to its present precarious situation, brood parasitism by brown-headed cowbirds is the most important factor in its decline (Garrett and Dunn 1981). In the vicinity of the Survey Area, this species has been reported from the Lake Perris State Recreational Area (CDFG 2010a). Least Bell's vireo is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

On February 2, 1994, the USFWS published a final critical habitat for the least Bell's vireo, designating approximately 37,560 acres of land in California's Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties (USFWS 1994b). The Survey Area is not located in designated critical habitat for this species.

#### California Horned Lark (*Eremophila alpestris actia*)

California horned lark is a CDFG Watch List species. This subspecies requires open habitats such as grasslands or agricultural fields that support little to no vegetation or short vegetation. It is found along the coast of Northern California, in the San Joaquin Valley, in the Coast Ranges south of San Francisco Bay, and in Southern California west of the deserts (Grinnell and Miller 1944). The horned lark occurs from Alaska and the Canadian arctic south to Mexico; the northern populations are strongly migratory and the southern populations are primarily year-round residents (Beason 1995). Along the Southern California coast, Garrett and Dunn (1981) found this species to be a common migrant and winter resident that remains to breed locally. In the vicinity of the Survey Area, this subspecies has been reported northeast of Perris (CDFG 2010a). Suitable habitat for this species is present in all portions of the Survey Area except the New Cable to Moval and the Proposed Overhead Route 2; this species was observed along Proposed Subtransmission Source Line Route, Segment 1. Therefore, California horned lark may occur throughout the Survey Area, except at the New Cable to Moval and the Proposed Overhead Route 2.

#### Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)

Coastal cactus wren is a California Species of Special Concern in San Diego and Orange Counties only; in Riverside County it is not considered to have special status. Some authorities consider the taxonomic status of cactus wrens in the southwestern U.S. to be uncertain (Proudfoot et al. 2000). Coastal populations of the cactus wren are found in Southern California from San Diego County north to Ventura County (Garrett and Dunn 1981),

and are declining due to loss of habitat. Except for the Banning Pass area west of Palm Springs, the coastal populations of cactus wren appear to be isolated from interior populations. On the coastal slope of Southern California, cactus wrens inhabit coastal sage scrub and alluvial sage scrub habitats that have sufficient amounts of prickly pear cactus and/or cholla (*Opuntia* spp.). In the vicinity of the Survey Area, this species has been reported approximately 5.5 miles northeast of Lakeview (CDFG 2010a). Coastal cactus wren is not expected to occur in any portion of the Survey Area due to lack of suitable habitat.

#### Coastal California Gnatcatcher (*Polioptila californica californica*)

Coastal California gnatcatcher is a federally listed Threatened species and a California Species of Special Concern. In California, this subspecies is an obligate resident of coastal sage scrub vegetation types. It occurs in most of Baja California, Mexico's arid regions, but this subspecies is extremely localized in the U.S., where it predominantly occurs in coastal regions of highly urbanized Los Angeles, Orange, Riverside, and San Diego Counties (Atwood 1992). Brood parasitism by brown-headed cowbirds and loss of habitat to urban development have been cited as causes of coastal California gnatcatcher population decline (Unitt 1984; Atwood 1990). In the vicinity of the Survey Area, this subspecies has been reported south of the San Jacinto River approximately three miles south of Perris (CDFG 2010a). Suitable habitat for this subspecies is present along the New Cable to Moval; however, this species was not observed during the 2010 focused surveys. Therefore, coastal California gnatcatcher is not expected to occur at this site.

On December 19, 2007, the USFWS published a Final Rule revising critical habitat for the coastal California gnatcatcher. The revised critical habitat designates 197,303 acres of land in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, California (USFWS 2007b). The Survey Area is not located in designated critical habitat for this species.

#### Yellow Warbler (*Dendroica petechia brewsteri*)

Yellow warbler is a California Species of Special Concern; nesting individuals are protected. This subspecies breeds in Southern California (Dunn and Garrett 1997); most yellow warblers are migrants. This subspecies occurs in coastal areas from northwestern Washington south to western Baja California, Mexico (Dunn and Garrett 1997). In Southern California, it breeds locally in riparian woodlands, but during migration, it can forage in a variety of different habitat types. This subspecies is threatened by loss of habitat and nest parasitism by brown-headed cowbirds (Remsen 1978). In the vicinity of the Survey Area, this subspecies has been reported from Lake Perris/Mystic Lake (Dudek 2003). Yellow warbler is not expected to occur in any portion of the Survey Area due to the lack of suitable habitat.

#### Yellow-breasted Chat (*Icteria virens*)

Yellow-breasted chat is a California Species of Special Concern; nesting individuals are protected. This species requires dense, brushy tangles near water and riparian woodlands supporting a thick understory for breeding. The yellow-breasted chat occurs as an uncommon and local summer resident in Southern California along the coast and in the deserts (Garrett and Dunn 1981). This large warbler was once a fairly common summer resident in riparian woodlands throughout California, but is now much reduced in numbers, especially in Southern California (Remsen 1978). This species is threatened by loss of habitat and possibly nest parasitism by the brown-headed cowbird (Remsen 1978). In the vicinity of the Survey Area, this species has been reported from the Poorman Reservoir in Moreno Valley (CDFG 2010a). Yellow-breasted chat is not expected to occur in any portion of the Survey Area due to the lack of suitable habitat.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

Southern California rufous-crowned sparrow is a CDFG Watch List species. In coastal Southern California, rufous-crowned sparrows are considered fairly common in scrub vegetation types and other habitats with grasses and widely spaced, low shrubs. They also prefer slopes with rock outcroppings. This subspecies is present throughout the year in Southern California, but is threatened by loss of habitat due to development. In the vicinity of the Survey Area, this species has been reported near the San Jacinto River at Goetz Road (CDFG 2010a). Suitable habitat is present in the Survey Area along the New Cable to Moval. Therefore, Southern California rufous-crowned sparrow is expected to occur at this site.

Oregon Vesper Sparrow (*Pooecetes gramineus affinis*)

Oregon vesper sparrow is a California Species of Special Concern; wintering individuals are protected. In western North America, this species is regularly found in sagebrush and other open shrublands mixed with grasses as well as open pinyon-juniper woodlands (Andrews and Righter 1992). Suitable habitat is present in the Survey Area along Proposed Subtransmission Source Line Route, Segment 1; Alternative Subtransmission Source Line Route, Segment 3; New Cable to Moval; and Proposed Overhead Route 1; limited potentially suitable habitat occurs along Proposed Subtransmission Source Line Route, Segment 2. Therefore, Oregon vesper sparrow may occur at four sites and has limited potential to occur at one site.

Grasshopper Sparrow (*Ammodramus savannarum*)

Grasshopper sparrow is a California Species of Special Concern; nesting individuals are protected. It breeds from eastern Washington to southern Maine and south to Southern California, Virginia, and northernmost Mexico (Dudek 2003). It is a year round resident in the western states. This species occupies open grasslands and prairies with patchy, bare ground (Dudek 2003). In California, the species occurs on slopes and mesas, frequenting dense, dry, or well-drained grassland with a thick cover of grasses and forbs (Dudek 2003). In the vicinity of the Survey Area, this species has been reported from the Lake Perris area (Dudek 2003). Suitable habitat is present in the Survey Area along Proposed Subtransmission Source Line Route, Segment 1; New Cable to Moval; and Proposed Overhead Route 1. Therefore, grasshopper sparrow may occur at these three sites.

Bell's Sage Sparrow (*Amphispiza belli belli*)

Bell's sage sparrow is a CDFG Watch List species; nesting individuals are protected. This coastal subspecies is an uncommon to fairly common local resident in the interior foothills of coastal Southern California. It breeds in low, dense chamise chaparral and in dry scrub vegetation types, often with stands of cactus (Garrett and Dunn 1981). This subspecies is threatened by loss of habitat due to development and likely nest parasitism by the brown-headed cowbird (Ehrlich et al. 1988). In the vicinity of the Survey Area, this species has been reported south of the San Jacinto River at Goetz Road (CDFG 2010a). Suitable habitat occurs in the Survey Area along the New Cable to Moval. Therefore, Bell's sage sparrow is expected to occur at this site.

Tricolored Blackbird (*Agelaius tricolor*)

Tricolored blackbird is a California Species of Special Concern; nesting colonies are protected. These colonially nesting birds prefer to breed in marsh vegetation of bulrushes and cattails and have also been recorded nesting in willows, blackberries, and mustard (Beedy et al. 1991). During winter months, they are often found foraging in wet pastures, agricultural fields, and

seasonal wetlands. Tricolored blackbirds are nomadic, wandering during the nonbreeding season and occupying colony sites intermittently (Unitt 1984). In the vicinity of the Survey Area, this species has been reported from the San Jacinto Wildlife Area, approximately two miles north of Lakeview (CDFG 2010a). Suitable foraging, but not nesting, habitat occurs throughout the Survey Area with exception of the Proposed Overhead Route 2.

## **Mammals**

### Western Yellow Bat (*Lasiurus xanthinus*)

Western yellow bat is a California Species of Special Concern. Little is known about its habitat, but it is known to roost in leafy vegetation (Best et al. 1998). This species is associated with dry thorny vegetation of the Mexican Plateau, coastal western Mexico, and the deserts of the southwestern U.S. (Best et al. 1998). In the vicinity of the Survey Area, this species has been reported from Homeland, Sun City, Sunnymead, and Moreno Valley (CDFG 2010a). Suitable foraging, but not roosting, habitat occurs throughout the Survey Area except along the Proposed Overhead Route 2. Therefore, western yellow bat may occur throughout the Survey Area for foraging except along Proposed Overhead Route 2.

### Western Mastiff Bat (*Eumops perotis californicus*)

Western mastiff bat is a California Species of Special Concern. It is found in many open semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas (Zeiner et al. 1990b). The western mastiff bat is a very wide-ranging and high-flying insectivore that typically forages in open areas with high cliffs. It roosts in small colonies in crevices on cliff faces. It occurs in the southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through Southern California, and from the coast eastward to the Colorado Desert (Zeiner et al. 1990b). Threats to this subspecies include loss of habitat due to development, drainage of marshes, and conversion of land to agriculture (Williams 1986). In the vicinity of the Survey Area, this species has been reported from Lake Perris. Suitable foraging, but not roosting, habitat occurs throughout the Survey Area except along the Proposed Overhead Route 2. Therefore, western mastiff bat may occur throughout the Survey Area for foraging except along the Proposed Overhead Route 2.

### San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

The San Diego black-tailed jackrabbit is a California Species of Special Concern. This species occurs in intermediate canopy stages of shrub habitats as well as within open shrub, herbaceous tree habitats. This species can be found in coastal sage scrub habitats in Southern California. In the vicinity of the Survey Area, this species has been reported near Sun City, Winchester, and Beaumont (CDFG 2010a). Suitable habitat is present throughout the Survey Area except along Proposed Overhead Route 2. Therefore, San Diego black-tailed jackrabbit may occur throughout the Survey Area except along Proposed Overhead Route 2.

### Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)

Northwestern San Diego pocket mouse is a California Species of Special Concern. It occupies a variety of habitats including chaparral, coastal sage scrub, and grassland. This subspecies ranges from southwestern San Bernardino County south to northern Baja California, Mexico. The primary threat to this species is loss of habitat due to development. In the vicinity of the Survey Area, this species has been reported near the Perris Reservoir and the San Jacinto River at the Ramona Expressway (CDFG 2010a). Suitable habitat is present in the Survey Area

along Proposed Subtransmission Source Line Route, Segment 1; the New Cable to Moval; and the Proposed Overhead Route 1. Limited potentially suitable habitat is present along Proposed Subtransmission Source Line Route, Segment 2. Therefore, northwestern San Diego pocket mouse may occur at three sites and has limited potential to occur at one site.

#### Stephens' Kangaroo Rat (*Dipodomys stephensi*)

Stephens' kangaroo rat is a federally listed Endangered species and a State-listed Threatened species. It primarily occurs in annual and perennial grasslands, but also occurs in coastal sage scrub habitats with sparse canopy cover. Habitats occupied by Stephens' kangaroo rat characteristically occur on level to gently sloping terrain, although the species has occasionally been found on relatively steep slopes. Soils in habitats harboring Stephens' kangaroo rat are typically loamy in nature, while soils dominated by clay or sand very rarely contain this species (Price and Endo 1989, O'Farrell 1990, O'Farrell and Uptain 1987). In the vicinity of the Survey Area, this species has been reported from the Perris Reservoir and the San Jacinto River near Sun City (CDFG 2010a). Suitable habitat is present in the Survey Area along Proposed Subtransmission Source Line Route, Segment 1; the New Cable to Moval; and the Proposed Overhead Route 1. Limited potentially suitable habitat is present along Proposed Subtransmission Source Line Route, Segment 2. Therefore, Stephens' kangaroo rat may occur at three sites and has limited potential to occur at one site.

No critical habitat has been proposed for the Stephens' kangaroo rat.

#### Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*)

Los Angeles pocket mouse is a California Species of Special Concern. This species occurs in lower elevation grasslands and coastal sage scrub vegetation. It prefers areas with open ground and fine sandy soils. The Los Angeles pocket mouse may shelter under vegetation instead of digging extensive burrows. It is a subspecies of the little pocket mouse. Los Angeles pocket mouse occurs from the Los Angeles Basin from approximately Burbank and San Fernando in the northwest to San Bernardino in the northeast, and Cabazon, Hemet, and Aguanga in the east and southeast (Williams 1986). In the vicinity of the Survey Area, this species has been reported northwest of the Perris Reservoir (CDFG 2010a). Suitable habitat is present in the Survey Area along Proposed Subtransmission Source Line Route, Segment 1; the New Cable to Moval; and the Proposed Overhead Route 1. Limited potentially suitable habitat is present along Proposed Subtransmission Source Line Route, Segment 2. Therefore, Los Angeles pocket mouse may occur at three sites and has limited potential to occur at one site.

#### San Diego Desert Woodrat (*Neotoma lepida intermedia*)

San Diego desert woodrat is a California Species of Special Concern. This subspecies occupies arid areas with sparse vegetation, especially those comprised of cactus and other thorny plants. The San Diego subspecies is restricted to the Pacific slope in a range that stretches from San Luis Obispo south to northwestern Baja California, Mexico (Hall and Kelson 1959). Threats to this species involve the loss of habitat due to development. In the vicinity of the Survey Area, this species has been reported north of the San Jacinto River and west of Gilman Hot Springs (CDFG 2010a). Suitable habitat for this species is present in the Survey Area along the New Cable to Moval. Therefore, San Diego desert woodrat may occur at this site.

#### Southern Grasshopper Mouse (*Onychomys torridus ramona*)

Southern grasshopper mouse is a California Species of Special Concern. It is a territorial, predatory rodent of grassland and sparse scrub vegetation types and prefers sandy soils. It

occurs along the coast of Southern California from Los Angeles County south through San Diego County (Hall and Kelson 1959). The primary threat to this subspecies is the loss of habitat due to development. In the vicinity of the Survey Area, this species has been historically reported from Perris (CDFG 2010a; 1923 record). Suitable habitat is present in the Survey Area along Proposed Subtransmission Source Line Route, Segment 1; the New Cable to Moval; and the Proposed Overhead Route 1. Limited potentially suitable habitat is present along Proposed Subtransmission Source Line Route, Segment 2. Therefore, Southern grasshopper mouse may occur at three sites and has limited potential to occur at one site.

#### American Badger (*Taxidea taxus*)

American badger is a California Species of Special Concern. This species occupies a wide variety of habitats and ranges throughout the State except for the coastal redwood forests of the extreme northwest. In Southern California, this species is most commonly associated with grasslands and other relatively open habitats with friable, uncultivated soils. In the vicinity of the Survey Area, this species has been reported from the San Jacinto Wildlife Area (CDFG 2010a). Suitable habitat is present in the Survey Area along the New Cable to Moval; limited potentially suitable habitat is present along the Proposed Subtransmission Source Line Route, Segment 1 and the Proposed Overhead Route 1. Therefore, American badger may occur at one site and has limited potential to occur at two sites.

## **4.0 PROJECT IMPACTS**

### **4.1 INTRODUCTION**

The determination of impacts in this analysis is based on a comparison of maps depicting project limits and maps of biological resources in the Survey Area. All construction activities, including staging, stockpile areas, haul roads and equipment areas, are assumed to be within the limits of the Survey Area boundaries. Should any of the impact areas extend beyond the limits shown, additional analysis may be required. Both direct and indirect impacts on biological resources have been evaluated. Direct impacts are those that involve the initial loss of habitats due to grading, construction, and construction-related activities. Indirect impacts are those that would be related to impacts on the adjacent remaining habitat due to construction activities (e.g., noise, dust) or operation of the Project (e.g., human activity).

Biological impacts associated with the proposed Project are evaluated with respect to the following special status biological issues:

- federally or State-listed Endangered or Threatened species of plants or wildlife;
- non-listed species that meet the criteria in the definition of Rare or Endangered in the CEQA Guidelines (i.e., §15380);
- species designated as California Species of Special Concern;
- streambeds, wetlands, and their associated vegetation;
- habitats suitable to support federally or State-listed Endangered or Threatened plant or wildlife species;
- habitat, other than wetlands, considered special status by regulatory agencies (e.g., the USFWS, the CDFG) or resource conservation organizations;
- criteria in the western Riverside County MSHCP; and
- other species or issues of concern to regulatory agencies or conservation organizations.

## 4.2 SIGNIFICANCE CRITERIA

The environmental impacts relative to biological resources are assessed using impact significance criteria that mirror the policy contained in CEQA Section 21001(c) of the *California Public Resources Code*. Accordingly, the State Legislature has established it to be the policy of the State to:

Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities.

Determining whether or not a project may have a significant effect or impact plays a critical role in the CEQA process. According to CEQA Section 15064.7 (Thresholds of Significance), each public agency is encouraged to develop and adopt, by ordinance, resolution, rule or regulation, their own significance thresholds that the agency would use in determining the impact of environmental effects. A significance threshold defines the quantitative, qualitative, or performance limits of a particular environmental effect. If these thresholds are exceeded, the agency would consider it to be significant.

In the development of significance thresholds for impacts to biological resources, CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Appendix G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

The project has the potential to substantially 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 wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species.

Appendix G of the CEQA Guidelines is more specific in addressing biological resources and encompasses a broader range of resources to be considered, including candidate, sensitive, or special status species; riparian habitat or other special status natural communities; federally protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and adopted habitat conservation plans. These factors are considered through the checklist of questions answered during the Initial Study process used to determine a project's appropriate environmental documentation (i.e., Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report [EIR]). Because these questions are derived from standards employed in other laws, regulations and commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an EIR. For each of the thresholds identified below, the section of CEQA upon which the threshold is based has been provided. For the purpose of this analysis, impacts to biological resources are considered significant (before calculating the offsetting impacts of mitigation measures) if one or more of the following conditions would result from implementation of the proposed Project:

1. The project has the potential to substantially degrade the quality of the environment (§15065[a]).
2. The project has the potential to substantially reduce the habitat of any fish or wildlife species (§15065[a]).

3. The project will cause fish or wildlife populations to drop below self-sustaining levels (§15065[a]).
4. The project will threaten to eliminate a plant or animal community (§15065[a]).
5. The project will reduce the number or restrict the range of an Endangered, Rare, or Threatened species (§15065[a]).<sup>2</sup>
6. The project has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a Candidate or special status species in local or regional plans, policies, or regulations, or by the CDFG or the USFWS (CEQA Guidelines, Appendix G, IV[a]).
7. The project has a substantial adverse effect on any riparian habitat or other special status natural community identified in local or regional plans, policies, regulations, or by the CDFG or the USFWS (CEQA Guidelines, Appendix G, IV[b]).
8. The project has 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, among others) through direct removal, filling, hydrological interruption, or other means (CEQA Guidelines, Appendix G, IV[c]).
9. The project interferes substantially with the movement of any native or migratory fish or wildlife species; inhibits established native resident or migratory wildlife corridors; or impedes the use of native wildlife nursery sites (CEQA Guidelines, Appendix G, IV[d]).
10. The project conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (CEQA Guidelines, Appendix G, IV[e]).
11. The project conflicts with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or State Habitat Conservation Plan (CEQA Guidelines, Appendix G, IV[f]).

In order to evaluate whether an impact on biological resources would result in a “substantial adverse effect”, both the resource itself and how that resource fits into a regional context must be considered. The proposed Project’s regional setting includes the Western Riverside County MSHCP.

For impact analysis purposes, a “substantial adverse effect” is defined as the loss or harm of a magnitude which, based on current scientific data and knowledge, would (1) substantially diminish population numbers of a species or distribution of a habitat type within the region or (2) eliminate the functions and values of a biological resource in the region.

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<sup>2</sup> Endangered and Threatened species, as used in this threshold, are those listed by the USFWS and/or the CDFG as Threatened or Endangered. Section 15380 of CEQA indicates that a lead agency can consider a non-listed species (e.g., CNPS List 1B plants) to be Endangered, Rare, or Threatened for the purposes of CEQA if the species can be shown to meet the criteria in the definition of “Rare” or “Endangered”. For the purposes of this discussion, the current scientific knowledge on the population size and distribution for each special status species was considered in determining if a non-listed species met the definitions for “Rare” and “Endangered” according to Section 15380 of CEQA.

### 4.3 DIRECT IMPACTS

The actual and potential occurrence of biological resources in the Survey Area was correlated with the significance criteria described above to determine whether impacts from the proposed Project on these resources would be significant. Potential direct impacts are described below.

#### 4.3.1 Vegetation Types

The amount of vegetation impacted depends upon the sites selected. The Project may impact the following types of vegetation: annual grassland, ruderal, agriculture, and ornamental vegetation. In addition, the Project may impact disturbed and developed areas. These impacts are discussed below and summarized in Tables 6 through 13.

##### ***Proposed Substation Site***

The Proposed Substation Site would impact a total of 8.07 acres (7.09 acres agriculture; 0.98 acre disturbed) (Table 6). These areas have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. These areas generally provide limited habitat for native plant and wildlife species although they may occasionally be used by native species. Therefore, impacts to these areas are considered less than significant and no Mitigation Measures (MMs) would be required.

**TABLE 6  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE PROPOSED SUBSTATION SITE**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Agriculture	7.09	7.09
Disturbed	0.98	0.98
<b>Total</b>	<b>8.07</b>	<b>8.07</b>

##### ***Alternative Substation Site***

The Alternative Substation Site would impact a total of 11.74 acres (10.60 acres agriculture; 1.13 acres disturbed; 0.01 acre developed) (Table 7). These areas have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. These areas generally provide limited habitat for native plant and wildlife species although they may occasionally be used by native species. Therefore, impacts to these areas are considered less than significant and no MMs would be required.

**TABLE 7  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE ALTERNATIVE SUBSTATION SITE**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Agriculture	10.60	10.60
Disturbed	1.13	1.13
Developed	0.01	0.01
<b>Total</b>	<b>11.74</b>	<b>11.74</b>

**Proposed Subtransmission Source Line Route, Segment 1**

The Proposed Subtransmission Source Line Route, Segment 1 would impact a total of 22.71 acres (Table 8). A total of 0.29 acre of ruderal, 18.70 acres of agriculture, 0.21 acre of ornamental, 2.67 acres of disturbed, and 0.84 acre of developed land would be impacted. These areas have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. These areas generally provide limited habitat for native plant and wildlife species although they may occasionally be used by native species. Therefore, impacts to these areas are considered less than significant and no MMs would be required.

In addition, the Proposed Subtransmission Source Line Route, Segment 1 is not expected to impact the San Jacinto River or any of the drainage ditches (irrigation channels) that may be under USACE and/or CDFG jurisdiction. These features would be avoided by direct grading and construction impacts. However, incidental or accidental impacts (temporary impacts) could occur, and these impacts would be potentially significant. The potential of this impact would be reduced to less than significant levels with implementation of Best Management Practices (BMPs).

**TABLE 8  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE PROPOSED SUBTRANSMISSION SOURCE LINE ROUTE, SEGMENT 1**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Alkali Grassland	0.77	0.00
Annual Grassland	0.22	0.00
Ruderal	0.29	0.29
Agriculture	18.70	18.70
Ornamental	0.21	0.21
Disturbed	2.67	2.67
Developed	0.84	0.84
<b>Total</b>	<b>23.70</b>	<b>22.71</b>

**Proposed Subtransmission Source Line Route, Segment 2**

The Proposed Subtransmission Source Line Route, Segment 2 would impact a total of 14.37 acres (Table 9). A total of 7.90 acres of agriculture, 0.74 acre of ruderal, and 5.73 acres of disturbed land would be impacted. These areas have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. Therefore, impacts to these areas are considered less than significant and no MMs would be required.

The Proposed Subtransmission Source Line Route, Segment 2 supports a small amount of alkali scrub playa, disturbed alkali scrub playa, and southern willow scrub, which may be considered special status vegetation types by the CDFG. Direct grading and construction impacts to these vegetations will be avoided, where possible. Potential impacts to these vegetation types will be reduced by implementing MM 6 listed below.

In addition, the Proposed Subtransmission Source Line Route, Segment 2 is not expected to impact the San Jacinto River or any of the drainage ditches (irrigation channels) that may be under USACE and/or CDFG jurisdiction. These features would be avoided by direct grading and

construction impacts. However, incidental or accidental impacts (temporary impacts) could occur, and these impacts would be potentially significant. The potential of these impacts would be reduced to less than significant levels with implementation of BMPs.

**TABLE 9  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE PROPOSED SUBTRANSMISSION SOURCE LINE ROUTE, SEGMENT 2**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Alkali Scrub Playa	0.29	0.00
Disturbed Alkali Scrub Playa	0.03	0.00
Southern Willow Scrub	0.06	0.00
Ruderal	0.74	0.74
Agriculture	7.90	7.90
Detention Basin	0.19	0.00
Disturbed	5.73	5.73
<b>Total</b>	<b>14.94</b>	<b>14.37</b>

**Alternative Subtransmission Source Line Route, Segment 3**

The Alternative Subtransmission Source Line Route, Segment 3 would impact a total of 14.77 acres (Table 10). A total of 9.47 acres of agriculture; 0.47 acre of ruderal; 0.40 acre of developed; and 4.43 acres of disturbed land would be impacted. These areas have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. These areas generally provide limited habitat for native plant and wildlife species although they may occasionally be used by native species. Therefore, impacts to these areas are considered less than significant and no MMs would be required.

The Alternative Subtransmission Source Line Route, Segment 3 supports a small amount of alkali scrub playa and disturbed alkali scrub playa, which may be considered special status vegetation types by the CDFG. Direct grading and construction impacts to these vegetations will be avoided, where possible. Potential impacts to these vegetation types will be reduced by implementing MM 6 listed below.

In addition, the Proposed Subtransmission Source Line Route, Segment 3 is not expected to impact the San Jacinto River or any of the drainage ditches (irrigation channels) that may be under USACE and/or CDFG jurisdiction. These features would be avoided by direct grading and construction impacts. However, incidental or accidental impacts (temporary impacts) could occur, and these impacts would be potentially significant. The potential of these impacts would be reduced to less than significant levels with implementation of BMPs.

**TABLE 10  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE ALTERNATIVE SUBTRANSMISSION SOURCE LINE ROUTE,  
SEGMENT 3**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Alkali Scrub Playa	1.27	0.00
Alkali Wetland	0.06	0.00
Ruderal	0.47	0.47
Agriculture	9.47	9.47
Disturbed	4.43	4.43
Developed	0.40	0.40
<b>Total</b>	<b>16.10</b>	<b>14.77</b>

***New Cable to Moval***

The New Cable to Moval would impact a total of 24.32 acres of disturbed area (Table 11). This area has low biological value because it is mainly composed of unvegetated areas. This area generally provides limited habitat for native plant and wildlife species although it may occasionally be used by native species. Therefore, impacts to this area are considered less than significant, and no MMs would be required.

**TABLE 11  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE NEW CABLE TO MOVAL**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Annual Grassland	50.66	0.00
Riversidean Sage Scrub	3.68	0.00
Disturbed Riversidean Sage Scrub	5.42	0.00
Ruderal	11.85	0.00
Agriculture	9.01	0.00
Ornamental	1.09	0.00
Irrigation Ditch	1.22	0.00
Disturbed	24.32	24.32
Developed	11.50	0
<b>Total</b>	<b>118.75</b>	<b>24.32</b>

The New Cable to Moval supports a small amount of Riversidean sage scrub and disturbed Riversidean sage scrub, which may be considered special status vegetation types by the CDFG. Direct grading and construction impacts to these vegetations will be avoided, where possible. Potential impacts to these vegetation types will be reduced by implementing MM 6 listed below.

In addition, the New Cable to Moval is not expected to impact the San Jacinto River or any of the drainage ditches (irrigation channels) that may be under USACE and/or CDFG jurisdiction. These features would be avoided by direct grading and construction impacts. However, incidental or accidental impacts (temporary impacts) could occur, and these impacts would be

potentially significant. The potential of these impacts would be reduced to less than significant levels with implementation of BMPs.

**Proposed Overhead Route 1**

The Proposed Overhead Route 1 would impact a total of 16.40 acres (Table 12). A total of 0.22 acre of annual grassland, 14.17 acres of agriculture, 0.29 acre of ruderal, and 1.72 acres of disturbed land would be impacted. These areas have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. These areas generally provide limited habitat for native plant and wildlife species although they may occasionally be used by native species. Therefore, impacts to these areas are considered less than significant, and no MMs would be required.

In addition, the Proposed Overhead Route 1 is not expected to impact the San Jacinto River or any of the drainage ditches (irrigation channels) that may be under USACE and/or CDFG jurisdiction. These features would be avoided by direct grading and construction impacts. However, incidental or accidental impacts (temporary impacts) could occur, and these impacts would be potentially significant. The potential of these impacts would be reduced to less than significant levels with implementation of BMPs.

**TABLE 12  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE PROPOSED OVERHEAD ROUTE 1**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Alkali Grassland	0.77	<b>0.00</b>
Annual Grassland	0.22	<b>0.22</b>
Ruderal	0.29	<b>0.29</b>
Agriculture	14.17	<b>14.17</b>
Ornamental	0.00	<b>0.00</b>
Disturbed	1.72	<b>1.72</b>
Developed	0.00	<b>0.00</b>
<b>Total</b>	<b>17.17</b>	<b>16.40</b>

**Proposed Overhead Route 2**

The Proposed Overhead Route 2 would impact a total of 7.25 acres (Table 13). A total of 0.79 acres of agriculture, 1.71 acre of ruderal, 0.07 acre of ornamental, 0.57 acre of developed and 4.11 acres of disturbed land would be impacted. These areas have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. These areas generally provide limited habitat for native plant and wildlife species although they may occasionally be used by native species. Therefore, impacts to these areas are considered less than significant, and no MMs would be required.

**TABLE 13  
VEGETATION TYPES AND OTHER AREAS IMPACTED BY  
THE PROPOSED OVERHEAD ROUTE 2**

Vegetation Types and Other Areas	Existing (Acres)	Total Impacts (Acres)
Ruderal	1.71	1.71
Agriculture	0.79	0.79
Ornamental	0.07	0.07
Disturbed	4.11	4.11
Developed	0.57	0.57
<b>Total</b>	<b>7.25</b>	<b>7.25</b>

#### **4.3.2 Wildlife Impacts**

To assess impacts on wildlife, the total impacts on particular vegetation types that provide habitat for wildlife was assessed. Exhibit 5 illustrates the vegetation types (i.e., wildlife habitat) that would be impacted as a result of proposed Project construction. The following discussion of wildlife impacts focuses on the common species occurring in the Survey Area.

##### ***General Habitat Loss and Wildlife Loss***

Construction of the proposed Project would not result in the loss of native habitat (i.e., alkali grassland, alkali scrub playa, disturbed alkali scrub playa, alkali wetland, Riversidean sage scrub, disturbed Riversidean sage scrub, and southern willow scrub) that provides valuable nesting, foraging, roosting, and denning opportunities for a wide variety of wildlife species. Implementation of the proposed Project would result in the loss of up to 126.16 acres of non-native habitats (i.e., annual grassland, ruderal, agriculture, ornamental, disturbed, and developed areas) that provide lower-quality wildlife habitat and possibly nesting, foraging, roosting, and denning opportunities for some species.

Removing or altering habitats in the Survey Area would result in the loss of small mammals, reptiles, amphibians, and other slow-moving animals that live in the proposed Project's direct impact area. More mobile wildlife species that are now using the Survey Area would be forced to move into the remaining areas of open space, which would consequently increase competition for available resources in those areas. This situation would result in the loss of individuals that cannot successfully compete.

The loss of non-native habitats that provide wildlife habitat is considered an adverse impact. However, the loss of habitat would not be expected to reduce wildlife populations to below self-sustaining levels in the region. Therefore, this impact would be considered adverse, but less than significant.

The original Migratory Bird Treaty Act of 1918 implemented the 1916 Convention between the United States and Great Britain (for Canada) for the protection of migratory birds. Specific provisions of the statute establish a federal prohibition, unless permitted, to:

pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of the

Convention ... for the protection of migratory birds ... or any part, nest, or egg of any such bird.

Bird species protected under the provisions of the Migratory Bird Treaty Act are identified by the List of Migratory Birds (Title 50 of the *Code of Federal Regulations*, Section 10.13, as updated by the 1983 AOU Check-list and published supplements through 2009). The loss of any active nest occurring in the Survey Area would be considered significant. Impacts on active nests would be reduced to less than significant levels with the implementation of MMs 1, 2, and 6. These measures apply to the entire Survey Area.

Common raptor species such as red-tailed hawk have potential to nest in the Survey Area. Should an active raptor nest (common or special status species) be found in the Survey Area, the loss of the nest would be considered a violation of *California Fish and Game Code* Sections 3503, 3503.5, and 3513. The loss of any active raptor nest occurring in the Survey Area would be considered significant. Impacts on raptor nests would be reduced to less than significant with the implementation of MMs 1, 2, and 6. These measures apply to the entire Survey Area.

### ***Wildlife Movement and Habitat Fragmentation***

The proposed Project is located in a region dominated by agricultural and residential land uses. Wildlife movement opportunities in the area are already constrained by development in the Project vicinity. Therefore, the proposed Project is not expected to interfere substantially with the movement of any native resident or migratory fish or wildlife species.

The San Jacinto River is an important landscape linkage. This river is crossed by the Proposed Subtransmission Source Line Route, Segments 1 and 2; the Alternative Subtransmission Source Line Route, Segment 3; and the Proposed Overhead Route 1. Impacts on the San Jacinto River would be considered potentially significant. The Project is not expected to impact the San Jacinto River. This feature would be avoided by direct grading and construction impacts. However, incidental or accidental impacts (temporary impacts) could occur, and these impacts would be potentially significant. Potential impacts would be reduced by implementation of BMPs. These measures apply to the Proposed Subtransmission Source Line Route, Segments 1 and 2; the Alternative Subtransmission Source Line Route, Segment 3; and the Proposed Overhead Route 1.

### **4.3.3 Special Status Biological Resource Impacts**

Implementation of the proposed Project could potentially result in impacts on special status plant and wildlife species if they occur in the Survey Area. Potential impacts on these species were evaluated by determining the impacts on habitat that the species are known or expected to occupy and their known or expected occurrence based on the results of focused survey efforts.

### ***Special Status Plants***

#### **Proposed Substation Site**

The Proposed Substation Site would not have a substantial adverse effect, either directly or through habitat modifications, on any special status plant species. The Proposed Substation Site is not expected to support any special status plant species due to the lack of suitable habitat and soils. Therefore, construction and operation of the Proposed Substation Site will not impact special status plant species and no MMs are required.

### Alternative Substation Site

The Alternative Substation Site would not have a substantial adverse effect, either directly or through habitat modifications, on any special status plant species. The Alternative Substation Site is not expected to support any special status plant species due to the lack of suitable habitat and soils. Therefore, construction and operation of the Alternative Substation Site will not impact special status plant species and no MMs are required.

### Proposed Subtransmission Source Line Route, Segment 1

Segment 1 contains suitable habitat for special status plants including San Jacinto Valley crownscale, South Coast saltscale, Parish's brittlescale, Davidson's saltscale, thread-leaved brodiaea, smooth tarplant, Parry's spineflower, long-spined spineflower, vernal barley, Coulter's goldfields, Moran's navarretia, Salt Spring checkerbloom, and Wright's trichocoronis. A total of 1,999 San Jacinto Valley crownscale individuals, 4,000 vernal barley individuals, and 75 smooth tarplant individuals were observed during the 2010 plant surveys. Potential impacts to these species would be considered significant; however, implementation of MMs 2, 6, and 7 would reduce these impacts to less than significant levels.

### Proposed Subtransmission Source Line Route, Segment 2

Segment 2 contains suitable habitat for special status plant species including San Jacinto Valley crownscale, South Coast saltscale, Davidson's saltscale, smooth tarplant, Parry's spineflower, vernal barley, Coulter's goldfields, Moran's navarretia, Salt Spring checkerbloom, and Wright's trichocoronis. A total of 65 smooth tarplant individuals, 150 vernal barley individuals, and 1 Coulter's goldfields were observed during the 2009 plant surveys. Potential impacts to these species would be considered significant; however, implementation of MMs 2 and 6 would reduce these impacts to less than significant levels.

### Alternative Subtransmission Source Line Route, Segment 3

Segment 3 contains suitable habitat for special status plant species including San Jacinto Valley crownscale, South Coast saltscale, Parish's brittlescale, Davidson's saltscale, thread-leaved brodiaea, smooth tarplant, Parry's spineflower, vernal barley, Coulter's goldfields, Moran's navarretia, California Orcutt grass, Salt Spring checkerbloom, and Wright's trichocoronis. A total of 532 San Jacinto Valley crownscale individuals, 9,200 vernal barley individuals, and 6,250 Coulter's goldfields individuals were observed during the 2009 plant surveys. Potential impacts to these species would be considered significant; however, implementation of MMs 2, 6, and 7 would reduce these impacts to less than significant levels.

### New Cable to Moval

Suitable habitat for special status plants is present on the New Cable to Moval, including chaparral sand-verbena, Munz's onion, San Jacinto Valley crownscale, South Coast saltscale, Parish's brittlescale, Davidson's saltscale, thread-leaved brodiaea, intermediate mariposa lily, smooth tarplant, Parry's spineflower, long-spined spineflower, vernal barley, Coulter's goldfields, Robinson's pepper-grass, and Wright's trichocoronis. Impacts on these species, if present, may be considered significant; however, implementation of MMs 2, 6, and 7 would reduce these impacts to less than significant levels.

### Proposed Overhead Route 1

The Proposed Overhead Route 1 contains suitable habitat for special status plants including San Jacinto Valley crownscale, South Coast saltscale, Parish's brittlescale, Davidson's saltscale, thread-leaved brodiaea, smooth tarplant, Parry's spineflower, long-spined spineflower, Coulter's goldfields, Moran's navarretia, Salt Spring checkerbloom, and Wright's trichocoronis. A total of 1,999 San Jacinto Valley crownscale individuals, 75 smooth tarplant individuals, and 4,000 vernal barley individuals were observed during the 2009 plant surveys. Potential impacts to these species would be considered significant; however, implementation of MMs 2, 6, and 7 would reduce these impacts to less than significant levels.

### Proposed Overhead Route 2

The Proposed Overhead Route 2 is not expected to support any special status plant species due to the lack of suitable habitat and/or soils. Therefore, construction and operation of the Proposed Overhead Route 2 will not impact special status plant species and no MMs would be required.

#### **4.3.4 Special Status Wildlife**

##### ***Proposed Substation Site***

The Proposed Substation Site contains suitable habitat for ferruginous hawk, northern harrier, white-tailed kite, merlin, prairie falcon, peregrine falcon, mountain plover, loggerhead shrike, California horned lark, and San Diego black-tailed jackrabbit. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these species would be considered adverse but less than significant; therefore, no MMs would be required. Impacts on active nests would be reduced to less than significant with implementation of MM 1.

The burrowing owl is not currently expected to occur on the Proposed Substation Site because it was not observed during focused surveys conducted in 2009. However, suitable habitat for this species occurs on the site, and this species may occur occasionally as a migrant or winter visitor. If this species returns to the site, impacts on burrowing owls would be considered significant; therefore, implementation of MM 3 would reduce this impact to less than significant levels.

Suitable foraging habitat for white-faced ibis, Cooper's hawk, golden eagle, tricolored blackbird, western yellow bat, and western mastiff bat is present on the site as well. The construction of the Proposed Substation Site is expected to impact foraging opportunities for these species. Although construction activities may discourage use of the area within the immediate vicinity of the active work site, this disruption in foraging is expected to be extremely localized and temporary in nature. Impacts on foraging habitat for these species would be considered adverse, but would not be expected to appreciably affect the overall population of these species given the amount of potentially suitable foraging habitat in the immediate vicinity. Therefore, impacts on these species would be considered less than significant, and no MMs are required.

##### ***Alternative Substation Site***

The Alternative Substation Site contains suitable habitat for ferruginous hawk, northern harrier, white-tailed kite, merlin, prairie falcon, peregrine falcon, mountain plover, loggerhead shrike, California horned lark, and San Diego black-tailed jackrabbit. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these

species would be considered adverse but less than significant; therefore, no MMs would be required. Impacts on active nests would be reduced to less than significant with implementation of MM 1.

The burrowing owl is not currently expected to occur on the Alternative Substation Site because it was not observed during focused surveys conducted in 2009. However, suitable habitat for this species occurs on the site, and this species may occur occasionally as a migrant or winter visitor. If this species returns to the site, impacts on burrowing owls would be considered significant; therefore, implementation of MM 3 would reduce this impact to a less than significant level.

Suitable foraging habitat for white-faced ibis, Cooper's hawk, golden eagle, tricolored blackbird, western yellow bat and western mastiff bat is present on the Alternative Substation Site. The construction of the Alternative Substation Site is expected to impact foraging opportunities for these species. Although construction activities may discourage use of the area within the immediate vicinity of the active work site, this disruption in foraging is expected to be extremely localized and temporary in nature. This impact is considered less than significant given the large availability of foraging habitat in the region. Therefore, no MMs are required.

### ***Proposed Subtransmission Source Line Route, Segment 1***

Segment 1 provides suitable habitat or limited suitable habitat for special status wildlife species including white-faced ibis, golden eagle, mountain plover, loggerhead shrike, California horned lark, Oregon vesper sparrow (*Pooecetes gramineus affinis*), grasshopper sparrow, San Diego black-tailed jackrabbit, northwestern San Diego pocket mouse, Los Angeles pocket mouse, southern grasshopper mouse (*Onychomys torridus ramona*), and American badger (*Taxidea taxus*). California horned lark was observed along Segment 1 during the 2009 surveys. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these species would be considered adverse but less than significant; therefore, no MMs would be required. Impacts on active nests would be reduced to less than significant levels with implementation of MM 1.

Segment 1 contains suitable habitat for Stephens' kangaroo rat, which is a federally Endangered and State Threatened species. Impacts to this species would be considered significant; however, implementation of MM 4 would reduce these impacts to less than significant.

The burrowing owl is not currently expected to occur along Segment 1 because it was not observed during focused surveys conducted in 2009. However, suitable habitat for this species occurs on the site, and this species may occur occasionally as a migrant or winter visitor. If this species returns to the site, impacts on burrowing owls would be considered significant; therefore, implementation of MM 3 would reduce this impact to a less than significant level.

Segment 1 provides suitable foraging habitat for Cooper's hawk, ferruginous hawk, northern harrier, white-tailed kite, merlin, prairie falcon, American peregrine falcon, tricolored blackbird, western yellow bat, and western mastiff bat. The construction of Segment 1 is expected to impact foraging opportunities for these species. Although construction activities may discourage use of the area within the immediate vicinity of the active work site, this disruption in foraging is expected to be extremely localized and temporary in nature. This impact is considered less than significant given the large availability of foraging habitat in the region. Therefore, no MMs are required.

### **Proposed Subtransmission Source Line Route, Segment 2**

Segment 2 contains suitable habitat or limited suitable habitat for special status wildlife species including white-faced ibis, white-tailed kite, mountain plover, loggerhead shrike, California horned lark, Oregon vesper sparrow, San Diego black-tailed jackrabbit, northwestern San Diego pocket mouse, Los Angeles pocket mouse, and southern grasshopper mouse. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these species would be considered adverse but less than significant; therefore, no MMs would be required. Impacts on active nests would be reduced to less than significant levels with implementation of MM 1.

Segment 2 contains limited suitable habitat for Stephens' kangaroo rat. Impacts to this species would be considered significant; however, implementation of MM 4 would reduce these impacts to less than significant levels.

The burrowing owl is not currently expected to occur on Segment 2 because it was not observed during focused surveys conducted in 2009. However, suitable habitat for this species occurs on the site, and this species may occur occasionally as a migrant or winter visitor. If this species returns to the site, impacts on burrowing owls would be considered significant; therefore, implementation of MM 3 would reduce this impact to less than significant levels.

Segment 2 contains suitable foraging habitat for Cooper's hawk, golden eagle, ferruginous hawk, northern harrier, merlin, prairie falcon, peregrine falcon, tricolored blackbird, western yellow bat, and western mastiff bat. Although construction activities may discourage use of the area within the immediate vicinity of the active work site, this disruption in foraging is expected to be extremely localized and temporary in nature. This impact is considered less than significant given the large availability of foraging habitat in the region. Therefore, no MMs are required.

### **Alternative Subtransmission Source Line Route, Segment 3**

Segment 3 contains suitable habitat for special status wildlife species including northern harrier, white-tailed kite, merlin, prairie falcon, mountain plover, loggerhead shrike, California horned lark, Oregon vesper sparrow, and San Diego black-tailed jackrabbit. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these species would be considered adverse but less than significant; therefore, no MMs would be required. Impacts on active nests would be reduced to less than significant levels with implementation of MM 1.

Segment 3 provides suitable habitat for Riverside fairy shrimp. Impacts to this species would be considered significant; however, implementation of MM 5 would reduce these impacts to less than significant levels.

Segment 3 contains suitable foraging habitat for white-faced ibis, Cooper's hawk, golden eagle, ferruginous hawk, American peregrine falcon, tricolored blackbird, western yellow bat, and western mastiff bat. Although construction activities may discourage use of the area within the immediate vicinity of the active work site, this disruption in foraging is expected to be extremely localized and temporary in nature. This impact is considered less than significant given the large availability of foraging habitat in the region. Therefore, no MMs are required.

### **New Cable to Moval**

The New Cable to Moval provides suitable habitat for the following listed species: Quino checkerspot butterfly, coastal California gnatcatcher, and Stephens' kangaroo rat. Focused surveys have been completed for Quino checkerspot butterfly and California gnatcatcher, and neither species were observed along the New Cable to Moval. Therefore, there would be no impact on these species and no MMs would be required.

Surveys for Stephens' kangaroo rat are currently in progress; therefore, impacts to this species would be considered significant if the species is found. However, implementation of MM 4 would reduce this impact to a less than significant level.

The New Cable to Moval provides suitable habitat and/or foraging habitat for special status wildlife species including western spadefoot, coast horned lizard, orange-throated whiptail, silvery legless lizard, coast patch-nosed snake, northern red-diamond rattlesnake, white-faced ibis, Cooper's hawk, golden eagle, ferruginous hawk, northern harrier, white-tailed kite, merlin, prairie falcon, American peregrine falcon, mountain plover, long-eared owl, loggerhead shrike, California horned lark, Southern California rufous-crowned sparrow, Oregon vesper sparrow, grasshopper sparrow, Bell's sage sparrow, tricolored blackbird, western yellow bat, western mastiff bat, San Diego black-tailed jackrabbit, northwestern San Diego pocket mouse, Los Angeles pocket mouse, San Diego desert woodrat, southern grasshopper mouse, and American badger. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these species would be considered adverse but less than significant. However, potential impacts would be reduced by implementation of MMs 2 and 6. Impacts on active nests would be reduced to less than significant levels with implementation of MM 1.

The New Cable to Moval provides suitable habitat for the burrowing owl. If this species occurs on the New Cable to Moval, impacts on this species would be considered significant; therefore, implementation of MM 3 would reduce this impact to less than significant levels.

### **Proposed Overhead Route 1**

The Proposed Overhead Route 1 provides suitable habitat and/or foraging habitat for special status wildlife species including western spadefoot, coast horned lizard, orange-throated whiptail, silvery legless lizard (*Anniella pulchra pulchra*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), northern red-diamond rattlesnake, white-faced ibis, Cooper's hawk, golden eagle, ferruginous hawk, northern harrier, white-tailed kite, merlin, prairie falcon, American peregrine falcon, mountain plover, long-eared owl, loggerhead shrike, California horned lark, Southern California rufous-crowned sparrow, Oregon vesper sparrow, grasshopper sparrow, Bell's sage sparrow, tricolored blackbird, western yellow bat, western mastiff bat, San Diego black-tailed jackrabbit, northwestern San Diego pocket mouse, Los Angeles pocket mouse, San Diego desert woodrat, southern grasshopper mouse, and American badger. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these species would be considered adverse but less than significant. However, potential impacts would be reduced by implementation of MMs 2 and 6. Impacts on active nests would be reduced to less than significant levels with implementation of MM 1.

The Proposed Overhead Route 1 provides suitable habitat for the burrowing owl. If this species occurs on the Proposed Overhead Route 1, impacts on this species would be considered significant; therefore, implementation of MM 3 would reduce this impact to less than significant levels.

The Proposed Overhead Route 1 provides limited suitable habitat for Stephens' kangaroo rat. Impacts to this species would be considered significant; however, implementation of MM 4 would reduce these impacts to less than significant levels.

### ***Proposed Overhead Route 2***

The Proposed Overhead Route 2 provides suitable habitat and/or foraging habitat for special status wildlife species including western spadefoot, coast horned lizard, orange-throated whiptail, silvery legless lizard, coast patch-nosed snake, northern red-diamond rattlesnake, white-faced ibis, Cooper's hawk, golden eagle, ferruginous hawk, northern harrier, white-tailed kite, merlin, prairie falcon, American peregrine falcon, mountain plover, long-eared owl, loggerhead shrike, California horned lark, Southern California rufous-crowned sparrow, Oregon vesper sparrow, grasshopper sparrow, Bell's sage sparrow, tricolored blackbird, western yellow bat, western mastiff bat, San Diego black-tailed jackrabbit, northwestern San Diego pocket mouse, Los Angeles pocket mouse, San Diego desert woodrat, southern grasshopper mouse, and American badger. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the region, impacts on these species would be considered adverse but less than significant. However, potential impacts would be reduced by implementation of MMs 2 and 6. Impacts on active nests would be reduced to less than significant levels with implementation of MM 1.

The Proposed Overhead Route 2 provides suitable habitat for the burrowing owl. If this species occurs on the Proposed Overhead Route 2, impacts on this species would be considered significant; however, implementation of MM 3 would reduce this impact to a less than significant level.

## **4.4 INDIRECT IMPACTS**

Indirect impacts are those related to disturbance by construction (such as noise, dust, and urban pollutants) and long-term use of the Survey Area and its effect on the adjacent habitat areas. The indirect impact discussion below includes a general assessment of the potential indirect effects (noise and lighting) from the construction and operation of the proposed Project.

### **4.4.1 Noise**

Noise levels on the selected site are expected to increase over present levels during construction of the proposed Project. During construction, temporary noise impacts have the potential to disrupt foraging, nesting, roosting, and/or denning activities for wildlife species. Although noise impacts may also increase over present levels due to normal operation of the Project, the Project noise increase would be minor. Wildlife species stressed by noise may disperse from the habitat located in the vicinity of the selected site. This impact is considered adverse but less than significant.

### **4.4.2 Night Lighting**

Night lighting of the project during and after construction is expected. This lighting could inadvertently affect the behavior patterns of nocturnal and crepuscular (active at dawn and dusk) wildlife adjacent to the selected site. Of greatest concern is the impact on small ground-dwelling animals that use the darkness to hide from predators, and on owls that are specialized night foragers. In addition, night lighting could deter wildlife movement and/or inhibit wildlife from using the habitat adjacent to lighted areas. This impact is considered adverse but less than significant.

## **5.0 MITIGATION MEASURES**

SCE proposes the following MMs to avoid, minimize, correct, reduce, or eliminate impacts on special status biological resources

### **5.1 MITIGATION MEASURES**

#### **5.1.1 Mitigation Measure No. 1: Pre-Construction Surveys for Nesting Birds/Raptors**

To minimize potential impacts to selected nesting special status birds, raptors, or other MBTA bird species, planned vegetation clearing will take place during the non-breeding season (between September 1 and January 31) to the extent feasible. This will discourage the species from nesting within the work area. Trees, shrubs, or other occupied vegetation that would provide suitable structure for nesting would be removed. If vegetation clearing must take place during nesting season (February 1–August 31), a Biologist shall conduct pre-construction nesting bird surveys prior to clearing for the sites that have potential to support nesting birds/raptors. If the Biologist finds an active nest within or adjacent to the construction area and determines that there may be impacts to the nest, s/he will delineate an appropriate buffer zone around the nest depending on the sensitivity of the species and the type of construction activity. Only construction activities (if any) approved by the Biologist will take place within the buffer zone until the nest is vacated. If nests are found and cannot be avoided by the project activities, or if work is scheduled to take place near an active nest, SCE shall coordinate with the CDFG and the USFWS and obtain written concurrence prior to moving the nest.

#### **5.1.2 Mitigation Measure No. 2: Pre-Construction Surveys and Biological Monitoring**

Pre-construction biological clearance surveys shall be performed at the Project site to minimize impacts on special status species. If special status species are present, Biological Monitors shall remain on site during project implementation in suitable habitat areas. Biological Monitors shall aid crews in implementing avoidance measures during project construction. If adequate avoidance cannot be established, SCE shall consider enrollment in the MSHCP as a Participating Special Entity or shall coordinate with the USFWS and the CDFG for further guidance as appropriate. Any significant findings during pre-construction surveys would be added to the Worker Environmental Awareness Program (WEAP) training described in Section 3.9 of Chapter 3.

#### **5.1.3 Mitigation Measure No. 3: Burrowing Owl**

Pre-construction burrowing owl surveys shall be conducted and active burrows found during survey efforts shall be mapped. If no active burrows are found, no further mitigation would be required. If nesting activity is present at an active burrow, the burrow shall be protected until nesting activity has ended. Nesting activity for burrowing owl in the region normally occurs between March and August. To protect the active burrow, the following restrictions to construction activities shall be required until the burrow is no longer active as determined by a Biologist: (1) Clearing limits shall be established within a 500-foot buffer around any active burrow, unless otherwise determined by a Biologist and (2) Access and surveying shall be restricted within 300 feet of any active burrow, unless otherwise determined by a Biologist. Any encroachment into the buffer area around the active burrow shall only be allowed if the Biologist determines that the proposed activity will not disturb the nest occupants. Construction can proceed when the Biologist has determined that fledglings have left the nest. If an active burrow is observed during the non-nesting season, the nest site will be monitored by a Biologist and, when the owl is away from the nest, the Biologist will either actively or passively relocate the

burrowing owl. The Biologist will then remove the burrow so the burrowing owl cannot return to the burrow.

#### **5.1.4 Mitigation Measure No. 4: Stephens' Kangaroo Rat**

A habitat assessment for Stephens' kangaroo rat shall be conducted by a Biologist qualified to conduct Stephens' kangaroo rat surveys along the Proposed Subtransmission Source Line Routes and Proposed Telecommunications Routes. If no potential occupied habitat is found during this assessment, then no further action is necessary. If potential for occupied habitat is found, protocol trapping surveys shall be conducted. The Proposed Telecommunications Route is within a Stephens' kangaroo rat fee area; therefore, if suitable habitat for this species is found, a fee shall be paid in lieu of further surveys (County of Riverside 1996).

#### **5.1.5 Mitigation Measure No. 5: Riverside Fairy Shrimp**

Impacts to Riverside fairy shrimp habitat will be avoided to the extent feasible in the final Project Design. Habitat areas will be marked as "off limits" in construction plans and specifications. If significant impacts to habitat are unavoidable, focused surveys will need to be conducted prior to construction activities. Riverside fairy shrimp surveys require either a wet season survey, followed by a consecutive dry season survey, or two wet season surveys done within a five-year period (USFWS 1996). If no Riverside fairy shrimp are found in this area during the focused surveys, no additional action is warranted. If this species is found, SCE shall consider (1) avoidance measures; (2) enrollment in the MSHCP as a Participating Special Entity; or (3) approvals through the USFWS. Appropriate avoidance, minimization, and compensation measures may be required.

#### **5.1.6 Mitigation Measure No. 6: Native or Special Status Vegetation and Special Status Plant Populations Avoidance**

Impacts to native vegetation types, those that may support special status species, and known populations of special status plants will be avoided to the extent feasible in the final Project Design. Native vegetation and special status plant populations will be marked as "off limits" in construction plans and specifications. If significant impacts to native vegetation and/or special status plants are unavoidable, a Biologist will be selected to prepare and implement a mitigation plan, which will include detailed descriptions of maintenance appropriate for the mitigation site, monitoring requirements, and annual report requirements, and will have the full authority to suspend any operation which is, in the Biologist's opinion, not consistent with the mitigation plan. This plan will be submitted for review to the appropriate agencies.

#### **5.1.7 Mitigation Measure No. 7: Avoidance of San Jacinto Valley Crownscale Populations**

In order to avoid potential impacts to known populations of San Jacinto Valley crownscale populations, an Environmentally Sensitive Area (ESA) will be developed prior to construction to the extent feasible in the final Project Design (Exhibit 6). If significant impacts to San Jacinto Valley crownscale are unavoidable, a Biologist will be selected to prepare and implement a mitigation plan, which will include detailed descriptions of maintenance appropriate for the mitigation site, monitoring requirements, and annual report requirements, and will have the full authority to suspend any operation which is, in the Biologist's opinion, not consistent with the mitigation plan. This plan will be submitted for review to the appropriate agencies.

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**APPENDIX A**  
**PLANT AND WILDLIFE COMPENDIA**

**A-1  
 PLANT COMPENDIUM**

Plants
<b>FLOWERING PLANTS</b>
<b>CLASS DICOTYLEDONES (DICOTS)</b>
<b>AIZOACEAE - FIG-MARIGOLD FAMILY</b>
<i>Mesembryanthemum nodiflorum*</i> slender-leaved iceplant
<b>ANACARDIACEAE - SUMAC FAMILY</b>
<i>Malosma laurina</i> laurel sumac
<i>Rhus ovata</i> sugar bush
<b>APOCYNACEAE - DOGBANE FAMILY</b>
<i>Nerium oleander*</i> oleander
<b>ASTERACEAE (COMPOSITAE) - SUNFLOWER FAMILY</b>
<i>Ambrosia acanthicarpa</i> annual bursage
<i>Ambrosia psilostachya</i> western ragweed
<i>Artemisia californica</i> California sagebrush
<i>Artemisia dracunculus</i> tarragon
<i>Baccharis salicifolia</i> mule fat
<i>Carduus pycnocephalus*</i> Italian thistle
<b><i>Centromadia pungens</i> ssp. <i>laevis</i></b> <b>smooth tarplant</b>
<i>Chamomilla suaveolens*</i> common pineapple weed
<i>Cirsium vulgare*</i> bull thistle
<i>Conyza canadensis</i> common horseweed
<i>Cotula australis*</i> brass buttons
<i>Encelia farinosa</i> brittlebush
<i>Eriophyllum confertiflorum</i> golden yarrow
<i>Helianthus annuus</i> western sunflower
<i>Heterotheca grandiflora</i> telegraph weed
<i>Isocoma menziesii</i> var. <i>vernonioides</i> coastal goldenbush
<i>Lactuca serriola*</i> prickly lettuce

**PLANT COMPENDIUM  
 (Continued)**

Plants
<i>Lasthenia californica</i> California goldfields
<b><i>Lasthenia glabrata</i> ssp. <i>coulteri</i></b> <b>Coulter's goldfields</b>
<i>Lepidospartum squamatum</i> scale-broom
<i>Lessingia filaginifolia</i> California aster
<i>Malacothrix saxatilis</i> cliff malacothrix
<i>Oncosiphon piluliferum</i> * stink net
<i>Psilocarphus brevissimus</i> woolly marbles
<i>Rafinesquia californica</i> California chicory
<i>Sonchus asper</i> * prickly sow-thistle
<i>Sonchus oleraceus</i> * common sow-thistle
<b>BIGNONIACEAE - BIGNONIA FAMILY</b>
<i>Chilopsis linearis</i> ssp. <i>arcuata</i> desert willow
<b>BORAGINACEAE - BORAGE FAMILY</b>
<i>Amsinckia menziesii</i> var. <i>intermedia</i> common fiddleneck
<i>Heliotropium curassavicum</i> salt heliotrope/alkali heliotrope
<i>Pectocarya linearis</i> ssp. <i>ferocula</i> slender pectocarya
<i>Plagiobothrys leptocladus</i> Wirestem popcorn flower
<b>BRASSICACEAE (CRUCIFERAE) - MUSTARD FAMILY</b>
<i>Brassica nigra</i> * black mustard
<i>Hirschfeldia incana</i> * shortpod mustard
<i>Lepidium dictyotum</i> var. <i>acutidens</i> sharp-tooth peppergrass
<i>Lepidium dictyotum</i> var. <i>dictyotum</i> alkali peppergrass
<i>Raphanus sativus</i> * wild radish
<i>Sinapis arvensis</i> * field charlock
<i>Sisymbrium irio</i> * London rocket
<i>Spergularia bocconeii</i> * Boccone's sand spurrey

**PLANT COMPENDIUM  
 (Continued)**

Plants
<i>Spergularia marina</i> salt-marsh sand spurrey
<b>CAPRIFOLIACEAE - HONEYSUCKLE FAMILY</b>
<i>Sambucus mexicana</i> blue elderberry
<b>CHENOPODIACEAE - GOOSEFOOT FAMILY</b>
<i>Atriplex argentea</i> ssp. <i>mohavensis</i> Mojave silver scale
<b><i>Atriplex coronata</i> var. <i>notatior</i> San Jacinto Valley crownscale</b>
<i>Atriplex suberecta</i> * small saltbush
<i>Bassia hyssopifolia</i> five-hook bassia
<i>Beta vulgaris</i> * garden beet
<i>Chenopodium album</i> * lamb's quarters
<i>Kochia scoparia</i> Summer cypress
<i>Monolepis nuttalliana</i> Nuttall's monolepis
<i>Salicornia subterminales</i> Parish's pickleweed
<i>Salsola tragus</i> * Russian thistle
<i>Suaeda moquinii</i> bush seepweed
<b>CONVOLVULACEAE - MORNING-GLORY FAMILY</b>
<i>Calystegia macrostegia</i> morning-glory
<i>Cressa truxillensis</i> alkali weed
<b>CRASSULACEAE - STONECROP FAMILY</b>
<i>Crassula connata</i> pigmy-weed
<b>EUPHORBIACEAE - SPURGE FAMILY</b>
<i>Croton californicus</i> California croton
<i>Eremocarpus setigerus</i> doveweed/turkey mullein
<i>Ricinus communis</i> * castor bean
<b>FABACEAE (LEGUMINOSAE) - LEGUME FAMILY</b>
<i>Lotus scoparius</i> deerweed/California broom
<i>Lupinus bicolor</i> miniature lupine

**PLANT COMPENDIUM  
 (Continued)**

Plants
<i>Medicago polymorpha</i> * California burclover
<i>Melilotus indica</i> * sourclover
<b>FRANKENIACEAE - ALKALI HEATH FAMILY</b>
<i>Frankenia salina</i> alkali heath
<b>GERANIACEAE - GERANIUM FAMILY</b>
<i>Erodium cicutarium</i> * red-stemmed filaree
<b>HYDROPHYLLACEAE - WATERLEAF FAMILY</b>
<i>Eucrypta chrysanthemifolia</i> common eucrypta
<i>Eriodictyon crassifolium</i> thick-leaf yerba santa
<i>Phacelia cicutaria</i> caterpillar phacelia
<b>LAMIACEAE (LABIATAE) - MINT FAMILY</b>
<i>Marrubium vulgare</i> * common horehound
<i>Salvia apiana</i> white sage
<i>Salvia columbariae</i> chia
<b>LOASACEAE - STICK-LEAF FAMILY</b>
<i>Mentzelia laevicaulis</i> stick-leaf
<b>LYTHRACEAE - LOOSESTRIFE FAMILY</b>
<i>Lythrum hyssopifolium</i> * grass poly
<b>MALVACEAE - MALLOW FAMILY</b>
<i>Malacothamnus fasciculatus</i> chaparral bushmallow
<i>Malva parviflora</i> * cheeseweed
<i>Malvella leprosa</i> alkali mallow
<b>MYRTACEAE - MYRTLE FAMILY</b>
<i>Eucalyptus camaldulensis</i> * river red gum
<b>NYCTAGINACEAE - FOUR-O'CLOCK FAMILY</b>
<b><i>Abronia villosa</i> var. <i>aurita</i> chaparral sand-verbena</b>
<b>OLEACEAE - OLIVE FAMILY</b>
<i>Olea europaea</i> * olive

**PLANT COMPENDIUM  
 (Continued)**

<b>Plants</b>
<b>ONAGRACEAE - EVENING PRIMROSE FAMILY</b>
<i>Camissonia californica</i> mustard-like evening primrose
<i>Camissonia campestris</i> ssp. <i>campestris</i> sun cups
<b>PLATANACEAE - SYCAMORE FAMILY</b>
<i>Platanus racemosa</i> western sycamore
<b>PLANTAGINACEAE - PLANTAIN FAMILY</b>
<i>Plantago elongata</i> California alkali plantain
<b>PLUMBAGINACEAE - LEADWORT FAMILY</b>
<i>Limonium sinuatum</i> * winged sea-lavender
<b>POLYGONACEAE - BUCKWHEAT FAMILY</b>
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i> interior flat-topped buckwheat
<i>Polygonum arenastrum</i> * common knotweed
<i>Polygonum argyrocoleon</i> * Persian knotweed
<i>Rumex crispus</i> * curly dock
<i>Rumex maritimus</i> golden dock
<b>ROSACEAE - ROSE FAMILY</b>
<i>Adenostoma fasciculatum</i> chamise
<i>Rosa californica</i> California wild rose
<i>Rubus ursinus</i> California blackberry
<b>SALICACEAE - WILLOW FAMILY</b>
<i>Populus fremontii</i> ssp. <i>fremontii</i> Fremont cottonwood
<i>Salix gooddingii</i> black willow
<b>SCROPHULARIACEAE - FIGWORT FAMILY</b>
<i>Mimulus guttatus</i> seep monkeyflower
<i>Veronica peregrina</i> ssp. <i>xalapensis</i> purslane speedwell
<b>SOLANACEAE - NIGHTSHADE FAMILY</b>
<i>Datura wrightii</i> jimson weed
<i>Nicotiana glauca</i> * tree tobacco

**PLANT COMPENDIUM  
 (Continued)**

Plants
<i>Nicotiana quadrivalvis</i> Wallace's tobacco
<b>CLASS MONOCOTYLEDONES (MONOCOTS)</b>
<b>ARECACEAE (PALMAE) - PALM FAMILY</b>
<i>Phoenix canariensis</i> * Canary Island date palm
<i>Washingtonia robusta</i> * Mexican fan palm
<b>CYPERACEAE - SEDGE FAMILY</b>
<i>Eleocharis macrostachya</i> perennial spike rush
<i>Scirpus californicus</i> California bulrush
<b>POACEAE [GRAMINEAE] - GRASS FAMILY</b>
<i>Avena fatua</i> * wild oat
<i>Bromus diandrus</i> * ripgut grass
<i>Bromus inermis</i> ssp. <i>inermis</i> * smooth brome
<i>Bromus madritensis</i> ssp. <i>rubens</i> * foxtail chess
<i>Bromus tectorum</i> * cheat grass
<i>Crypsis schoenoides</i> * swamp timothy
<i>Distichlis spicata</i> salt grass
<b><i>Hordeum intercedens</i></b> <b>vernal barley</b>
<i>Hordeum marinum</i> var. <i>gussoneanum</i> * Mediterranean barley
<i>Hordeum murinum</i> var. <i>leporinum</i> * foxtail barley
<i>Hordeum vulgare</i> * cultivated barley
<i>Lamarckia aurea</i> * goldentop grass
<i>Lolium perenne</i> * perennial ryegrass
<i>Phalaris minor</i> * little-seed canary grass
<i>Phalaris paradoxa</i> * paradox canary grass
<i>Polypogon monspeliensis</i> * annual beard grass
<i>Schismus barbatus</i> * Mediterranean schismus
<i>Triticum aestivum</i> * cereal wheat

**PLANT COMPENDIUM  
(Continued)**

Plants
<i>Vulpia myuros</i> * foxtail fescue
<b>TYPHACEAE - CATTAIL FAMILY</b>
<i>Typha domingensis</i> southern cattail
* <i>introduced species</i>

**A-2  
 WILDLIFE COMPENDIUM**

<b>Wildlife</b>
<b>Reptiles</b>
<b>PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS</b>
<i>Uta stansburiana</i> side-blotched lizard
<b>Birds</b>
<b>PHASIANIDAE - PHEASANTS &amp; UPLAND GAME BIRDS</b>
<i>Gallus gallus domesticus</i> * domestic fowl
<i>Pavo cristatus</i> * common peafowl
<b>ODONTOPHORIDAE - QUAILS</b>
<i>Callipepla californica</i> California quail
<b>ARDEIDAE - HERONS</b>
<i>Ardea alba</i> great egret
<b>THRESKIORNITHIDAE - IBIS</b>
<i>Plegadis chihi</i> white-faced ibis
<b>ACCIPITRIDAE - HAWKS</b>
<i>Accipiter cooperii</i> Cooper's hawk
<i>Buteo jamaicensis</i> red-tailed hawk
<b>FALCONIDAE - FALCONS</b>
<i>Falco sparverius</i> American kestrel
<b>CHARADRIIDAE - PLOVERS</b>
<i>Charadrius vociferus</i> killdeer
<b>SCOLOPACIDAE - SANDPIPERS &amp; PHALAROPES</b>
<i>Numenius americanus</i> long-billed curlew
<i>Limnodromus sp.</i> unknown dowitcher
<b>COLUMBIDAE - PIGEONS &amp; DOVES</b>
<i>Columba livia</i> * rock pigeon
<i>Patagioenas fasciata</i> band-tailed pigeon
<i>Zenaida macroura</i> mourning dove
<b>TROCHILIDAE - HUMMINGBIRDS</b>
<i>Calypte anna</i> Anna's hummingbird

## WILDLIFE COMPENDIUM (Continued)

Wildlife
<b>TYRANNIDAE - TYRANT FLYCATCHERS</b>
<i>Sayornis nigricans</i> black phoebe
<i>Sayornis saya</i> Say's phoebe
<i>Tyrannus vociferans</i> Cassin's kingbird
<i>Tyrannus verticalis</i> western kingbird
<b>LANIIDAE - SHRIKES</b>
<i>Lanius ludovicianus</i> loggerhead shrike
<b>CORVIDAE - JAYS &amp; CROWS</b>
<i>Corvus brachyrhynchos</i> American crow
<i>Corvus corax</i> common raven
<b>ALAUDIDAE - LARKS</b>
<i>Eremophila alpestris</i> horned lark
<b>HIRUNDINIDAE - SWALLOWS</b>
<i>Petrochelidon pyrrhonota</i> cliff swallow
<i>Hirundo rustica</i> barn swallow
<b>AEGITHALIDAE - BUSHTITS</b>
<i>Psaltriparus minimus</i> bushtit
<b>TROGLODYTIDAE - WRENS</b>
<i>Troglodytes aedon</i> house wren
<b>MIMIDAE - THRASHERS</b>
<i>Mimus polyglottos</i> northern mockingbird
<b>STURNIDAE - STARLINGS</b>
<i>Sturnus vulgaris</i> * European starling
<b>EMBERIZIDAE - SPARROWS &amp; JUNCOS</b>
<i>Chondestes grammacus</i> lark sparrow
<b>ICTERIDAE - BLACKBIRDS</b>
<i>Agelaius phoeniceus</i> red-winged blackbird
<i>Sturnella neglecta</i> western meadowlark
<i>Euphagus cyanocephalus</i> Brewer's blackbird
<i>Molothrus ater</i> brown-headed cowbird

## WILDLIFE COMPENDIUM (Continued)

Wildlife
<b>FRINGILLIDAE - FINCHES</b>
<i>Carpodacus mexicanus</i> house finch
<i>Carduelis psaltria</i> lesser goldfinch
<i>Carduelis tristis</i> American goldfinch
<b>PASSERIDAE - OLD WORLD SPARROWS</b>
<i>Passer domesticus</i> house sparrow *
Mammals
<b>LEPORIDAE - HARES &amp; RABBITS</b>
<i>Sylvilagus audubonii</i> desert cottontail
<i>Lepus californicus</i> black-tailed jackrabbit
<b>SCIURIDAE - SQUIRRELS</b>
<i>Spermophilus beecheyi</i> California ground squirrel
<b>GEOMYIDAE - POCKET GOPHERS</b>
<i>Thomomys bottae</i> Botta's pocket gopher
<b>CANIDAE - WOLVES &amp; FOXES</b>
<i>Canis latrans</i> coyote
<i>Canis lupus familiaris</i> * domestic dog
<b>FELIDAE - CATS</b>
<i>Felis catus</i> * domestic cat
<b>EQUIDAE - HORSES, DONKEYS &amp; ZEBRAS</b>
<i>Equus ferus caballus</i> * horse
<b>BOVIDAE - CLOVEN-HOOFED MAMMALS</b>
<i>Capra aegagrus hircus</i> * domestic goat
* introduced species

June 17, 2010

Mr. Andrew Keller  
Southern California Edison  
2244 Walnut Grove Avenue, G01, Quad 3A  
Rosemead, California 91770

**VIA EMAIL**  
**andrew.keller@sce.com**

**Subject: Results of Western Burrowing Owl Surveys for the Lakeview Substation in the Cities of Lakeview and Nuevo and unincorporated Riverside County, California**

Dear Mr. Keller:

This Letter Report presents the results of focused surveys for the western burrowing owl (*Athene cunicularia*) conducted during the species' nesting period (March 1 to August 31) on the Lakeview Substation Project Site located in the Cities of Lakeview and Nuevo and unincorporated Riverside County, California (Exhibit 1). The purpose of the survey was to determine the presence or absence of the western burrowing owl on the project site. The project site includes an approximate 40-mile alignment and a 50-foot buffer on either side of the alignment and proposed substation sites (Exhibit 2). The survey was completed in accordance with guidelines provided in the California Burrowing Owl Consortium (CBOC) survey protocol for this species (CBOC 1993) and in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

### **Project Location and Description**

The project site consists of approximately 606 acres and 40 miles of alignment. It is located on the U.S. Geological Survey's (USGS) Perris, Lakeview, and El Casco 7.5-minute quadrangles for the State of California. The northern half of the project site falls within the San Jacinto, Nuevo y Potrero Land Grant and is outside of the public land survey system. The southern half of the project site is located within Sections 10, 11, 14, and 15 of Township 3S, Range 3W. It should be noted that the alignment is currently much smaller than that which was surveyed in 2009 for the western burrowing owl.

In general, the project site is bounded by the intersection of Davis Street and West Contour Road on the north, State Highway 74/Pinacate Road on the south, the intersection of Menifee Road and Nuevo Road on the west, and the intersection of Juniper Flats Road and Sanwood Road on the east (Exhibit 2).

The project site includes multiple land uses and habitat types, including developed areas, Riversidean sage scrub, active and fallow agriculture, California annual grassland, and riparian habitat. Topography on the project site is generally flat or gradually sloping with a few low hills. Elevations within the project site range from 1,470 to 1,630 feet above mean sea level (msl). Several drainages cross the project site. Surrounding land uses include residential subdivisions, commercial development, public facilities, and open space.

## **Background**

The western burrowing owl is a grassland specialist distributed throughout western North America, where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground (Haug and Didiuk 1993, Dechant et al. 2003). Burrowing owls in Florida excavate their own burrows, but western burrowing owls are dependent upon the presence of burrowing mammals such as ground squirrels whose burrows are used for roosting and nesting (Haug and Didiuk 1993). The presence or absence of colonial mammal burrows is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. Burrowing mammals may burrow beneath rocks; debris; or large, heavy objects such as abandoned cars, concrete blocks, or concrete pads. Large, hard objects at burrow entrances stabilize the entrance from collapse, and may inhibit excavation by predators.

Burrowing owls often use “satellite” or non-nesting burrows, moving chicks into them from the nesting burrow, presumably to reduce the risk of predation (Desmond and Savidge 1998) and possibly to avoid nest parasites (Dechant et al. 2003). One pair may use up to ten satellite burrows (James and Seabloom 1968). Individual burrowing owls have a moderate to high site fidelity to previously used burrow complexes, often using the same burrows for nesting year after year.

The western burrowing owl was once abundant and widely distributed within coastal Southern California, but it has declined precipitously in Los Angeles, Orange, San Diego, Riverside, and San Bernardino Counties. A recent petition was submitted to list the California population of the western burrowing owl as an Endangered or Threatened species (CBD et al. 2003). The California Department of Fish and Game (CDFG) declined to list the burrowing owl as either Threatened or Endangered due to its distribution statewide. However, the CDFG considers the burrowing owl to be a California Species of Special Concern (CDFG 2009).

The burrowing owl is known to occur historically within areas of the San Jacinto Wildlife Area and along the road leading to it (i.e., Davis Road, Segment D; Exhibit 2). One historic location occurs one-half mile north of the intersection between Ramona Expressway and Davis Road and two historic locations occur approximately two miles north of the same intersection.

## **Survey Methodology**

Surveys within the project site followed a methodology based on the Burrowing Owl Survey Instructions for the Western Riverside County MSHCP (County of Riverside 2006). The Western Riverside County MSHCP survey instructions are the most current protocol described for the species. The guidelines outline a survey methodology that has been officially approved by the CDFG and the U.S. Fish and Wildlife Service (USFWS). Surveys for the burrowing owl are conducted during the breeding season, which extends from March 1 to August 31. These surveys are done in three phases: (1) habitat assessment; (2) burrow surveys; and (3) focused owl surveys.

### *Habitat Assessment*

The first step, habitat assessment, identifies whether the project site provides potential habitat for the species. This determination is made by a Biologist that is knowledgeable in burrowing

owl habitat, ecology, and identification. The Biologist conducts the assessment by walking the project site (which should include land within an approximate 500-foot buffer area, if it is accessible) to visually inspect the project site and assess its potential for burrowing owls. BonTerra Consulting Biological Resources Manager Marc Blain conducted a habitat assessment in winter 2009. Mr. Blain conducted the assessment by walking and/or driving the project site to visually inspect the study area and assess its potential for burrowing owls.

*Burrow Survey*

The second step, burrow survey, identifies suitable burrow(s) and location(s) of occupied burrow(s). A Biologist (with the qualifications identified in the first step) conducts the burrow survey by walking through suitable habitat within the project site via transects no more than approximately 100 feet apart in order to ensure 100 percent visual coverage of the ground surface. If no potentially active burrows are detected, then no focused owl surveys are required. BonTerra Consulting Biologist Kimberly Oldehoeft conducted burrow surveys on May 19, June 29, July 3, and August 11, 2009. Ms. Oldehoeft walked transects at regularly spaced intervals to achieve 100 percent visual coverage of all potential habitat within the project site. Any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. The burrow survey was not conducted within five days of rain, which could have washed away potential sign. Survey times and weather conditions are summarized in Table 1 below.

**TABLE 1  
 SURVEY DATA**

Visit / Area <sup>a</sup>	Date	Time	Weather	Wind (mph)	Temperature (°F)	Results
Burrow Survey 1	May 19, 2009	0800-1700	Clear to 75% cover	3-16	71-91	No owls observed
Burrow Survey 2	June 29, 2009	0800-1700	Clear to 95% cover	0-18	77-96	No owls observed
Burrow Survey 3	July 3, 2009	0800-1700	Clear to 50% cover	0-16	68-93	No owls observed
Crepuscular Survey 1; Areas 1-2	July 10, 2009	0545-0745	10% to 20% cover	0-3	58-70	No owls observed
Crepuscular Survey 1; Areas 3-6	July 13, 2009	1800-2000	Clear	8-15	92-88	No owls observed
Crepuscular Survey 2; Areas 1-2	July 14, 2009	0545-0745	Clear to 5% cover	0	60-75	No owls observed
Crepuscular Survey 2; Areas 3-6	July 14, 2009	1800-2000	Clear	10-15	80-90	No owls observed
Crepuscular Survey 3; Areas 3-5	July 15, 2009	0545-0745	Clear	0	60-75	No owls observed
Crepuscular Survey 3; Areas 1-2 & 6	July 15, 2009	1800-2000	Clear to 5% cover	7-10	80-90	No owls observed
Crepuscular Survey 4; Areas 3-6	July 16, 2009	0545-0745	Clear	0-5	62-75	No owls observed
Crepuscular Survey 4; Areas 1-2	July 16, 2009	1800-2000	Clear to 10% cover	10-13	85-92	No owls observed
Burrow Survey 4	August 11, 2009	0800-1430	Clear	0-3	62-90	No owls observed
Crepuscular Survey 1; Area 7	August 11, 2009	1730-1930	Clear	7-12	80-88	No owls observed

**TABLE 1 (Continued)  
 SURVEY RESULTS**

Visit / Area <sup>a</sup>	Date	Time	Weather	Wind (mph)	Temperature (°F)	Results
Crepuscular Survey 1; Area 8-9	August 17, 2009	1730- 1830	Clear	11-12	80-87	No owls observed
Crepuscular Survey 2; Area 7	August 17, 2009	1830- 2000	Clear	10-12	72-80	No owls observed
Crepuscular Survey 2; Area 8-9	August 18, 2009	1800- 1900	Clear	11-13	80-85	No owls observed
Crepuscular Survey 3; Area 7	August 18, 2009	1900- 2000	Clear	5-11	73-85	No owls observed
Crepuscular Survey 3; Area 8-9	August 26, 2009	1800- 1900	Clear	12-15	85-95	No owls observed
Crepuscular Survey 4; Area 7	August 26, 2009	1900- 2000	Clear	11-12	70-85	No owls observed
Crepuscular Survey 4; Area 8-9	August 31, 2009	1900- 2000	10% cover	6-10	82-95	No owls observed

<sup>a</sup> Area numbers refer to portions of the alignment as described in Exhibits 3A to 3K.

### *Focused Burrowing Owl Surveys*

If owls or potentially-occupied burrows or cavities are located during the burrow survey, then crepuscular (dawn or dusk) focused burrowing owl surveys are required. Focused surveys were conducted within several portions of the project site where burrowing owls had a potential to occur based on the results of the habitat assessment and burrow survey. These surveys were conducted from either one hour before sunrise to two hours after, or from two hours before sunset to one hour after. These surveys are conducted only with sufficient light to follow burrowing owl flights. Focused crepuscular surveys were conducted by Ms. Oldehoeft on July 10, 13, 14, 15, 16, August 11, 17, 18, 26, and 31, 2009. All potential habitat within the project site was surveyed to achieve 100 percent visual coverage of the area (Exhibits 3A to 3K). Binoculars were used to inspect holes, crevices, and potential perches such as rocks, fence posts, and other elevated structures for the presence of owls while listening for owl calls.

### **Survey Results**

Burrows suitable for burrowing owl occupation were observed in nine areas (Areas 1 to 9) throughout the project site (Exhibits 3A to 3K). These areas supported multiple California ground squirrel (*Spermophilus beecheyi*) burrows, crevices between boulders, or construction debris. No burrowing owls or owl sign (i.e., cast pellets, white-wash, feathers, or prey remains) were observed within the project site during focused burrowing owl surveys. A complete list of all wildlife species observed during the surveys is provided in Appendix A of this Letter Report.

### **Recommendations**

The County of Riverside requires pre-construction surveys prior to any ground disturbance for development on the project site. As stated in the County of Riverside's Burrowing Owl Survey Instructions, "All project sites containing burrows or suitable habitat... require pre-construction surveys that shall be conducted within 30 days prior to ground disturbance to avoid direct take of burrowing owls" (County of Riverside 2006). Pre-construction surveys can be conducted at any time of year. Because the project site appears to be suitable for occupation by the burrowing owl, a pre-construction survey conducted during any time of year has a high

Mr. Andrew Keller  
June 17, 2010  
Page 5

likelihood of locating burrowing owls if present on the project site. Results of the pre-construction burrowing owl surveys will be reported to the County of Riverside. If no active burrowing owl burrows or burrowing owl individuals are observed, grading can proceed. If active burrows are observed, consultation with the County will be required.

Thank you for the opportunity to prepare this Letter Report. If you have any questions or comments, please contact Jeff Crain or Kim Oldehoeft at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING



Jeffrey S. Crain  
Project Manager

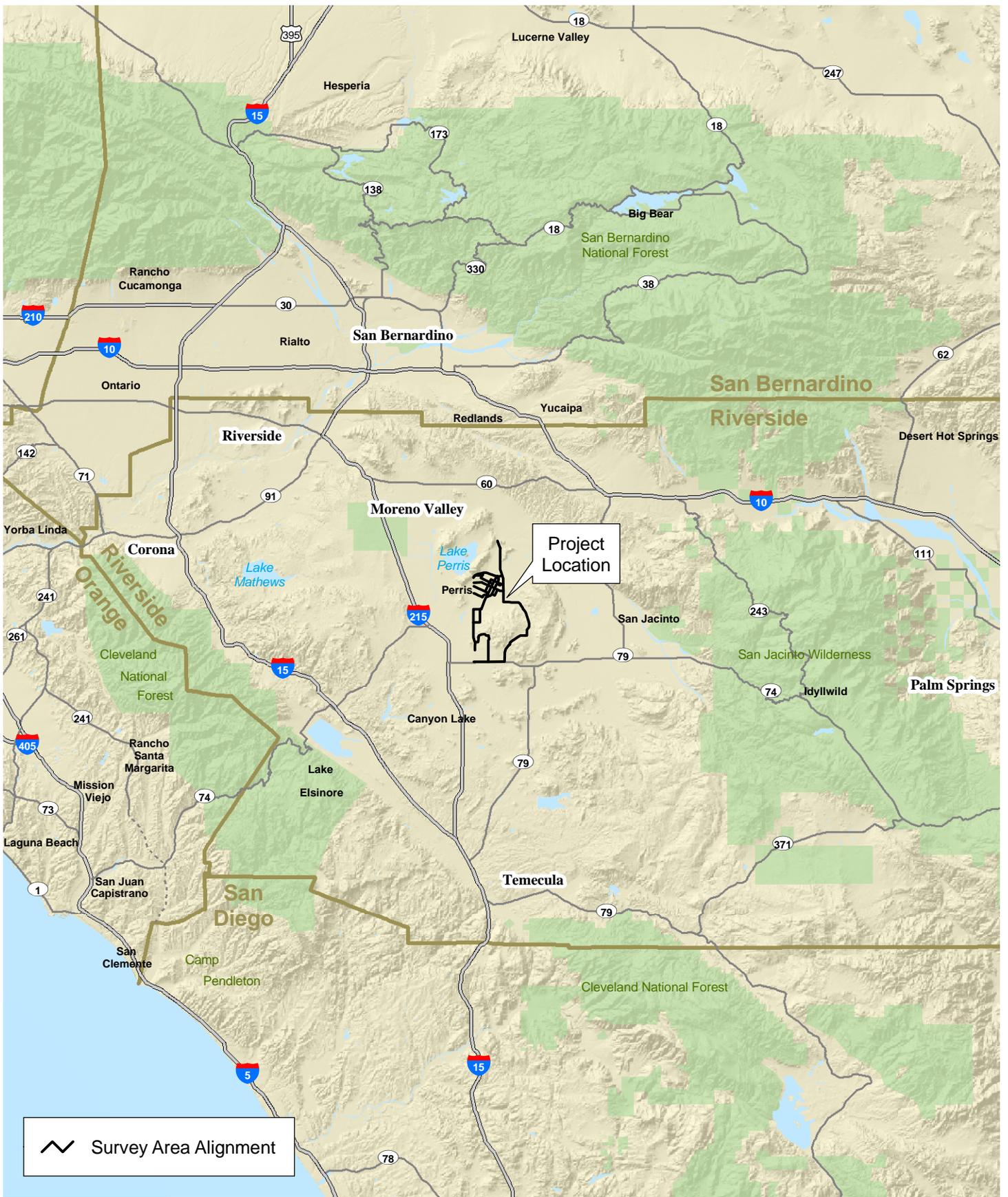
Exhibit 1: Regional Location  
Exhibit 2: Local Vicinity  
Exhibits 3A to 3K: Survey Areas

Appendix A: Wildlife Species Observed

## References

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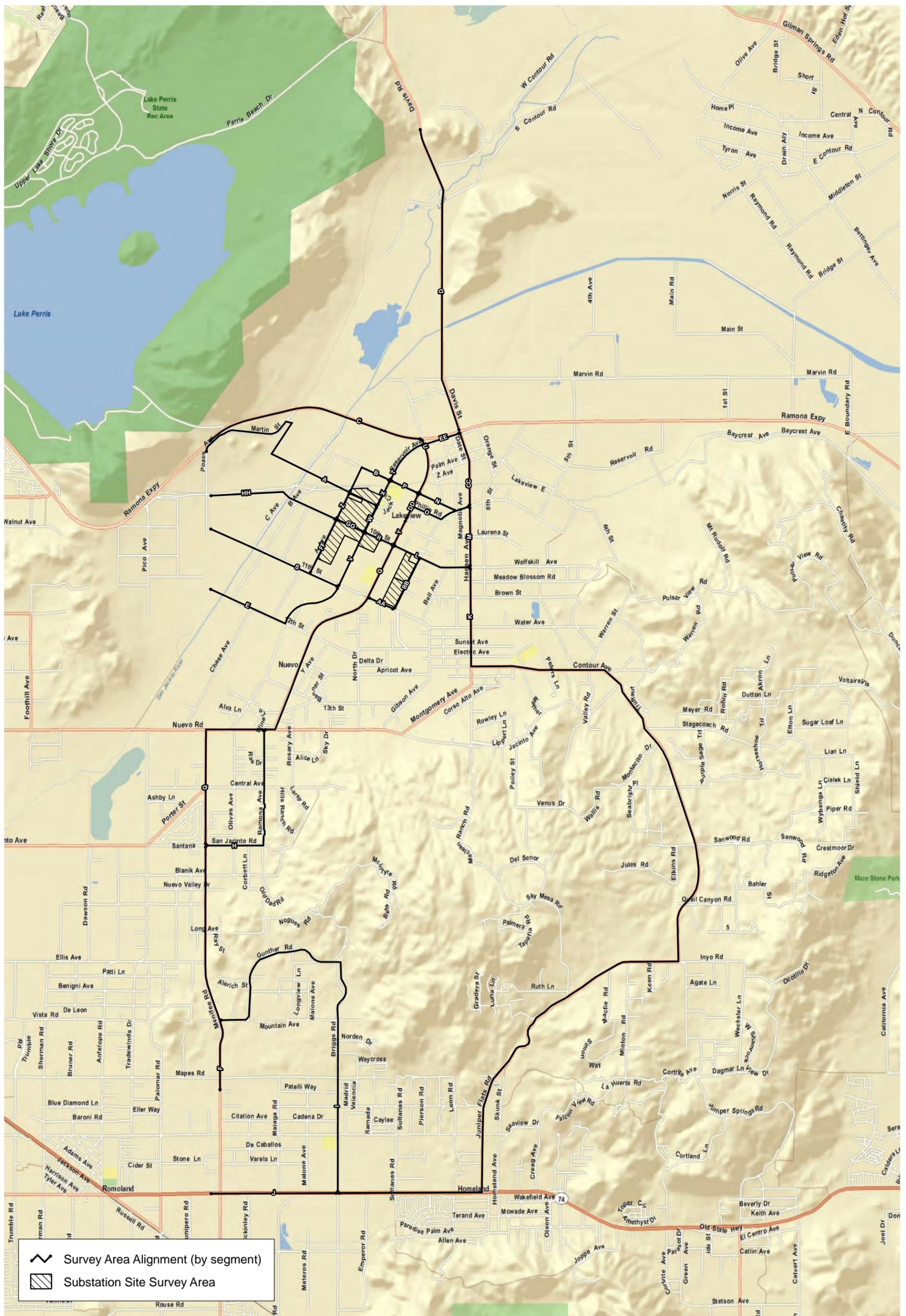
## Regional Location

Exhibit 1

*Focused Burrowing Owl Surveys 2009, Lakeview Substation*



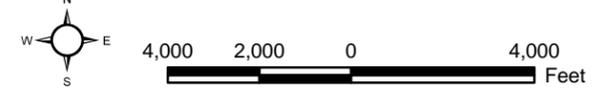
**Bonterra**  
CONSULTING



 Survey Area Alignment (by segment)  
 Substation Site Survey Area

**Local Vicinity**

Focused Burrowing Owl Surveys 2009, Lakeview Substation

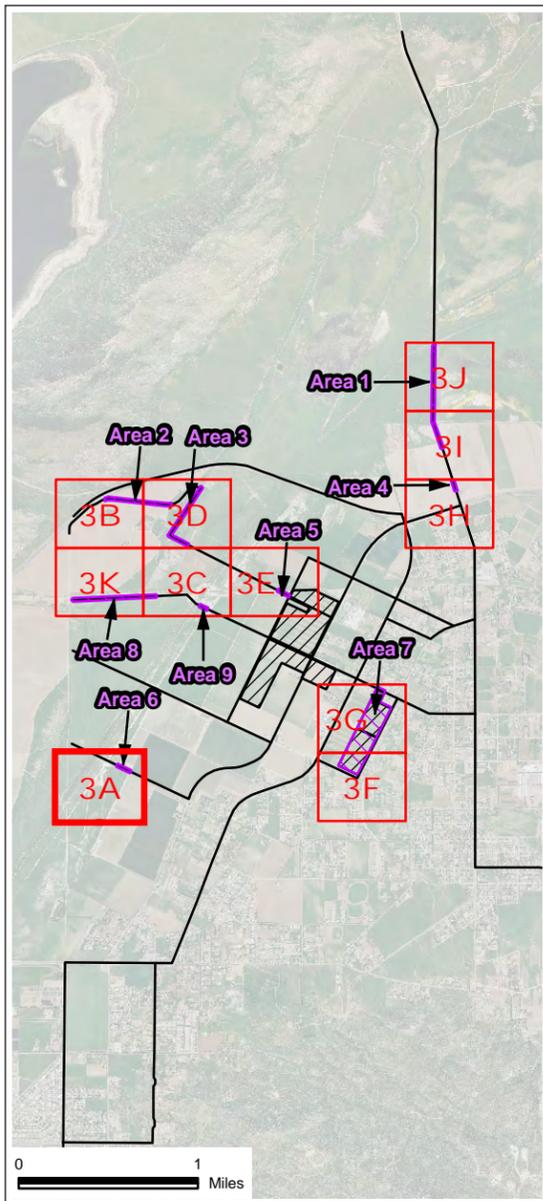


**Exhibit 2**



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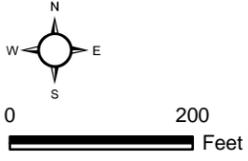
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- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

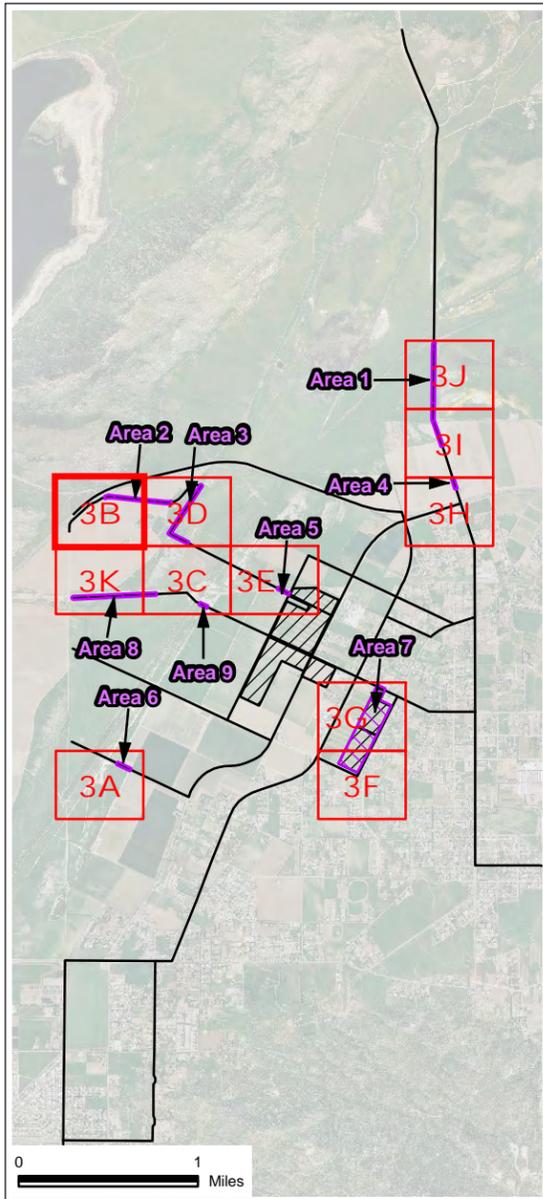
**Survey Areas**      **Exhibit 3 A**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

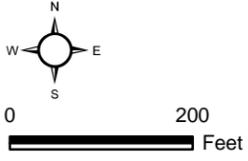
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- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

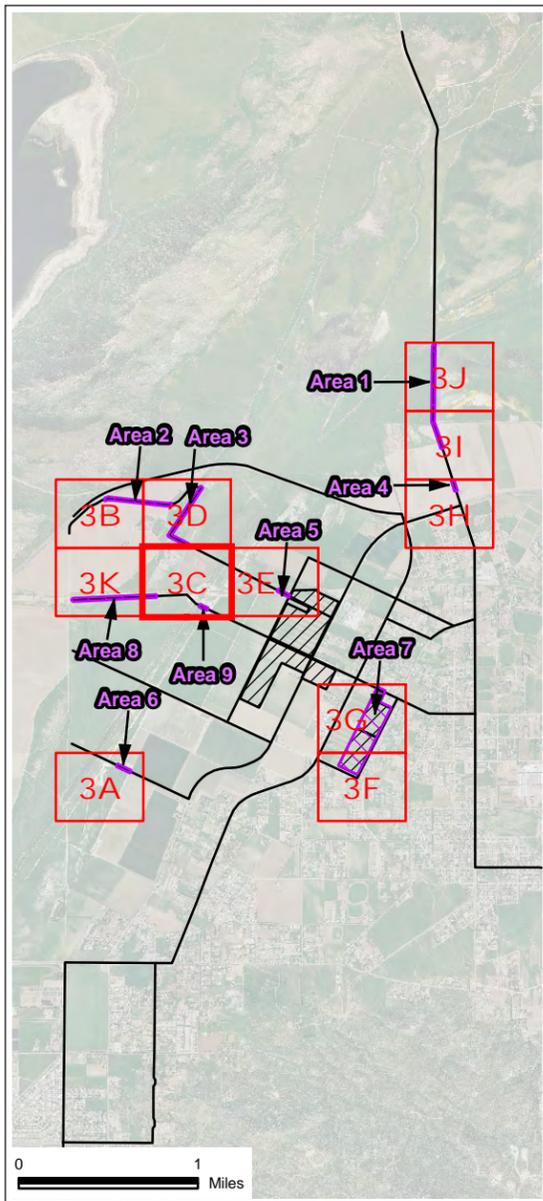
**Survey Areas**      **Exhibit 3 B**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

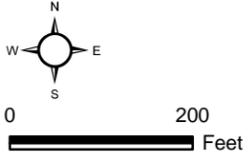
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-  Segment Line Route
-  Crepuscular Survey Areas
-  Study Area

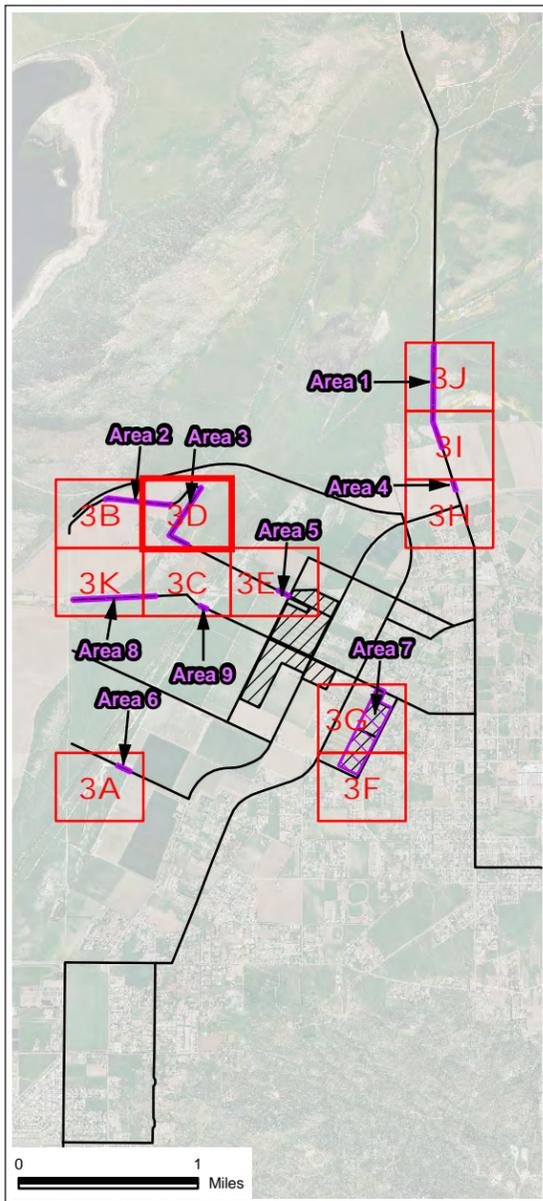
**Survey Areas**      **Exhibit 3 C**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

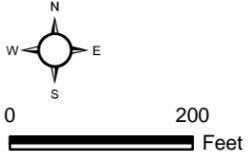
D:\Projects\Edison\J025M\XD\Ex\_owl\_survey\_areas.mxd



- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

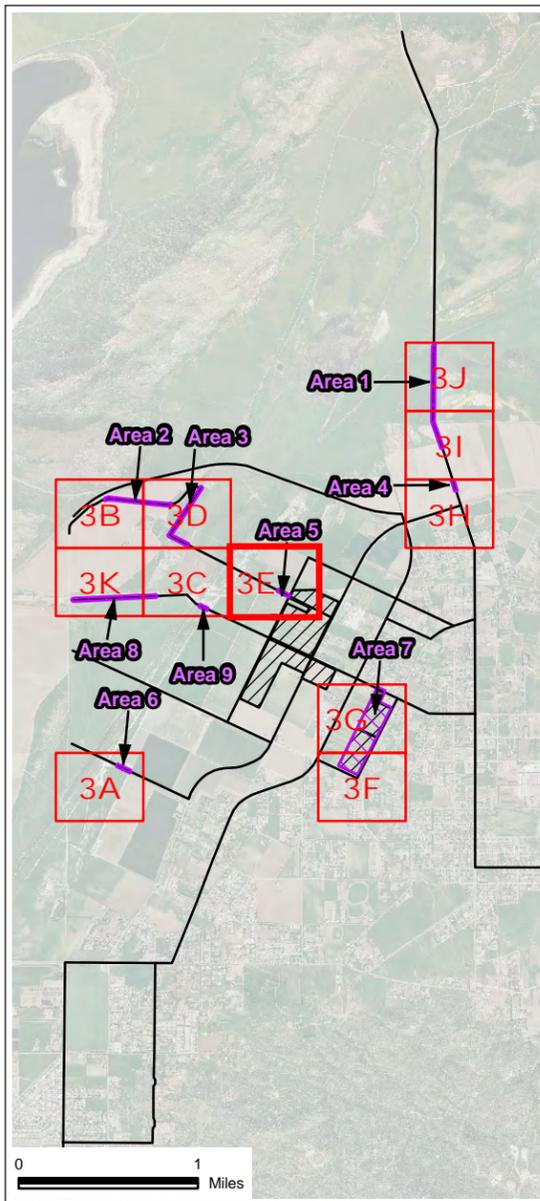
**Survey Areas**      **Exhibit 3 D**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

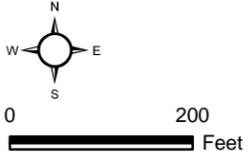
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- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

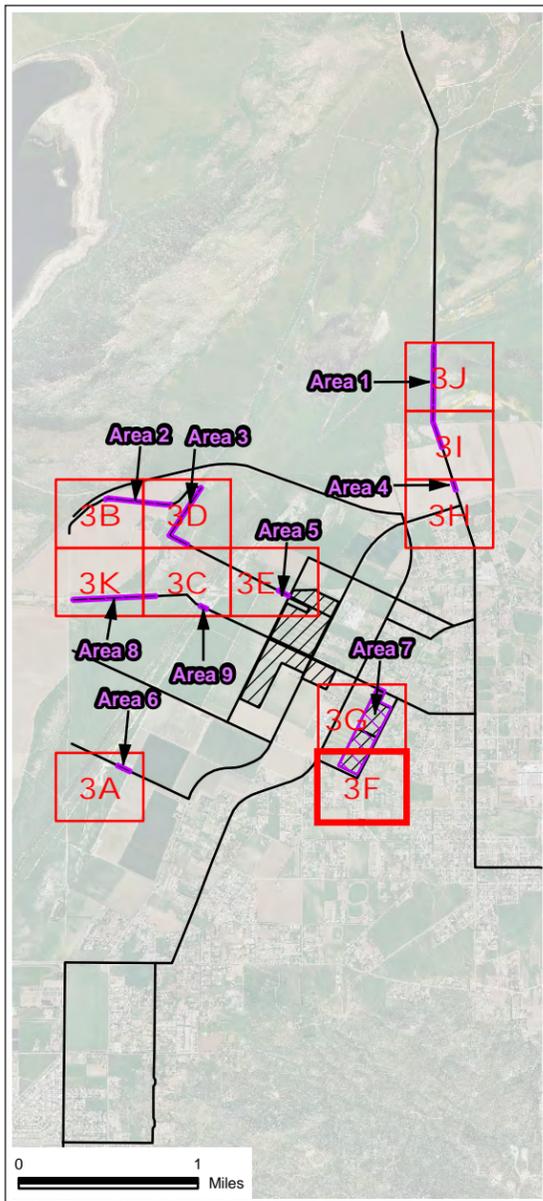
**Survey Areas**      **Exhibit 3 E**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

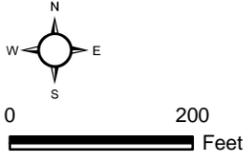
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- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

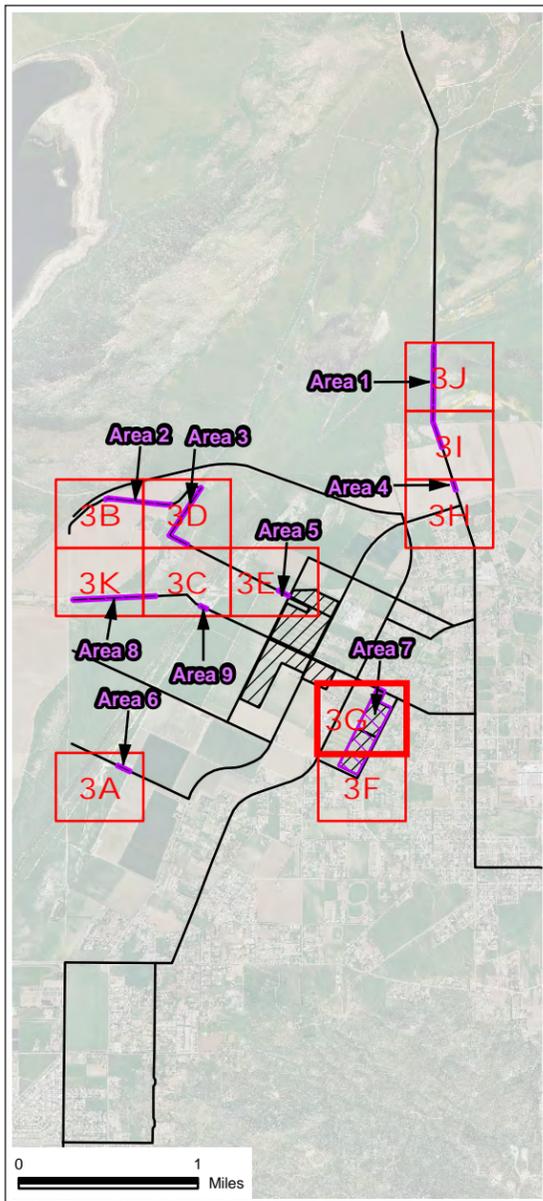
**Survey Areas**      **Exhibit 3 F**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

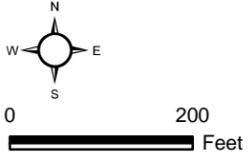
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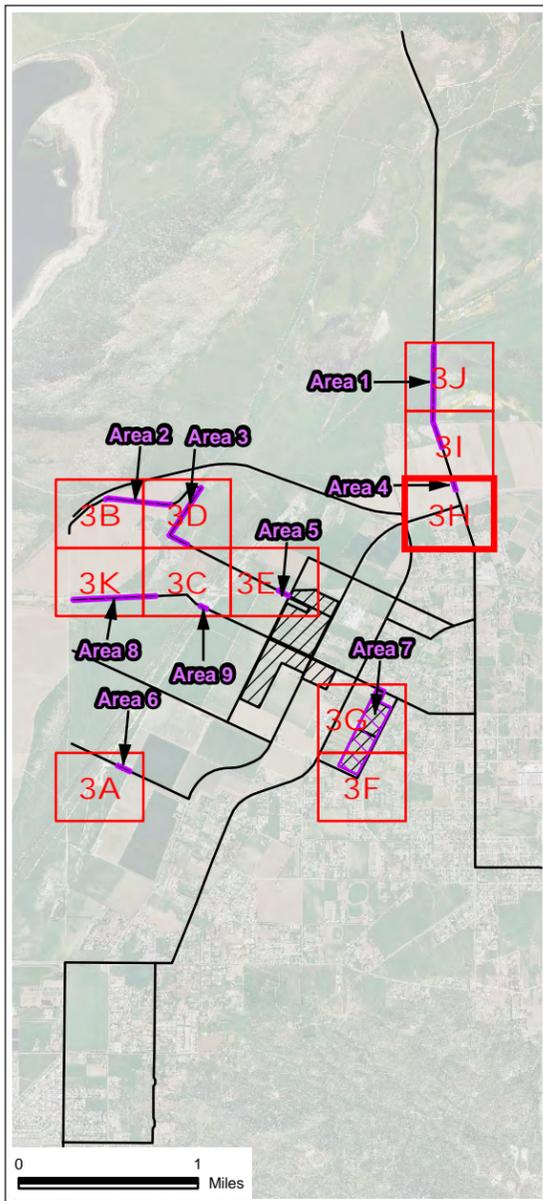
- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

**Survey Areas**      **Exhibit 3 G**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



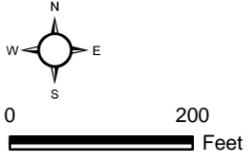
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- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

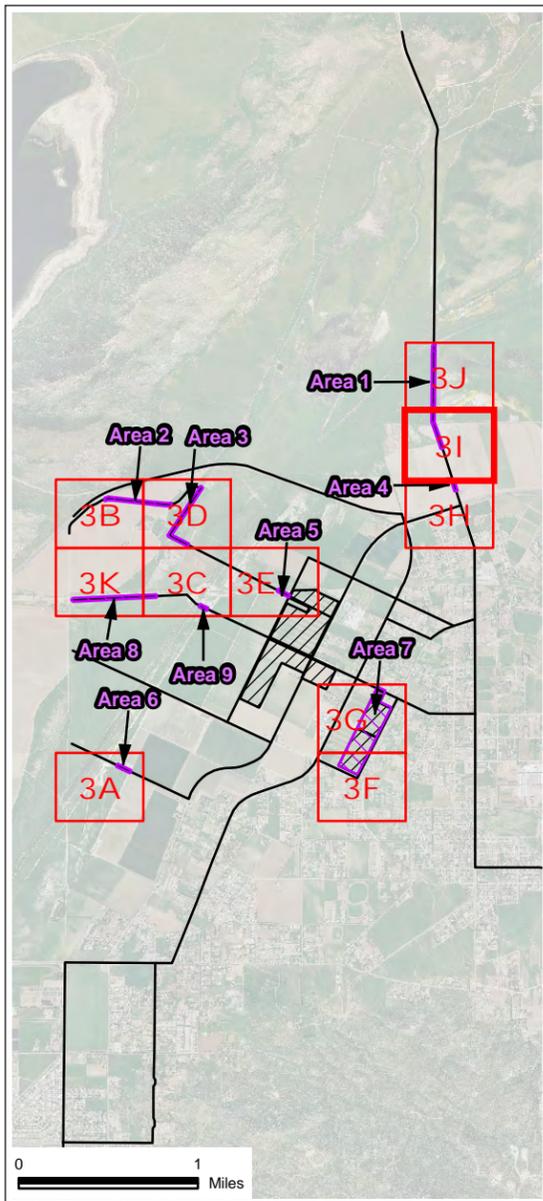
**Survey Areas**      **Exhibit 3 H**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

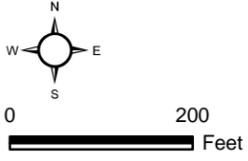
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- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

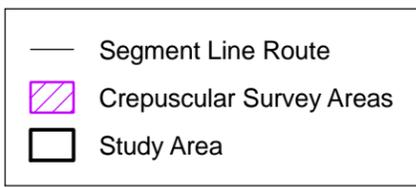
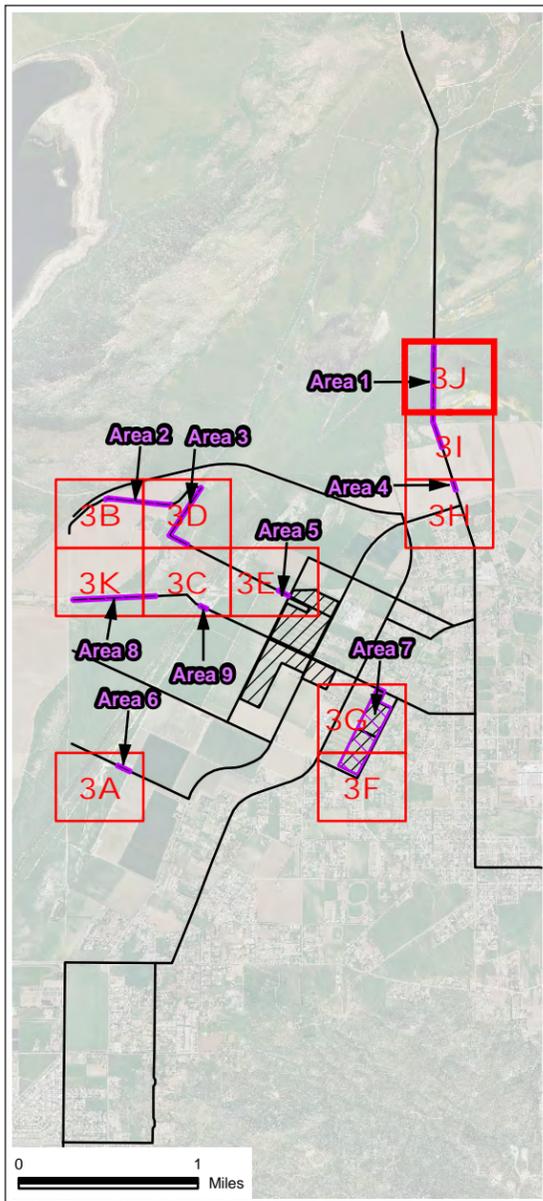
**Survey Areas Exhibit 3 I**

*Focused Burrowing Owl Surveys 2009, Lakeview Substation*



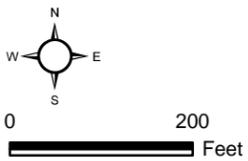
Source: Aerials Express, 2008

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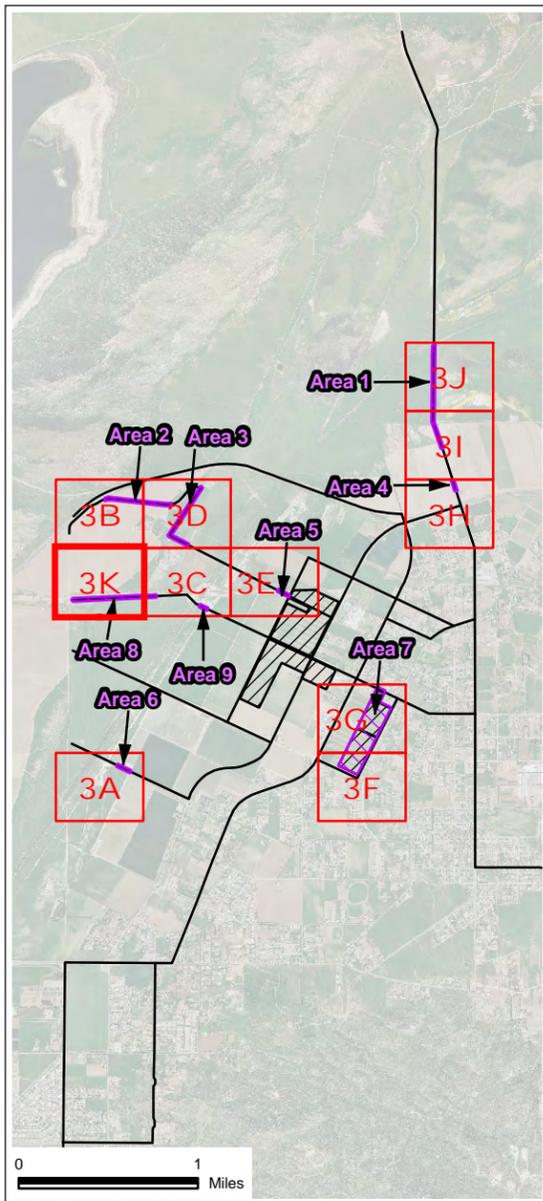
**Survey Areas**      **Exhibit 3 J**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

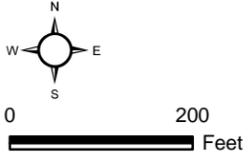
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- Segment Line Route
- ▨ Crepuscular Survey Areas
- Study Area

**Survey Areas**      **Exhibit 3 K**

*Focused Burrowing Owl Surveys 2009,  
Lakeview Substation*



Source: Aerials Express, 2008

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**APPENDIX A**  
**WILDLIFE SPECIES OBSERVED DURING BURROWING OWL SURVEYS**

## WILDLIFE SPECIES OBSERVED

Species
<b>Reptiles</b>
<b>PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS</b>
<i>Uta stansburiana</i> side-blotched lizard
<b>Birds</b>
<b>PHASIANIDAE - PHEASANTS &amp; UPLAND GAME BIRDS</b>
<i>Gallus gallus domesticus</i> * domestic fowl
<i>Pavo cristatus</i> * common peafowl
<b>ODONTOPHORIDAE - QUAILS</b>
<i>Callipepla californica</i> California quail
<b>ARDEIDAE - HERONS</b>
<i>Ardea alba</i> great egret
<b>THRESKIORNITHIDAE - IBIS</b>
<i>Plegadis chihi</i> white-faced ibis
<b>ACCIPITRIDAE - HAWKS</b>
<i>Accipiter cooperii</i> Cooper's hawk
<i>Buteo jamaicensis</i> red-tailed hawk
<i>Circus cyaneus</i> northern harrier
<b>FALCONIDAE - FALCONS</b>
<i>Falco sparverius</i> American kestrel
<b>CHARADRIIDAE - PLOVERS</b>
<i>Charadrius vociferus</i> killdeer
<b>SCOLOPACIDAE - SANDPIPERS &amp; PHALAROPES</b>
<i>Numenius americanus</i> long-billed curlew
<i>Limnodromus sp.</i> unknown dowitcher
<b>COLUMBIDAE - PIGEONS &amp; DOVES</b>
<i>Columba livia</i> * rock pigeon
<i>Patagioenas fasciata</i> band-tailed pigeon
<i>Zenaida macroura</i> mourning dove
<b>TROCHILIDAE - HUMMINGBIRDS</b>
<i>Calypte anna</i> Anna's hummingbird

## WILDLIFE SPECIES OBSERVED

Species
<b>TYRANNIDAE - TYRANT FLYCATCHERS</b>
<i>Sayornis nigricans</i> black phoebe
<i>Sayornis saya</i> Say's phoebe
<i>Tyrannus vociferans</i> Cassin's kingbird
<i>Tyrannus verticalis</i> western kingbird
<b>LANIIDAE - SHRIKES</b>
<i>Lanius ludovicianus</i> loggerhead shrike
<b>CORVIDAE - JAYS &amp; CROWS</b>
<i>Corvus brachyrhynchos</i> American crow
<i>Corvus corax</i> common raven
<b>ALAUDIDAE - LARKS</b>
<i>Eremophila alpestris</i> horned lark
<b>HIRUNDINIDAE - SWALLOWS</b>
<i>Petrochelidon pyrrhonota</i> cliff swallow
<i>Hirundo rustica</i> barn swallow
<b>AEGITHALIDAE - BUSHTITS</b>
<i>Psaltriparus minimus</i> bushtit
<b>TROGLODYTIDAE - WRENS</b>
<i>Troglodytes aedon</i> house wren
<b>MIMIDAE - THRASHERS</b>
<i>Mimus polyglottos</i> northern mockingbird
<b>STURNIDAE - STARLINGS</b>
<i>Sturnus vulgaris</i> * European starling
<b>EMBERIZIDAE - SPARROWS &amp; JUNCOS</b>
<i>Chondestes grammacus</i> lark sparrow
<b>ICTERIDAE - BLACKBIRDS</b>
<i>Agelaius phoeniceus</i> red-winged blackbird
<i>Sturnella neglecta</i> western meadowlark
<i>Euphagus cyanocephalus</i> Brewer's blackbird
<i>Molothrus ater</i> brown-headed cowbird

## WILDLIFE SPECIES OBSERVED

Species
<b>FRINGILLIDAE - FINCHES</b>
<i>Carpodacus mexicanus</i> house finch
<i>Carduelis psaltria</i> lesser goldfinch
<i>Carduelis tristis</i> American goldfinch
<b>PASSERIDAE - OLD WORLD SPARROWS</b>
<i>Passer domesticus</i> house sparrow *
<b>Mammals</b>
<b>LEPORIDAE - HARES &amp; RABBITS</b>
<i>Sylvilagus audubonii</i> desert cottontail
<i>Lepus californicus</i> black-tailed jackrabbit
<b>SCIURIDAE - SQUIRRELS</b>
<i>Spermophilus beecheyi</i> California ground squirrel
<b>GEOMYIDAE - POCKET GOPHERS</b>
<i>Thomomys bottae</i> Botta's pocket gopher
<b>CANIDAE - WOLVES &amp; FOXES</b>
<i>Canis latrans</i> coyote
<i>Canis lupus familiaris</i> * domestic dog
<b>FELIDAE - CATS</b>
<i>Felis catus</i> * domestic cat
<b>EQUIDAE - HORSES, DONKEYS &amp; ZEBRAS</b>
<i>Equus ferus caballus</i> * horse
<b>BOVIDAE - CLOVEN-HOOFED MAMMALS</b>
<i>Capra aegagrus hircus</i> * domestic goat
* introduced species

**APPENDIX D  
SPECIAL STATUS PLANT SPECIES REPORTED IN THE PROJECT VICINITY**

Species	Status			Potential to Occur on Each Site [Yes(Y)/No(N)/Observed(O) Number Observed in Parenthesis/Not Observed During Focused Surveys, Suitable Habitat Present (NOS)]							
	USFWS	CDFG	CNPS	Proposed Substation Site	Proposed Subtransmission Source Line Route, Segment 1	Proposed Subtransmission Source Line Route, Segment 2	Proposed Telecommunications Routes			Alternative Substation Site	Alternative Subtransmission Source Line Route, Segment 3
							New Cable To Moval	Proposed Overhead Route 1	Proposed Overhead Route 2		
<b>Plants</b>											
Chaparral sand-verbena ( <i>Abronia villosa</i> var. <i>aurita</i> )	—	—	1B.1	N	N	N	NOS	N	N	N	N
Munz's Onion ( <i>Allium munzii</i> )	FE	ST	1B.1	N	N	N	NOS	N	N	N	N
San Jacinto Valley crownscale ( <i>Atriplex coronata</i> var. <i>notatior</i> )	FE	—	1B.1	N	O (1999)	NOS	NOS	O (1999)	N	N	O (532)
South Coast saltscale ( <i>Atriplex pacifica</i> )	—	—	1B.2	N	NOS	NOS	NOS	NOS	N	N	NOS
Parish's brittlescale ( <i>Atriplex parishii</i> )	—	—	1B.1	N	NOS	N	NOS	NOS	N	N	NOS
Davidson's saltscale ( <i>Atriplex serenana</i> var. <i> davidsonii</i> )	—	—	1B.2	N	NOS	NOS	NOS	NOS	N	N	NOS
Thread-leaved brodiaea ( <i>Brodiaea filifolia</i> )	FT	SE	1B.1	N	NOS	N	NOS	NOS	N	N	NOS
Intermediate mariposa lily ( <i>Calochortus weedii</i> var. <i>intermedius</i> )	—	—	1B.2	N	N	N	Y	N	N	N	N
Smooth tarplant ( <i>Centromadia pungens</i> ssp. <i>laevis</i> )	—	—	1B.1	N	O (75)	O (65)	Y	O (75)	N	N	NOS
Parry's spineflower ( <i>Chorizanthe parryi</i> var. <i>parryi</i> )	—	—	1B.1	N	NOS	NOS	NOS	NOS	N	N	NOS
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	—	—	1B.2	N	NOS	N	NOS	NOS	N	N	N
Slender-horned spineflower ( <i>Dodecahema leptoceras</i> )	FE	SE	1B.1	N	N	N	N	N	N	N	N
Vernal barley ( <i>Hordeum intercedens</i> )	—	—	3.2	N	O (4000)	O (150)	NOS	O (4000)	N	N	O (9200)
Coulter's goldfields ( <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> )	—	—	1B.1	N	NOS	O (1)	NOS	NOS	N	N	O (6250)
Robinson's pepper-grass ( <i>Lepidium virginicum</i> var. <i>robinsonii</i> )	—	—	1B.2	N	N	N	NOS	N	N	N	N
Mud nama ( <i>Nama stenocarpum</i> )	—	—	2.2	N	N	N	N	N	N	N	N
Moran's navarretia ( <i>Navarretia fossalis</i> )	FT	—	1B.1	N	NOS	NOS	N	NOS	N	N	NOS
California Orcutt grass ( <i>Orcuttia californica</i> )	FE	SE	1B.1	N	N	N	N	N	N	N	NOS
Salt Spring checkerbloom ( <i>Sidalcea neomexicana</i> )	—	—	2.2	N	NOS	NOS	N	NOS	N	N	NOS
Wright's trichocoronis ( <i>Trichocoronis wrightii</i> var. <i>wrightii</i> )	—	—	2.1	N	Y	NOS	Y	Y	N	N	NOS

**APPENDIX E**

**LAKEVIEW SUBSTATION PHASE I ESA**

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October 26, 2009

**Justin Larson**  
CRE Land Agent

**Subject: Phase I Environmental Site Assessment Report**  
**Lakeview Substation**  
**Lakeview, CA**

Per your request on July 30, 2009, CEH&S Environmental Engineering conducted a Phase I Environmental Site Assessment for the proposed Lakeview Substation site located in Lakeview, California in Riverside County.

A thorough investigation of the property was made in accordance with American Society of Testing and Materials Practice E 1527-05 and 40 Code of Federal Regulations Part 312 for All Appropriate Inquiries. The scope of work included review of physiographic information including regional geology and hydrogeology, review of site history and land use within the site area, review of federal, state, tribal and local government agency records, site reconnaissance, and interviews with the current tenant and other personnel. None of the available sources indicate that proposed acquisition of the property would pose any significant environmental concerns. However, it is recommended that the existing water well at the site be properly abandoned per governing agency requirements.

Should you have any questions or comments regarding this report, please contact me at PAX 28004.



**Sonia Sorensen, P.E.**  
**Environmental Engineering**  
**Corporate Environment, Health and Safety**

**Attachment**

# **PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT**

Proposed SCE Lakeview Substation Property  
Lakeview, California

## **PREPARED FOR**

Southern California Edison Company  
Corporate Environmental Health & Safety  
Environmental Engineering  
2131 Walnut Grove Avenue  
Rosemead, CA 91770

## **PREPARED BY**

Rubicon Engineering Corporation  
20 Corporate Park, Suite 285  
Irvine, California 92606

Project No. 1009.27





October 26, 2009

Project No. 1009.27

Ms. Sonia Sorensen  
Environmental Engineer  
SOUTHERN CALIFORNIA EDISON COMPANY  
Corporate Environmental Health & Safety  
Environmental Engineering  
2131 Walnut Grove Avenue  
Rosemead, CA 91770

**Phase I Environmental Site Assessment Report**  
Proposed SCE Lakeview Substation Property  
Lakeview, California

Dear Ms. Sorensen:

Enclosed is a copy of the Phase I Environmental Site Assessment Report for the subject property to be acquired by Southern California Edison Company in Lakeview, California. If you have any questions regarding this report or require additional information, please do not hesitate to call.

Respectfully submitted,

RUBICON ENGINEERING CORPORATION

A handwritten signature in blue ink that reads "Mohsen Mehran".

Mohsen Mehran, Ph.D.  
Project Manager

P:\1009 SCE\1009.27 Lakeview Substation\Phase I Report

# Phase I Environmental Site Assessment Report

## TABLE OF CONTENTS

	<u>Page</u>
<b>LIST OF FIGURES .....</b>	<b>v</b>
<b>LIST OF ABBREVIATIONS AND ACRONYMS .....</b>	<b>vi</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>ix</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 APPROACH.....	1
1.2 LIMITATIONS.....	2
1.3 REPORT ORGANIZATION .....	2
<b>2.0 SOURCES OF INFORMATION FOR PHASE I ESA .....</b>	<b>3</b>
2.1 TOPOGRAPHIC MAPS.....	3
2.2 AERIAL PHOTOGRAPHS .....	3
2.3 GOVERNMENT DATABASES.....	3
2.4 FIRE INSURANCE MAPS.....	3
2.5 HISTORICAL CITY DIRECTORY.....	3
2.6 ENVIRONMENTAL LIEN SEARCH .....	4
2.7 INTERVIEWS.....	4
2.8 WALK-OVER SURVEY OF THE SITE.....	4
2.9 INFORMATION FROM LOCAL AND STATE AGENCIES.....	4
2.10 OTHER SOURCES.....	4
2.11 OIL AND GAS RECORDS.....	4
<b>3.0 BACKGROUND INFORMATION.....</b>	<b>5</b>
3.1 SITE LOCATION AND DESCRIPTION .....	5
3.2 ADJOINING PROPERTIES .....	5
3.3 TOPOGRAPHY.....	5
3.4 REGIONAL GEOLOGY .....	5
3.5 REGIONAL HYDROGEOLOGY .....	6
3.6 FLOODPLAIN INFORMATION .....	7
<b>4.0 SITE HISTORY .....</b>	<b>8</b>
4.1 HISTORICAL AERIAL PHOTOGRAPHS, SANBORN AND TOPOGRAPHIC MAPS .....	8
4.2 CITY DIRECTORIES.....	9
4.3 ENVIRONMENTAL LIEN SEARCH .....	10
<b>5.0 RECORDS REVIEW.....</b>	<b>12</b>
5.1 SUMMARY OF FEDERAL, STATE, TRIBAL AND LOCAL AGENCY DATABASE RECORDS .....	12
5.1.1 Federal Government Records .....	12
5.1.2 State and Local Government Records.....	16

# Phase I Environmental Site Assessment Report

Proposed SCE Lakeview Substation Property  
Lakeview, California

Page iv  
October 26, 2009

---

5.1.3	Tribal Records.....	21
5.1.4	EDR Proprietary Records .....	22
5.1.5	Orphan Sites.....	22
5.2	AGENCY RECORDS.....	22
5.3	USER PROVIDED INFORMATION .....	22
5.4	GROUND WATER PRODUCTION WELLS.....	23
<b>6.0</b>	<b>SITE RECONNAISSANCE .....</b>	<b>24</b>
6.1	SITE OBSERVATIONS .....	24
6.2	ADJOINING PROPERTIES .....	24
6.3	INTERVIEWS.....	25
<b>7.0</b>	<b>FINDINGS AND CONCLUSIONS .....</b>	<b>26</b>
	<b>REFERENCES.....</b>	<b>27</b>
	<b>FIGURES</b>	
	<b>APPENDIX A: HISTORICAL TOPOGRAPHIC MAPS</b>	
	<b>APPENDIX B: HISTORICAL AERIAL PHOTOGRAPHS</b>	
	<b>APPENDIX C: EDR REPORTS</b>	
	<b>APPENDIX D: USER QUESTIONNAIRE</b>	
	<b>APPENDIX E: PHOTOGRAPHS</b>	
	<b>APPENDIX F: QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL</b>	

# Phase I Environmental Site Assessment Report

Proposed SCE Lakeview Substation Property  
Lakeview, California

Page v  
October 26, 2009

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## LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>
1	Site Location Map
2	Site and Vicinity Map
3	DOGGR Map

# Phase I Environmental Site Assessment Report

## LIST OF ABBREVIATIONS AND ACRONYMS

AAI	All Appropriate Inquiries
AIRS	Aerometric Information Retrieval System
APN	Assessor Parcel Number
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
BRS	Biennial Reporting System
CDL	Clandestine Drug Labs
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Index System
CESQG	Conditionally Exempt Small Quantity Generators
CFR	Code of Federal Regulations
CHMIRS	California Hazardous Material Incident Report System
CRE	Corporate Real Estate
DOD	Department of Defense
DOGGR	California Division of Oil, Gas & Geothermal Resources
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EDR	Environmental Data Resources, Inc.
EMI	Emissions Inventory Data
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
EVMWD	Elsinore Valley Municipal Water District
FEMA	Federal Emergency Management Agency
FFIS	Federal Facilities Information System
FID	Facility Inventory Database
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FINDS	Facility Index System/Facility Registry System
FRDS	Federal Reporting Data System
FUDS	Formerly Used Defense Sites
FURS	Federal Underground Injection Control
HMIRS	Hazardous Materials Information Reporting System
HMMD	Hazardous Materials Management Division
ICIS	Integrated Compliance Information System
LDS	Land Disposal sites
LQG	large quantity generator

# Phase I Environmental Site Assessment Report

## LIST OF ABBREVIATIONS AND ACRONYMS (cont'd)

LQG	large quantity generator
LUCIS	Land Use Control Information System
LUST	Leaking Underground Storage Tank
MCS	Military Cleanup sites
MLTS	Material Licensing Tracking System
NFRAP	No Further Remedial Action Planned
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
ODI	Open Dump Inventory
OPS	Office of Pipeline Safety
OS-RUR	Open Space Rural
PADS	PCB Activity database System
PCB	poly-chlorinated biphenyl
PCS	Permit Compliance System
PEA	Preliminary Environmental Assessment
RAATS	RCRA Administrative Action Tracking System
RADINFO	Radiation Information Database
RCBSD	Riverside County Building & Safety Department
RCDEH	Riverside County Department of Environmental Health
RCRA	Resource Conservation and Recovery Act
ROD	Records of Decision
RR	Rural Residential
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SCE	Southern California Edison
SCRD	State Coalition for Remediation of Drycleaners
SQG	small quantity generator
SSTS	Section Seven Tracking Systems
SWAT	Solid Waste Assessment Test
SWEEPS	Statewide Environmental Evaluation and Planning System
SWIS	Solid Waste Information System
SWRCB	State Water Resources Control Board
TBA	Targeted Brownfields Assessment
TPCA	Toxic Pits Cleanup Act
TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substance Control Act
TSD	treatment, storage and disposal
UMTRA	Uranium Mill Tailings Remedial Action
USGS	U.S. Geological Survey

## Phase I Environmental Site Assessment Report

Proposed SCE Lakeview Substation Property  
Lakeview, California

Page viii  
October 26, 2009

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### LIST OF ABBREVIATIONS AND ACRONYMS (cont'd)

UST	underground storage tank
VCP	Voluntary Cleanup Program
WDS	Waste Discharge System
WIP	Well Investigation Program
WMUDS	Waste Management Unit Database System

# Phase I Environmental Site Assessment Report

## EXECUTIVE SUMMARY

Southern California Edison Company (SCE) is considering acquiring approximately 5.78 acres of property (the site) located on the southwestern corner of 10<sup>th</sup> Street and Reservoir Avenue in Lakeview, California, to construct a new substation. Rubicon Engineering Corporation (Rubicon) has conducted a Phase I Environmental Site Assessment (ESA) on behalf of SCE to identify, to the extent feasible, recognized environmental conditions in connection with the site.

The scope of the Phase I ESA included review of physiographic information including regional geology and hydrogeology; review of site history and land use within the site vicinity; review of federal, state, tribal, and local government agency records; site reconnaissance; and interviews with the land owner and other personnel.

Based on historical information available during this Phase I ESA, the site and vicinity appear to have been used for agricultural purposes dating back to at least 1938. An interview with Mr. Brent Lunt of Agri-Empire indicated that the site has always been used for farming. Currently, the site is used for growing potatoes. There are no oil and gas wells located within a mile radius of the site.

From the site reconnaissance, a concrete slab with an adjoined natural gas line was observed in the northeastern corner of the site. According to Mr. Lunt, a natural gas engine was used on top of the concrete slab. There were small stains observed on top of the concrete slab, but the stains were considered *de minimis* conditions. Next to the concrete slab, an abandoned water well was observed to be covered with a metal plate. According to the property owner, the well was abandoned because the groundwater water throughout the valley, underlying the site, had a high selenium concentration, and it was not acceptable for agriculture purposes. However, the well was not properly abandoned. Since the use of the water well is no longer intended, the well should be properly abandoned under Riverside County Environmental Health requirements. A broken tip of an underground pipe was also observed near the well.

Data gap identified during the preparation of this Phase I ESA include unreturned owner questionnaire. However, historical information obtained from topographic maps, aerial photographs, and interviews provide adequate information related to the site's historical use. It is the opinion of the Environmental Professional that this data gap does not affect the findings of this Phase I ESA.

Rubicon performed the Phase I ESA of the site according to the American Society for Testing and Materials (ASTM) E1527-05 and All Appropriate Inquiries (AAI) in conformance with the standards and practices set forth in the Code of Federal Regulations (CFR), Title 40, Part 312. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the site.

# Phase I Environmental Site Assessment Report

## 1.0 INTRODUCTION

This report documents a Phase I Environmental Site Assessment (ESA) for the Southern California Edison Company's (SCE's) proposed Lakeview Substation Property (the site) located on the southwestern corner of 10<sup>th</sup> Street and Reservoir Avenue in Lakeview, California. A site location map is presented in Figure 1. A site and vicinity map showing the adjacent properties is presented in Figure 2. Rubicon has conducted the Phase I ESA on behalf of SCE to identify, to the extent feasible, recognized environmental conditions in connection with the site. SCE is considering acquiring the site to construct a new substation.

### 1.1 APPROACH

The approach adopted by Rubicon for the Phase I ESA is consistent with the ASTM Standard E1527-05 entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", and the 40 CFR, Part 312 titled "Standards and Practices for All Appropriate Inquiries; Final Rule", dated November 1, 2005. There were no exceptions to, or deletions from, the ASTM Practice E1527-05 during the preparation of this Phase I ESA. Rubicon's approach to the Phase I ESA included:

- Review of relevant background information, such as the site location relative to major man-made and natural landmarks, surrounding land use, and regional geology/hydrogeology.
- Review of California oil and gas records for the presence of oil and gas wells in the vicinity of the site.
- A compilation of site history and previous land uses based on a review of title records, historic aerial photographs dating back to the 1940's, historic topographic maps, available historic fire insurance maps, building permits, and city directories.
- Environmental lien search to identify environmental cleanup liens and other activities and use limitations, such as engineering and institutional controls.
- An assessment of the potential for the site to have been impacted by contaminants originating from off-site sources based on a review of federal, state, tribal, and local government agency records.
- An inspection of the site to identify recognized environmental conditions that may include indications of the improper handling, storage, or use of potentially hazardous materials. This task also includes interviews with property owners, tenants, and/or local agency personnel about hazardous materials handling and disposal records.

# Phase I Environmental Site Assessment Report

- An evaluation of the possible presence of hazardous materials at the site and/or in the subsurface environment beneath the site, with recommendations, if appropriate, for additional investigations or remediation.

## 1.2 LIMITATIONS

The Phase I ESA for the site was performed in accordance with current ASTM practices (ASTM, 2005). The resulting findings were based on the information available to Rubicon from the sources cited; however, Rubicon makes no warranty regarding the accuracy or completeness of the information available. This Phase I ESA excludes any evaluation of or with respect to asbestos, lead-based paint, radon, methane, lead in drinking water, endangered species, wetlands, geotechnical conditions or seismicity. Also, this report does not include evaluation of the potential impact of possible future activities on subsurface conditions or of undocumented activities on adjacent or nearby properties. Rubicon has conducted the Phase I ESA on behalf of SCE to help evaluate potential environmental liability associated with owning the site. SCE may rely upon the information provided in this Phase I ESA report for a period of 180 days from the date of issue. After 180 days, this Phase I ESA should be updated and, if appropriate, an addendum should be issued extending the period during which this report can be relied upon. Rubicon will not be liable for any consequential damages arising from the use of this Phase I ESA Report for other than its intended purpose or from unauthorized use by third parties.

## 1.3 REPORT ORGANIZATION

The remainder of this Phase I ESA Report is organized into six sections. Section 2.0 documents the various sources of information utilized during the Phase I ESA. Section 3.0 describes background and regional information regarding the site and surrounding areas. Section 4.0 presents the site history. Section 5.0 provides a summary of the information collected from record reviews for the site and surrounding areas. Section 6.0 presents the findings of the site reconnaissance and Section 7.0 presents a summary of findings and conclusions. Supporting information is contained in tables, figures, and appendices, all of which follow the text of this report. Appendix A presents selected historical topographic maps. Appendix B provides selected historical aerial photographs of the site. Appendix C contains the Environmental Data Resources (EDR) radius map report summarizing information available from a review of databases maintained by local, state, and federal government agencies. Appendix C also contains the EDR City Directory Abstract, EDR Sanborn® Map Report, and EDR Environmental Lien Search Report. Appendix D contains Phase I ESA questionnaire completed by the user. Photographs taken during the site visit are included in Appendix E. Appendix F contains the qualifications of the environmental professional conducting the Phase I ESA.

# Phase I Environmental Site Assessment Report

## 2.0 SOURCES OF INFORMATION FOR PHASE I ESA

Many sources of information were utilized in conducting the Phase I ESA for the site. The sources of information included historical topographic maps; historical aerial photographs; historical fire insurance maps; historical city directories; a walk-over survey of the site and adjoining properties; interviews and telephone conversations with current site owners; a review of records available at the site; a review of records available from selected local and state regulatory agencies; a review of databases maintained by local, state, and federal government agencies; and other records available from commercial sources.

### 2.1 TOPOGRAPHIC MAPS

Historical United States Geological Survey (USGS) topographic maps published between 1901 and 1973 were obtained from Environmental Data Resources, Inc. (EDR). The historical topographic maps, which have been scanned and annotated, are presented in Appendix A.

### 2.2 AERIAL PHOTOGRAPHS

To help understand the history of the site and past land use, historical aerial photographs published between 1938 and 2005 were obtained from EDR and reviewed. Copies of the aerial photographs are included in Appendix B in chronological order.

### 2.3 GOVERNMENT DATABASES

To document potential sources of contamination at or near the site, a government records search was conducted by EDR under contract to Rubicon. The search (EDR, September 18, 2009) included tribal, local, state, and federal records for the site and for other sites within ASTM standard radii of the facility. The records search is summarized in Section 5.0 and copies of EDR's reports are included in Appendix C. All of the databases searched by EDR had been updated within 90 days of the date the government version was made available.

### 2.4 FIRE INSURANCE MAPS

No Fire Insurance Maps are available for the area of the site.

### 2.5 HISTORICAL CITY DIRECTORY

Historical city directories for the site and surrounding areas from 1975 until 2007 were obtained from EDR and reviewed. The information is presented in Section 4.2, and a copy of the city directory report as received from EDR is included in Appendix C.

# Phase I Environmental Site Assessment Report

## 2.6 ENVIRONMENTAL LIEN SEARCH

An environmental lien search was conducted by EDR for the site. The results of the search are presented in Section 4.3 and a copy of the EDR report is included in Appendix C.

## 2.7 INTERVIEWS

Three people were interviewed in person or via telephone during the Phase I ESA. The information obtained during the interviews is presented in Section 6.3.

## 2.8 WALK-OVER SURVEY OF THE SITE

Rubicon personnel conducted a walk-over survey of the site on September 21, 2009. Information obtained during the walk-over survey is referenced, as appropriate, throughout the remainder of this report. Photographs taken during the walk-over survey are presented in Appendix E.

## 2.9 INFORMATION FROM LOCAL AND STATE AGENCIES

Rubicon contacted the following agencies to obtain files for the site:

- Riverside County Office of Assessor
- Riverside County Department of Environmental Health (RCDEH), Hazardous Material Management Division (HMMD)
- State Water Resources Control Board (SWRCB)
- Department of Toxic Substances Control (DTSC)

Information obtained from each of the above agencies is discussed in Section 5.2.

## 2.10 OTHER SOURCES

Rubicon utilized the worldwide web and other internet-based services to research information about the site and surrounding areas. These sources are referenced, as appropriate, throughout the remainder of this report.

## 2.11 OIL AND GAS RECORDS

To assess the possible presence of oil and/or natural gas wells within or near the site, Rubicon reviewed information available from the California Division of Oil, Gas, and Geothermal Resources (DOGGR), Department of the Interior Minerals Management Service. The available records indicate that there are no oil or gas wells within a one-mile radius of the site. A portion of the DOGGR Wildcat Map W1-7 for the site and vicinity is presented in Figure 3.

# Phase I Environmental Site Assessment Report

## 3.0 BACKGROUND INFORMATION

Background and regional information considered relevant to the subject ESA includes the site location, adjoining properties, the physiographic setting of the site, and regional geologic and hydrogeologic conditions.

### 3.1 SITE LOCATION AND DESCRIPTION

The site is a rectangular-shaped area covering approximately 5.78 acres of land located on the southwestern corner of 10<sup>th</sup> Street and Reservoir Avenue in Lakeview, California (Figure 1). The site is a northeastern portion of Assessor's Parcel Number (APN) 426-180-003. The site is composed of a farm land, currently used for growing potatoes. According to Riverside County Assessor's web records, the land use designation for the site is RR (Rural Residential).

### 3.2 ADJOINING PROPERTIES

#### NORTH

- The property to the north of the site is farm land.

#### EAST

- The property to the east of the site and a dirt road is mostly farm land. The property across 10<sup>th</sup> Street/Reservoir Avenue is a residential and includes a dwelling.

#### SOUTH

- The property to the south of the site and a dirt road is farm land

#### WEST

- The property to the west of the site is farm land.

### 3.3 TOPOGRAPHY

Based on a review of the USGS Lakeview Map (USGS, 1973), the ground surface elevations of the site is approximately 1,440 feet above mean seal level. See Appendix A.

### 3.4 REGIONAL GEOLOGY

The site is located in the Perris 7.5 minute quadrangle and is situated in the northern part of the Peninsular Ranges Province within the central part of the Perris block. This block is a relatively stable, rectangular in plan area located between the Elsinore and San Jacinto fault zones. The San Jacinto fault zone is considered to be the most seismically active fault zone in Southern California. A fault zone evaluation is beyond the scope of this report, but if it is desirable, Rubicon can provide you a report.

# Phase I Environmental Site Assessment Report

The site is immediately underlain by alluvial fan deposits and then by Cretaceous age and older basement rocks. The Cretaceous plutonic rocks are part of the composite Peninsular Ranges batholiths. A wide variety of intermediate composition granitic rocks are located in the vicinity of the site. These rocks are mainly of tonalitic composition but range from monzogranite to diorite. To the south and east in the higher elevations is the Melanocratic tonalite, a Lenticular masses of nearly black rock ranging from 50 to 100 percent biotite and hornblende.

The site is located near a formation contact of two alluvial fan deposits:

- 1) Old alluvial-fan deposits (late to middle Pleistocene) — Indurated, sandy alluvial fan deposits. Most are slightly to moderately dissected; reddish-brown. Some deposits include thin, discontinuous surface layer of Holocene alluvial-fan material.
- 2) Young alluvial-fan deposits (Holocene and latest Pleistocene) — Gray-hued cobble- and gravel-sand deposits derived from lithically diverse sedimentary units present in San Timoteo Badlands.

San Jacinto River is to the west of the site. The river's headwaters are in San Bernardino National Forest, but the lower portion of the watershed is urban and agricultural land. The river flows about 10 miles from its source to Lake Hemet. Hemet Dam was built in 1895 to supply water to the city of Hemet. Downstream of the dam, the river continues northeast until it discharges into Mystic Lake, a couple of miles east of Lake Perris.

### 3.5 REGIONAL HYDROGEOLOGY

The San Jacinto Groundwater Basin underlies the site. The basin contains sediments that have filled valleys and underlying canyons incised into crystalline basement rock. Maximum depths of valley fill reach about 900 feet in the western and northern parts of the basin, but may exceed 5,000 feet in the eastern part of the basin between the Casa Loma and Claremont faults. Confined groundwater is found in the eastern part of the basin between the Casa Loma and Claremont fault (DWR, 2006).

Natural recharge to the basin is primarily from percolation of flow in the San Jacinto River and its tributary streams; less recharge is from infiltration of rainfall on the valley floor. The primary recharge area for the confined aquifers is found where the San Jacinto River and Bautista Creek enter the San Jacinto Valley. Natural recharge is augmented by spreading of State Water Project and reclaimed water through infiltration ponds in the upper reaches of the San Jacinto River. Percolation of water stored in Lake Perris has been an additional source of recharge since construction of the lake in the 1970s, and reclaimed water percolates through several storage ponds distributed throughout the valley. Artificial recharge can exceed natural recharge, particularly in years with low precipitation (DWR, 2006).

Prior to the extraction of groundwater from the basin, groundwater flow was generally toward the course of the San Jacinto River and westward out of the basin. High extraction rates have produced groundwater depressions and locally reversed the historical flow pattern. During the 1960s, groundwater levels in the western and central parts of the basin declined; whereas, in the

# Phase I Environmental Site Assessment Report

south-central part of the basin, they were moderately stable. During the 1970s through the 1990s, groundwater levels declined about 20 to 40 feet in the northern and southeastern parts of the basin and were relatively stable in the southern part of the basin. During the 1970s through the 1980s, groundwater levels rose 80 to 200 feet in the western part of the basin because of infiltration from Lake Perris. During 2001 and 2002, groundwater levels generally rose in the central part of the basin and declined in the northeastern and southern parts of the basin (DWR, 2006).

## 3.6 FLOODPLAIN INFORMATION

EDR searched the Federal Emergency Management Agency (FEMA) electronic database for floodplain information for the site. According to EDR's report, the site does not fall within 100-year or 500-year flood zones.

# Phase I Environmental Site Assessment Report

## 4.0 SITE HISTORY

The site history integrates information available from the sources outlined in Section 2.0, particularly the historical aerial photographs, historical topographic maps, and interviews.

### 4.1 HISTORICAL AERIAL PHOTOGRAPHS, SANBORN AND TOPOGRAPHIC MAPS

Six historical USGS topographic quadrangle maps from 1901 to 1973 were obtained and reviewed. Eight aerial photographs (flown between 1938 and 2005) of the site and the surrounding region were also reviewed. Sanborn Maps were not available for the area surrounding the site. The historical topographic map and aerial photographs are presented in Appendices A and B, respectively. Pertinent features observed on the maps and aerial photographs are summarized in chronological order, as follows:

**1901:** The 1901 topographic maps show much of the region to be undeveloped. The maps show a road that appears to be Lakeview Avenue near the site. The Southern California Rail Road Lakeview Line and San Jacinto River is identified at about 1.0 mile west of the site.

**1938:** The 1938 aerial photograph shows that the site and surrounding properties are farm land.

**1943:** The 1943 topographic map shows development of a few new roads and structures near the site.

**1953:** The 1953 aerial photograph and topographic map show a structure on the northeastern corner of the site. The aerial photograph shows the site and adjoining properties are still farm land. The topographic map shows an unknown pipeline running from north to south about 1.0 mile west of the site.

**1967:** The 1967 aerial photograph and topographic map show no significant changes at the site. Reservoir Avenue to the east has disappeared. Properties to the northeast have been developed with several building structures.

**1973:** The 1973 topographic map shows no significant changes from the 1967 topographic map.

**1980:** The 1980 aerial photograph shows no significant changes from the 1967 aerial photograph.

**1989:** The 1989 aerial photograph shows no changes at the site from the previous aerial photograph. Development of several buildings is observed in the site vicinity from the photograph.

**1994:** The 1994 aerial photograph shows no significant changes from the 1989 aerial photograph.

## Phase I Environmental Site Assessment Report

**2002:** The 2002 aerial photograph shows no significant changes from the 1994 aerial photograph.

**2005:** The 2005 aerial photograph shows no significant changes from the 2002 aerial photograph.

### 4.2 CITY DIRECTORIES

EDR's historical city directory search revealed following information for 10<sup>th</sup> Street and Reservoir Avenue:

- 30490 10<sup>th</sup> Street:

Year	Uses	Source
2000	Residential	Haines Criss-Cross Directory
1995	Lakeview Ranch Supply Neview Feed	Haines Criss-Cross Directory
1991	Lakeview Ranch Prds	Haines Criss-Cross Directory
1985	T L C Horse Vanning	Haines Criss-Cross Directory
1975	Residential	Haines Criss-Cross Directory

- 30501 10<sup>th</sup> Street:

Year	Uses	Source
2000	Residential	Haines Criss-Cross Directory
1995	Residential	Haines Criss-Cross Directory

- 30545 10<sup>th</sup> Street:

Year	Uses	Source
2000	Munoz Construction	Haines Criss-Cross Directory
1995	Munoz Construction	Haines Criss-Cross Directory

- 30645 10<sup>th</sup> Street:

Year	Uses	Source
2000	Residential	Haines Criss-Cross Directory

- 30021 Reservoir Avenue::

Year	Uses	Source
2007	Residential	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory
1995	Residential	Haines Criss-Cross Directory

## Phase I Environmental Site Assessment Report

1991	Residential	Haines Criss-Cross Directory
1985	Residential	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory
1975	Residential	Haines Criss-Cross Directory

- 30090 Reservoir Avenue:

Year	Uses	Source
2007	No Return	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory
1995	Residential	Haines Criss-Cross Directory
1991	Residential	Haines Criss-Cross Directory
1985	Residential	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory

- 30099 Reservoir Avenue:

Year	Uses	Source
2007	Residential	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory

- 30120 Reservoir Avenue:

Year	Uses	Source
2007	Residential	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory
1991	No Return	Haines Criss-Cross Directory
1985	No Return	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory

- 30175 Reservoir Avenue:

Year	Uses	Source
2000	Residential	Haines Criss-Cross Directory
1991	No Return	Haines Criss-Cross Directory
1985	No Return	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory

### 4.3 ENVIRONMENTAL LIEN SEARCH

Rubicon requested an environmental lien search report for the site that includes a search of available land-title records for environmental cleanup liens and other activity and use limitations,

## Phase I Environmental Site Assessment Report

such as engineering controls and institutional controls. No environmental liens or other activity and use limitations were found. A quitclaim deed document for the property comprising the site, dated November 16, 2007, indicates that Riverpark Investor, LLC, a California Limited Liability Company remise, release and forever quitclaim to Sandra Pagliuso and Frank S. Lauda, Co-Trustees of The Frank Lauda, Jr. Trust, a California Trust.

# Phase I Environmental Site Assessment Report

## 5.0 RECORDS REVIEW

As part of the Phase I ESA, Rubicon subcontracted a search of government databases for the site and vicinity to EDR, as discussed in Section 2.0. Local agencies were contacted to conduct a review of files related to the site or adjacent properties. The findings from the reviews are discussed below.

### 5.1 SUMMARY OF FEDERAL, STATE, TRIBAL AND LOCAL AGENCY DATABASE RECORDS

Under subcontract to Rubicon, on September 18, 2009, EDR conducted a search of government records to document potential sources of contamination at or in the vicinity of the site. EDR's search included federal, state, local, tribal, and EDR proprietary records for the site and for facilities within varying radii of the site. Results of the EDR database reviews, including site names, addresses, and figures showing identified property locations, are compiled in the EDR reports. The EDR reports are presented in Appendix C.

#### 5.1.1 Federal Government Records

A listing of federal government records searched, along with the search radius and description of each listing, is presented below. No facilities of concern were identified in the records searched.

- NPL (1.0 mile): The NPL database is a subset of the CERCLIS database and identifies more than 1,200 sites for priority cleanup under the Superfund Program. The NPL database contains no records pertaining to NPL facilities (active, proposed, or delisted) within 1.0 mile of the site.
- NPL Liens (target property): Federal Superfund Liens. Under the authority granted to the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens. The site was not listed in this database.
- CERCLIS (0.5 miles): The Comprehensive Environmental Response, Compensation, and Liability Index System (CERCLIS) database contains data on potential hazardous waste sites that have been reported to the EPA by states, municipalities, private companies, and private persons pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CERCLIS database also contains sites that are either proposed for inclusion on, or currently on the NPL, and sites that are in the screening and assessment phase for possible inclusion on the NPL. No facilities within 0.5 miles of the site were listed in this database.

## Phase I Environmental Site Assessment Report

- **CERC-NFRAP (0.5 miles):** This database lists former CERCLIS sites for which no further remedial action is planned; hence, NFRAP. No facilities within 0.5 miles of the site were listed in this database.
- **CORRACTS (1.0 mile):** Identifies hazardous waste handlers with Resource Conservation and Recovery Act (RCRA) corrective action activity. No facilities within 1.0 mile of the site were listed in this database.
- **RCRIS (0.25 miles):** The Resource Conservation and Recovery Information System includes selective information on sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. This includes treatment, storage or disposal (TSD) facilities within 0.25 miles of the site, large-quantity generators (LQG), small-quantity generators (SQG), and conditionally exempt small quantity generators within 0.25 miles of the site. No facilities within 0.25 miles of the site were listed in this database.
- **US ENG CONTROLS (0.5 miles):** This database includes sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or affect human health. No facilities within 0.5 miles of the site were listed in this database.
- **US INST CONTROL (0.5 miles):** This database is a listing of sites with institutional controls in place. This may include administrative measures such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. No facilities within 0.5 miles of the site were listed in this database.
- **ERNS (target property):** The Emergency Response and Notification System database records and stores information on reported releases of oil and hazardous substances. The site was not listed in this database.
- **DOD (1.0 mile):** This database consists of federally owned lands administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands. No facilities within 1.0 mile of the site were listed in this database.
- **FUDS (1.0 mile):** The listing includes locations of formerly used defense sites where the U.S. Army Corps of Engineers is actively working or will take necessary cleanup actions. There are no FUDS facilities within 1.0 mile of the site.

## Phase I Environmental Site Assessment Report

- **US BROWNFIELDS (0.5 miles):** Included in the listing are brownfields properties addressed by Targeted Brownfields Assessments (TBA). The TBA program is designed to help states, tribes, and municipalities minimize the uncertainties of contamination often associated with brownfields. EPA provides funding and/or technical assistance for environmental assessments to promote cleanup and redevelopment of brownfields. There are no US BROWNFIELDS facilities within 0.5 miles of the site.
- **CONSENT (1.0 mile):** The CONSENT database lists major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites and is released periodically by U.S. District Courts after settlements by parties to litigation matters. No facilities within 1.0 mile of the site were listed in this database.
- **ROD (1.0 mile):** Record of Decision documents mandate a permanent remedy at an NPL site and contain technical and health information to aid in the cleanup. The ROD database contains no records for facilities within 1.0 mile of the site.
- **UMTRA (0.5 miles):** Uranium Mill Tailings Sites. Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of sand-like material (mine tailings) remained after uranium had been extracted from the ore. In 1978, twenty four inactive uranium mill tailing sites in various states were targeted for cleanup by the Department of Energy. No facilities within 0.5 miles of the site were listed in this database.
- **ODI (0.5 miles):** The Open Dump Inventory is a listing of disposal facilities that do not comply with one or more of the Part 257 or Part 258 Subtitle D criteria maintained by the EPA. There are no ODI facilities within 0.5 miles of the site.
- **TRIS (target property):** The Toxic Chemical-Release Inventory System identifies facilities that release toxic chemicals to the air, water, and/or land in reportable quantities under the Superfund Amendments and Reauthorization Act (SARA), Title III, Section 313. The site was not listed in the TRIS database.
- **TSCA (target property):** The Toxic Substances Control Act identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substances Inventory list. The site was not listed in the TSCA database.
- **FTTS (target property):** The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)/Toxic Substance Control Act (TSCA) Tracking System tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA, and the Emergency Planning and Community Right-to-

## Phase I Environmental Site Assessment Report

Know Act (EPCRA). A HIST FTTS database contains historical FTTS listings since some EPA regions are closing out records. The site was not listed in the current or historical FTTS databases.

- SSTS (target property): The Federal Insecticide, Fungicide, and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the EPA by March 1<sup>st</sup> each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year. The site was not listed in the SSTS database.
- ICIS (target property): The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program and the unique needs of the National Pollutant Discharge Elimination System program. The site was not listed in the ICIS database.
- DOT OPS (target property): This database tracks incident and accident data related to the Department of Transportation, Office of Pipeline Safety. The site was not listed in the DOT OPS database.
- RADINFO (target property): The Radiation Information Database (RADINFO) contains information about facilities that are regulated by EPA. The site was not listed in the RADINFO database.
- LUCIS (0.5 miles): The Land Use Control Information System (LUCIS) database contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties. There are no LUCIS facilities within 0.5 miles of the site.
- CDL (target property): This database contains a list of clandestine drug lab locations as maintained by the United States Department of Justice. The site was not listed in the CDL database.
- PADS (target property): The polychlorinated biphenyl (PCB) Activity Database System identifies generators, transporters, commercial storage facilities and/or brokers, and disposers of PCBs who are required to notify EPA of such activities. The site was not listed in the PADS database.
- MLTS (target property): The Material Licensing Tracking System is maintained by the Nuclear Regulatory Commission (NRC) and lists sites that store or use radioactive materials subject to NRC licensing requirements. The site was not listed in the MLTS database.

# Phase I Environmental Site Assessment Report

- MINES (0.25 miles): Master index file of mines is maintained by the Department of Labor, Mine Safety and Health Administration. The records indicate there are no MINES facilities within 0.25 miles of the site.
- FINDS (target property): The Facility Index System contains both facility information and "pointers" to other sources that contain more detail. These include RCRIS, PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), CERCLIS, DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System). The site was not listed in the FINDS database.
- RAATS (target property): The Resource Conservation and Recovery Act (RCRA) Administrative Action Tracking System database contains records based on enforcement actions under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. The site was not listed in the RAATS database.

## 5.1.2 State and Local Government Records

A listing of state and local government records searched, along with the search radii and description of each listing is presented below. Facilities identified in the searched records are summarized at the end of this section.

- HIST CAL-SITES (1.0 mile): Includes confirmed and potential hazardous substance release sites. DTSC's Annual Work Plan (AWP), formerly BEP, identifies known hazardous substance sites targeted for cleanup. The CAL-SITES database is no longer updated by DTSC as it has been replaced by ENVIROSTOR. The HIST CAL-SITES database contains no records for facilities within 1.0 mile of the site.
- CA BOND EXP PLAN (1.0 mile): The Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of hazardous substance cleanup bond act funds. It is not updated. The CA BOND EXP PLAN database contains no records for facilities within 1.0 mile of the site.
- SCH (0.25 miles): This database contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the Cal Sites category depending on the level of threat to public health and safety or the environment they pose. The SCH database contains no records for facilities within 0.25 miles of the site.

## Phase I Environmental Site Assessment Report

- **TOXIC PITS (1.0 mile):** Toxic Pits Cleanup Act Sites identifies sites suspected of containing hazardous substances where cleanup has not yet been completed. There are no TOXIC PITS facilities within 1.0 mile of the site.
- **ENVIROSTOR (1.0 mile):** The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in HIST CAL-SITES, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. **One facility was found approximately 0.52 miles northeast of the site.**
- **SWF/LF State Landfill (0.5 miles):** SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites. No facilities within 0.5 miles of the site were listed in this database.
- **CA WDS (target property):** This database contains records pertaining to sites that have been issued "Waste Discharge Requirements" for discharges of waste to waters of the state. The site was not listed in the CA WDS database.
- **NPDES (target property):** NPDES Permits Listing. A listing of NPDES permits, including storm water. The site was not listed in the NPDES database.
- **WMUDS/SWAT (0.5 miles):** The Waste Management Unit Database System is used by the SWRCB staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information. The records indicate there are no WMUDS/ SWAT facilities within 0.5 miles of the site.

## Phase I Environmental Site Assessment Report

- **CORTESE (0.5 miles):** "Cortese" Hazardous Waste & Substances Sites List. The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.
- **HIST CORTESE (0.5 miles):** Hazardous Waste & Substance Site List. The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSTITES]. **One facility was found approximately 0.36 miles southeast of the site.**
- **SWRCY (0.5 miles):** This database includes a listing of recycling facilities in California. There are no SWRCY facilities within 0.5 miles of the site.
- **LUST (0.5 miles):** Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking UST incidents. **One facility was found approximately 0.36 miles southeast of the site.**
- **CA-FID (0.25 miles):** The California Facility Database contains active and inactive UST locations from the SWRCB. There are no CA-FID facilities within 0.25 miles of the site.
- **CA SLIC (0.5 miles):** The California SLIC records are maintained by the SWRCB and pertain to "active toxic site investigations." No sites within 0.5 miles of the site were listed in this database.
- **UST (0.25 miles):** USTs are regulated under Subtitle I of RCRA and must be registered with the SWRCB. No facilities within 0.25 miles of the site were listed in this database.
- **DEBRIS REGION 9 (0.5 miles):** Torres Martinez Reservation Illegal Dump Site Locations. A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California. The site was not listed in this database.
- **HAULERS (target property):** Registered Waste Tire Haulers Listing. A listing of registered waste tire haulers. The site was not listed in this database.
- **HIST UST (0.25 miles):** The Hazardous Substance Storage Container Database is a historical listing of UST sites. No facilities within 0.25 miles of the site were listed in this database.

## Phase I Environmental Site Assessment Report

- **AST (0.25 miles):** This database lists facilities at which aboveground petroleum storage tank facilities are located. There are no AST facilities within 0.25 miles of the site.
- **SWEEPS UST (0.25 miles):** Statewide environmental evaluation and planning system. This UST listing was updated and maintained by a company contracted by the SWRCB in the early 1980s. The listing is no longer updated or maintained. The local agency (RCDEH) is the contact for more information on a site on the SWEEPS list. No facilities within 0.25 miles of the site were listed in this database.
- **HMIRS (target property):** Hazardous Materials Information Reporting System. Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT. The site was not listed in this database.
- **CHMIRS (target property):** The California Hazardous Material Incident Reporting System contains information on reported hazardous material incidents (accidental releases or spills). The site was not listed in this database.
- **LDS (target property):** Land Disposal Sites Listing. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. The site was not listed in this database.
- **MCS (target property):** Military Cleanup Sites Listing. The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DOD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities. The site was not listed in this database.
- **RCRA-NonGen (0.25 miles):** RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste. No facilities within 0.5 miles of the site were listed in this database.
- **NPDES (target property):** National Pollutant Discharge Elimination System Permits Listing. A listing of NPDES permits, including storm water. The site was not listed in this database.
- **NOTIFY 65 (1.0 mile):** Proposition 65 Notification Records contain notices about any release that could impact drinking water and thereby expose the public to a

## Phase I Environmental Site Assessment Report

potential health risk. No facilities within 1.0 mile of the site were listed in this database.

- DEED (0.5 miles): A list of deed restrictions is maintained by the DTSC to protect the public from unsafe exposures to hazardous substances and wastes. The records indicate that there are no DEED facilities within 0.5 miles of the site.
- VCP (0.5 miles): This database contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have requested that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs under the voluntary cleanup program (VCP). The records indicate that there are no VCP facilities within 0.5 miles of the site.
- DRYCLEANERS (0.25 miles): This database contains a list of dry cleaning-related facilities that have EPA identification numbers. No sites within 0.25 miles of the site were listed in this database.
- WIP (0.25 miles): This database contains the Well Investigation Program case list. The records indicate there are no WIP facilities within 0.25 miles of the site.
- CDL (target property): This database includes a listing of clandestine drug lab locations as maintained by the DTSC. The site was not listed in this database.
- RESPONSE (1.0 mile): This database identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. The records indicate that there are no RESPONSE facilities within 1.0 mile of the site.
- HAZNET (target property): The HAZNET database identifies hazardous waste generators and hazardous waste treatment, storage, and disposal facilities in the state of California based on extraction of data from hazardous waste manifests received each year by DTSC. The site was not listed in the HAZNET database.
- EMI (target property): The California Air Resources Board maintains a database of toxics and criteria pollutant emissions data. The site was not listed in the EMI database.
- SCRDRYCLEANERS (0.5 miles): State Coalition for Remediation of Drycleaners Listing. The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina,

## Phase I Environmental Site Assessment Report

Oregon, South Carolina, Tennessee, Texas, and Wisconsin. No sites within 0.5 miles of the site were listed in this database.

In summary, two (2) facilities were identified in three (3) databases within search distance specified in the ASTM Standard. Below is the description and status of these facilities:

1. Site Name: Nuview Union School District  
Address: 29780 Lakeview Avenue, Nuevo, California 92567  
Location: 0.355 miles southeast from the site  
Database: HAZNET, LUST, NPDES, CA WDS, and HIST CORTESE  
Summary: Potential contaminant of concern was gasoline, and soil was the potential media affected. The case was closed on October 27, 1999. This facility is not considered to have an environmental impact on the site.
2. Site Name: Mountain Shadows Middle School  
Address: 9<sup>th</sup> Street/Reservoir Avenue, Nuevo, California 92567  
Location: 0.516 miles northeast from the site  
Database: SCH and ENVIROSTOR  
Summary: The lead agency was DTSC for School Investigation. "No Further Action" status has been given. This facility is not considered to have an environmental impact on the site.

### 5.1.3 Tribal Records

A listing of tribal records searched, along with the search radius and description of each listing is presented below. No facilities of concern were identified in the records.

- INDIAN RESERV (1.0 mile): This database includes Indian administered lands of the United States that have any area equal to or greater than 640 acres. The records indicate there are no INDIAN RESERV facilities within 1.0 mile of the site.
- INDIAN LUST (0.5 miles): This database includes leaking underground storage tank sites located on Indian land. The records indicate there are no INDIAN LUST facilities within 0.5 miles of the site.
- INDIAN UST (0.25 miles): This database includes a listing of USTs located on Indian land. The records indicate there are no INDIAN UST facilities within 0.25 miles of the site.
- INDIAN ODI (0.5 miles): Report on the status of Open Dumps on Indian lands. Location of open dumps on Indian land. The records indicate there are no Indian ODI facilities within 0.5 miles of the site.

# Phase I Environmental Site Assessment Report

## 5.1.4 EDR Proprietary Records

EDR's proprietary records include listings of manufactured gas plants, gas stations, and dry cleaners. Manufactured gas plants were searched within a 1.0 mile radius of the site while gas stations and dry cleaners were searched within a 0.25 miles radius of the site. According to the records, none of these types of facilities were found within their respective search radii from the site.

## 5.1.5 Orphan Sites

EDR's radius map report identified 2 unmapped facilities due to inadequate address information. These facilities are referred to as orphan sites by EDR. Rubicon reviewed the site reports and conducted research via the internet to assist in identifying the site location and nature of the database listing. The research showed that the closest site was located approximately 1.5 miles from the site.

## 5.2 AGENCY RECORDS

In addition to the government records, Rubicon reviewed electronic records available from the SWRCB GeoTracker website and DTSC Envirostor website. The records review identified 2 facilities that were mentioned in section 5.1.2. Below is the summary of the findings:

- **Nuview Union School District – 29780 Lakeview Avenue, Nuevo, California**

On February 24, 1999, one (1) 1,000-gallon diesel tank and one (1) 4,000-gallon gasoline tank are removed from the facility. Subsequently, site characterization was completed for the facility. On October 27, 1999, Riverside County Department of Environmental Health (RCDEH) issued a closure letter indicating that no further action related to the underground tank release was required at the facility.

- **Mountain Shadows Middle School – 9<sup>th</sup> Street/Reservoir Avenue, Nuevo, California**

The school site was investigated by DTSC for potential contamination in soil by DDE (chemical in pesticide); however, DTSC determined no further action for the facility on March 9, 2001.

Rubicon contacted RCDEH, Hazardous Materials Management Division (HMMD), for any records of chemical releases/violations and aboveground/ underground storage tanks at the site. Ms. Suzanne Cauffiel of HMMD informed Rubicon that record searches can be conducted only with addresses and not with APNs.

## 5.3 USER PROVIDED INFORMATION

SCE indicated that the acreage of the site is approximately 5.78, and the site has been used for farming. SCE also indicated that there is a possible abandoned well on or near the site.

## Phase I Environmental Site Assessment Report

SCE conducted an interview with the property owner regarding the abandoned water well at the site. Below is the summary of information obtained from the interview:

The water well was abandoned prior to the current owner's purchase of the property; therefore, the current owner does not know if the well was abandoned properly or if there is a permit for the abandoned well. The well was abandoned because the groundwater throughout that valley had a high selenium concentration; thus, it couldn't be used for agriculture purposes. There are series of wells all around the community of Lakeview and all have been abandoned for the same reason.

### 5.4 GROUND WATER PRODUCTION WELLS

The following federal and state databases were searched for water well information:

- Federal USGS Well Information (EDR search)
- FRDS Public Water Supply System Information (EDR search)
- State Database Well Information (EDR search)
- USGS Historical Topographic Maps

According to the EDR report (Appendix C), there are six water wells within 1.0 mile of the site; however, the on-site well was not listed in the report. The water wells are described in the table below:

Map ID#	Distance from the Site	Facility/Water Type	Well Depth	Hole Depth	Ground Water Level
1	0.30 miles Southeast	Ground water other than spring	365	365	N/A
2	0.39 miles Northwest	Ground water other than spring	907	915	N/A
3	0.40 miles North	Ground water other than spring	630	640	217.2 feet (3/8/01)
4	0.50 miles Northeast	Ground water other than spring	518	518	266.3 feet (3/8/01)
5	0.73 miles Southwest	Ground water other than spring	917	917	N/A
6	0.85 mile North	Well/Groundwater	N/A	N/A	N/A

# Phase I Environmental Site Assessment Report

## 6.0 SITE RECONNAISSANCE

The purpose of the site reconnaissance is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the site. The site and adjoining properties were visually observed on September 21, 2009, by Mr. Peter Lee of Rubicon along with Ms. Sonia Sorensen of SCE. The specific objective of the reconnaissance was to note visual or olfactory evidence of recognized environmental conditions. Additionally, reconnaissance of adjoining properties was performed to identify land use and associated potential recognized environmental conditions. Figure 2 presents the site and developments in close proximity. Site photographs are included in Appendix E.

### 6.1 SITE OBSERVATIONS

The site is a rectangular-shaped area covering approximately 5.78 acres of land located on the southwestern corner of 10<sup>th</sup> Street and Reservoir Avenue in Lakeview, California (Figure 2). The site is a part of large farm land. Currently, the site is used for growing potatoes.

From the site reconnaissance, a concrete slab with an adjoined natural gas line was observed in the northeastern corner of the site. According to Mr. Brent Lunt of Agri-Empire, who is currently renting the property for farming purpose, a natural gas engine was used on top of the concrete slab. There were small stains observed on top of the concrete slab, but the stains were considered *de minimis* conditions. Next to the concrete slab, an abandoned water well was observed to be covered with a metal plate. According to the property owner, the well was abandoned because the groundwater water throughout the valley, underlying the site, had a high selenium concentration, and it was not acceptable for agriculture purposes. However, the well was not properly abandoned. Since the use of the water well is no longer intended, the well should be properly abandoned under Riverside County Environmental Health requirements. A broken tip of an underground pipe was also observed near the well. Photographs taken at the site are included in Appendix E.

### 6.2 ADJOINING PROPERTIES

Adjoining properties were visually examined from public access right-of-ways to make a cursory assessment of current land uses and their potential for recognized environmental conditions which may have impacted the site. Reconnaissance of adjoining properties was performed by viewing land use from legal boundaries or by walking around the adjoining properties that were legally accessible. Most of the surrounding properties are farm land. There were no recognized environmental conditions observed on the adjoining properties.

# Phase I Environmental Site Assessment Report

## 6.3 INTERVIEWS

Interviews were conducted to obtain information on the history and current conditions of the site and adjacent areas in order to evaluate the potential presence of recognized environmental conditions. Results of the interviews are summarized below.

Mr. Brent Lunt of Agri-Empire was interviewed in person on September 21, 2009. Mr. Lunt indicated that the Agri-Empire is renting the site for farming purposes, and the site has always been used for farming. Mr. Lunt said that a natural gas engine was used on top of the existing concrete slab, and the water well at the site is no longer used. He also said that the land is currently used for growing potatoes.

Ms. Suzanne Cauffiel of HMMD was interviewed via telephone on September 22, 2009. Ms. Cauffiel indicated that record searches can be conducted for addresses but not for APNs.

Ms. Kim P, a records technician of the Riverside County Building & Safety Department was interviewed on September 22, 2009. Ms. Kim P indicated that no permits records for the site were found.

The user questionnaire, completed by SCE, was submitted to Rubicon. The user questionnaire did not have any significant information to identify recognized environmental conditions. A copy of the user questionnaire is included in Appendix D.

## Phase I Environmental Site Assessment Report

### 7.0 FINDINGS AND CONCLUSIONS

Based on historical information available during this Phase I ESA, the site and vicinity appear to have been used for agricultural purpose dating back to at least 1938. An interview with Mr. Brent Lunt of Agri-Empire, who is currently renting the property for farming purpose, indicated that the site has always been used for farming. Currently, the site is used for growing potatoes. There are no oil and gas wells located within a mile radius of the site.

From the site reconnaissance, a concrete slab with an adjoined natural gas line was observed in the northeastern corner of the site. According to Mr. Lunt, a natural gas engine was used on top of the concrete slab. There were small stains observed on top of the concrete slab, but the stains were considered *de minimis* conditions. Next to the concrete slab, an abandoned water well was observed to be covered with a metal plate. According to the property owner, the well was abandoned because the groundwater water throughout the valley, underlying the site, had a high selenium concentration, and it was not acceptable for agriculture purposes. However, the well was not properly abandoned. Since the use of the water well is no longer intended, the well should be properly abandoned under Riverside County Environmental Health requirements. A broken tip of an underground pipe was also observed near the well.

Data gap identified during the preparation of this Phase I ESA include unreturned owner questionnaire. However, historical information obtained from topographic maps, aerial photographs, and interviews provide adequate information related to the site's historical use. It is the opinion of the Environmental Professional that this data gap does not affect the findings of this Phase I ESA.

Rubicon Engineering Corporation has performed the Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E1527-05 of the site. Any exceptions to, or deletions from, this practice are described in Section 1.1 of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the property.

Rubicon declares that, to the best of our professional knowledge and belief, we meet the definition of Environmental professional as defined in §312.10 of 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Mohsen Mehran, Ph.D.  
Project Manager



Peter Lee  
Staff Engineer



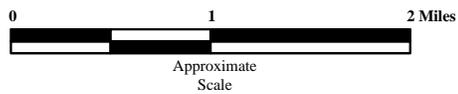
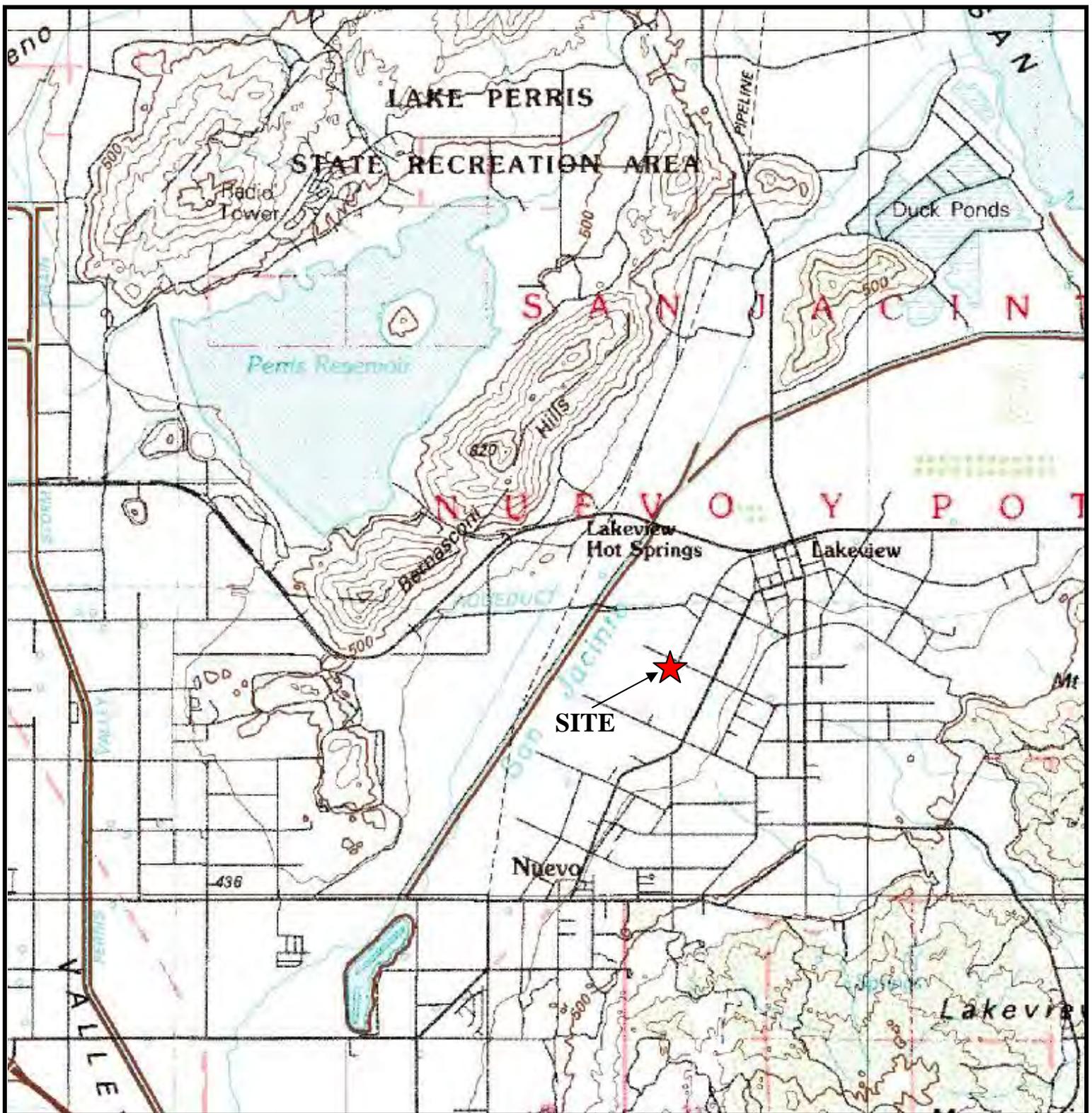
Amir Matin, PG, CHg, CEG  
Senior Geologist

# Phase I Environmental Site Assessment Report

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- EDR, September 23, 2009, "The EDR-City Directory Abstract, 10<sup>th</sup> Street and Reservoir Avenue, Lakeview, CA 92567, Inquiry Number: 2595939.6."
- EDR, September 18, 2009, "The EDR-Sanborn® Map Report, 10<sup>th</sup> Street and Reservoir Avenue, Lakeview, CA 92567, Inquiry Number: 2595939.3."
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- EDR, September 21, 2009, "The EDR Historical Topographic Map Report, 10<sup>th</sup> Street and Reservoir Avenue, Lakeview, CA 92567, Inquiry Number: 2595939.4."
- EDR, September 22, 2009, "The EDR Aerial Photo Decade Package, 10<sup>th</sup> Street and Reservoir Avenue, Lakeview, CA 92567, Inquiry Number: 2595939.5."
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- U.S.EPA, November 1, 2005, Code of Federal Regulations, Title 40, Part 312 "Standards and Practices for All Appropriate Inquiries; Final Rule".

# *Figures*



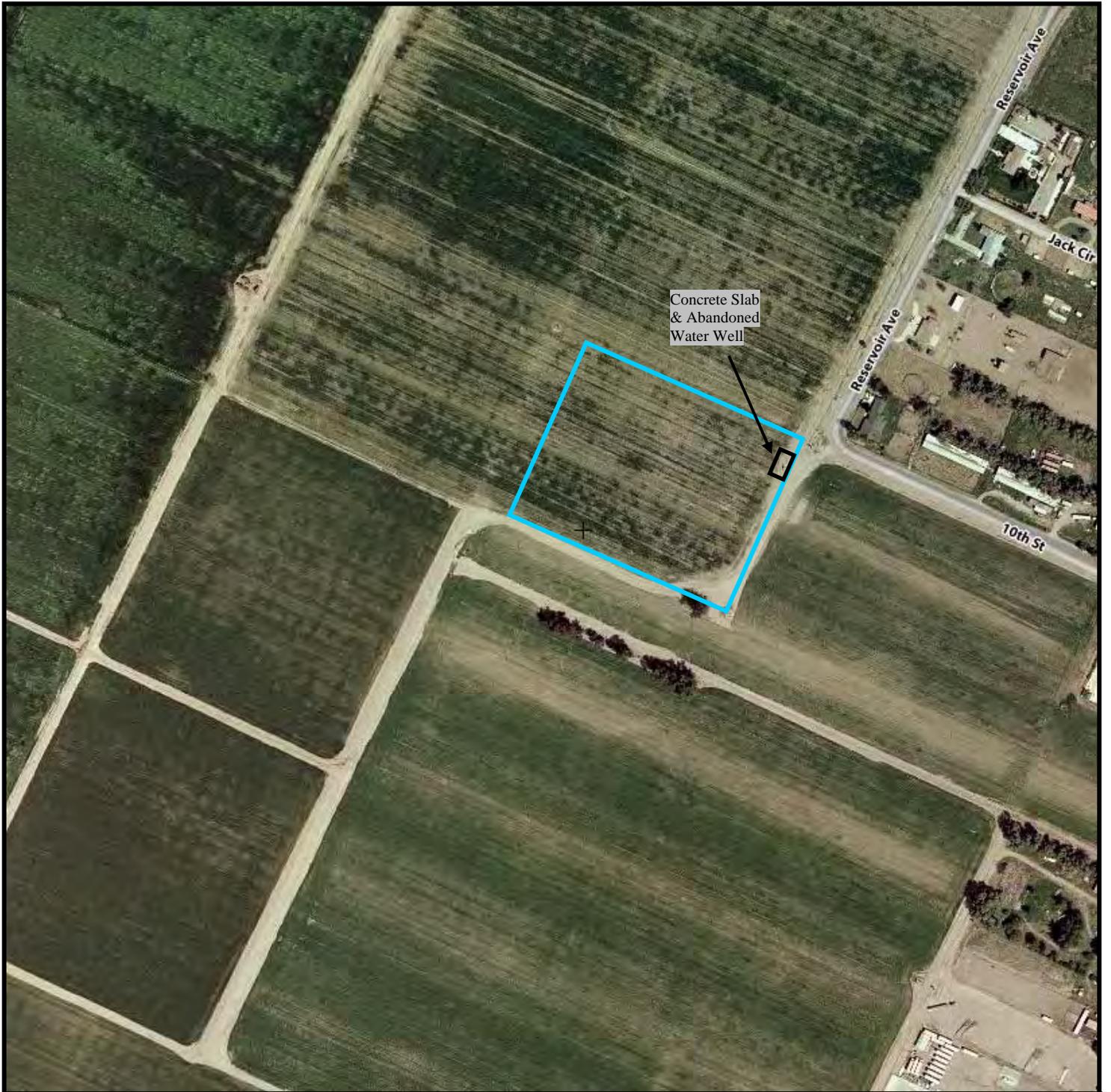
**Figure 1**  
**Site Location Map**

Proposed Lakeview Substation  
Lakeview, California

Reference: TERRASERVER-USA  
Map Year: 1979



**RUBICON**  
Engineering Corporation



Reference: Yahoo Map  
*Not to Scale*

 SITE BOUNDARY

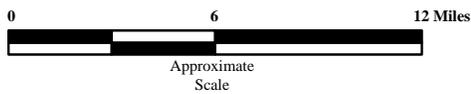
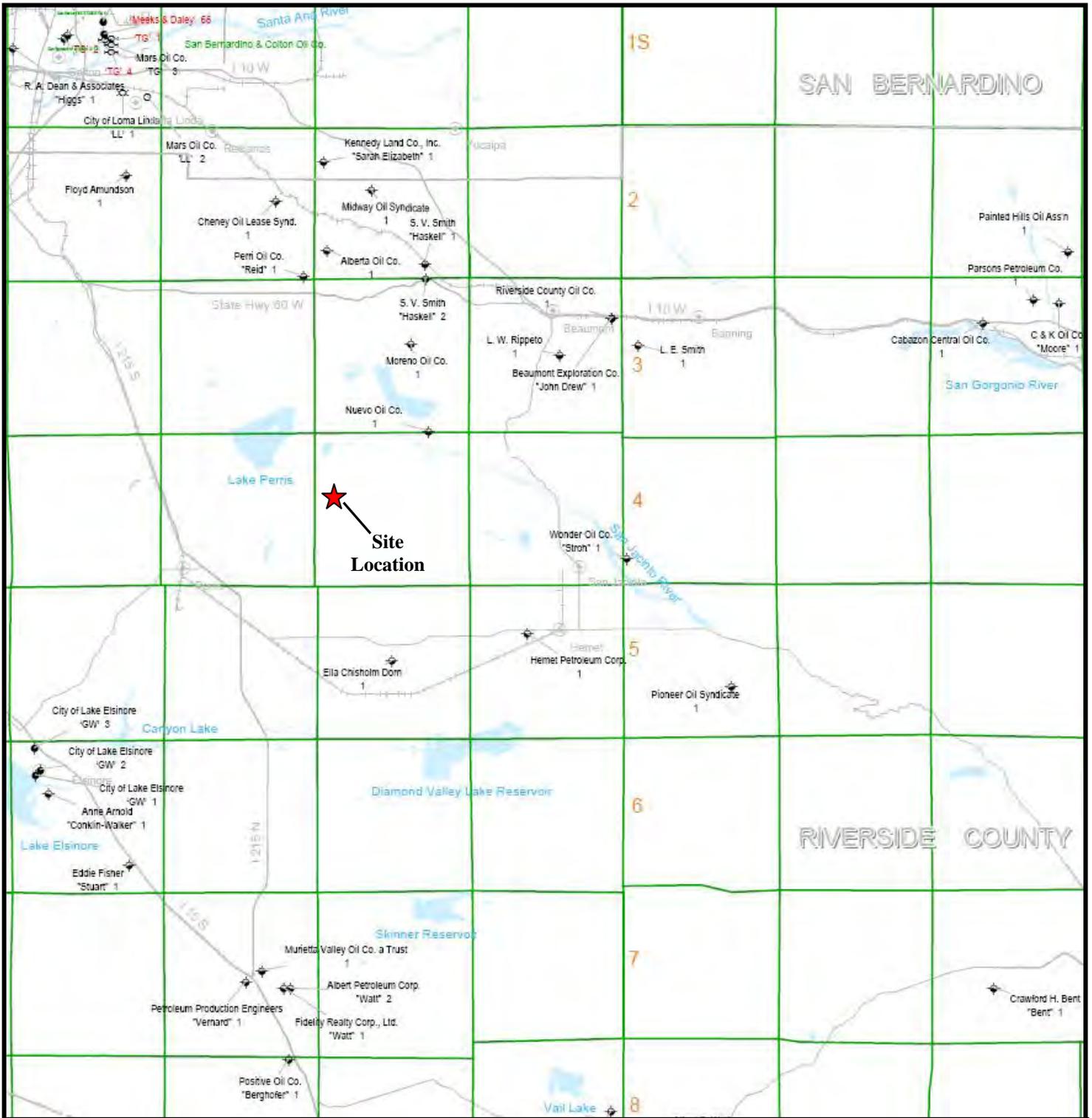


## Figure 2 Site and Vicinity Map

Proposed Lakeview Substation  
Lakeview, California



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**Figure 3  
DOGGR Map**

Proposed Lakeview Substation  
Lakeview, California



**RUBICON**  
Engineering Corporation

**REFERENCE:**  
DIVISION OF OIL AND GAS AND GEOTHERMAL RESOURCES WEBSITE  
<http://ftp.consrv.ca.gov/pub/oil/maps/dist1/w1-7/Mapw1-7.pdf>  
WILDCAT MAP W1-7

# *Appendix A*

## *Historical Topographic Maps*



**Lakeview Substation**

10th St. and Reservoir Ave.  
Lakeview, CA 92567

Inquiry Number: 2595939.4  
September 21, 2009

# The EDR Historical Topographic Map Report

# EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

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

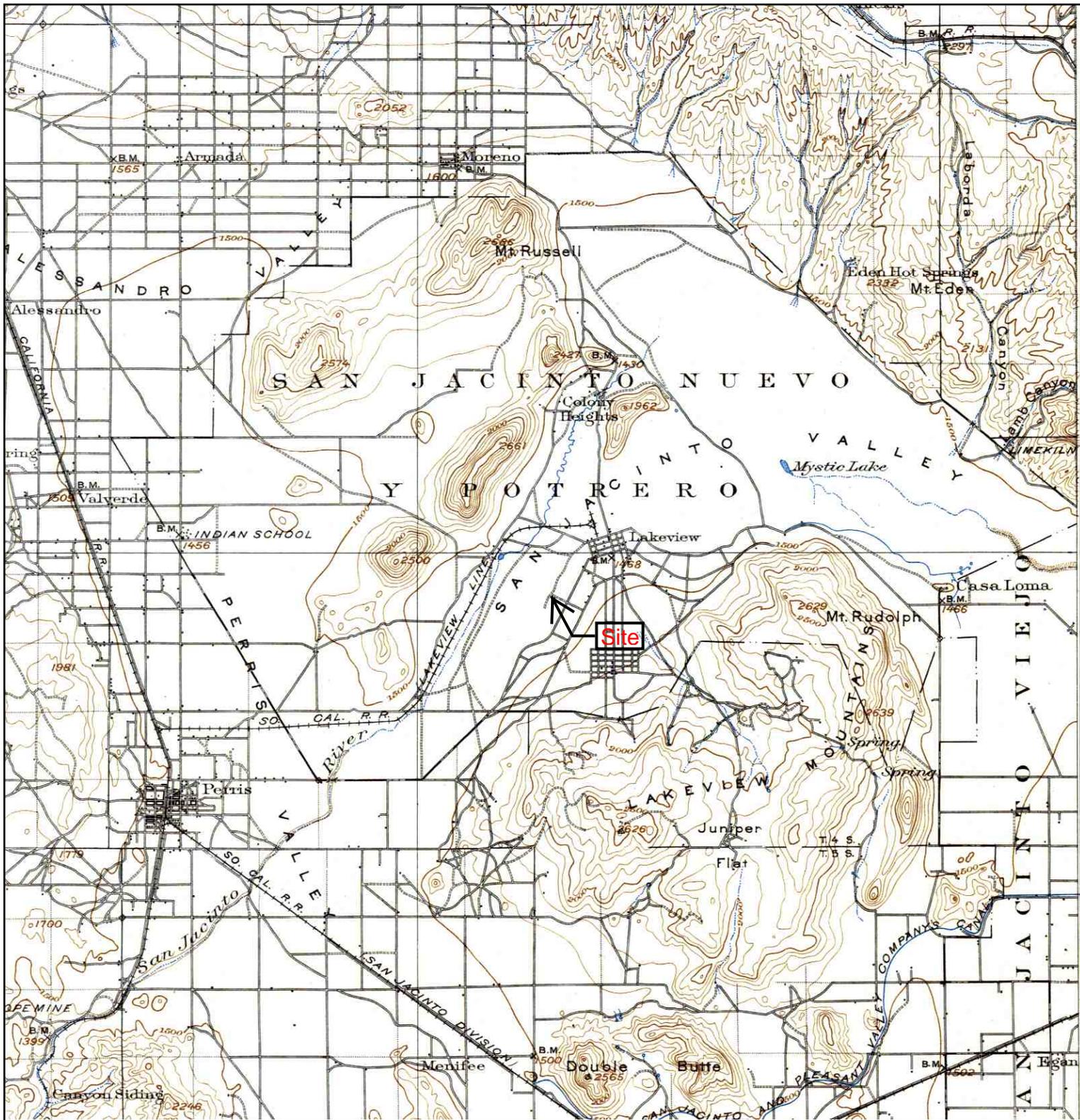
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# Historical Topographic Map



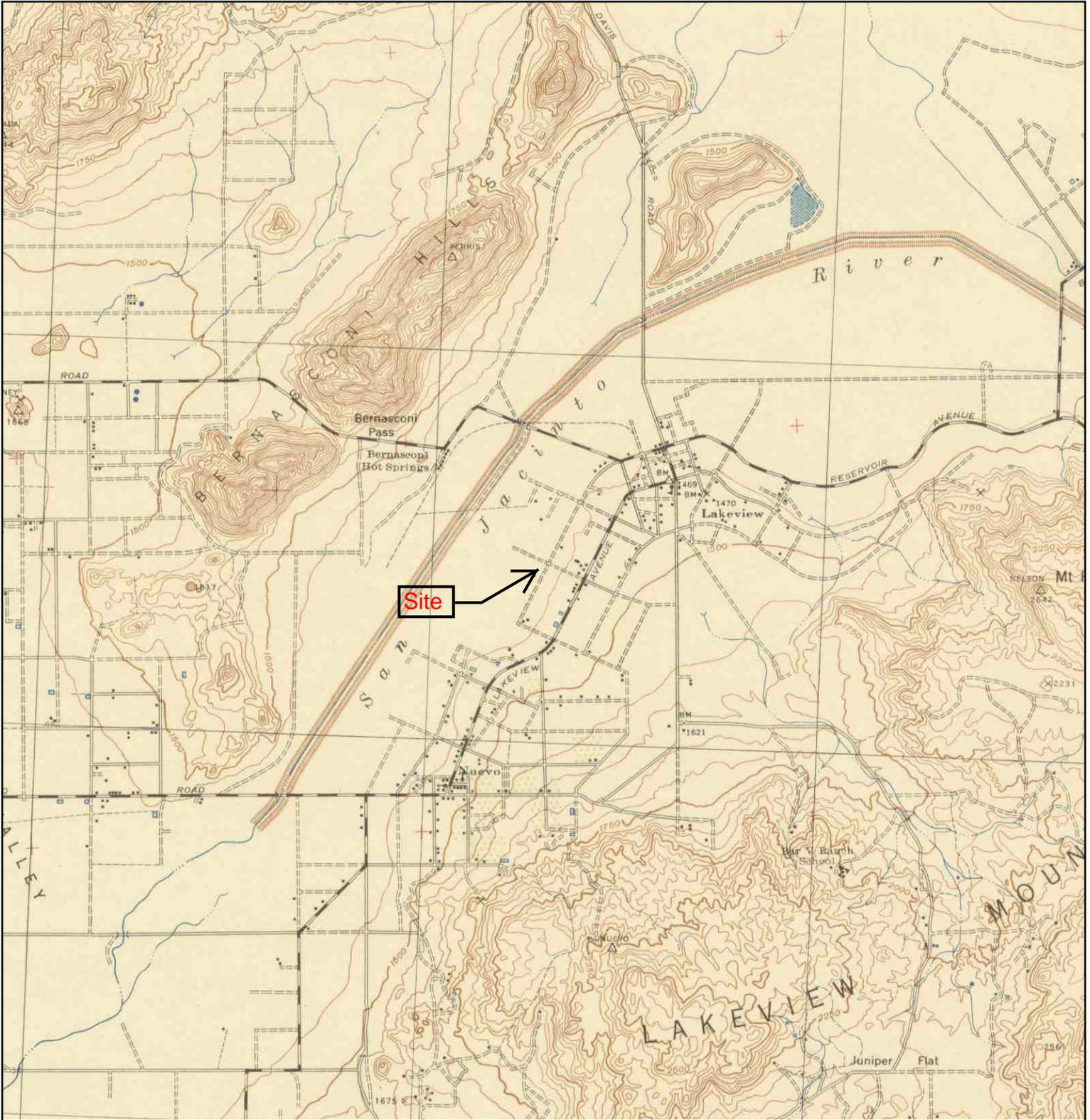
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# Historical Topographic Map



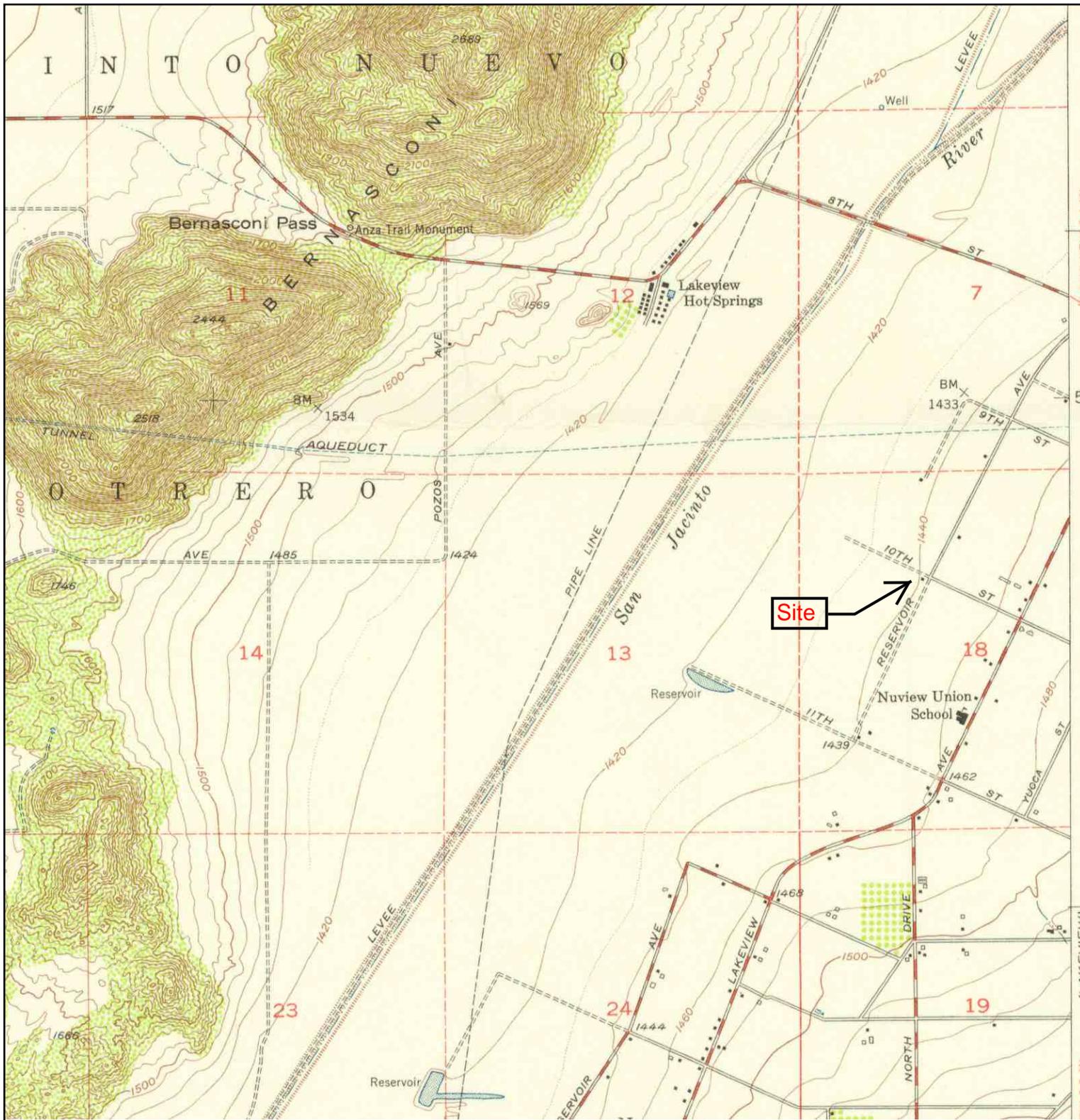
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	SERIES: 60	Location: Lakeview, CA 92567	INQUIRY#: 2595939.4
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# Historical Topographic Map



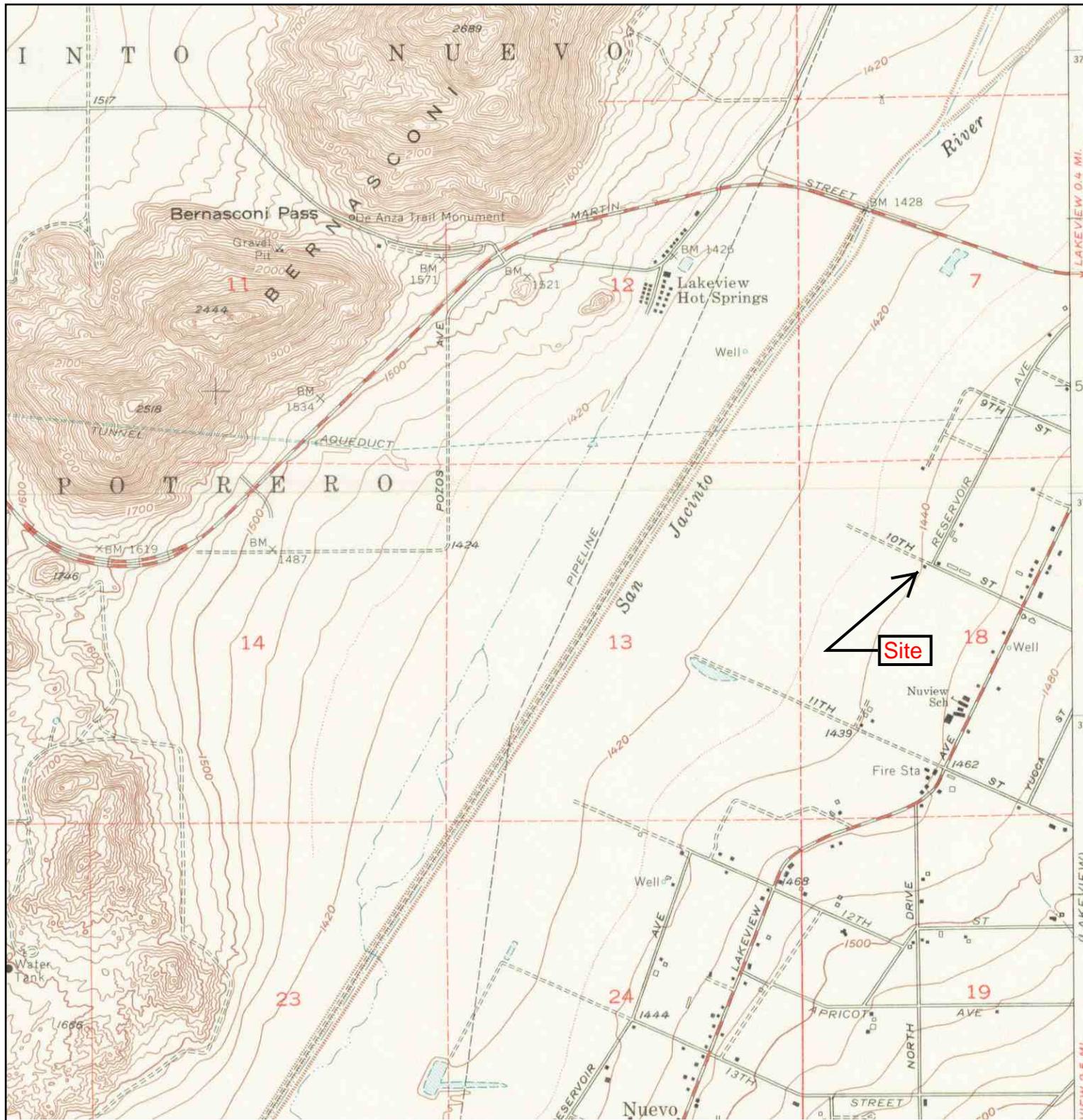
	TARGET QUAD NAME: PERRIS MAP YEAR: 1943	SITE NAME: Lakeview Substation ADDRESS: 10th St. and Reservoir Ave. Lakeview, CA 92567 LAT/LONG: 33.8259 / 117.1331	CLIENT: Rubicon Engineering Corporation CONTACT: Peter Lee INQUIRY#: 2595939.4 RESEARCH DATE: 09/21/2009
	SERIES: 15 SCALE: 1:62500		

# Historical Topographic Map



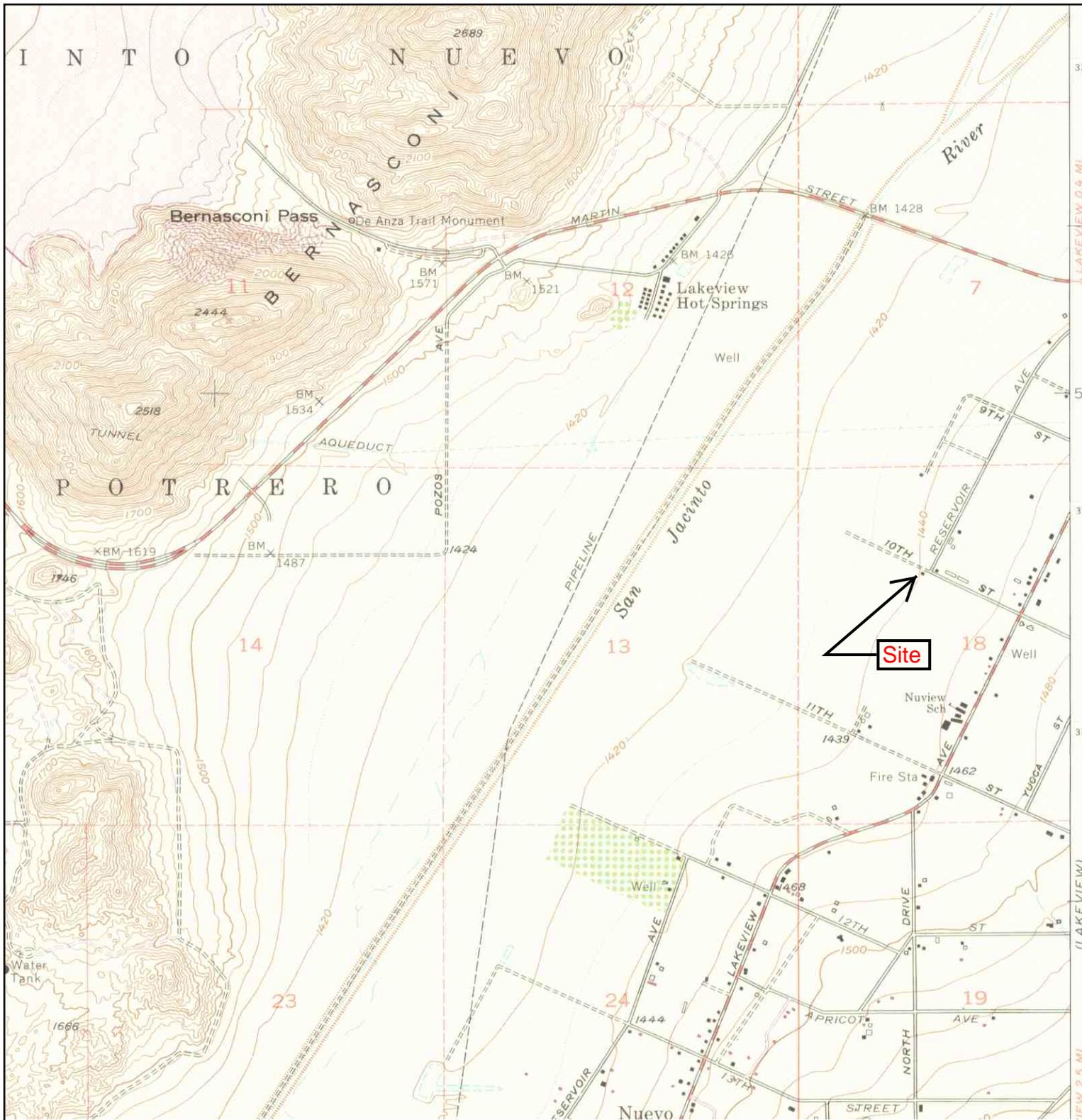
	TARGET QUAD NAME: PERRIS MAP YEAR: 1953	SITE NAME: Lakeview Substation ADDRESS: 10th St. and Reservoir Ave. Lakeview, CA 92567 LAT/LONG: 33.8259 / 117.1331	CLIENT: Rubicon Engineering Corporation CONTACT: Peter Lee INQUIRY#: 2595939.4 RESEARCH DATE: 09/21/2009
	SERIES: 7.5 SCALE: 1:24000		

# Historical Topographic Map



	<b>TARGET QUAD</b> NAME: PERRIS MAP YEAR: 1967	<b>SITE NAME:</b> Lakeview Substation <b>ADDRESS:</b> 10th St. and Reservoir Ave. Lakeview, CA 92567 <b>LAT/LONG:</b> 33.8259 / 117.1331	<b>CLIENT:</b> Rubicon Engineering Corporation <b>CONTACT:</b> Peter Lee <b>INQUIRY#:</b> 2595939.4 <b>RESEARCH DATE:</b> 09/21/2009
	SERIES: 7.5 SCALE: 1:24000		

# Historical Topographic Map



	TARGET QUAD	SITE NAME:	Lakeview Substation	CLIENT:	Rubicon Engineering Corporation
	NAME: PERRIS	ADDRESS:	10th St. and Reservoir Ave.	CONTACT:	Peter Lee
	MAP YEAR: 1973		Lakeview, CA 92567	INQUIRY#:	2595939.4
	PHOTOREVISED FROM: 1967	LAT/LONG:	33.8259 / 117.1331	RESEARCH DATE:	09/21/2009
	SERIES: 7.5				
	SCALE: 1:24000				

# ***Appendix B***

## *Historical Aerial Photographs*



**Lakeview Substation**

10th St. and Reservoir Ave.  
Lakeview, CA 92567

Inquiry Number: 2595939.5

September 22, 2009



## The EDR Aerial Photo Decade Package



440 Wheelers Farms Road  
Milford, CT 06461  
800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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

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**Date EDR Searched Historical Sources:**

Aerial Photography September 22, 2009

**Target Property:**

10th St. and Reservoir Ave.

Lakeview, CA 92567

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1938	Aerial Photograph. Scale: 1"=555'	Flight Year: 1938	Laval
1953	Aerial Photograph. Scale: 1"=555'	Flight Year: 1953	Pacific Air
1967	Aerial Photograph. Scale: 1"=555'	Flight Year: 1967	Western
1980	Aerial Photograph. Scale: 1"=600'	Flight Year: 1980	AMI
1989	Aerial Photograph. Scale: 1"=666'	Flight Year: 1989	USGS
1994	Aerial Photograph. Scale: 1"=666'	Flight Year: 1994	USGS
2002	Aerial Photograph. Scale: 1"=666'	Flight Year: 2002	USGS
2005	Aerial Photograph. 1" = 604'	Flight Year: 2005	EDR



INQUIRY #: 2595939.5

YEAR: 1938

| = 555'





INQUIRY #: 2595939.5

YEAR: 1953

| = 555'





Site

INQUIRY #: 2595939.5

YEAR: 1967

| = 555'



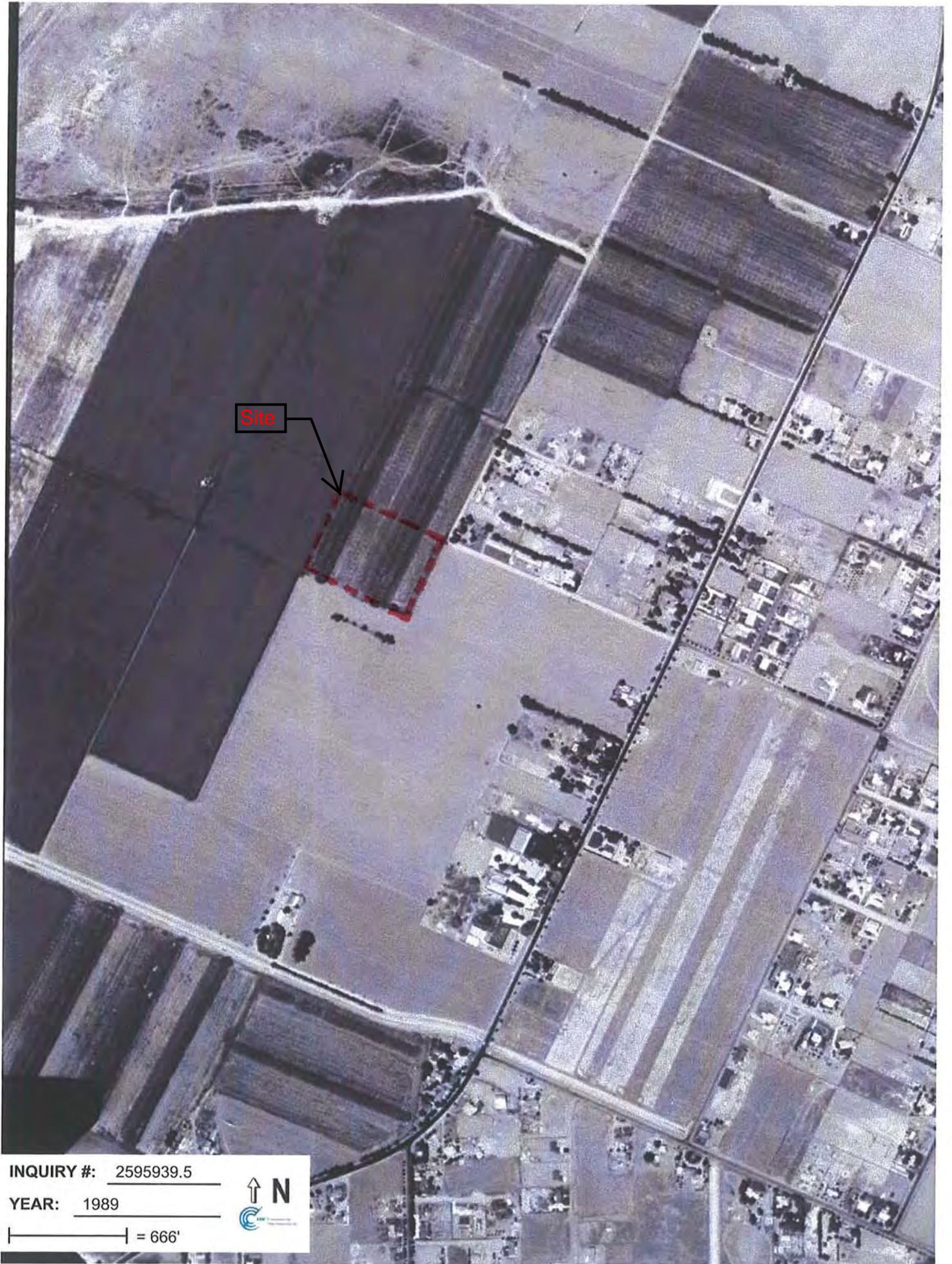


INQUIRY #: 2595939.5

YEAR: 1980

| = 600'





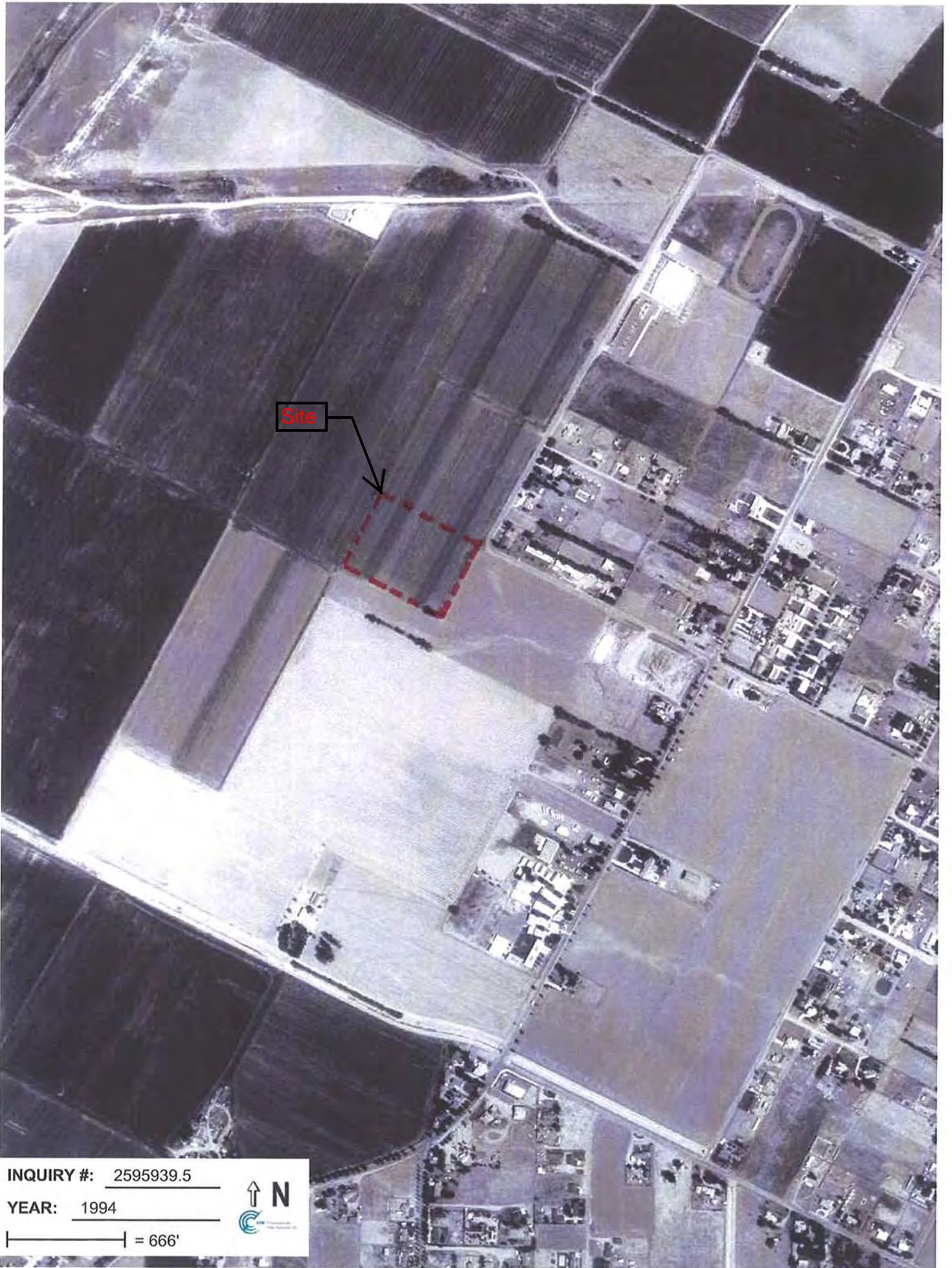
Site

INQUIRY #: 2595939.5

YEAR: 1989

| = 666'





INQUIRY #: 2595939.5

YEAR: 1994

| = 666'





INQUIRY #: 2595939.5

YEAR: 2002

| = 666'





Site

INQUIRY #: 2595939.5

YEAR: 2005

 = 604'



# *Appendix C*

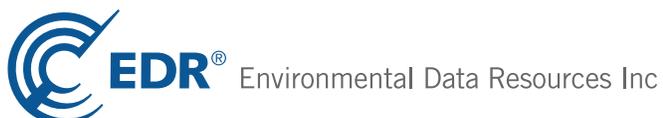
## *EDR Reports*

**Lakeview Substation**

10th St. and Reservoir Ave.  
Lakeview, CA 92567

Inquiry Number: 2595939.2s  
September 18, 2009

**The EDR Radius Map™ Report with GeoCheck®**



440 Wheelers Farms Road  
Milford, CT 06461  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Executive Summary .....	ES1
Overview Map .....	2
Detail Map .....	3
Map Findings Summary .....	4
Map Findings .....	7
Orphan Summary .....	14
Government Records Searched/Data Currency Tracking .....	GR-1
 <b><u>GEOCHECK ADDENDUM</u></b>	
Physical Setting Source Addendum .....	A-1
Physical Setting Source Summary .....	A-2
Physical Setting SSURGO Soil Map .....	A-5
Physical Setting Source Map .....	A-13
Physical Setting Source Map Findings .....	A-14
Physical Setting Source Records Searched .....	A-19

***Thank you for your business.***  
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with any questions or comments.

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## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

10TH ST. AND RESERVOIR AVE.  
LAKEVIEW, CA 92567

#### COORDINATES

Latitude (North): 33.825900 - 33° 49' 33.2"  
Longitude (West): 117.133100 - 117° 7' 59.2"  
Universal Transverse Mercator: Zone 11  
UTM X (Meters): 487683.2  
UTM Y (Meters): 3742666.5  
Elevation: 1444 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 33117-G2 PERRIS, CA  
Most Recent Revision: 1979  
  
East Map: 33117-G1 LAKEVIEW, CA  
Most Recent Revision: 1979

### AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year: 2005  
Source: USDA

### TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

### DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

### STANDARD ENVIRONMENTAL RECORDS

#### *Federal NPL site list*

NPL..... National Priority List

## EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites  
NPL LIENS..... Federal Superfund Liens

### ***Federal Delisted NPL site list***

Delisted NPL..... National Priority List Deletions

### ***Federal CERCLIS list***

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

### ***Federal CERCLIS NFRAP site List***

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

### ***Federal RCRA CORRACTS facilities list***

CORRACTS..... Corrective Action Report

### ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF..... RCRA - Transporters, Storage and Disposal

### ***Federal RCRA generators list***

RCRA-LQG..... RCRA - Large Quantity Generators  
RCRA-SQG..... RCRA - Small Quantity Generators  
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

### ***Federal institutional controls / engineering controls registries***

US ENG CONTROLS..... Engineering Controls Sites List  
US INST CONTROL..... Sites with Institutional Controls

### ***Federal ERNS list***

ERNS..... Emergency Response Notification System

### ***State- and tribal - equivalent NPL***

RESPONSE..... State Response Sites

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

SWF/LF..... Solid Waste Information System

### ***State and tribal leaking storage tank lists***

SLIC..... Statewide SLIC Cases  
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

### ***State and tribal registered storage tank lists***

UST..... Active UST Facilities  
AST..... Aboveground Petroleum Storage Tank Facilities

## EXECUTIVE SUMMARY

INDIAN UST..... Underground Storage Tanks on Indian Land

### **State and tribal voluntary cleanup sites**

VCP..... Voluntary Cleanup Program Properties  
INDIAN VCP..... Voluntary Cleanup Priority Listing

### **ADDITIONAL ENVIRONMENTAL RECORDS**

#### **Local Brownfield lists**

US BROWNFIELDSDS..... A Listing of Brownfields Sites

#### **Local Lists of Landfill / Solid Waste Disposal Sites**

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations  
ODI..... Open Dump Inventory  
WMUDS/SWAT..... Waste Management Unit Database  
SWRCY..... Recycler Database  
HAULERS..... Registered Waste Tire Haulers Listing  
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

#### **Local Lists of Hazardous waste / Contaminated Sites**

US CDL..... Clandestine Drug Labs  
HIST Cal-Sites..... Historical Calsites Database  
SCH..... School Property Evaluation Program  
Toxic Pits..... Toxic Pits Cleanup Act Sites  
CDL..... Clandestine Drug Labs  
US HIST CDL..... National Clandestine Laboratory Register

#### **Local Lists of Registered Storage Tanks**

CA FID UST..... Facility Inventory Database  
HIST UST..... Hazardous Substance Storage Container Database  
SWEEPS UST..... SWEEPS UST Listing

#### **Local Land Records**

LIENS 2..... CERCLA Lien Information  
LUCIS..... Land Use Control Information System  
LIENS..... Environmental Liens Listing  
DEED..... Deed Restriction Listing

#### **Records of Emergency Release Reports**

HMIRS..... Hazardous Materials Information Reporting System  
CHMIRS..... California Hazardous Material Incident Report System  
LDS..... Land Disposal Sites Listing  
MCS..... Military Cleanup Sites Listing

#### **Other Ascertainable Records**

RCRA-NonGen..... RCRA - Non Generators

## EXECUTIVE SUMMARY

DOT OPS.....	Incident and Accident Data
DOD.....	Department of Defense Sites
FUDS.....	Formerly Used Defense Sites
CONSENT.....	Superfund (CERCLA) Consent Decrees
ROD.....	Records Of Decision
UMTRA.....	Uranium Mill Tailings Sites
MINES.....	Mines Master Index File
TRIS.....	Toxic Chemical Release Inventory System
TSCA.....	Toxic Substances Control Act
FTTS.....	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS.....	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS.....	Section 7 Tracking Systems
ICIS.....	Integrated Compliance Information System
PADS.....	PCB Activity Database System
MLTS.....	Material Licensing Tracking System
RADINFO.....	Radiation Information Database
FINDS.....	Facility Index System/Facility Registry System
RAATS.....	RCRA Administrative Action Tracking System
CA BOND EXP. PLAN.....	Bond Expenditure Plan
CA WDS.....	Waste Discharge System
NPDES.....	NPDES Permits Listing
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
Notify 65.....	Proposition 65 Records
DRYCLEANERS.....	Cleaner Facilities
WIP.....	Well Investigation Program Case List
HAZNET.....	Facility and Manifest Data
EML.....	Emissions Inventory Data
INDIAN RESERV.....	Indian Reservations
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
PCB TRANSFORMER.....	PCB Transformer Registration Database

### EDR PROPRIETARY RECORDS

#### ***EDR Proprietary Records***

Manufactured Gas Plants.....	EDR Proprietary Manufactured Gas Plants
EDR Historical Auto Stations.....	EDR Proprietary Historic Gas Stations
EDR Historical Cleaners.....	EDR Proprietary Historic Dry Cleaners

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

# EXECUTIVE SUMMARY

## STANDARD ENVIRONMENTAL RECORDS

### ***State- and tribal - equivalent CERCLIS***

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

A review of the ENVIROSTOR list, as provided by EDR, and dated 08/27/2009 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>MOUNTAIN SHADOWS MIDDLE SCHOOL</i></b>	<b><i>9TH STREET/RESERVOIR AV</i></b>	<b><i>NNE 1/2 - 1 (0.516 mi.)</i></b>	<b><i>2</i></b>	<b><i>10</i></b>
Status: No Further Action				

### ***State and tribal leaking storage tank lists***

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 07/07/2009 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>NUVIEW UNION SCHOOL DISTRICT</i></b>	<b><i>29780 LAKEVIEW AVE</i></b>	<b><i>SSE 1/4 - 1/2 (0.355 mi.)</i></b>	<b><i>1</i></b>	<b><i>7</i></b>
Status: Completed - Case Closed				

## ADDITIONAL ENVIRONMENTAL RECORDS

### ***Other Ascertainable Records***

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSTATES].

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

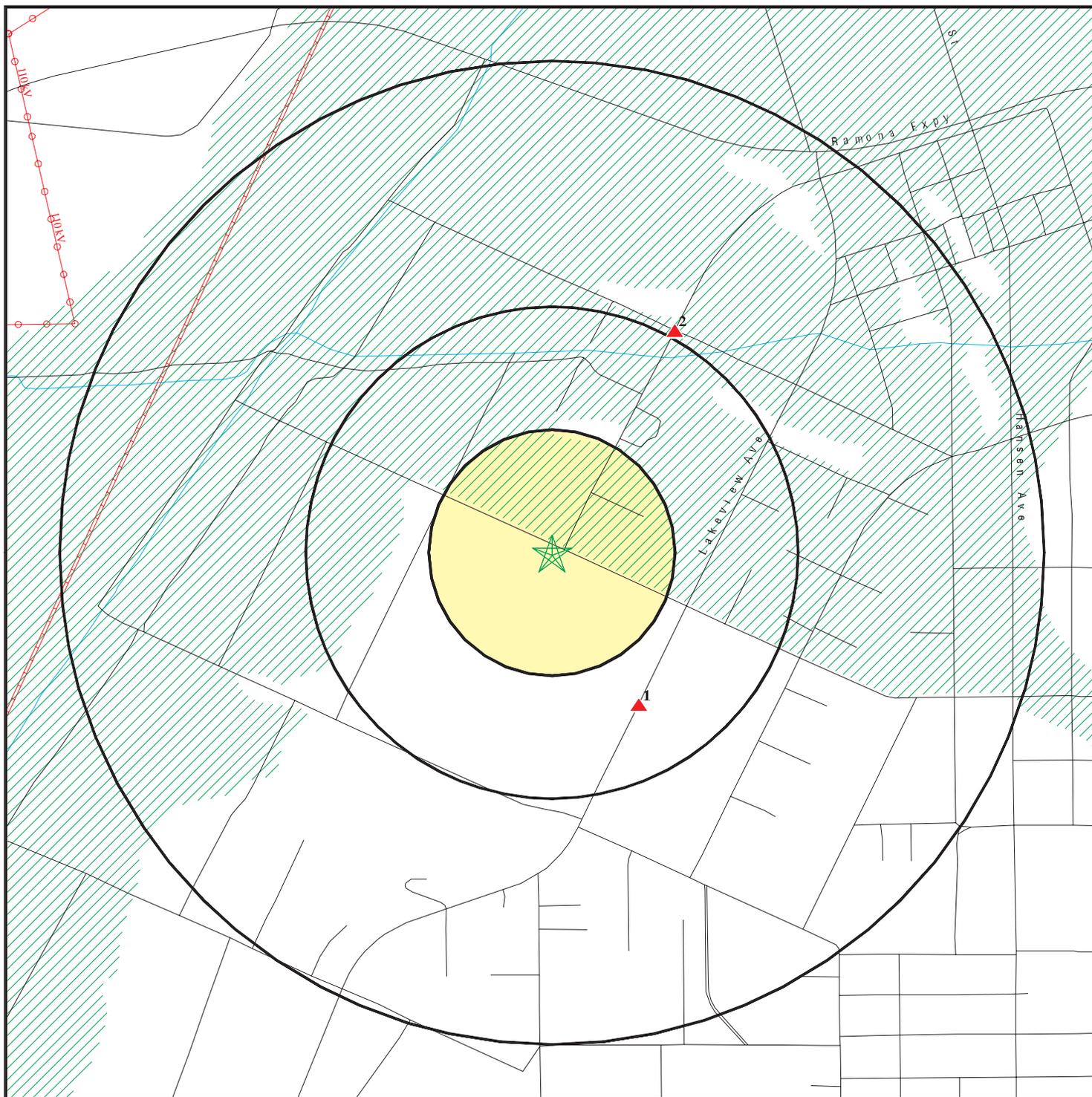
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>NUVIEW UNION SCHOOL DISTRICT</i></b>	<b><i>29780 LAKEVIEW AVE</i></b>	<b><i>SSE 1/4 - 1/2 (0.355 mi.)</i></b>	<b><i>1</i></b>	<b><i>7</i></b>

## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

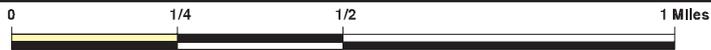
<u>Site Name</u>	<u>Database(s)</u>
LAKEVIEW MAINT. STATION	HIST UST
LAKEVIEW LANDFILL	FINDS

# OVERVIEW MAP - 2595939.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- ▲ Power transmission lines
- ▲ Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

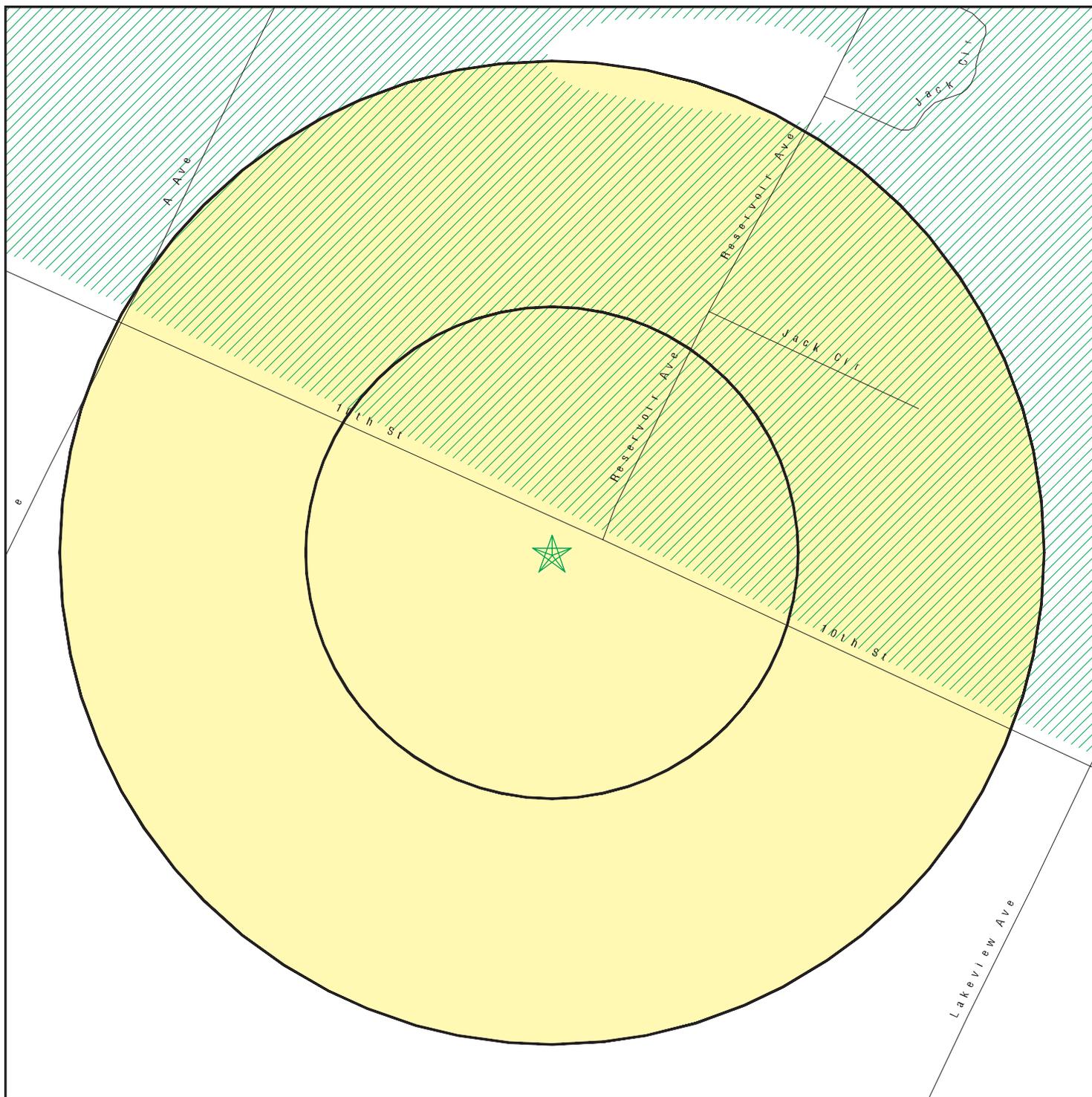


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Lakeview Substation  
 ADDRESS: 10th St. and Reservoir Ave.  
 Lakeview CA 92567  
 LAT/LONG: 33.8259 / 117.1331

CLIENT: Rubicon Engineering Corporation  
 CONTACT: Peter Lee  
 INQUIRY #: 2595939.2s  
 DATE: September 18, 2009 6:14 pm

# DETAIL MAP - 2595939.2s



-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites

-  Indian Reservations BIA
  -  Oil & Gas pipelines
  -  100-year flood zone
  -  500-year flood zone
  -  Areas of Concern
- 0 1/16 1/8 1/4 Miles
- N

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

SITE NAME: Lakeview Substation  
 ADDRESS: 10th St. and Reservoir Ave.  
 Lakeview CA 92567  
 LAT/LONG: 33.8259 / 117.1331

CLIENT: Rubicon Engineering Corporation  
 CONTACT: Peter Lee  
 INQUIRY #: 2595939.2s  
 DATE: September 18, 2009 6:15 pm

## MAP FINDINGS SUMMARY

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

## MAP FINDINGS SUMMARY

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

## MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN		1.000	0	0	0	0	NR	0
CA WDS		TP	NR	NR	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
Cortese		0.500	0	0	0	NR	NR	0
HIST CORTESE		0.500	0	0	1	NR	NR	1
Notify 65		1.000	0	0	0	0	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0

### EDR PROPRIETARY RECORDS

#### *EDR Proprietary Records*

Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	0	0	NR	NR	NR	0
EDR Historical Cleaners		0.250	0	0	NR	NR	NR	0

#### NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

1  
SSE  
1/4-1/2  
0.355 mi.  
1877 ft.

**NUVIEW UNION SCHOOL DISTRICT**  
29780 LAKEVIEW AVE  
NUEVO, CA 92567

**HAZNET S103945680**  
**LUST N/A**  
**NPDES**  
**CA WDS**  
**HIST CORTESE**

**Relative:**  
**Higher**

**HAZNET:**  
Gepaid: CAC001317624  
Contact: NUVIEW UNION SCHOOL DISTRICT  
Telephone: 9099280066  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 29780 LAKEVIEW AVE  
Mailing City,St,Zip: NUEVO, CA 925670000  
Gen County: Riverside  
TSD EPA ID: CAT080013352  
TSD County: Los Angeles  
Waste Category: Waste oil and mixed oil  
Disposal Method: Recycler  
Tons: 1,251  
Facility County: Riverside

**Actual:**  
**1469 ft.**

Gepaid: CAL000298488  
Contact: RUSS RAMSEY/DIR OF MAINT/EX: 1801  
Telephone: 9519281302  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 29780 LAKEVIEW AVE  
Mailing City,St,Zip: NUEVO, CA 925670000  
Gen County: Riverside  
TSD EPA ID: CAR000156125  
TSD County: San Bernardino  
Waste Category: Adhesives  
Disposal Method: Recycler  
Tons: 0  
Facility County: Riverside

**LUST:**  
Region: STATE  
Global Id: T0606500596  
Latitude: 33.821014475  
Longitude: -117.1304195  
Case Type: LUST Cleanup Site  
Status: Completed - Case Closed  
Status Date: 1999-10-27 00:00:00  
Lead Agency: RIVERSIDE COUNTY LOP  
Case Worker: Not reported  
Local Agency: RIVERSIDE COUNTY LOP  
RB Case Number: 083303497T  
LOC Case Number: 9915189  
File Location: Local Agency Warehouse  
Potential Media Affect: Soil  
Potential Contaminats of Concern: Gasoline  
Site History: Not reported

**LUST REG 8:**  
Region: 8  
County: Riverside

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**NUVIEW UNION SCHOOL DISTRICT (Continued)**

**S103945680**

Regional Board: Santa Ana Region  
Facility Status: Preliminary site assessment underway  
Case Number: 083303497T  
Local Case Num: 99-15189  
Case Type: Soil only  
Substance: Gasoline  
Qty Leaked: Not reported  
Abate Method: Not reported  
Cross Street: 10TH  
Enf Type: Not reported  
Funding: Not reported  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global ID: T0606500596  
How Stopped Date: 2/24/1999  
Enter Date: 6/16/1999  
Review Date: 5/3/1999  
Prelim Assess: 8/10/1999  
Discover Date: 5/3/1999  
Enforcement Date: Not reported  
Close Date: Not reported  
Workplan: 6/2/1999  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Enter Date: 6/16/1999  
GW Qualifies: Not reported  
Soil Qualifies: =  
Operator: Not reported  
Facility Contact: Not reported  
Interim: Not reported  
Oversite Program: LUST  
Latitude: 33.8194458  
Longitude: -117.1312695  
MTBE Date: Not reported  
Max MTBE GW: Not reported  
MTBE Concentration: 1  
Max MTBE Soil: .1  
MTBE Fuel: 1  
MTBE Tested: MTBE Detected. Site tested for MTBE & MTBE detected  
MTBE Class: \*  
Staff: NOM  
Staff Initials: Not reported  
Lead Agency: Local Agency  
Local Agency: 33000L  
Hydr Basin #: SAN JACINTO (8-5)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: Not reported  
Summary: Not reported

LUST:

Region: RIVERSIDE

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**NUVIEW UNION SCHOOL DISTRICT (Continued)**

**S103945680**

Facility ID: 9915189  
Site Closed: Yes  
Case Type: Soil only

**NPDES:**

Npdes Number: Not reported  
Facility Status: Active  
Agency Id: 472680  
Region: 8  
Regulatory Measure Id: 210956  
Order No: 97-03-DWQ  
Regulatory Measure Type: Storm water industrial  
Place Id: 221416  
WDID: 8 331017925  
Program Type: INDSTW  
Adoption Date Of Regulatory Measure: Not reported  
Effective Date Of Regulatory Measure: 3/11/2003  
Expiration Date Of Regulatory Measure: Not reported  
Termination Date Of Regulatory Measure: Not reported  
Discharge Name: Nuvview Union School District  
Discharge Address: Not reported  
Discharge City: Not reported  
Discharge State: Not reported  
Discharge Zip: Not reported

**CA WDS:**

Facility ID: Santa Ana River 331017925  
Facility Type: Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.  
Facility Status: Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.  
NPDES Number: CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board  
Subregion: 8  
Facility Telephone: 9099280066  
Facility Contact: RAMSEY RUSS  
Agency Name: NUEVO SCHOOL DISTRICT  
Agency Address: 29780 Lakeview Ave  
Agency City,St,Zip: Nuevo 925679261  
Agency Contact: RAMSEY RUSS  
Agency Telephone: 9099280066  
Agency Type: Special District (Includes districts established under general acts, sanitary districts, water districts irrigation districts, etc.)  
SIC Code: 0  
SIC Code 2: Not reported  
Primary Waste: Not reported  
Primary Waste Type: Not reported  
Secondary Waste: Not reported  
Secondary Waste Type: Not reported  
Design Flow: 0  
Baseline Flow: 0  
Reclamation: Not reported

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**NUVIEW UNION SCHOOL DISTRICT (Continued)**

**S103945680**

POTW: Not reported  
 Treat To Water: Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.  
 Complexity: Category C - Facilities having no waste treatment systems, such as cooling water dischargers or those who must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

CORTESE:  
 Region: CORTESE  
 Facility County Code: 33  
 Reg By: LTNKA  
 Reg Id: 083303497T

**2**  
**NNE**  
**1/2-1**  
**0.516 mi.**  
**2726 ft.**

**MOUNTAIN SHADOWS MIDDLE SCHOOL**  
**9TH STREET/RESERVOIR AVENUE**  
**NUEVO, CA 92567**

**SCH S104549117**  
**ENVIROSTOR N/A**

**Relative:**  
**Higher**

SCH:

**Actual:**  
**1449 ft.**

Facility ID: 33010013  
 Site Type: School Investigation  
 Site Type Detail: School  
 Acres: 7  
 National Priorities List: NO  
 Cleanup Oversight Agencies: SMBRP  
 Lead Agency: SMBRP  
 Lead Agency Description: DTSC - Site Mitigation And Brownfield Reuse Program  
 Project Manager: Not reported  
 Supervisor: Mark Malinowski  
 Division Branch: Cypress  
 Site Code: 404055  
 Assembly: 65  
 Senate: 37  
 Special Program Status: Not reported  
 Status: No Further Action  
 Status Date: 2001-03-09 00:00:00  
 Restricted Use: NO  
 Funding: School District  
 Latitude: 33.8416  
 Longitude: -117.1101  
 Alias Name: MOUNTAIN SHADOWS MIDDLE SCHOOL  
 Alias Type: Alternate Name  
 Alias Name: 404055  
 Alias Type: Project Code (Site Code)  
 Alias Name: 404031  
 Alias Type: Project Code (Site Code)  
 Alias Name: 33010013  
 Alias Type: Envirostor ID Number

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MOUNTAIN SHADOWS MIDDLE SCHOOL (Continued)**

**S104549117**

Alias Name: NUVIEW UNION SD-9TH & RESERVOIR/CDE  
Alias Type: Alternate Name  
Alias Name: NUVIEW UN.SD-PROP. MOUNTAIN SHADOWS/VCA  
Alias Type: Alternate Name  
Alias Name: NUVIEW UNION SCHOOL DISTRICT  
Alias Type: Alternate Name

APN: NONE SPECIFIED  
APN Description: Not reported

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 2000-06-29 00:00:00

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 2001-08-06 00:00:00

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Environmental Oversight Agreement  
Completed Date: 2000-06-08 00:00:00

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Preliminary Endangerment Assessment Report  
Completed Date: 2001-03-09 00:00:00

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 2000-02-08 00:00:00

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: , 30007  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: SOIL  
Potential Description: Not reported  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: AGRICULTURAL - ROW CROPS

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MOUNTAIN SHADOWS MIDDLE SCHOOL (Continued)**

**S104549117**

**ENVIROSTOR:**

Site Type: School Investigation  
Site Type Detailed: School  
Acres: 7  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: SMBRP  
Program Manager: Not reported  
Supervisor: Mark Malinowski  
Division Branch: Cypress  
Facility ID: 33010013  
Site Code: 404055  
Assembly: 65  
Senate: 37  
Special Program: Not reported  
Status: No Further Action  
Status Date: 2001-03-09 00:00:00  
Restricted Use: NO  
Funding: School District  
Latitude: 33.8416  
Longitude: -117.1101  
Alias Name: MOUNTAIN SHADOWS MIDDLE SCHOOL  
Alias Type: Alternate Name  
Alias Name: 404055  
Alias Type: Project Code (Site Code)  
Alias Name: 404031  
Alias Type: Project Code (Site Code)  
Alias Name: 33010013  
Alias Type: Envirostor ID Number  
Alias Name: NUVIEW UNION SD-9TH & RESERVOIR/CDE  
Alias Type: Alternate Name  
Alias Name: NUVIEW UN.SD-PROP. MOUNTAIN SHADOWS/VCA  
Alias Type: Alternate Name  
Alias Name: NUVIEW UNION SCHOOL DISTRICT  
Alias Type: Alternate Name  
  
APN: NONE SPECIFIED  
APN Description: Not reported

**Completed Info:**

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 2000-06-29 00:00:00  
  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 2001-08-06 00:00:00  
  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Environmental Oversight Agreement  
Completed Date: 2000-06-08 00:00:00  
  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MOUNTAIN SHADOWS MIDDLE SCHOOL (Continued)**

**S104549117**

Completed Document Type: Preliminary Endangerment Assessment Report  
Completed Date: 2001-03-09 00:00:00

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 2000-02-08 00:00:00

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: , 30007  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: SOIL  
Potential Description: Not reported  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: AGRICULTURAL - ROW CROPS

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
LAKEVIEW	U001575149	LAKEVIEW MAINT. STATION	HWY 18 PM 39.0	92567	HIST UST
LAKEVIEW	1006829187	LAKEVIEW LANDFILL	CORNER OF DAVIS RD AND MARVIN	92567	FINDS

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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

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

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

#### **NPL: National Priority List**

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

Date of Government Version: 02/02/2009	Source: EPA
Date Data Arrived at EDR: 02/12/2009	Telephone: N/A
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 09/10/2009
Number of Days to Update: 46	Next Scheduled EDR Contact: 10/26/2009
	Data Release Frequency: Quarterly

#### **NPL Site Boundaries**

##### **Sources:**

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

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

#### **Proposed NPL: Proposed National Priority List Sites**

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

Date of Government Version: 04/23/2009	Source: EPA
Date Data Arrived at EDR: 04/28/2009	Telephone: N/A
Date Made Active in Reports: 05/19/2009	Last EDR Contact: 09/10/2009
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/26/2009
	Data Release Frequency: Quarterly

#### **NPL LIENS: Federal Superfund Liens**

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

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/17/2009
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal Delisted NPL site list***

DELISTED NPL: National Priority List Deletions

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

Date of Government Version: 02/02/2009	Source: EPA
Date Data Arrived at EDR: 02/12/2009	Telephone: N/A
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 09/10/2009
Number of Days to Update: 46	Next Scheduled EDR Contact: 10/26/2009
	Data Release Frequency: Quarterly

## ***Federal CERCLIS list***

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

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

Date of Government Version: 01/09/2009	Source: EPA
Date Data Arrived at EDR: 01/30/2009	Telephone: 703-412-9810
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 09/10/2009
Number of Days to Update: 101	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Quarterly

## ***Federal CERCLIS NFRAP site List***

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

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

Date of Government Version: 12/03/2007	Source: EPA
Date Data Arrived at EDR: 12/06/2007	Telephone: 703-412-9810
Date Made Active in Reports: 02/20/2008	Last EDR Contact: 09/09/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: 12/14/2009
	Data Release Frequency: Quarterly

## ***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/25/2009	Source: EPA
Date Data Arrived at EDR: 04/02/2009	Telephone: 800-424-9346
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/31/2009
Number of Days to Update: 39	Next Scheduled EDR Contact: 11/30/2009
	Data Release Frequency: Quarterly

## ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF: RCRA - Transporters, Storage and Disposal

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

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/12/2008  
Date Data Arrived at EDR: 11/18/2008  
Date Made Active in Reports: 03/16/2009  
Number of Days to Update: 118

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 09/02/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Quarterly

## ***Federal RCRA generators list***

### **RCRA-LQG: RCRA - Large Quantity Generators**

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

Date of Government Version: 11/12/2008  
Date Data Arrived at EDR: 11/18/2008  
Date Made Active in Reports: 03/16/2009  
Number of Days to Update: 118

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 09/02/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Quarterly

### **RCRA-SQG: RCRA - Small Quantity Generators**

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

Date of Government Version: 11/12/2008  
Date Data Arrived at EDR: 11/18/2008  
Date Made Active in Reports: 03/16/2009  
Number of Days to Update: 118

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 09/02/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Quarterly

### **RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators**

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

Date of Government Version: 11/12/2008  
Date Data Arrived at EDR: 11/18/2008  
Date Made Active in Reports: 03/16/2009  
Number of Days to Update: 118

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 09/02/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Varies

## ***Federal institutional controls / engineering controls registries***

### **US ENG CONTROLS: Engineering Controls Sites List**

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

Date of Government Version: 03/31/2009  
Date Data Arrived at EDR: 04/22/2009  
Date Made Active in Reports: 05/05/2009  
Number of Days to Update: 13

Source: Environmental Protection Agency  
Telephone: 703-603-0695  
Last EDR Contact: 09/18/2009  
Next Scheduled EDR Contact: 12/28/2009  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## US INST CONTROL: Sites with Institutional Controls

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

Date of Government Version: 03/31/2009	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/22/2009	Telephone: 703-603-0695
Date Made Active in Reports: 05/05/2009	Last EDR Contact: 09/18/2009
Number of Days to Update: 13	Next Scheduled EDR Contact: 12/28/2009
	Data Release Frequency: Varies

## ***Federal ERNS list***

### ERNS: Emergency Response Notification System

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

Date of Government Version: 12/31/2008	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/30/2009	Telephone: 202-267-2180
Date Made Active in Reports: 05/19/2009	Last EDR Contact: 08/26/2009
Number of Days to Update: 109	Next Scheduled EDR Contact: 10/19/2009
	Data Release Frequency: Annually

## ***State- and tribal - equivalent NPL***

### RESPONSE: State Response Sites

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

Date of Government Version: 08/27/2009	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/27/2009	Telephone: 916-323-3400
Date Made Active in Reports: 09/18/2009	Last EDR Contact: 08/27/2009
Number of Days to Update: 22	Next Scheduled EDR Contact: 11/23/2009
	Data Release Frequency: Quarterly

## ***State- and tribal - equivalent CERCLIS***

### ENVIROSTOR: EnviroStor Database

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

Date of Government Version: 08/27/2009	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/27/2009	Telephone: 916-323-3400
Date Made Active in Reports: 09/18/2009	Last EDR Contact: 08/27/2009
Number of Days to Update: 22	Next Scheduled EDR Contact: 11/23/2009
	Data Release Frequency: Quarterly

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

### SWF/LF (SWIS): Solid Waste Information System

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

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/02/2009  
Date Data Arrived at EDR: 09/04/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 14

Source: Integrated Waste Management Board  
Telephone: 916-341-6320  
Last EDR Contact: 09/04/2009  
Next Scheduled EDR Contact: 12/07/2009  
Data Release Frequency: Quarterly

## ***State and tribal leaking storage tank lists***

### LUST REG 1: Active Toxic Site Investigation

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

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

Source: California Regional Water Quality Control Board North Coast (1)  
Telephone: 707-570-3769  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2009  
Data Release Frequency: No Update Planned

### LUST REG 8: Leaking Underground Storage Tanks

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

Date of Government Version: 02/14/2005  
Date Data Arrived at EDR: 02/15/2005  
Date Made Active in Reports: 03/28/2005  
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)  
Telephone: 909-782-4496  
Last EDR Contact: 08/03/2009  
Next Scheduled EDR Contact: 11/02/2009  
Data Release Frequency: Varies

### LUST REG 7: Leaking Underground Storage Tank Case Listing

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

Date of Government Version: 02/26/2004  
Date Data Arrived at EDR: 02/26/2004  
Date Made Active in Reports: 03/24/2004  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)  
Telephone: 760-776-8943  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2009  
Data Release Frequency: No Update Planned

### LUST REG 5: Leaking Underground Storage Tank Database

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

Date of Government Version: 07/01/2008  
Date Data Arrived at EDR: 07/22/2008  
Date Made Active in Reports: 07/31/2008  
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-4834  
Last EDR Contact: 07/20/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Quarterly

### LUST REG 4: Underground Storage Tank Leak List

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

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)  
Telephone: 213-576-6710  
Last EDR Contact: 09/14/2009  
Next Scheduled EDR Contact: 12/21/2009  
Data Release Frequency: No Update Planned

### LUST REG 2: Fuel Leak List

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

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/30/2004  
Date Data Arrived at EDR: 10/20/2004  
Date Made Active in Reports: 11/19/2004  
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)  
Telephone: 510-622-2433  
Last EDR Contact: 07/06/2009  
Next Scheduled EDR Contact: 10/05/2009  
Data Release Frequency: Quarterly

### LUST: Geotracker's Leaking Underground Fuel Tank Report

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

Date of Government Version: 07/07/2009  
Date Data Arrived at EDR: 07/09/2009  
Date Made Active in Reports: 07/23/2009  
Number of Days to Update: 14

Source: State Water Resources Control Board  
Telephone: see region list  
Last EDR Contact: 07/09/2009  
Next Scheduled EDR Contact: 10/05/2009  
Data Release Frequency: Quarterly

### LUST REG 9: Leaking Underground Storage Tank Report

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

Date of Government Version: 03/01/2001  
Date Data Arrived at EDR: 04/23/2001  
Date Made Active in Reports: 05/21/2001  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-637-5595  
Last EDR Contact: 07/13/2009  
Next Scheduled EDR Contact: 10/12/2009  
Data Release Frequency: No Update Planned

### LUST REG 3: Leaking Underground Storage Tank Database

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

Date of Government Version: 05/19/2003  
Date Data Arrived at EDR: 05/19/2003  
Date Made Active in Reports: 06/02/2003  
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)  
Telephone: 805-542-4786  
Last EDR Contact: 08/10/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: No Update Planned

### LUST REG 6L: Leaking Underground Storage Tank Case Listing

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

Date of Government Version: 09/09/2003  
Date Data Arrived at EDR: 09/10/2003  
Date Made Active in Reports: 10/07/2003  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)  
Telephone: 530-542-5572  
Last EDR Contact: 08/31/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: No Update Planned

### LUST REG 6V: Leaking Underground Storage Tank Case Listing

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

Date of Government Version: 06/07/2005  
Date Data Arrived at EDR: 06/07/2005  
Date Made Active in Reports: 06/29/2005  
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)  
Telephone: 760-241-7365  
Last EDR Contact: 09/18/2009  
Next Scheduled EDR Contact: 12/28/2009  
Data Release Frequency: No Update Planned

### SLIC: Statewide SLIC Cases

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

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/07/2009  
Date Data Arrived at EDR: 07/09/2009  
Date Made Active in Reports: 07/23/2009  
Number of Days to Update: 14

Source: State Water Resources Control Board  
Telephone: 866-480-1028  
Last EDR Contact: 07/09/2009  
Next Scheduled EDR Contact: 10/05/2009  
Data Release Frequency: Varies

## SLIC REG 1: Active Toxic Site Investigations

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

Date of Government Version: 04/03/2003  
Date Data Arrived at EDR: 04/07/2003  
Date Made Active in Reports: 04/25/2003  
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)  
Telephone: 707-576-2220  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2008  
Data Release Frequency: No Update Planned

## SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

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

Date of Government Version: 09/30/2004  
Date Data Arrived at EDR: 10/20/2004  
Date Made Active in Reports: 11/19/2004  
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)  
Telephone: 510-286-0457  
Last EDR Contact: 07/06/2009  
Next Scheduled EDR Contact: 10/05/2009  
Data Release Frequency: Quarterly

## SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

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

Date of Government Version: 05/18/2006  
Date Data Arrived at EDR: 05/18/2006  
Date Made Active in Reports: 06/15/2006  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)  
Telephone: 805-549-3147  
Last EDR Contact: 08/10/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: Semi-Annually

## SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

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

Date of Government Version: 11/17/2004  
Date Data Arrived at EDR: 11/18/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)  
Telephone: 213-576-6600  
Last EDR Contact: 07/20/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Varies

## SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

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

Date of Government Version: 04/01/2005  
Date Data Arrived at EDR: 04/05/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-3291  
Last EDR Contact: 09/18/2009  
Next Scheduled EDR Contact: 12/28/2009  
Data Release Frequency: Semi-Annually

## SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

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

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/24/2005  
Date Data Arrived at EDR: 05/25/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch  
Telephone: 619-241-6583  
Last EDR Contact: 09/18/2009  
Next Scheduled EDR Contact: 12/28/2009  
Data Release Frequency: Semi-Annually

## SLIC REG 6L: SLIC Sites

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

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region  
Telephone: 530-542-5574  
Last EDR Contact: 08/31/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: No Update Planned

## SLIC REG 7: SLIC List

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

Date of Government Version: 11/24/2004  
Date Data Arrived at EDR: 11/29/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region  
Telephone: 760-346-7491  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2009  
Data Release Frequency: No Update Planned

## SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

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

Date of Government Version: 04/03/2008  
Date Data Arrived at EDR: 04/03/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)  
Telephone: 951-782-3298  
Last EDR Contact: 09/18/2009  
Next Scheduled EDR Contact: 12/28/2009  
Data Release Frequency: Semi-Annually

## SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

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

Date of Government Version: 09/10/2007  
Date Data Arrived at EDR: 09/11/2007  
Date Made Active in Reports: 09/28/2007  
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-467-2980  
Last EDR Contact: 08/26/2009  
Next Scheduled EDR Contact: 11/23/2009  
Data Release Frequency: Annually

## INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/24/2009  
Date Data Arrived at EDR: 03/03/2009  
Date Made Active in Reports: 05/05/2009  
Number of Days to Update: 63

Source: EPA Region 4  
Telephone: 404-562-8677  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2009  
Data Release Frequency: Semi-Annually

## INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 12/15/2008  
Date Data Arrived at EDR: 12/16/2008  
Date Made Active in Reports: 03/16/2009  
Number of Days to Update: 90

Source: Environmental Protection Agency  
Telephone: 415-972-3372  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2009  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/04/2009	Source: EPA Region 10
Date Data Arrived at EDR: 06/05/2009	Telephone: 206-553-2857
Date Made Active in Reports: 06/17/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 12	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land  
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/19/2009	Source: EPA Region 1
Date Data Arrived at EDR: 02/19/2009	Telephone: 617-918-1313
Date Made Active in Reports: 03/16/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 25	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/20/2009	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2009	Telephone: 214-665-6597
Date Made Active in Reports: 05/29/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 9	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/24/2009	Source: EPA Region 7
Date Data Arrived at EDR: 05/20/2009	Telephone: 913-551-7003
Date Made Active in Reports: 06/17/2009	Last EDR Contact: 08/21/2009
Number of Days to Update: 28	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/01/2009	Source: EPA Region 8
Date Data Arrived at EDR: 06/03/2009	Telephone: 303-312-6271
Date Made Active in Reports: 06/17/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 14	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Quarterly

## **State and tribal registered storage tank lists**

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/07/2009	Source: SWRCB
Date Data Arrived at EDR: 07/09/2009	Telephone: 916-480-1028
Date Made Active in Reports: 07/24/2009	Last EDR Contact: 07/09/2009
Number of Days to Update: 15	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities  
Registered Aboveground Storage Tanks.

Date of Government Version: 02/01/2009	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/10/2009	Telephone: 916-341-5712
Date Made Active in Reports: 07/20/2009	Last EDR Contact: 07/27/2009
Number of Days to Update: 40	Next Scheduled EDR Contact: 10/26/2009
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 06/04/2009	Source: EPA Region 10
Date Data Arrived at EDR: 06/05/2009	Telephone: 206-553-2857
Date Made Active in Reports: 06/17/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 12	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Quarterly

## INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 09/08/2008	Source: EPA Region 5
Date Data Arrived at EDR: 09/19/2008	Telephone: 312-886-6136
Date Made Active in Reports: 10/16/2008	Last EDR Contact: 08/17/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

## INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/24/2009	Source: EPA Region 4
Date Data Arrived at EDR: 03/03/2009	Telephone: 404-562-9424
Date Made Active in Reports: 05/05/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Semi-Annually

## INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/19/2009	Source: EPA, Region 1
Date Data Arrived at EDR: 02/19/2009	Telephone: 617-918-1313
Date Made Active in Reports: 03/16/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 25	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

## INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/20/2009	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2009	Telephone: 214-665-7591
Date Made Active in Reports: 05/29/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 9	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Semi-Annually

## INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2008	Source: EPA Region 7
Date Data Arrived at EDR: 12/30/2008	Telephone: 913-551-7003
Date Made Active in Reports: 03/16/2009	Last EDR Contact: 08/21/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 06/01/2009	Source: EPA Region 8
Date Data Arrived at EDR: 06/03/2009	Telephone: 303-312-6137
Date Made Active in Reports: 06/17/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 14	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Quarterly

## INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/15/2008	Source: EPA Region 9
Date Data Arrived at EDR: 12/16/2008	Telephone: 415-972-3368
Date Made Active in Reports: 03/16/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 90	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Quarterly

### ***State and tribal voluntary cleanup sites***

#### INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

#### INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008	Source: EPA, Region 1
Date Data Arrived at EDR: 04/22/2008	Telephone: 617-918-1102
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 07/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 10/19/2009
	Data Release Frequency: Varies

#### VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 08/27/2009	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/27/2009	Telephone: 916-323-3400
Date Made Active in Reports: 09/18/2009	Last EDR Contact: 08/27/2009
Number of Days to Update: 22	Next Scheduled EDR Contact: 11/23/2009
	Data Release Frequency: Quarterly

### **ADDITIONAL ENVIRONMENTAL RECORDS**

#### ***Local Brownfield lists***

US BROWNFIELDS: A Listing of Brownfields Sites

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 10/01/2008	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/14/2008	Telephone: 202-566-2777
Date Made Active in Reports: 12/23/2008	Last EDR Contact: 09/11/2009
Number of Days to Update: 39	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Semi-Annually

## **Local Lists of Landfill / Solid Waste Disposal Sites**

### **ODI: Open Dump Inventory**

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2004
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### **DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations**

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 03/25/2008	Source: EPA, Region 9
Date Data Arrived at EDR: 04/17/2008	Telephone: 415-972-3336
Date Made Active in Reports: 05/15/2008	Last EDR Contact: 09/14/2009
Number of Days to Update: 28	Next Scheduled EDR Contact: 12/21/2009
	Data Release Frequency: Varies

### **WMUDS/SWAT: Waste Management Unit Database**

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/10/2000	Telephone: 916-227-4448
Date Made Active in Reports: 05/10/2000	Last EDR Contact: 08/31/2009
Number of Days to Update: 30	Next Scheduled EDR Contact: 11/30/2009
	Data Release Frequency: Quarterly

### **SWRCY: Recycler Database**

A listing of recycling facilities in California.

Date of Government Version: 07/06/2009	Source: Department of Conservation
Date Data Arrived at EDR: 07/24/2009	Telephone: 916-323-3836
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 07/09/2009
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**HAULERS: Registered Waste Tire Haulers Listing**  
A listing of registered waste tire haulers.

Date of Government Version: 05/28/2009  
Date Data Arrived at EDR: 05/29/2009  
Date Made Active in Reports: 06/15/2009  
Number of Days to Update: 17

Source: Integrated Waste Management Board  
Telephone: 916-341-6422  
Last EDR Contact: 09/08/2009  
Next Scheduled EDR Contact: 12/07/2009  
Data Release Frequency: Varies

**INDIAN ODI: Report on the Status of Open Dumps on Indian Lands**  
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 08/26/2009  
Next Scheduled EDR Contact: 11/23/2009  
Data Release Frequency: Varies

## **Local Lists of Hazardous waste / Contaminated Sites**

**US CDL: Clandestine Drug Labs**

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/01/2008  
Date Data Arrived at EDR: 10/31/2008  
Date Made Active in Reports: 12/23/2008  
Number of Days to Update: 53

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 03/26/2009  
Next Scheduled EDR Contact: 06/22/2009  
Data Release Frequency: Quarterly

**HIST CAL-SITES: Calsites Database**

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005  
Date Data Arrived at EDR: 08/03/2006  
Date Made Active in Reports: 08/24/2006  
Number of Days to Update: 21

Source: Department of Toxic Substance Control  
Telephone: 916-323-3400  
Last EDR Contact: 02/23/2009  
Next Scheduled EDR Contact: 05/25/2009  
Data Release Frequency: No Update Planned

**SCH: School Property Evaluation Program**

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 08/27/2009  
Date Data Arrived at EDR: 08/27/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 22

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 08/27/2009  
Next Scheduled EDR Contact: 11/23/2009  
Data Release Frequency: Quarterly

**TOXIC PITS: Toxic Pits Cleanup Act Sites**

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/1995  
Date Data Arrived at EDR: 08/30/1995  
Date Made Active in Reports: 09/26/1995  
Number of Days to Update: 27

Source: State Water Resources Control Board  
Telephone: 916-227-4364  
Last EDR Contact: 01/26/2009  
Next Scheduled EDR Contact: 04/27/2009  
Data Release Frequency: No Update Planned

## CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2009  
Date Data Arrived at EDR: 07/23/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 11

Source: Department of Toxic Substances Control  
Telephone: 916-255-6504  
Last EDR Contact: 07/20/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Varies

## US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007  
Date Data Arrived at EDR: 11/19/2008  
Date Made Active in Reports: 03/30/2009  
Number of Days to Update: 131

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 03/23/2009  
Next Scheduled EDR Contact: 06/22/2009  
Data Release Frequency: No Update Planned

## **Local Lists of Registered Storage Tanks**

### CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994  
Date Data Arrived at EDR: 09/05/1995  
Date Made Active in Reports: 09/29/1995  
Number of Days to Update: 24

Source: California Environmental Protection Agency  
Telephone: 916-341-5851  
Last EDR Contact: 12/28/1998  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 06/22/2009  
Date Data Arrived at EDR: 06/22/2009  
Date Made Active in Reports: 07/20/2009  
Number of Days to Update: 28

Source: Department of Public Health  
Telephone: 707-463-4466  
Last EDR Contact: 09/14/2009  
Next Scheduled EDR Contact: 12/21/2009  
Data Release Frequency: Varies

### HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990  
Date Data Arrived at EDR: 01/25/1991  
Date Made Active in Reports: 02/12/1991  
Number of Days to Update: 18

Source: State Water Resources Control Board  
Telephone: 916-341-5851  
Last EDR Contact: 07/26/2001  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/07/2005	Telephone: N/A
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/03/2005
Number of Days to Update: 35	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## Local Land Records

### LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 05/29/2009	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/03/2009	Telephone: 202-564-6023
Date Made Active in Reports: 06/17/2009	Last EDR Contact: 08/17/2009
Number of Days to Update: 14	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

### LUCIS: Land Use Control Information System

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

Date of Government Version: 12/09/2005	Source: Department of the Navy
Date Data Arrived at EDR: 12/11/2006	Telephone: 843-820-7326
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 09/08/2009
Number of Days to Update: 31	Next Scheduled EDR Contact: 12/07/2009
	Data Release Frequency: Varies

### LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/13/2009	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/14/2009	Telephone: 916-323-3400
Date Made Active in Reports: 08/20/2009	Last EDR Contact: 08/03/2009
Number of Days to Update: 6	Next Scheduled EDR Contact: 11/02/2009
	Data Release Frequency: Varies

### DEED: Deed Restriction Listing

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/29/2009	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 07/01/2009	Telephone: 916-323-3400
Date Made Active in Reports: 07/23/2009	Last EDR Contact: 12/30/2009
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/28/2009
	Data Release Frequency: Semi-Annually

## **Records of Emergency Release Reports**

### HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/31/2009	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-366-4555
Date Made Active in Reports: 05/29/2009	Last EDR Contact: 09/11/2009
Number of Days to Update: 43	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Annually

### CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2007	Source: Office of Emergency Services
Date Data Arrived at EDR: 05/09/2008	Telephone: 916-845-8400
Date Made Active in Reports: 06/20/2008	Last EDR Contact: 08/18/2009
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

### LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 07/07/2009	Source: State Water Quality Control Board
Date Data Arrived at EDR: 07/09/2009	Telephone: 866-480-1028
Date Made Active in Reports: 07/23/2009	Last EDR Contact: 07/09/2009
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Quarterly

### MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 07/07/2009	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/09/2009	Telephone: 866-480-1028
Date Made Active in Reports: 07/23/2009	Last EDR Contact: 07/09/2009
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Quarterly

## **Other Ascertainable Records**

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 11/12/2008	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/18/2008	Telephone: (415) 495-8895
Date Made Active in Reports: 03/16/2009	Last EDR Contact: 09/02/2009
Number of Days to Update: 118	Next Scheduled EDR Contact: 10/19/2009
	Data Release Frequency: Varies

## DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2008	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 05/28/2008	Telephone: 202-366-4595
Date Made Active in Reports: 08/08/2008	Last EDR Contact: 08/27/2009
Number of Days to Update: 72	Next Scheduled EDR Contact: 11/23/2009
	Data Release Frequency: Varies

## DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 703-692-8801
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 05/08/2009
Number of Days to Update: 62	Next Scheduled EDR Contact: 08/03/2009
	Data Release Frequency: Semi-Annually

## FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2007	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 09/05/2008	Telephone: 202-528-4285
Date Made Active in Reports: 09/23/2008	Last EDR Contact: 07/01/2009
Number of Days to Update: 18	Next Scheduled EDR Contact: 09/28/2009
	Data Release Frequency: Varies

## CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 01/27/2009	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 04/23/2009	Telephone: Varies
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 07/20/2009
Number of Days to Update: 18	Next Scheduled EDR Contact: 10/19/2009
	Data Release Frequency: Varies

## ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/23/2009	Source: EPA
Date Data Arrived at EDR: 04/28/2009	Telephone: 703-416-0223
Date Made Active in Reports: 05/19/2009	Last EDR Contact: 09/10/2009
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/28/2009
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 01/05/2009	Source: Department of Energy
Date Data Arrived at EDR: 05/07/2009	Telephone: 505-845-0011
Date Made Active in Reports: 05/08/2009	Last EDR Contact: 09/14/2009
Number of Days to Update: 1	Next Scheduled EDR Contact: 12/14/2009
	Data Release Frequency: Varies

## MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/19/2009	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 03/24/2009	Telephone: 303-231-5959
Date Made Active in Reports: 05/05/2009	Last EDR Contact: 09/18/2009
Number of Days to Update: 42	Next Scheduled EDR Contact: 12/21/2009
	Data Release Frequency: Semi-Annually

## TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2007	Source: EPA
Date Data Arrived at EDR: 04/09/2009	Telephone: 202-566-0250
Date Made Active in Reports: 06/17/2009	Last EDR Contact: 09/14/2009
Number of Days to Update: 69	Next Scheduled EDR Contact: 12/14/2009
	Data Release Frequency: Annually

## TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002	Source: EPA
Date Data Arrived at EDR: 04/14/2006	Telephone: 202-260-5521
Date Made Active in Reports: 05/30/2006	Last EDR Contact: 07/14/2009
Number of Days to Update: 46	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Every 4 Years

## FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 09/10/2009
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/14/2009
	Data Release Frequency: Quarterly

## FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 09/10/2009
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/14/2009
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2006	Source: EPA
Date Data Arrived at EDR: 03/14/2008	Telephone: 202-564-4203
Date Made Active in Reports: 04/18/2008	Last EDR Contact: 07/14/2009
Number of Days to Update: 35	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Annually

## ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 03/20/2009	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/20/2009	Telephone: 202-564-5088
Date Made Active in Reports: 05/05/2009	Last EDR Contact: 07/13/2009
Number of Days to Update: 46	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Quarterly

## PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 02/26/2009	Source: EPA
Date Data Arrived at EDR: 05/20/2009	Telephone: 202-566-0500
Date Made Active in Reports: 05/29/2009	Last EDR Contact: 08/05/2009
Number of Days to Update: 9	Next Scheduled EDR Contact: 11/02/2009
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/02/2009	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 04/24/2009	Telephone: 301-415-7169
Date Made Active in Reports: 05/19/2009	Last EDR Contact: 06/29/2009
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/28/2009
	Data Release Frequency: Quarterly

## RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/28/2009	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/29/2009	Telephone: 202-343-9775
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 07/28/2009
Number of Days to Update: 12	Next Scheduled EDR Contact: 10/26/2009
	Data Release Frequency: Quarterly

## FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/28/2009	Source: EPA
Date Data Arrived at EDR: 05/01/2009	Telephone: (415) 947-8000
Date Made Active in Reports: 05/19/2009	Last EDR Contact: 09/18/2009
Number of Days to Update: 18	Next Scheduled EDR Contact: 12/28/2009
	Data Release Frequency: Quarterly

## RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

## BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2007	Source: EPA/NTIS
Date Data Arrived at EDR: 02/19/2009	Telephone: 800-424-9346
Date Made Active in Reports: 05/22/2009	Last EDR Contact: 09/09/2009
Number of Days to Update: 92	Next Scheduled EDR Contact: 12/07/2009
	Data Release Frequency: Biennially

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989  
Date Data Arrived at EDR: 07/27/1994  
Date Made Active in Reports: 08/02/1994  
Number of Days to Update: 6

Source: Department of Health Services  
Telephone: 916-255-2118  
Last EDR Contact: 05/31/1994  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 08/31/2009  
Date Data Arrived at EDR: 09/04/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 14

Source: State Water Resources Control Board  
Telephone: 916-445-9379  
Last EDR Contact: 09/04/2009  
Next Scheduled EDR Contact: 12/07/2009  
Data Release Frequency: Quarterly

## CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007  
Date Data Arrived at EDR: 06/20/2007  
Date Made Active in Reports: 06/29/2007  
Number of Days to Update: 9

Source: State Water Resources Control Board  
Telephone: 916-341-5227  
Last EDR Contact: 06/15/2009  
Next Scheduled EDR Contact: 09/14/2009  
Data Release Frequency: Quarterly

## CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 07/21/2009  
Date Data Arrived at EDR: 07/21/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 13

Source: CAL EPA/Office of Emergency Information  
Telephone: 916-323-3400  
Last EDR Contact: 07/21/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Quarterly

## HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CAL SITES].

Date of Government Version: 04/01/2001  
Date Data Arrived at EDR: 01/22/2009  
Date Made Active in Reports: 04/08/2009  
Number of Days to Update: 76

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 01/22/2009  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993  
Date Data Arrived at EDR: 11/01/1993  
Date Made Active in Reports: 11/19/1993  
Number of Days to Update: 18

Source: State Water Resources Control Board  
Telephone: 916-445-3846  
Last EDR Contact: 07/13/2009  
Next Scheduled EDR Contact: 10/12/2009  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 07/21/2009  
Date Data Arrived at EDR: 07/21/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 13

Source: Department of Toxic Substance Control  
Telephone: 916-327-4498  
Last EDR Contact: 09/18/2009  
Next Scheduled EDR Contact: 12/28/2009  
Data Release Frequency: Annually

## WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009  
Date Data Arrived at EDR: 07/21/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board  
Telephone: 213-576-6726  
Last EDR Contact: 07/21/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Varies

## HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2007  
Date Data Arrived at EDR: 02/17/2009  
Date Made Active in Reports: 04/08/2009  
Number of Days to Update: 50

Source: California Environmental Protection Agency  
Telephone: 916-255-1136  
Last EDR Contact: 05/08/2009  
Next Scheduled EDR Contact: 08/03/2009  
Data Release Frequency: Annually

## EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2007  
Date Data Arrived at EDR: 07/14/2009  
Date Made Active in Reports: 07/23/2009  
Number of Days to Update: 9

Source: California Air Resources Board  
Telephone: 916-322-2990  
Last EDR Contact: 07/14/2009  
Next Scheduled EDR Contact: 10/12/2009  
Data Release Frequency: Varies

## INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 12/08/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 34

Source: USGS  
Telephone: 202-208-3710  
Last EDR Contact: 05/08/2009  
Next Scheduled EDR Contact: 08/03/2009  
Data Release Frequency: Semi-Annually

## SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 04/13/2009  
Date Data Arrived at EDR: 04/14/2009  
Date Made Active in Reports: 06/17/2009  
Number of Days to Update: 64

Source: Environmental Protection Agency  
Telephone: 615-532-8599  
Last EDR Contact: 09/08/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 05/08/2009
Number of Days to Update: 339	Next Scheduled EDR Contact: 08/03/2009
	Data Release Frequency: N/A

## PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/18/2009	Telephone: 202-566-0517
Date Made Active in Reports: 05/29/2009	Last EDR Contact: 08/21/2009
Number of Days to Update: 100	Next Scheduled EDR Contact: 11/16/2009
	Data Release Frequency: Varies

## EDR PROPRIETARY RECORDS

### *EDR Proprietary Records*

#### Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

#### EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

#### EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## COUNTY RECORDS

### ALAMEDA COUNTY:

#### Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 07/20/2009  
Date Data Arrived at EDR: 07/20/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 14

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 07/20/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Semi-Annually

#### Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/20/2009  
Date Data Arrived at EDR: 07/20/2009  
Date Made Active in Reports: 07/31/2009  
Number of Days to Update: 11

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 07/20/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Semi-Annually

### CONTRA COSTA COUNTY:

#### Site List

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

Date of Government Version: 09/01/2009  
Date Data Arrived at EDR: 09/02/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 16

Source: Contra Costa Health Services Department  
Telephone: 925-646-2286  
Last EDR Contact: 08/26/2009  
Next Scheduled EDR Contact: 11/23/2009  
Data Release Frequency: Semi-Annually

### FRESNO COUNTY:

#### CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 07/21/2009  
Date Data Arrived at EDR: 07/23/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 11

Source: Dept. of Community Health  
Telephone: 559-445-3271  
Last EDR Contact: 08/03/2009  
Next Scheduled EDR Contact: 11/02/2009  
Data Release Frequency: Semi-Annually

### KERN COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 06/15/2009  
Date Data Arrived at EDR: 06/15/2009  
Date Made Active in Reports: 07/20/2009  
Number of Days to Update: 35

Source: Kern County Environment Health Services Department  
Telephone: 661-862-8700  
Last EDR Contact: 09/18/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: Quarterly

## LOS ANGELES COUNTY:

### San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 07/07/1999  
Date Made Active in Reports: N/A  
Number of Days to Update: 0

Source: EPA Region 9  
Telephone: 415-972-3178  
Last EDR Contact: 07/13/2009  
Next Scheduled EDR Contact: 10/12/2009  
Data Release Frequency: No Update Planned

### HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 05/28/2009  
Date Data Arrived at EDR: 08/13/2009  
Date Made Active in Reports: 08/20/2009  
Number of Days to Update: 7

Source: Department of Public Works  
Telephone: 626-458-3517  
Last EDR Contact: 08/10/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: Semi-Annually

### List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 08/10/2009  
Date Data Arrived at EDR: 08/17/2009  
Date Made Active in Reports: 08/20/2009  
Number of Days to Update: 3

Source: La County Department of Public Works  
Telephone: 818-458-5185  
Last EDR Contact: 08/10/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: Varies

### City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009  
Date Data Arrived at EDR: 03/10/2009  
Date Made Active in Reports: 04/08/2009  
Number of Days to Update: 29

Source: Engineering & Construction Division  
Telephone: 213-473-7869  
Last EDR Contact: 09/08/2009  
Next Scheduled EDR Contact: 12/07/2009  
Data Release Frequency: Varies

### Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 02/11/2009  
Date Data Arrived at EDR: 04/23/2009  
Date Made Active in Reports: 05/11/2009  
Number of Days to Update: 18

Source: Community Health Services  
Telephone: 323-890-7806  
Last EDR Contact: 08/10/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: Annually

### City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/10/2009  
Date Data Arrived at EDR: 08/17/2009  
Date Made Active in Reports: 08/27/2009  
Number of Days to Update: 10

Source: City of El Segundo Fire Department  
Telephone: 310-524-2236  
Last EDR Contact: 08/10/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: Semi-Annually

## City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003  
Date Data Arrived at EDR: 10/23/2003  
Date Made Active in Reports: 11/26/2003  
Number of Days to Update: 34

Source: City of Long Beach Fire Department  
Telephone: 562-570-2563  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2009  
Data Release Frequency: Annually

## City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/12/2009  
Date Data Arrived at EDR: 08/31/2009  
Date Made Active in Reports: 09/04/2009  
Number of Days to Update: 4

Source: City of Torrance Fire Department  
Telephone: 310-618-2973  
Last EDR Contact: 08/26/2009  
Next Scheduled EDR Contact: 11/09/2009  
Data Release Frequency: Semi-Annually

## MARIN COUNTY:

### Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 08/04/2009  
Date Data Arrived at EDR: 08/18/2009  
Date Made Active in Reports: 08/27/2009  
Number of Days to Update: 9

Source: Public Works Department Waste Management  
Telephone: 415-499-6647  
Last EDR Contact: 07/27/2009  
Next Scheduled EDR Contact: 10/26/2009  
Data Release Frequency: Semi-Annually

## NAPA COUNTY:

### Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/09/2008  
Date Data Arrived at EDR: 07/09/2008  
Date Made Active in Reports: 07/31/2008  
Number of Days to Update: 22

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 09/14/2009  
Next Scheduled EDR Contact: 12/21/2009  
Data Release Frequency: Semi-Annually

### Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008  
Date Data Arrived at EDR: 01/16/2008  
Date Made Active in Reports: 02/08/2008  
Number of Days to Update: 23

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 09/14/2009  
Next Scheduled EDR Contact: 12/21/2009  
Data Release Frequency: Annually

## ORANGE COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 07/01/2009  
Date Data Arrived at EDR: 08/31/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 18

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 08/28/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: Annually

## List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/13/2009  
Date Data Arrived at EDR: 09/04/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 14

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 08/31/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: Quarterly

## List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/05/2009  
Date Data Arrived at EDR: 08/31/2009  
Date Made Active in Reports: 09/04/2009  
Number of Days to Update: 4

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 12/02/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: Quarterly

## PLACER COUNTY:

### Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 07/15/2009  
Date Data Arrived at EDR: 07/16/2009  
Date Made Active in Reports: 07/23/2009  
Number of Days to Update: 7

Source: Placer County Health and Human Services  
Telephone: 530-889-7312  
Last EDR Contact: 06/28/2009  
Next Scheduled EDR Contact: 09/28/2009  
Data Release Frequency: Semi-Annually

## RIVERSIDE COUNTY:

### Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 08/24/2009  
Date Data Arrived at EDR: 08/26/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 23

Source: Department of Public Health  
Telephone: 951-358-5055  
Last EDR Contact: 07/27/2009  
Next Scheduled EDR Contact: 10/12/2009  
Data Release Frequency: Quarterly

### Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 08/24/2009  
Date Data Arrived at EDR: 08/26/2009  
Date Made Active in Reports: 09/16/2009  
Number of Days to Update: 21

Source: Health Services Agency  
Telephone: 951-358-5055  
Last EDR Contact: 07/27/2009  
Next Scheduled EDR Contact: 10/12/2009  
Data Release Frequency: Quarterly

## SACRAMENTO COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/04/2009  
Date Data Arrived at EDR: 07/28/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 6

Source: Sacramento County Environmental Management  
Telephone: 916-875-8406  
Last EDR Contact: 07/28/2009  
Next Scheduled EDR Contact: 10/26/2009  
Data Release Frequency: Quarterly

## Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 06/04/2009  
Date Data Arrived at EDR: 07/28/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 6

Source: Sacramento County Environmental Management  
Telephone: 916-875-8406  
Last EDR Contact: 07/28/2009  
Next Scheduled EDR Contact: 10/26/2009  
Data Release Frequency: Quarterly

## SAN BERNARDINO COUNTY:

### Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 06/29/2009  
Date Data Arrived at EDR: 07/01/2009  
Date Made Active in Reports: 07/23/2009  
Number of Days to Update: 22

Source: San Bernardino County Fire Department Hazardous Materials Division  
Telephone: 909-387-3041  
Last EDR Contact: 08/31/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: Quarterly

## SAN DIEGO COUNTY:

### Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 07/16/2008  
Date Data Arrived at EDR: 10/29/2008  
Date Made Active in Reports: 11/26/2008  
Number of Days to Update: 28

Source: Hazardous Materials Management Division  
Telephone: 619-338-2268  
Last EDR Contact: 07/02/2009  
Next Scheduled EDR Contact: 09/28/2009  
Data Release Frequency: Quarterly

### Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 11/01/2008  
Date Data Arrived at EDR: 12/23/2008  
Date Made Active in Reports: 01/27/2009  
Number of Days to Update: 35

Source: Department of Health Services  
Telephone: 619-338-2209  
Last EDR Contact: 08/17/2009  
Next Scheduled EDR Contact: 11/16/2009  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 06/16/2009	Source: San Diego County Department of Environmental Health
Date Data Arrived at EDR: 07/01/2009	Telephone: 619-338-2371
Date Made Active in Reports: 07/23/2009	Last EDR Contact: 07/01/2009
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/28/2009
	Data Release Frequency: Varies

## SAN FRANCISCO COUNTY:

### Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008	Source: Department Of Public Health San Francisco County
Date Data Arrived at EDR: 09/19/2008	Telephone: 415-252-3920
Date Made Active in Reports: 09/29/2008	Last EDR Contact: 08/31/2009
Number of Days to Update: 10	Next Scheduled EDR Contact: 11/30/2009
	Data Release Frequency: Quarterly

### Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008	Source: Department of Public Health
Date Data Arrived at EDR: 09/19/2008	Telephone: 415-252-3920
Date Made Active in Reports: 10/01/2008	Last EDR Contact: 09/14/2009
Number of Days to Update: 12	Next Scheduled EDR Contact: 11/30/2009
	Data Release Frequency: Quarterly

## SAN JOAQUIN COUNTY:

### San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 08/21/2009	Source: Environmental Health Department
Date Data Arrived at EDR: 08/21/2009	Telephone: N/A
Date Made Active in Reports: 08/27/2009	Last EDR Contact: 07/13/2009
Number of Days to Update: 6	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Semi-Annually

## SAN MATEO COUNTY:

### Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/27/2009	Source: San Mateo County Environmental Health Services Division
Date Data Arrived at EDR: 07/28/2009	Telephone: 650-363-1921
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 07/06/2009
Number of Days to Update: 6	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Annually

### Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 04/07/2009	Source: San Mateo County Environmental Health Services Division
Date Data Arrived at EDR: 04/07/2009	Telephone: 650-363-1921
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 07/06/2009
Number of Days to Update: 34	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Semi-Annually

## SANTA CLARA COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005  
Date Data Arrived at EDR: 03/30/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 22

Source: Santa Clara Valley Water District  
Telephone: 408-265-2600  
Last EDR Contact: 03/23/2009  
Next Scheduled EDR Contact: 06/22/2009  
Data Release Frequency: No Update Planned

## LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 05/29/2009  
Date Data Arrived at EDR: 06/01/2009  
Date Made Active in Reports: 06/15/2009  
Number of Days to Update: 14

Source: Department of Environmental Health  
Telephone: 408-918-3417  
Last EDR Contact: 09/14/2009  
Next Scheduled EDR Contact: 12/21/2009  
Data Release Frequency: Varies

## Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/31/2009  
Date Data Arrived at EDR: 08/31/2009  
Date Made Active in Reports: 09/18/2009  
Number of Days to Update: 18

Source: City of San Jose Fire Department  
Telephone: 408-277-4659  
Last EDR Contact: 08/31/2009  
Next Scheduled EDR Contact: 11/30/2009  
Data Release Frequency: Annually

## SOLANO COUNTY:

### Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 07/01/2009  
Date Data Arrived at EDR: 07/07/2009  
Date Made Active in Reports: 07/23/2009  
Number of Days to Update: 16

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 09/14/2009  
Next Scheduled EDR Contact: 12/21/2009  
Data Release Frequency: Quarterly

### Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 07/01/2009  
Date Data Arrived at EDR: 07/10/2009  
Date Made Active in Reports: 07/24/2009  
Number of Days to Update: 14

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 09/14/2009  
Next Scheduled EDR Contact: 12/21/2009  
Data Release Frequency: Quarterly

## SONOMA COUNTY:

### Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/20/2009  
Date Data Arrived at EDR: 07/20/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 14

Source: Department of Health Services  
Telephone: 707-565-6565  
Last EDR Contact: 07/20/2009  
Next Scheduled EDR Contact: 10/19/2009  
Data Release Frequency: Quarterly

## SUTTER COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 04/01/2009	Source: Sutter County Department of Agriculture
Date Data Arrived at EDR: 04/02/2009	Telephone: 530-822-7500
Date Made Active in Reports: 04/09/2009	Last EDR Contact: 09/18/2009
Number of Days to Update: 7	Next Scheduled EDR Contact: 12/28/2009
	Data Release Frequency: Semi-Annually

## VENTURA COUNTY:

### Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 08/28/2009	Source: Ventura County Environmental Health Division
Date Data Arrived at EDR: 09/08/2009	Telephone: 805-654-2813
Date Made Active in Reports: 09/18/2009	Last EDR Contact: 09/04/2009
Number of Days to Update: 10	Next Scheduled EDR Contact: 12/07/2009
	Data Release Frequency: Quarterly

### Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 09/04/2008	Telephone: 805-654-2813
Date Made Active in Reports: 09/18/2008	Last EDR Contact: 09/14/2009
Number of Days to Update: 14	Next Scheduled EDR Contact: 11/30/2009
	Data Release Frequency: Annually

### Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 06/24/2008	Telephone: 805-654-2813
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 09/04/2009
Number of Days to Update: 37	Next Scheduled EDR Contact: 12/07/2009
	Data Release Frequency: Quarterly

### Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 06/26/2009	Source: Environmental Health Division
Date Data Arrived at EDR: 07/09/2009	Telephone: 805-654-2813
Date Made Active in Reports: 07/24/2009	Last EDR Contact: 07/09/2009
Number of Days to Update: 15	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Quarterly

## YOLO COUNTY:

### Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 07/22/2009	Source: Yolo County Department of Health
Date Data Arrived at EDR: 09/04/2009	Telephone: 530-666-8646
Date Made Active in Reports: 09/16/2009	Last EDR Contact: 07/13/2009
Number of Days to Update: 12	Next Scheduled EDR Contact: 10/12/2009
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

### CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007	Source: Department of Environmental Protection
Date Data Arrived at EDR: 08/26/2009	Telephone: 860-424-3375
Date Made Active in Reports: 09/11/2009	Last EDR Contact: 09/09/2009
Number of Days to Update: 16	Next Scheduled EDR Contact: 12/07/2009
	Data Release Frequency: Annually

### NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2008	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/05/2009	Telephone: N/A
Date Made Active in Reports: 05/22/2009	Last EDR Contact: 08/04/2009
Number of Days to Update: 17	Next Scheduled EDR Contact: 11/02/2009
	Data Release Frequency: Annually

### NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/22/2009	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 05/27/2009	Telephone: 518-402-8651
Date Made Active in Reports: 07/01/2009	Last EDR Contact: 08/27/2009
Number of Days to Update: 35	Next Scheduled EDR Contact: 11/23/2009
	Data Release Frequency: Annually

### PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2007	Source: Department of Environmental Protection
Date Data Arrived at EDR: 09/11/2008	Telephone: N/A
Date Made Active in Reports: 10/02/2008	Last EDR Contact: 09/08/2009
Number of Days to Update: 21	Next Scheduled EDR Contact: 12/07/2009
	Data Release Frequency: Annually

### RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 06/01/2009	Source: Department of Environmental Management
Date Data Arrived at EDR: 06/12/2009	Telephone: 401-222-2797
Date Made Active in Reports: 06/29/2009	Last EDR Contact: 09/14/2009
Number of Days to Update: 17	Next Scheduled EDR Contact: 12/14/2009
	Data Release Frequency: Annually

### WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2008	Source: Department of Natural Resources
Date Data Arrived at EDR: 07/17/2009	Telephone: N/A
Date Made Active in Reports: 08/10/2009	Last EDR Contact: 07/06/2009
Number of Days to Update: 24	Next Scheduled EDR Contact: 10/05/2009
	Data Release Frequency: Annually

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**Oil/Gas Pipelines:** This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

### Electric Power Transmission Line Data

Source: PennWell Corporation

Telephone: (800) 823-6277

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

### AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

### Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

### Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

### Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

### Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

### Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

### Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## STREET AND ADDRESS INFORMATION

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## GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM

### TARGET PROPERTY ADDRESS

LAKEVIEW SUBSTATION  
10TH ST. AND RESERVOIR AVE.  
LAKEVIEW, CA 92567

### TARGET PROPERTY COORDINATES

Latitude (North):	33.82590 - 33° 49' 33.2"
Longitude (West):	117.1331 - 117° 7' 59.2"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	487683.2
UTM Y (Meters):	3742666.5
Elevation:	1444 ft. above sea level

### USGS TOPOGRAPHIC MAP

Target Property Map:	33117-G2 PERRIS, CA
Most Recent Revision:	1979

East Map:	33117-G1 LAKEVIEW, CA
Most Recent Revision:	1979

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

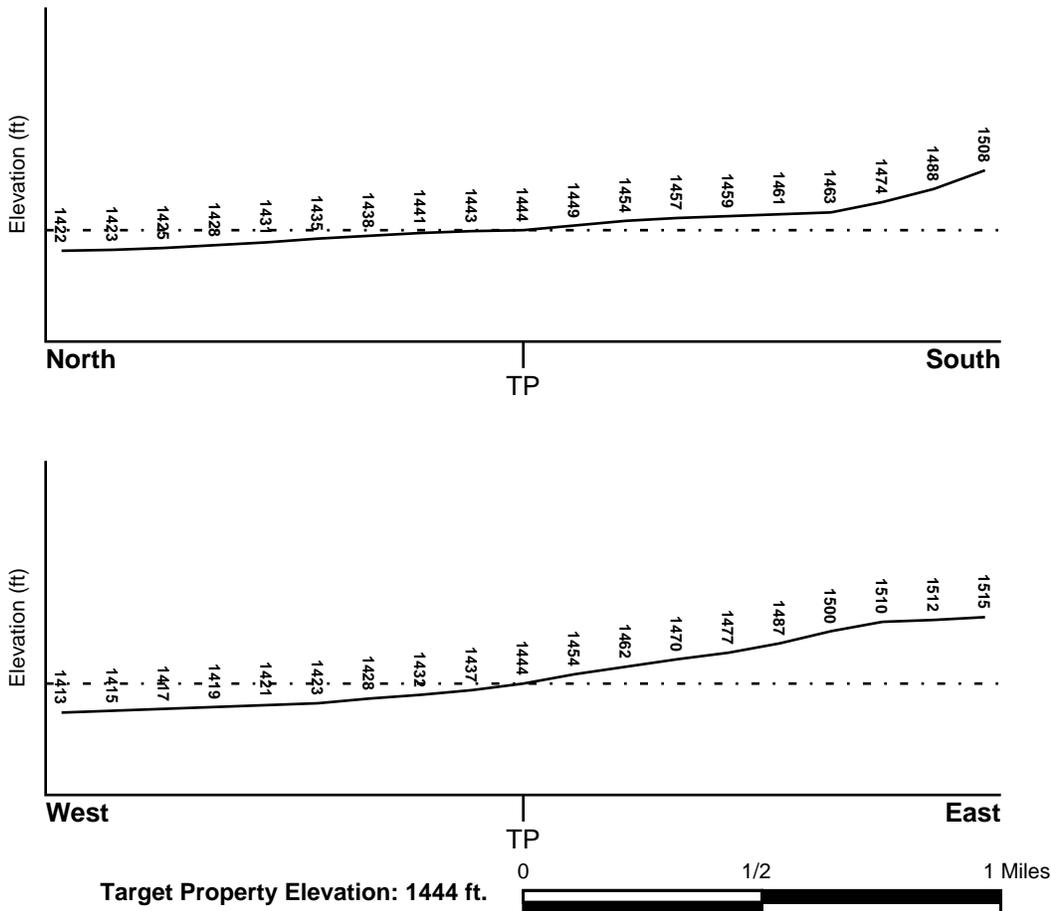
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## **FEMA FLOOD ZONE**

<u>Target Property County</u>	<u>FEMA Flood Electronic Data</u>
RIVERSIDE, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0602451450C

Additional Panels in search area: 0602451475B

## **NATIONAL WETLAND INVENTORY**

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
PERRIS	Not Available

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### ***Site-Specific Hydrogeological Data\*:***

Search Radius:	1.25 miles
Status:	Not found

## **AQUIFLOW®**

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

\* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### **ROCK STRATIGRAPHIC UNIT**

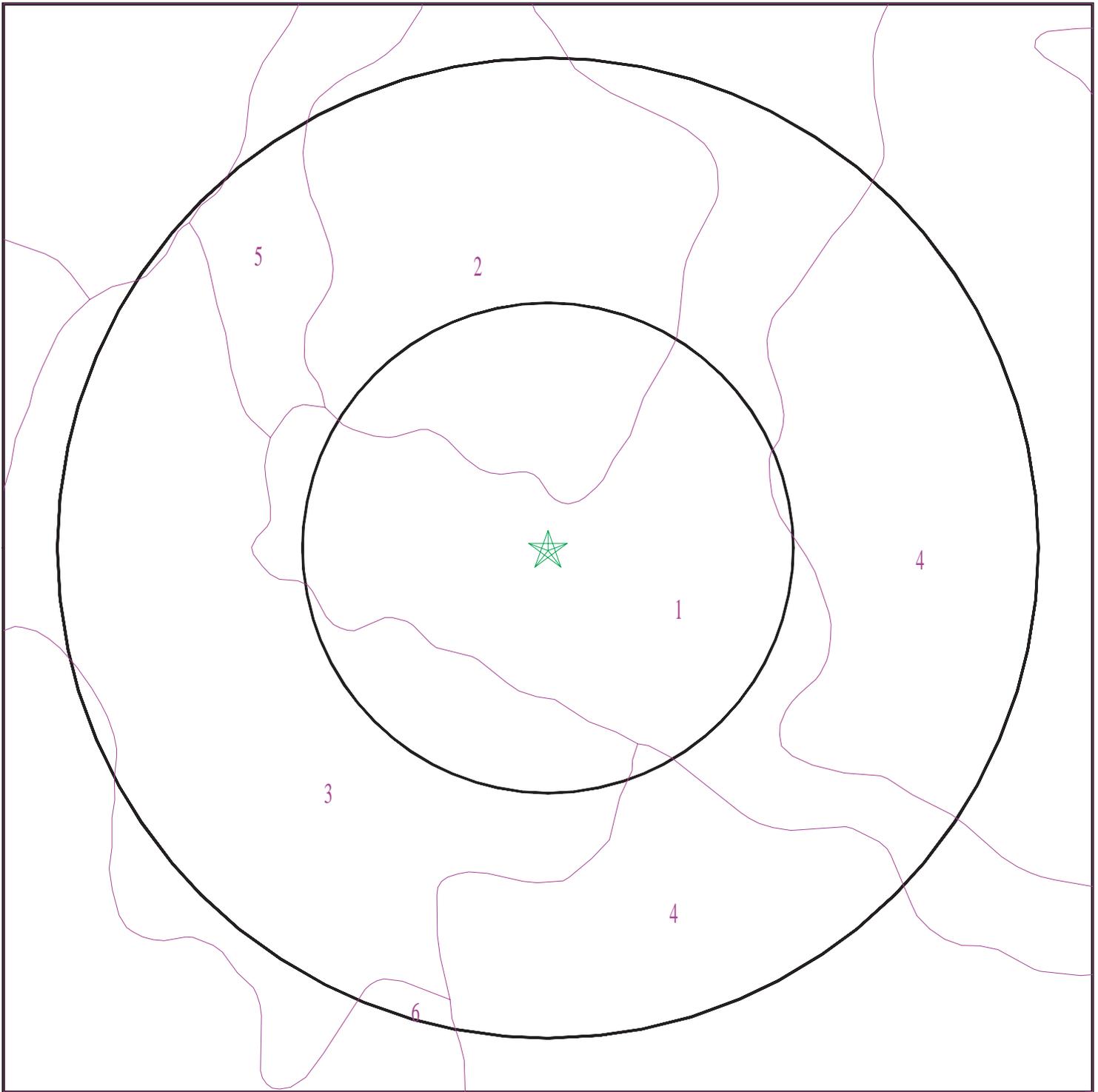
Era: Mesozoic  
System: Cretaceous  
Series: Cretaceous granitic rocks  
Code: Kg *(decoded above as Era, System & Series)*

#### **GEOLOGIC AGE IDENTIFICATION**

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 2595939.2s



- ★ Target Property
- SSURGO Soil
- Water

0 1/16 1/8 1/4 Miles



SITE NAME: Lakeview Substation  
ADDRESS: 10th St. and Reservoir Ave.  
Lakeview CA 92567  
LAT/LONG: 33.8259 / 117.1331

CLIENT: Rubicon Engineering Corporation  
CONTACT: Peter Lee  
INQUIRY #: 2595939.2s  
DATE: September 18, 2009 6:15 pm

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

### Soil Map ID: 1

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 2**

Soil Component Name: EXETER

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	16 inches	37 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	37 inches	50 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
4	50 inches	59 inches	stratified sandy loam to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### Soil Map ID: 3

Soil Component Name: PACHAPPA

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	20 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.6
2	20 inches	62 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.6

### Soil Map ID: 4

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
3	42 inches	59 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

### Soil Map ID: 5

Soil Component Name: PACHAPPA

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	20 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	20 inches	40 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	40 inches	62 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

### Soil Map ID: 6

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
2	14 inches	22 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
3	22 inches	68 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

**Soil Map ID: 7**

Soil Component Name: DOMINO

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 9 Min: 7.9
2	14 inches	27 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 9 Min: 7.9
3	27 inches	35 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 9 Min: 7.9
4	35 inches	62 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 9 Min: 7.9

### LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

### WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	USGS3124715	1/4 - 1/2 Mile SE
2	USGS3124727	1/4 - 1/2 Mile NNW
3	USGS3124726	1/4 - 1/2 Mile NNE
4	USGS3124723	1/2 - 1 Mile ENE
5	USGS3124710	1/2 - 1 Mile SW

## FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

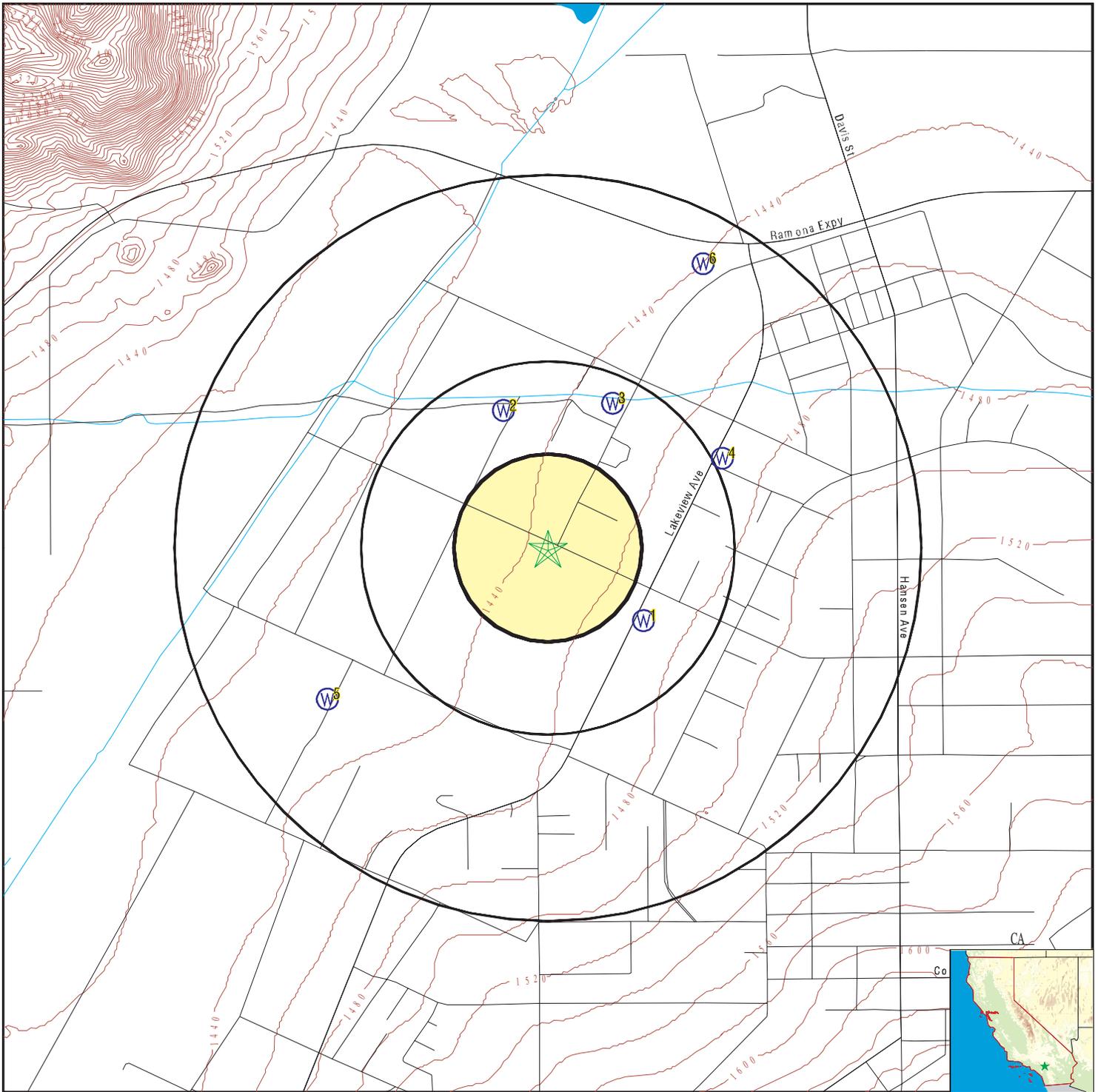
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

## STATE DATABASE WELL INFORMATION

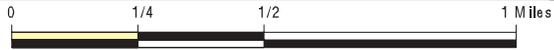
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
6	4798	1/2 - 1 Mile NNE

# PHYSICAL SETTING SOURCE MAP - 2595939.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: Lakeview Substation  
 ADDRESS: 10th St. and Reservoir Ave.  
 Lakeview CA 92567  
 LAT/LONG: 33.8259 / 117.1331

CLIENT: Rubicon Engineering Corporation  
 CONTACT: Peter Lee  
 INQUIRY #: 2595939.2s  
 DATE: September 18, 2009 6:15 pm

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database      EDR ID Number

**1**  
**SE**  
**1/4 - 1/2 Mile**  
**Higher**

**FED USGS      USGS3124715**

Agency cd:	USGS	Site no:	334923117074001
Site name:	004S002W18G003S	EDR Site id:	USGS3124715
Latitude:	334923	Dec lat:	33.82307428
Longitude:	1170740	Coor meth:	M
Dec lon:	-117.12864318	Latlong datum:	NAD27
Coor accr:	S	District:	06
Dec latlong datum:	NAD83	County:	065
State:	06	Land net:	Not Reported
Country:	US	Map scale:	24000
Location map:	PERRIS		
Altitude:	Not Reported		
Altitude method:	Not Reported		
Altitude accuracy:	Not Reported		
Altitude datum:	Not Reported		
Hydrologic:	San Jacinto. California. Area = 757 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	19940915	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	365	Hole depth:	365
Source of depth data:	Not Reported		
Project number:	9479335800		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

**2**  
**NNW**  
**1/4 - 1/2 Mile**  
**Lower**

**FED USGS      USGS3124727**

Agency cd:	USGS	Site no:	334953117080701
Site name:	004S002W07N001S	EDR Site id:	USGS3124727
Latitude:	334952.5	Dec lat:	33.83125
Longitude:	1170806.6	Coor meth:	G
Dec lon:	-117.13516667	Latlong datum:	NAD83
Coor accr:	5	District:	06
Dec latlong datum:	NAD83	County:	065
State:	06	Land net:	Not Reported
Country:	US	Map scale:	24000
Location map:	PERRIS		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Altitude:	1428		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	5		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Flat surface		
Site type:	Ground-water other than Spring	Date construction:	19880622
Date inventoried:	20010222	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Unconfined single aquifer		
Aquifer:	CENOZOIC ERATHEM		
Well depth:	907	Hole depth:	915
Source of depth data:	driller		
Project number:	470652422		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

**3**

**NNE**

**1/4 - 1/2 Mile  
Higher**

**FED USGS**

**USGS3124726**

Agency cd:	USGS	Site no:	334953117074801
Site name:	004S002W07P001S		
Latitude:	334953.5	EDR Site id:	USGS3124726
Longitude:	1170748.3	Dec lat:	33.83152778
Dec lon:	-117.13008333	Coor meth:	G
Coor accr:	5	Latlong datum:	NAD83
Dec latlong datum:	NAD83	District:	06
State:	06	County:	065
Country:	US	Land net:	Not Reported
Location map:	PERRIS	Map scale:	24000
Altitude:	1445		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Flat surface		
Site type:	Ground-water other than Spring	Date construction:	19950307
Date inventoried:	20010222	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Unconfined single aquifer		
Aquifer:	CENOZOIC ERATHEM		
Well depth:	630	Hole depth:	640
Source of depth data:	driller		
Project number:	470652422		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Peak flow data count: 0	Water quality data begin date: 2001-04-03
Water quality data end date: 2001-04-03	Water quality data count: 1
Ground water data begin date: 2001-03-08	Ground water data end date: 2001-03-08
Ground water data count: 1	

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
2001-03-08	217.2	

**4**  
**ENE**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS3124723**

Agency cd: USGS	Site no: 334948117072401
Site name: 004S002W18A001S	
Latitude: 334945.8	EDR Site id: USGS3124723
Longitude: 1170729.9	Dec lat: 33.82938889
Dec lon: -117.12497222	Coor meth: G
Coor acc: 5	Latlong datum: NAD83
Dec latlong datum: NAD83	District: 06
State: 06	County: 065
Country: US	Land net: Not Reported
Location map: LAKEVIEW	Map scale: 24000
Altitude: 1465	
Altitude method: Interpolated from topographic map	
Altitude accuracy: 10	
Altitude datum: National Geodetic Vertical Datum of 1929	
Hydrologic: San Jacinto, California. Area = 757 sq.mi.	
Topographic: Not Reported	
Site type: Ground-water other than Spring	Date construction: 19630722
Date inventoried: 19940915	Mean greenwich time offset: PST
Local standard time flag: Y	
Type of ground water site: Single well, other than collector or Ranney type	
Aquifer Type: Unconfined single aquifer	
Aquifer: CENOZOIC ERATHEM	
Well depth: 518	Hole depth: 518
Source of depth data: other reported	
Project number: 470652422	
Real time data flag: 0	Daily flow data begin date: 0000-00-00
Daily flow data end date: 0000-00-00	Daily flow data count: 0
Peak flow data begin date: 0000-00-00	Peak flow data end date: 0000-00-00
Peak flow data count: 0	Water quality data begin date: 2001-03-13
Water quality data end date: 2001-03-13	Water quality data count: 1
Ground water data begin date: 2001-03-08	Ground water data end date: 2001-03-08
Ground water data count: 1	

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
2001-03-08	266.3	

**5**  
**SW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS3124710**

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency cd:	USGS	Site no:	334912117083301
Site name:	004S003W13Q001S	EDR Site id:	USGS3124710
Latitude:	334912	Dec lat:	33.82001879
Longitude:	1170833	Coor meth:	M
Dec lon:	-117.14336611	Latlong datum:	NAD27
Coor accr:	S	District:	06
Dec latlong datum:	NAD83	County:	065
State:	06	Land net:	Not Reported
Country:	US	Map scale:	24000
Location map:	PERRIS		
Altitude:	Not Reported		
Altitude method:	Not Reported		
Altitude accuracy:	Not Reported		
Altitude datum:	Not Reported		
Hydrologic:	San Jacinto. California. Area = 757 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	917	Hole depth:	917
Source of depth data:	Not Reported		
Project number:	9479335800		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

**6**  
**NNE**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS 4798**

**Water System Information:**

Prime Station Code:	04S/02W-08E01 S	User ID:	33C
FRDS Number:	3301465001	County:	Riverside
District Number:	63	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	335013.0 1170730.0	Precision:	100 Feet (one Second)
Source Name:	WELL 01		
System Number:	3301465		
System Name:	NUTRILITE PRODUCTS INC		
Organization That Operates System:	Not Reported		
	LAKEVIEW, CA 95323		
Pop Served:	65	Connections:	1
Area Served:	Not Reported		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

Federal EPA Radon Zone for RIVERSIDE County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.
- : Zone 2 indoor average level  $\geq$  2 pCi/L and  $\leq$  4 pCi/L.
- : Zone 3 indoor average level < 2 pCi/L.

---

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

<u>Area</u>	<u>Average Activity</u>	<u>% &lt;4 pCi/L</u>	<u>% 4-20 pCi/L</u>	<u>% &gt;20 pCi/L</u>
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

### Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

## HYDROLOGIC INFORMATION

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

## HYDROGEOLOGIC INFORMATION

### AQUIFLOW<sup>R</sup> Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

#### California Drinking Water Quality Database

Source: Department of Health Services

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

## OTHER STATE DATABASE INFORMATION

#### California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

### RADON

#### State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

#### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

#### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### OTHER

Airport Landing Facilities: Private and public use landing facilities  
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater  
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

### STREET AND ADDRESS INFORMATION

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**Lakeview Substation**

10th St. and Reservoir Ave.  
Lakeview, CA 92567

Inquiry Number: 2595939.3  
September 18, 2009

## Certified Sanborn® Map Report

# Certified Sanborn® Map Report

9/18/09

**Site Name:**

Lakeview Substation  
10th St. and Reservoir Ave.  
Lakeview, CA 92567

**Client Name:**

Rubicon Engineering  
20 Corporate Park  
Irvine, CA 92606

EDR Inquiry # 2595939.3

Contact: Peter Lee



The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Rubicon Engineering Corporation were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

## Certified Sanborn Results:

**Site Name:** Lakeview Substation  
**Address:** 10th St. and Reservoir Ave.  
**City, State, Zip:** Lakeview, CA 92567  
**Cross Street:**  
**P.O. #** 1009.27  
**Project:** NA  
**Certification #** AA1A-4243-B08C



Sanborn® Library search results  
Certification # AA1A-4243-B08C

## UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

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- University Publications of America
- EDR Private Collection

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**Lakeview Substation**

10th St. and Reservoir Ave.  
Lakeview, CA 92567

Inquiry Number: 2595939.6  
September 23, 2009

# The EDR-City Directory Abstract

## TABLE OF CONTENTS

### SECTION

Executive Summary

Findings

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

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## 2009 Enhancements to EDR City Directory Abstract

New for 2009, the EDR City Directory Abstract has been enhanced with additional information and features. These enhancements will make your city directory research process more efficient, flexible, and insightful than ever before. The enhancements will improve the options for selecting adjoining properties, and will speed up your review of the report.

**City Directory Report.** Three important enhancements have been made to the EDR City Directory Abstract:

1. *Executive Summary.* The report begins with an Executive Summary that lists the sources consulted in the preparation of the report. Where available, a parcel map is also provided within the report, showing the locations of properties researched.
2. *Page Images.* Where available, the actual page source images will be included in the Appendix, so that you can review them for information that may provide additional insight. EDR has copyright permission to include these images.
3. *Findings Listed by Location.* Another useful enhancement is that findings are now grouped by address. This will significantly reduce the time you need to review your abstracts. Findings are provided under each property address, listed in reverse chronological order and referencing the source for each entry.

**Options for Selecting Adjoining Properties.** Ensuring that the right adjoining property addresses are searched is one of the biggest challenges that environmental professionals face when conducting city directory historical research. EDR's new enhancements make it easier for you to meet this challenge. Now, when you place an order for the EDR City Directory Abstract, you have the following choices for determining which addresses should be researched.

1. *You Select Addresses and EDR Selects Addresses.* Use the "Add Another Address" feature to specify the addresses you want researched. Your selections will be supplemented by addresses selected by EDR researchers using our established research methods. Where available, a digital map will be shown, indicating property lines overlaid on a color aerial photo and their corresponding addresses. Simply use the address list below the map to check off which properties shown on the map you want to include. You may also select other addresses using the "Add Another Address" feature at the bottom of the list.
2. *EDR Selects Addresses.* Choose this method if you want EDR's researchers to select the addresses to be researched for you, using our established research methods.
3. *You Select Addresses.* Use this method for research based solely on the addresses you select or enter into the system.
4. *Hold City Directory Research Option.* If you choose to select your own adjoining addresses, you may pause production of your EDR City Directory Abstract report until you have had a chance to look at your other EDR reports and sources. Sources for property addresses include: your Certified Sanborn Map Report may show you the location of property addresses; the new EDR Property Tax Map Report may show the location of property addresses; and your field research can supplement these sources with additional address information. To use this capability, simply click "Hold City Directory research" box under "Other Options" at the bottom of the page. Once you have determined what addresses you want researched, go to your EDR Order Status page, select the EDR City Directory Abstract, and enter the addresses and submit for production.

Questions? Contact your EDR representative at 800-352-0050. For more information about all of EDR's 2009 report and service enhancements, visit [www.edrnet.com/2009enhancements](http://www.edrnet.com/2009enhancements)

## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>	<u>Text Abstract</u>	<u>Source Image</u>
2007	Haines Criss-Cross Directory	-	X	X	-
2000	Haines Criss-Cross Directory	-	X	X	-
1995	Haines Criss-Cross Directory	-	X	X	-
1991	Haines Criss-Cross Directory	-	X	X	-
1985	Haines Criss-Cross Directory	-	X	X	-
1981	Haines Criss-Cross Directory	-	X	X	-
1975	Haines Criss-Cross Directory	-	X	X	-

## EXECUTIVE SUMMARY

### SELECTED ADDRESSES

The following addresses were selected by the client, for EDR to research. An "X" indicates where information was identified.

<u>Address</u>	<u>Type</u>	<u>Findings</u>
30515 10 TH ST	Client Entered	
30021 RESERVOIR AVE	Client Entered	X

## FINDINGS

### TARGET PROPERTY INFORMATION

#### ADDRESS

10th St. and Reservoir Ave.  
Lakeview, CA 92567

#### FINDINGS DETAIL

Target Property research detail.

No Addresses Found

## FINDINGS

### ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

#### 10 TH ST

##### **10 TH ST**

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2007	No address listings beyond (4545) 10th St	Haines Criss-Cross Directory
2000	No other addresses (30400-40699) block 10th St	Haines Criss-Cross Directory
1995	No other addresses (30400-40699) block 10th St	Haines Criss-Cross Directory
1991	No other addresses (30400-40699) block 10th St	Haines Criss-Cross Directory
1985	No other addresses (30400-40699) block 10th St	Haines Criss-Cross Directory
1981	No other addresses (30400-40699) block 10th St	Haines Criss-Cross Directory
1975	No other addresses (30400-40699) block 10th St	Haines Criss-Cross Directory

##### **30490 10 TH ST**

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	Residential	Haines Criss-Cross Directory
1995	Lakeview Ranch Sply	Haines Criss-Cross Directory
	Neview Feed	Haines Criss-Cross Directory
1991	Lakeview Ranch Prds	Haines Criss-Cross Directory
1985	T L C Horse Vanning	Haines Criss-Cross Directory
1975	Residential	Haines Criss-Cross Directory

##### **30501 10 TH ST**

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	Residential	Haines Criss-Cross Directory
1995	Residential	Haines Criss-Cross Directory

##### **30545 10 TH ST**

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	Munoz Construction	Haines Criss-Cross Directory
1995	Munoz Construction	Haines Criss-Cross Directory

## FINDINGS

### 30645 10 TH ST

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	Residential	Haines Criss-Cross Directory

### RESERVOIR AVE

#### RESERVOIR AVE

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2007	No other addresses (29900-30199) block Reservoir Ave	Haines Criss-Cross Directory
2000	No other addresses (29900-30199) block Reservoir Ave	Haines Criss-Cross Directory
1995	No other addresses (29900-30199) block Reservoir Ave	Haines Criss-Cross Directory
1991	No other addresses (29900-30199) block Reservoir Ave	Haines Criss-Cross Directory
1985	No other addresses (29900-30199) block Reservoir Ave	Haines Criss-Cross Directory
1981	No other addresses (29900-30199) block Reservoir Ave	Haines Criss-Cross Directory
1975	No other addresses (29900-30199) block Reservoir Ave	Haines Criss-Cross Directory

### 30021 RESERVOIR AVE

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2007	Residential	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory
1995	Residential	Haines Criss-Cross Directory
1991	Residential	Haines Criss-Cross Directory
1985	Residential	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory
1975	Residential	Haines Criss-Cross Directory

### 30090 RESERVOIR AVE

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2007	No Return	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory
1995	Residential	Haines Criss-Cross Directory
1991	Residential	Haines Criss-Cross Directory
1985	Residential	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory

## FINDINGS

### 30099 RESERVOIR AVE

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2007	Residential	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory

### 30120 RESERVOIR AVE

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2007	Residential	Haines Criss-Cross Directory
2000	Residential	Haines Criss-Cross Directory
1991	No Return	Haines Criss-Cross Directory
1985	No Return	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory

### 30175 RESERVOIR AVE

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	Residential	Haines Criss-Cross Directory
1991	No Return	Haines Criss-Cross Directory
1985	No Return	Haines Criss-Cross Directory
1981	Residential	Haines Criss-Cross Directory

## FINDINGS

### TARGET PROPERTY: ADDRESS NOT LISTED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not listed in the research source.

#### Address Researched

10th St. and Reservoir Ave.

#### Address Not Listed in Research Source

2007, 2000, 1995, 1991, 1985, 1981, 1975

### ADJOINING PROPERTY: ADDRESSES NOT LISTED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not listed in research source.

#### Address Researched

30090 RESERVOIR AVE

30099 RESERVOIR AVE

30120 RESERVOIR AVE

30175 RESERVOIR AVE

30490 10 TH ST

30501 10 TH ST

30515 10 TH ST

30545 10 TH ST

30645 10 TH ST

#### Address Not Listed in Research Source

1975

1995, 1991, 1985, 1981, 1975

1995, 1975

1995, 1975

1981

1991, 1985, 1981, 1975

2007, 2000, 1995, 1991, 1985, 1981, 1975

1991, 1985, 1981, 1975

1995, 1991, 1985, 1981, 1975

**Lakeview Substation**

10th St. and Reservoir Ave.  
Lakeview, CA 92567

Inquiry Number: 2595939.7  
September 21, 2009

# The EDR Environmental LienSearch™ Report

## The EDR Environmental LienSearch™ Report

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

***Thank you for your business.***

Please contact EDR at 1-800-352-0050  
with any questions or comments.

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# The EDR Environmental LienSearch™ Report

## TARGET PROPERTY INFORMATION

### ADDRESS

10th St. and Reservoir Ave.  
Lakeview Substation  
Lakeview, CA 92567

### RESEARCH SOURCE

#### Source 1:

Riverside Recorder  
RIVERSIDE, CA

### PROPERTY INFORMATION

#### Deed 1:

Type of Deed: deed  
Title is vested in: Sandra Pagliuso Frank S Lauda Trustees  
Title received from: Riverpark Investors LLC  
Deed Dated: 10/31/2007  
Deed Recorded: 11/16/2007  
Book: NA  
Page: na  
Volume: na  
Instrument: na  
Docket: NA  
Land Record Comments: See Exhibit  
Miscellaneous Comments: na

**Legal Description:** See Exhibit

**Legal Current Owner:** Sandra Pagliuso Frank S Lauda Trustees

**Property Identifiers:** 426-180-003

**Comments:** See Exhibit

### ENVIRONMENTAL LIEN

Environmental Lien: Found  Not Found

### OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found  Not Found

## **Deed Exhibit 1**

1064

1208694

DOC # 2007-0700567  
11/16/2007 08:00A Fee:51.00  
Page 1 of 9  
Recorded in Official Records  
County of Riverside  
Larry W. Ward  
Assessor, County Clerk & Recorder



**RECORDING REQUESTED BY**  
First American Title Company

**AND WHEN RECORDED MAIL DOCUMENT  
AND TAX STATEMENT TO:**  
The Frank Lauda, Jr. Trust  
12534 Harlow Avenue  
Riverside, CA 92503

\$	R	U	PAGE	SIZE	DA	MISC	LONG	RFD	COPY
			465	426	PCOR	NCOF	SMF	NCHG	EXAM
M	A	L							
							CTY	UNI	

Tra: 083

File No.: RRI-1208694 (DD)

The Undersigned Grantor(s) Declare(s):

CITY TRANSFER TAX \$  
DOCUMENTARY TRANSFER TAX \$ *No Consideration*  
SURVEY MONUMENT FEE \$

- computed on the consideration or full value of property conveyed, OR
  - computed on the consideration or full value less value of liens and/or encumbrances remaining at time of sale,
  - unincorporated area;  City of, and
- SURVEY MONUMENT FEE \$

SI

T  
056

### QUITCLAIM DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

**Riverpark Investors, LLC, a California limited liability company**

does hereby remise, release and forever quitclaim to

**Sandra Pagliuso and Frank S. Lauda, Co-Trustees of The Frank Lauda, Jr. Trust, a California Trust**

the following described property in the Unincorporated area of Riverside County, State of California:

**as is more particularly described in Exhibit "A" hereto**

**"THIS QUITCLAIM DEED IS BEING RECORDED TO ELIMINATE FROM OFFICIAL RECORDS THAT CERTAIN MEMORANDUM OF AGREEMENT RECORDED BY AND BETWEEN THE UNDERSIGNED PARTIES RECORDED FEBRUARY 6, 2004, AS INSTRUMENT NUMBER 2004-0087555 OF OFFICIAL RECORDS"**

**Dated: October 31, 2007**

Riverpark Investors, LLC  
a California limited liability company

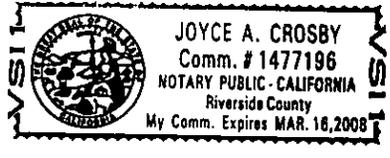
Paul Garrett  
By: Paul Garrett, Managing Member

STATE OF CALIFORNIA )SS  
COUNTY OF RIVERSIDE )

On NOVEMBER 13 2007, before me, Joyce A Crosby, Notary Public  
Notary Public, personally appeared PAUL GARRETT

PAUL GARRETT, personally known to me  
(~~or proved to me on the basis of satisfactory evidence~~) to be the person(s) whose name(s) is/are subscribed to  
the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized  
capacity(~~ies~~) and that by his/~~her/their~~ signature(s) on the instrument the person(s) or the entity upon behalf of  
which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.



Signature

Joyce A Crosby, Notary Public  
My Commission Expires: MARCH 16, 2008

*This area for official notarial seal*

Notary Name: JOYCE A. CROSBY  
Notary Registration Number: 1477196

Notary Phone: 957-506-6552  
County of Principal Place of Business: RIVERSIDE

# EXHIBIT "A"

## LEGAL DESCRIPTION

Real property in the unincorporated area of the County of Riverside, State of California, described as follows:

PARCEL 1:

THAT PORTION OF LOT 5 OF PARTITION OF RANCHO SAN JACINTO NUEVO AS SET APART TO JOHN WOLFSKILL IN DECREE OF PARTITION DATED MAY 22, 1891, IN SUPERIOR COURT, SAN DIEGO COUNTY, A CERTIFIED COPY OF WHICH WAS RECORDED JUNE 18, 1891 IN BOOK 178 PAGE 381 OF DEEDS, RECORDS OF SAN DIEGO COUNTY, CALIFORNIA, LYING WITHIN SECTIONS 12, 13, 14, 23 AND 24, TOWNSHIP 4 SOUTH, RANGE 2 WEST, SAND BERNARDINO BASE AND MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE WEST LINE OF SAID LOT 5 WITH THE SOUTH LINE OF SAID SECTION 23;

THENCE NORTH ALONG THE WESTERLY LINE OF SAID LOT, TO A POINT ON NORTHERWesterly LINE OF THE SAN JACINTO DRAINAGE CANAL AS LOCATED ON NOVEMBER 7, 1929, AS SET FORTH IN DEED FROM THE NUEVO LAND COMPANY RECORDED MARCH 25, 1930 IN BOOK 846 PAGE 399 OF DEEDS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, SAID POINT BEING THE TRUE POINT OF BEGINNING;

THENCE CONTINUING NORTH ON SAID WEST LINE OF LOT 5 TO ITS INTERSECTION WITH THE SAN JACINTO DRAINAGE DISTRICT BOUNDARY AS SHOWN ON RECORD OF SURVEY ON FILE IN BOOK 56 PAGES 44 THROUGH 49 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE NORTHEASTERLY ALONG SAID SAN JACINTO DRAINAGE DISTRICT BOUNDARY TO ITS INTERSECTION WITH THE SOUTH LINE OF LOT 1 IN SECTION 14 AS SHOWN ON MAP OF PERRIS VALLEY LAND AND WATER COMPANY TRACT, ON FILE IN BOOK 7 PAGE 38 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA SAID INTERSECTION IS ALSO SHOWN ON SAID RECORD OF SURVEY ON FILE IN BOOK 56 PAGES 44 THROUGH 49 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE EASTERLY ALONG THE SOUTHERLY LINE OF SAID LOT 1 TO CORNER NUMBER 8 OF SAID LOT 5;

THENCE NORTH ALONG THE WESTERLY LINE OF SAID SECTIONS 13 AND 12 TO ITS INTERSECTION WITH THE SOUTHERLY LINE OF LANDS CONVEYED TO THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, BY DEED RECORDED FEBRUARY 5, 1971 AS INSTRUMENT NO. 11661 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE EASTERLY ALONG SAID SOUTHERLY LINE TO ITS INTERSECTION WITH THE NORTHWEST BOUNDARY LINE OF RIVERSIDE COUNTY DRAINAGE DISTRICT NO. 2;

THENCE SOUTHWEST ALONG SAID NORTHWEST BOUNDARY LINE TO ITS INTERSECTION WITH THE NORTHERLY LINE OF SAID SECTION 13;

THENCE EASTERLY ALONG SAID NORTHERLY LINE TO ITS INTERSECTION WITH THE SOUTHEASTERLY LIEN OF THAT CERTAIN 100-FOOT WIDE STRIP OF LAND FORMERLY

INCLUDED IN THE RAILROAD RIGHT OF WAY OF THE CALIFORNIA, ARIZONA AND SANTA FE RAILWAY AND DESCRIBED IN THE DEED TO W. W. STEWART, RECORDED DECEMBER 11, 1941 IN BOOK 523 PAGE 522 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE NORTHEASTERLY ALONG SAID SOUTHEASTERLY LINE OF THAT CERTAIN 100-FOOT WIDE STRIP TO ITS INTERSECTION WITH THE SOUTHERLY LINE OF LANDS CONVEYED TO THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA BY DEED RECORDED FEBRUARY 5, 1971 AS INSTRUMENT NO. 11661 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE EAST ALONG SAID SOUTHERLY LINE TO ITS INTERSECTION WITH THE WESTERLY LINE OF LANDS CONVEYED TO WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY, BY DEED FROM FRANK LAUDA AND NATTS LAUDA, RECORDED FEBRUARY 28, 1964 IN BOOK 3624 PAGE 264 AND RE-RECORDED APRIL 20, 1970 AS INSTRUMENT NO. 36618 BOTH OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, SAID INTERSECTION BEING SHOWN ON RECORD OF SURVEY ON FILE IN BOOK 60 PAGES 42 THROUGH 45 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE SOUTH 02° 10' 50" EAST ALONG SAID WESTERLY LINE A DISTANCE OF 140.00 FEET TO THE SOUTHWEST CORNER OF THE PROPERTY DESCRIBED IN SAID INSTRUMENT NO. 36618;

THENCE NORTH 87° 39' 10" EAST ALONG THE SOUTHERLY LINE OF SAID INSTRUMENT NO. 36618, A DISTANCE OF 165.00 FEET TO THE SOUTHEAST CORNER OF THE PROPERTY DESCRIBED IN SAID INSTRUMENT NO. 36618;

THENCE NORTH 02° 10' 50" WEST ALONG THE EASTERLY LINE OF THE PROPERTY DESCRIBED IN SAID INSTRUMENT NO. 36618, A DISTANCE OF 140.00 FEET TO ITS INTERSECTION WITH THE SOUTHERLY LINE OF THE PROPERTY DESCRIBED IN SAID INSTRUMENT RECORDED FEBRUARY 5, 1971 AS INSTRUMENT NO. 11661 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE NORTH 87° 39' 10" EAST ALONG SAID SOUTHERLY LINE AS SHOWN ON SAID RECORD OF SURVEY ON FILE IN BOOK 60 PAGES 42 THROUGH 45 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, A DISTANCE OF 619.54 FEET;

THENCE SOUTH 82° 02' 30" EAST CONTINUING ALONG THE SOUTHERLY LINE OF THE METROPOLITAN WATER DISTRICT BOUNDARY AS SHOWN ON SAID RECORD OF SURVEY ON FILE IN BOOK 60 PAGES 42 THROUGH 45 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA A DISTANCE OF 111.80 FEET;

THENCE SOUTH 02° 20' 50" EAST, 55.00 FEET; THENCE NORTH 87° 39' 10" EAST, 56.00 FEET; THENCE SOUTH 29° 09' 25" EAST, 113.33 FEET TO A POINT ON THE NORTHWESTERLY LINE OF SAID SAN JACINTO DRAINAGE CANAL;

THENCE SOUTHWESTERLY ALONG THE NORTHWESTERLY LINE OF SAID SAN JACINTO DRAINAGE CANAL TO THE TRUE POINT OF BEGINNING;

EXCEPTING THEREFROM THAT PORTION OF THE STRIP OF LAND 100 FEET IN WIDTH CONVEYED TO PERRIS AND LAKEVIEW RAILWAY COMPANY, A CALIFORNIA CORPORATION, BY DEED RECORDED NOVEMBER 19, 1898 IN BOOK 76 PAGE 91 OF DEEDS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, LYING SOUTHERLY OF THE WESTERLY EXTENSION OF THE NORTHERLY LINE OF LOT 4 OF SAID MAP OF PERRIS VALLEY LAND AND WATER COMPANY.

**PARCEL 2:**

**LOTS 106, 111, 112 AND 117 OF TRACT NO. 4 OF THE LANDS OF THE NUEVO LAND COMPANY AS SHOWN BY MAP ON FILE IN BOOK 10 PAGE 22 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA; EXCEPTING THEREFROM THAT PORTION THEREOF LYING SOUTHEASTERLY OF A LINE DESCRIBED AS FOLLOWS:**

**BEGINNING AT A POINT IN THE CENTER LINE OF TWELFTH STREET, AS SHOWN ON SAID MAP, WHICH BEARS SOUTH 65° 27' EAST, 407.98 FEET FROM ITS INTERSECTION WITH THE CENTER LINE OF "C" AVENUE, AS SHOWN ON SAID MAP; THENCE NORTH 3° 35' EAST, PARALLEL WITH SAID CENTER LINE OF "C" AVENUE, 2674 FEET TO A POINT IN THE CENTER LINE OF ELEVENTH STREET, AS SHOWN ON SAID MAP.**

**ALSO EXCEPTING THEREFROM THE PORTION OF SAID LAND CONVEYED TO THE RIVERSIDE COUNTY HABITAT CONSERVATION AGENCY, A PUBLIC AGENCY BY THAT CERTAIN GRANT DEED RECORDED DECEMBER 27, 1994 AS INSTRUMENT NO. 478959 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.**

**PARCEL 3:**

**THAT PORTION OF LOT 5 OF THE PARTITION OF THE RANCHO SAN JACINTO NUEVO, AS SET A PART TO JOHN WOLF SKILL IN DECREE OF PARTITION DATED MAY 22, 1891, IN SUPERIOR COURT, SAN DIEGO COUNTY, A CERTIFIED COPY OF WHICH WAS RECORDED JUNE 18, 1891 IN BOOK 178 PAGE 381 OF DEEDS, RECORDS OF SAN DIEGO COUNTY, CALIFORNIA, LYING WITH IN SECTION 23, TOWNSHIP 4 SOUTH, RANGE 3 WEST, SAND BERNARDINO BASE AND MERIDIAN, DESCRIBED AS FOLLOWS:**

**BEGINNING AT THE INTERSECTION OF THE WEST LINE OF SAID LOT 5 WITH THE SOUTH LINE OF SAID SECTION 23;**

**THENCE EAST ALONG THE SOUTH LINE OF SAID SECTION TO A POINT ON THE NORTHWESTERLY LINE OF "B", AVENUE, AS SHOWN ON MAP NO. 2 OF LAKEVIEW ON FILE IN BOOK 1 PAGES 26 AND 27 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;**

**THENCE NORTHEASTERLY ALONG THE NORTHWESTERLY LIEN OF SAID "B" AVENUE, TO THE INTERSECTION WITH THE NORTHWESTERLY EXTENSION OF THE NORTHEASTERLY LINE OF FOURTEENTH STREET, AS SHOWN ON SAID MAP;**

**THENCE SOUTHEASTERLY ALONG SAID NORTHWESTERLY EXTENSION OF THE NORTHEASTERLY LINE OF FOURTEENTH STREET AND ALONG SAID NORTHEASTERLY LINE TO A POINT ON THE NORTHWESTERLY LINE OF CHASE AVENUE, AS SHOWN ON MAP OF TRACT NO. 1 OF THE LANDS OF THE NUEVO LAND COMPANY ON FILE IN BOOK 9 PAGE 30 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;**

**THENCE NORTHEASTERLY ALONG THE SAID NORTHWESTERLY LINE OF CHASE AVENUE TO ITS INTERSECTION WITH THE EAST LINE OF SAID SECTION 23;**

**THENCE NORTH ALONG THE EAST LINE OF SAID SECTION 23 TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF THE SAN JACINTO DRAINAGE CANAL AS LOCATED ON NOVEMBER 7, 1929, AS SET FORTH IN DEED FROM THE NUEVO LAND COMPANY, RECORD MARCH 25, 1930 IN BOOK 846 PAGE 399 OF DEEDS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;**

THENCE SOUTHWESTERLY ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE TO A POINT ON THE WEST LINE OF SAID LOT 5;

THENCE SOUTHERLY ALONG THE WESTERLY LINE OF SAID LOT 5 TO THE POINT OF BEGINNING;

TOGETHER WITH THAT PORTION OF SAID LOT 5 OF PARTITION OF RANCHO SAN JACINTO NUEVO, LYING WITH SECTION 24, TOWNSHIP 4 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, AND LYING NORTHWESTERLY OF THE NORTHWESTERLY LINE OF CHASE AVENUE, AS SHOWN ON MAP OF TRACT NO. 1 OF THE LANDS OF THE NUEVO LAND COMPANY, ON FILE IN BOOK 9 PAGE 30 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

ALSO TOGETHER WITH THAT PORTION OF SAID LOT 5 OF PARTITION OF RANCHO SAN JACINTO NUEVO, LYING WITHIN SECTION 13, TOWNSHIP 4 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 13;

THENCE EAST ALONG THE SOUTH LINE OF SAID SECTION TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LIEN OF THE SAN JACINTO DRAINAGE CANAL LOCATED ON NOVEMBER 7, 1929, 12 SET FORTH IN DEED FROM THE NUEVO LAND COMPANY, RECORDED MARCH 25, 1930 IN BOOK 846 PAGE 399 OF DEEDS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA; SAID POINT BEING THE TRUE POINT OF BEGINNING;

THENCE CONTINUING EAST ALONG THE SOUTH LINE OF SAID SECTION TO A POINT ON THE NORTHWESTERLY LINE OF CHASE AVENUE, AS SHOWN ON MAP OF TRACT NO. 1 OF THE LANDS OF THE NUEVO LAND COMPANY ON FILE IN BOOK 9 PAGE 30 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE NORTHEASTERLY ALONG SAID NORTHWESTERLY LINE TO A POINT ON THE SOUTHWESTERLY LINE OF TWELFTH STREET, AS SHOWN ON MAP OF TRACT NO. 4 OF THE LANDS OF NUEVO LAND COMPANY ON FILE IN BOOK 10 PAGE 22 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

THENCE NORTHWESTERLY ALONG SAID SOUTHWESTERLY LINE OF TWELFTH STREET TO A POINT ON THE NORTHWESTERLY LINE OF "C" AVENUE, AS SHOWN ON SAID MAP OF TRACT NO. 4; SAID POINT IS ALSO ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF SAID SAN JACINTO DRAINAGE CANAL;

THENCE SOUTHWESTERLY ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE TO THE TRUE POINT OF BEGINNING;

EXCEPTING THEREFROM THAT PORTION LYING NORTHWESTERLY OF THE SOUTHEASTERLY LIEN OF THE SAN JACINTO DRAINAGE CANAL AS LOCATED ON NOVEMBER 7, 1929, AS SET FORTH IN DEED FROM THE NUEVO LAND COMPANY, RECORDED MARCH 25, 1930 IN BOOK 846 PAGE 399 OF DEEDS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

ALSO EXCEPTING THEREFROM THAT PORTION OF SAID LAND CONVEYED TO THE RIVERSIDE COUNTY HABITAT CONSERVATION AGENCY, A PUBLIC AGENCY BY THAT CERTAIN GRANT DEED RECORDED DECEMBER 27, 1994 AS INSTRUMENT NO. 478959 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 4: LOTS 4, 5, 6, 7, 11 AND 12 OF TRACT NO. 1 OF THE LANDS OF THE NUEVO LAND COMPANY, AS SHOWN BY MAP ON FILE IN BOOK 9 GAGE 30 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

EXCEPTING FROM SAID LOT 7 THAT PORTION THERE OF LYING SOUTHWESTERLY OF A LINE DRAWN FROM A POINT ON THE NORTHWESTERLY LINE. 434.38 FEET FROM THE MOST WESTERLY CORNER THEREOF TO A POINT ON THE SOUTHEASTERLY LINE 437.17 FEET FROM THE MOST SOUTHERLY CORNER THEREOF.

PARCEL 5:

LOTS 118, 119, 120, 128, 129, 130, 131, 132, 133, 134, 135, 142, 143, 144, 145, 147, 148, 149, 150 AND 155 OF TRACT NO. 4 OF THE LANDS OF THE NUEVO LAND COMPANY AS SHOWN BY MAP ON FILE IN BOOK 10 PAGE 22 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 6:

THOSE PORTIONS OF LOTS 157, 158 AND 163 OF TRACT NO. 4 OF THE LANDS OF THE NUEVO LAND COMPANY AS SHOWN BY MAP ON FILE IN BOOK 10 PAGE 22 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA; LYING SOUTHERLY OF THE SOUTHERLY LINE OF THAT CERTAIN STRIP OF LAND, 25 FEE IN WIDTH CONVEYED TO THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA BY DOCUMENT RECORDED FEBRUARY 5, 1971 AS INSTRUMENT NO. 11666 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

PARCEL 7:

LOT 141 OF TRACT NO. 4 OF THE LANDS OF THE NUEVO LAND COMPANY, AS SHOWN BY MAP ON FILE IN BOOK 10 PAGE 22 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

TOGETHER WITH THE WESTERLY HALF OF THAT PORTION OF RESERVOIR AVENUE ADJACENT TO AN ADJOINING SAID LOT 141, AS ABANDONED BY RESOLUTION OF THE BOARD OF SUPERVISORS OF RIVERSIDE COUNTY, STATE OF CALIFORNIA, A CERTIFIED COPY OF SAID RESOLUTION HAVING BEEN RECORDED OCTOBER 14, 1954 IN BOOK 1640 PAGE 577 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

EXCEPTING THEREFROM THE SOUTHWESTERLY 2.5 ACRES AS CONVEYED TO FRANK T. YBAROLA AND ETHEL YBAROLA BE DEED RECORDED JANUARY 24, 1949 IN BOOK 1046 PAGE 161 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 8:

LOT 156 OF TRACT NO. 4 OF THE LANDS OF THE NUEVO LAND COMPANY AS SHOWN BY MAP ON FILE IN BOOK 10 PAGE 22 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

EXCEPTING THEREFROM THE NORTHEASTERLY 2.5 ACRES AS CONVEYED TO JOHN W. BUCHANAN AND EUGENIE H. BUCHANAN BY DEED RECORDED JULY 3, 1970 AS INSTRUMENT NO. 63727 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 9:

LOT 164 OF TRACT NO. 4 OF THE LANDS OF THE NUEVO LAND COMPANY, AS SHOWN BY MAP ON FILE IN BOOK 10 PAGE 22 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

EXCEPTING THEREFROM THE NORTHEASTERLY 2.5 ACRES AS CONVEYED TO PETE VASQUEZ AND THOMASITA VASQUEZ BY DEED RECORDED MARCH 31, 1945 IN BOOK 668 PAGE 117 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 10:

THAT PORTION OF LOTS 1 AND 2 IN BLOCK 23, AS SHOWN BY MAP NO. 2 OF LAKEVIEW ON FILE IN BOOK 1 PAGES 26 AND 27 OF MAPS RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, LYING NORTHWESTERLY OF THE NORTHWESTERLY LIEN OF CHASE AVENUE, AS SHOWN BY MAP OF TRACT NO. 1 OF THE LANDS OF THE NUEVO LAND COMPANY ON FILE IN BOOK 9 PAGE 30 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, AND LYING NORTHEASTERLY OF THE SOUTHERLY LINE OF SECTION 23 IN TOWNSHIP 4 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN.

PARCEL 11:

THAT PORTION OF LOT 7 IN SECTION 11, TOWNSHIP 4 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN ON THE MAP OF PERRIS VALLEY LAND AND WATER COMPANY TRACT, ON FILE IN BOOK 7 PAGE 38 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID LOT;

THENCE SOUTHERLY ALONG THE EASTERLY LINE OF SAID LOT TO A POINT THAT IS ON A LINE DRAWN PARALLEL WITH AND 1000 FEET NORTHERLY FROM THE SOUTHERLY LINE OF SAID SECTION;

THENCE WESTERLY ALONG SAID LINE TO THE JUNCTION OF THE HILL LAND AND THE TILLABLE LAND; THENCE FOLLOWING ALONG THE BASE OF THE HILL LAND TO THE WESTERLY LINE OF SAID LOT;

THENCE NORTHERLY ALONG THE WESTERLY LINE OF SAID LOT TO THE NORTHWEST CORNER OF SAID LOT;

THENCE EASTERLY ALONG THE NORTHERLY LINE OF SAID LOT THE POINT OF BEGINNING;

EXCEPTING THEREFROM THOSE PORTION THEREOF CONVEYED TO THE STATE OF CALIFORNIA BY DEEDS, RECORDED APRIL 25, 1967 AS INSTRUMENT NO. 34911, FEBRUARY 24, 1970 AS INSTRUMENT NO. 16870 AND JANUARY 28, 1971 AS INSTRUMENT NO. 8945 ALL OF TH OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 12:

LOT 8 IN SECTION 1, TOWNSHIP 4 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN OF THE MAP OF PERRIS VALLEY LAND AND WATER COMPANY TRACT ON FILE IN BOOK 7 PAGE 38 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

EXCEPTING THEREFROM THE SOUTHERLY 1000 FEET THEREOF BEING MEASURED FROM THE SOUTHERLY LINE OF SAID SECTION;

ALSO EXCEPTING THEREFROM THAT PORTION GRANTED TO THE STATE OF CALIFORNIA BY DEED, RECORDED APRIL 25, 1967 AS INSTRUMENT NO. 34911 OF OFFICIAL RECORDS OF

**RIVERSIDE COUNTY, CALIFORNIA;**

**ALSO EXCEPTING THEREFROM THAT PORTION THEREOF CONVEYED TO THE STATE OF CALIFORNIA BY DOCUMENT RECORDED FEBRUARY 24, 1970 AS INSTRUMENT NO. 16870 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.**

**PARCEL 13:**

**THAT PORTION OF LOT 5 OF PARTITION OF RANCHO SAN JACINTO NUEVO AS SET APART TO JOHN WOLFSKILL IN DECREE OF PARTITION DATED MAY 22, 1891 IN SUPERIOR COURT, SAN DIEGO COUNTY, A CERTIFIED COPY OF WHICH WAS RECORDED JUNE 18, 1891 IN BOOK 178 PAGE 381 OF DEEDS, RECORDS OF SAN DIEGO COUNTY, CALIFORNIA, LYING WITHIN THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 4 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN;**

**EXCEPTING THEREFROM THAT PORTION THEREOF LYING SOUTHEASTERLY OF THE DRAINAGE DISTRICT BOUNDARY LINE;**

**ALSO EXCEPTING THEREFROM THAT PORTION LYING SOUTHERLY OF THAT PORTION THEREOF AS CONDEMNED IN FAVOR OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA BY ORDER OF CONDEMNATION IN SUPERIOR COURT, RIVERSIDE COUNTY, CASE NO. 25177, CERTIFIED COPY OF WHICH WAS RECORDED DECEMBER 21, 1935 IN BOOK 261 PAGE 403 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;**

**ALSO EXCEPTING THEREFROM THOSE PORTIONS GRANTED TO WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY, A PUBLIC CORPORATION, BY DEEDS RECORDED FEBRUARY 28, 1964 AS INSTRUMENT NO. 25769 AND NO. 25770 BOTH OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.**

**APN:**

**426.440.001, 426.430.005, 426.180.001, 426.180.002, 426.180.003, 426.020.005,  
307.110.004, 307.110.005, 307.110.006, 307.120.001, 307.120.002, 307.120.002,  
307.120.004, 307.220.003, 307.220.005, 308.140.012, 307.210.001, 307.210.019,  
307.210.021, 307.120.008, 307.210.010, 307.200.001, 307.130.070, 307.220.010,  
307.220.012, 308.130.005, 308.130.008, 308.140.006, 308.150.009, 308.150.012**

# *Appendix D*

## *User Questionnaire*

**USER QUESTIONNAIRE FOR "AAI" PHASE I ESA**

CURRENT SITE ADDRESS (FORMER ADDRESS, if applicable): APN: 426-180-003

*Landowner Liability Protections, or LLPs, is the term used to describe the three types of potential defenses to Superfund liability in EPA's Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchase, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA liability ("Common Elements" Guide) issued on March 6, 2003.*

In order to qualify for one of the *LLPs* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments"; P.L. 107-118), the *User* (i.e. an Edison representative) must provide the following information (i.e. the institutional knowledge that is available) to the *Environmental Professional* ("EP"). Failure to provide this information could result in a determination that "all appropriate inquiry" has not been completed. Use additional paper if necessary.

**1. Environmental cleanup liens that are filed or recorded against the site (40 CFR 312.25):**

- Are you aware of any environmental cleanup liens against the *property* that are filed or recorded under federal, tribal, state or local law?

~~NO~~ YES (explain)

**2. Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).**

- Are you aware of any AULs such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

~~NO~~ YES (explain)

**3. Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28):**

- As the *User* of this ESA, do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?

~~NO~~ YES (explain)

**4. Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29):**

- Does the purchase price being paid for this *property* reasonably reflect the value of the *property*? YES
- If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?

NOT APPLICABLE (I.E. THERE IS NO DIFFERENCE) YES (explain)

**5. Commonly known or reasonably ascertainable information about the property (40 CFR 312.30):**

- Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *EP* to identify conditions indicative of releases or threatened releases? As *User*, do you know:

- Past uses of the *property*? NO YES (explain) POTATO FARM
- Specific chemicals that are present or once were present at the *property*? ~~NO~~ YES (explain)
- Spills or other chemical releases that have taken place at the *property*? ~~NO~~ YES (explain)
- Environmental cleanups that have taken place at the *property*? ~~NO~~ YES (explain)

**6. The degree of obviousness of the presence or likely presence of contamination at the property and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).**

- As the *User* of this ESA, based on your knowledge and experience related to the *property*, are there any *obvious* indicators that point to the presence or likely presence of contamination at the *property*?

~~NO~~ YES (explain)

JUSTIN LARSON, LAND SERVICES AGENT  
Completed By/Title

OCT. 1, 2009  
Date

**USER QUESTIONNAIRE FOR "AAI" PHASE I ESA  
(CONFIDENTIAL - FOR SCE'S INTERNAL USE)**

CURRENT SITE ADDRESS (FORMER ADDRESS, if applicable): APN: 426-180-003

*In addition to the specific questions required by industry standards for Environmental Site Assessments (ESAs), the requestor of the ESA must provide to Environmental Engineering the following information. For any questions on how to complete the questionnaire or supply the required information, please contact [Engineer] at PAX 2-xxxx.*

**1. The reason why the Phase I ESA is required** (i.e. property transaction, support to regulatory filing, litigation, etc.)

PROPERTY ACQUISITION FOR SUBSTATION SITE

**2. Names and contact information of individuals familiar with the property and/or the project:**

**Internal** (Name and PAX)

JUSTIN LARSON PAX: 54539

**External** (Name, organization, address, email, telephone number, contact protocol – i.e. can the EP make direct contact?)

FRANK LAUDA - (951) 737-2761  
fslauda@yahoo.com

**3. Documents of interest:**

Does SCE possess any of the following documents associated with the subject property?	Available	
	YES	NO
Phase I Environmental Site Assessment Reports		X
Phase II Subsurface Investigation Reports		X
Environmental Audit Reports		X
Property Information Sheet (Non-Residential properties)	X	
Environmental Permits (NPDES, industrial wastewater, solid waste, hazardous waste, etc.)		X
Underground or Aboveground Tank Registration		X
Hazardous Waste Generator Notices or Reports		X
Material Safety Data Sheets (for chemicals in quantities greater than 5 gallons)		X
Community Right-to-Know Plans		X
Spill Prevention and Control Plans		X
Past or Current Violation Notices at the Site		X
Environmental Liens on the Site		X
Geo-Technical Studies		X
Chain of title report		X

If yes, or if SCE has any other reports, provide copies to [Engineer], GO3 3<sup>rd</sup> Floor, G10.

**4. Other pertinent information that the EP should know:**

Provide any other pertinent information that would facilitate the completion of the ESA and enhance SCE's interest by conducting the ESA. For example, is there any opposition to the project/transaction, should SCE's interest in the project be kept confidential, does SCE have secured access rights to the subject property for conducting the ESA, are there any limitations to these rights, etc.

**5. SAP accounting for the project:**

800063620

JUSTIN LARSON

Oct. 1 2009  
Date

# *Appendix E*

## *Photographs*



**(1). Subject Site Looking Southwest**



**(2). Subject Site Looking Northwest**



**(3). Subject Site Looking Northeast**



**(4). Concrete Slab and Natural Gas Line**



**Picture (5). Water Well at the Site**



**Picture (6). Broken Tip of an Underground Pipe at the Site**



**Picture (7). Adjoining Farm Land to the North**



**Picture (8). Adjoining Farm Land and Dirt Road to the South**



**Picture (9). Adjoining Farm Land and Dirt Road to the East**



**Picture (10). Residential Dwelling to the Northeast across 10<sup>th</sup> Street/Reservoir Avenue**

# *Appendix F*

## *Qualifications of Environmental Professional*

**MOHSEN MEHRAN, Ph. D.**  
Principal Hydrologist

**FIELDS OF EXPERTISE**

Dr. Mehran's academic background and consulting experience in the last 35 years focus on hydrogeology and ground water quality. He has taught advanced courses in ground water hydrology, contaminant transport in fractured/porous media, and soil mechanics. He has been the principal investigator and manager for Remedial Investigation/Feasibility Studies; RCRA Facility Investigations, risk assessment; and design, installation, and operation of remediation systems. He has developed and applied numerous computer models to solve ground water flow problems and investigate the migration of various chemical compounds in fractured/porous media - e.g., petroleum compounds, hexavalent chromium and other metals, chlorinated solvents, herbicides, volatile organic compounds, and numerous other chemicals. He has applied this technical specialty to site characterization, evaluation of remedial alternatives, development of cleanup criteria, and allocation of cost among potentially-responsible parties for the aerospace, petroleum, electronics, chemical, wood preserving, communications, and other industries.

Dr. Mehran is active professionally by publishing and has been a reviewer for the *Journal of Ground Water* and *Journal of Ground Water Monitoring and Remediation*. Dr. Mehran provides legal support and expert witness testimony for cases related to causes of contamination, identification of multiple sources of contamination, and cost recovery/allocation. He has published more than 50 technical papers.

**EDUCATION**

Ph.D., 1971, Civil Engineering University of California, Davis

M.S., 1966, Soil Physics University of California, Davis

B.S., 1962, Agricultural Engineering, Tehran University

**PROFESSIONAL REGISTRATIONS**

Certified Ground Water Professional No. 189

Qualified Environmental Professional - Institute of Professional Environmental Practice

**EMPLOYMENT HISTORY**

2004 to present	Principal Hydrologist, Rubicon Engineering Corporation
2000 to 2004	Chief Executive Officer, England Geosystem, Inc.
1986 to 2000	Principal-in-Charge and Project Manager, Geosystem Consultants, Inc., Irvine, California
1981 to 1985	Project Manager/Technical Specialist – Hydrogeology, IT Corporation Irvine, California

1979 to 1981	Staff Scientist, Lawrence Berkeley Laboratory, Berkeley, California
1977 to 1979	Visiting Associate Professor, University of California, Davis, California
1974 to 1977	Associate Professor, Civil Engineering Department, Tehran Polytechnique, Iran
1971 to 1974	Post-Graduate Scientist, University of California, Davis, California

### **SELECT PROJECT EXPERIENCE**

- Project manager and principal investigator of RCRA Facility Investigation/Corrective Measures Study at two chemical distribution facilities in Los Angeles, California since 1987 with the oversight of California Department of Toxic Substances Control (DTSC); Responsible for negotiation with DTSC in drafting a Corrective Action Consent Agreement.
- Technical expert for the allocation of responsibility and costs of remediation related to volatile organic compounds and hexavalent chromium in ground water – Burbank versus Glendale Operating Units (OUs) and the Potentially Responsible Parties (PRPs) within the Glendale North and Glendale South. This included assessment of the contribution by Burbank OU to contamination in Glendale OUs and by various PRPs within the Glendale OUs using ground water and contaminant transport modeling.
- Principal investigator and expert witness in more than 15 environmental cases representing the private sector and government agencies on behalf of plaintiffs and defendants.
- Principal investigator and project manager in evaluation and remediation of sites contaminated with tetrachloroethene (PCE) originated from dry cleaning operations.
- Principal investigator for remediation of soil and ground water impacted by TCE and methylene chloride at an aerospace facility in Long Beach, California.
- Principal investigator for Focused Feasibility Study for remediation of chlorinated hydrocarbons in soil and ground water at a manufacturing facility in Los Angeles.
- Conducted hydrologic investigations and prepared site-specific numeric models of transport of contaminants (chlorinated solvents, petroleum hydrocarbons, semi-volatile organic compounds, and metals) in soils and ground water.
- Responsible for conducting evaluations of cleanup alternatives, negotiating with state and federal agencies, preparing Remedial Action Plans, and conducting remedial actions at sites throughout California.
- Designed and evaluated extraction/treatment system to remediate dissolved TCE migration in a fractured sandstone formation; assessed remedial action effectiveness.
- Investigated hexavalent chromium contamination in soil and ground water at Superfund sites, performed geochemical studies to assess sources of hexavalent chromium and its migration

- behavior, conducted feasibility studies to select the most appropriate remedial technology, and performed pilot tests to evaluate the feasibility of in situ remediation technologies.
- Evaluated migration pathways of TCE, 1,2-dichloroethene, and carbon tetrachloride in fractured limestone formation and developed containment and remedial technologies.
  - Demonstrated natural attenuation of chlorinated hydrocarbons in drinking water aquifer to support site closure.
  - Evaluated effectiveness of ground water remediation program to reduce the concentrations of methylene chloride, TCE, and tetrachloroethene in a multilayered aquifer system
  - Modeled ground water flow and ethylene dibromide (EDB) transport to evaluate the effectiveness of an extraction/injection program at a chemical manufacturing facility and prepared technical reports in accordance with the requirements of the California Regional Water Quality Control Board.
  - Conducted a soil and ground water investigation to delineate the extent of hexavalent chromium contamination in Ukiah, California – including site characterization, geochemical evaluation of leaching of chromium, hydrogeologic studies, Remedial Action Plan preparation, and in-situ remediation assessment.
  - Performance of a comprehensive RI/FS at a site in Central Valley, California. Hexavalent chromium, trivalent chromium, and arsenic were the principal chemicals of concern. Activities involved over 50 ground water monitoring wells; drilling and sampling of more than 120 borings; evaluation of in-situ remediation technologies and feasibility study.
  - Taught courses in advanced ground water hydrology, contaminant transport modeling, and soil mechanics. Continued research in transport phenomena in fractured/porous media. Dr. Mehran has supervised numerous graduate students on various research topics.
  - Responsible for fundamental formulation and computer model development of the simultaneous transport of water, contaminant, and heat in fractured/porous media and evaluation of the hydrogeologic consequences of dewatering deep formations. Utilizing numerical models developed the capability of simulating the long-term effects of dewatering and reinvasion of water by considering saturated-unsaturated flow in fractured shale formations. A practical application of this research relates to the migration of dissolved organic constituents and radionuclides in fractured formations.
  - Conducted research on transport and transformation of various nitrogen species in soils under saturated and unsaturated flow conditions, applied to nitrate pollution of ground water. This work was supported by the National Science Foundation. The computer models developed by Dr. Mehran have been successfully applied to the behavior of nitrogen and other chemical compounds in actual field problems.

## PROFESSIONAL AFFILIATIONS

American Geophysical Union  
American Chemical Society  
Association of Ground Water Scientists and Engineers  
National Ground Water Association  
Member of the Research Advisory Board of the National Water Research Institute

## PUBLICATIONS

Mehran, M., "Influence of Soil Moisture Suction on Soil Tensile and Compressive Strength," M.S. Thesis, University of California, Davis, 1966.

Mehran, M., "Development of Air Force Erosion Control Manual," report to Water Resources Engineers, Inc., Walnut Creek, California, 1969.

Mehran, M., "Electrical Dispersion and Electrokinetic Phenomena in Clays," Ph.D. Dissertation, University of California, 1971.

Mehran, M., and K.K. Tanji, "Chemical Transport in Flooded Rice Fields," paper presented before the Environmental Division of American Society of Agronomy Meeting, November 1, 1972, Miami, Florida.

Mehran, M., K.K. Tanji, J.W. Biggar, and D.W. Henderson, "Chemical Transport under Different Water Management Systems," Proceedings of 14th Rice Tech., Working Group, p. 72, 1972.

Mehran, M., and K.K. Tanji, "Computer Modeling of Nitrogen Transformations in Soils," Journal of Environmental Quality 3(4):391-396, 1974.

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(Revised April 2008)

**Peter Lee**  
**Staff Engineer**

**FIELD OF EXPERTISE**

Mr. Peter Lee has performed more than 200 Phase I Environmental Site Assessments in last 4 years in California. The properties he has assessed include primarily commercial and industrial facilities. He has performed these assessments in accordance with the current ASTM standards and practices. Mr. Lee has also conducted site characterization including soil and vapor sampling, well installation, ground water monitoring, and installation and operation/maintenance of the remediation systems.

**EDUCATION**

**CALIFORNIA STATE UNIVERSITY AT POMONA**  
*Bachelor of Science, Electrical Engineering, 2004*

**EMPLOYMENT HISTORY**

**Rubicon Engineering Corporation, Irvine, CA: 2008 to 2009**  
**Staff Engineer**

- Phase I Environmental Site Assessments
- EDR searches
- File reviews at the regulatory agencies
- Soil and ground water sampling
- Drilling and well installation
- Operation and maintenance

**Western Environmental Engineer's Co., Santa Ana, CA : 2005 – 2008**  
**Project Engineer**

**PHASE I ENVIRONMENTAL SITE ASSESSMENTS**

- Performed over 200 Phase I Environmental Site Assessments for numerous commercial and industrial properties, including assessments conducted in adherence to ASTM Standard Practice E1527-05 (AAI).
- Provided Assessments for financial institutions, real estate developers, property owners and managers located in western states.
- Assessments included on and off-site inspection, regulatory file review and report preparation with recommendations.

## **PHASE II ENVIRONMENTAL SITE ASSESSMENTS**

- Involved in numerous intrusive subsurface impact assessments of various commercial and industrial facilities. Work included scheduling and organizing work activities, obtaining permits, and performing public relation duties.
- Experience with performing Phase II Environmental Site Assessments, supervising soil borings, installing groundwater monitoring wells, groundwater and soil sampling, soil profiling, and report writing.

## **PHASE III REMEDIATION / SOIL AND GROUNDWATER MONITORING**

- Acquired an experience of maintaining and operating vapor-extraction system (**SVE & DPE**), which utilizes an Engine or thermal oxidizer to suck-out, and combust hydrocarbon vapors from underground soil.
- Performed quarterly groundwater monitoring and sampling including the following: water level monitoring, tide measurement, free product testing and removal, field measurements (pH, dissolved oxygen, turbidity, conductivity, etc.), PID measurement, air sampling, pilot testing, groundwater sample collection and laboratory analysis of samples.
- Additional work included scheduling and organizing remediation projects; and preparing reports.

## **AMIR MATIN, PG, CEG, CHG, MBA**

### **Program Manager, Principal Hydrogeologist**

#### **FIELDS OF EXPERTISE**

Mr. Matin has over 30 years of experience in the technical and managerial aspects of geotechnical and environmental engineering, hydrogeology, management of toxic chemicals, regulatory processes, environmental assessment, technology selection, remedial action, and site closure projects. He has well-developed skills in project and program management, scheduling and cost control, having had responsibility for leading multi-disciplinary teams of environmental professionals on demanding, complex, and fast-paced multi-million-dollar projects. These programs have honed his skills in planning, data analysis and interpretation, agency negotiations, and customer-focused sales and service delivery.

He has extensive experience in all aspects of the remediation process, including remedial investigation/feasibility studies (RI/FS), and the design, installation, and operation of soil and groundwater remediation systems. He is highly experienced in dealing with Federal and State of California environmental laws and regulations, and in interacting with Federal and California agencies. His broad expertise comes from over 30 years of personal experience ranging from task management to office management as well as leading multi-disciplinary technical groups of environmental, engineering, and construction professionals in the past 22 years. Mr. Matin's customers benefit from his ability to adapt to changing conditions using creative solutions that help achieve client goals cost-effectively and on-time.

#### **EDUCATION**

M.B.A., Global Management, 1999, University of Phoenix, Sacramento, California  
M.S., Engineering Geology, 1982, California State University, Los Angeles, California  
B.S., Geology, 1976, Central Michigan University, Mt. Pleasant, Michigan

#### **REGISTRATIONS**

Registered/Professional Geologist (PG), CA # 4190, 1986  
Certified Engineering Geologist (CEG), CA #1396, 1988  
Certified Hydrogeologist (CHg), CA #137, 1995

#### **CERTIFICATIONS**

Certified Engineering Geologist, California  
Certified Hydrogeologist, California  
General Engineering Contractor License, "A" Class, California  
Hazardous Substances Removal and Remedial Action License, "Haz" Class, California

**EMPLOYMENT HISTORY**

Rubicon Engineering Corporation 20 Corporate Park, Suite 285 Irvine, California Vice President/Program Manager Principal Hydrogeologist	April 2008 to Present
Cape, Inc. Irvine and Sacramento, CA Regional Manager Senior Program Manager	2005 to 2008
URS, Inc. Sacramento, CA Department Manager Senior Program Manager Marketing Manager	2002 to 2005
Jacobs Engineering Group Inc. Pasadena and Sacramento, CA Department Manager/Deputy Office Manager Program Manager/Manager of Projects Office Manager/Technical Resources Manager	1991 to 2002
CET Environmental Services/TG Environmental, Inc. Tustin, Anaheim and Long Beach, CA Senior Vice President/Program Manager Vice President/General Manager Principal Hydrogeologist	1988 - 1991
J.H. Kleinfelder and Associates Compton and Artesia, CA Engineering Manager/Operations Manager Senior Project Manager Senior Hydrogeologist/ Engineering geologist	1986 - 1988
Leroy Crandall and Associates/Law Environmental Los Angeles and Burbank, CA Hydrogeologist Engineering geologist Project Manager	1979 - 1986
AMCS (Family Business) Monterey Park, CA Hydrogeologist	1977 - 1979

## **CAREER DETAILS**

Since April 2008, Mr. Matin has been the director of Federal Programs for Rubicon Engineering Corporation in charge of development and execution of all federal projects. His focus is to grow and continually improve the services to the all important Federal customers. He advocates growing business by understanding and responding to customer needs. His main responsibilities are: 1) Business Development, 2) Proposal Management and 3) Program Management. As the program manager for the Navy, Air Force and Army Corps of Engineers, he serves as the single point of contact for coordination with the clients. He is responsible for overall management of the contracts including cost, schedule and technical quality.

At CAPE Corporation from 2006 to 2008, Mr. Matin responsibilities included:

- Mr. Matin was the Regional Manager for CAPE Corporation's Western Region overseeing the day to day operations activities of two offices – Irvine and Sacramento, California. He was responsible for the growth of the western region for CAPE and oversees several large Department of Defense projects, including Vandenberg Air Force Base (AFB), March Air Reserve Base and Tustin Naval Air Station (NAS) and Ventura County NAS, Point Mugu in southern California as well as Camp Parks and Fort Mason bases in northern California for the Army Corps of Engineers, Sacramento District. He also oversaw the development and implementation of quality programs in the western region.

At URS Corporation from 2002 to 2006, Mr. Matin responsibilities included:

- From 2004 to 2006, Mr. Matin was the lead Senior Program/Marketing Manager for URS Corporation's Air Force Market Sector, the company's most important Federal customers. To improve his sales and customer management skills, Mr. Matin took several sales and marketing training opportunities (e.g., Proposing to Win, Strategic Selling, Presentation Skills). Subsequently, he incorporated key concepts into Best Practices for the company's large programs (e.g., establishment of a formal process to gather and act on customer feedback, Client Expectation and Client Feedback Surveys System). Mr. Matin continued to lead, as the program manager, all of URS' projects efforts at Travis Air Force Base (AFB), and as the quality manager he oversees the quality assurance program at McClellan AFB as well as managing several projects for Cal EPA's DTSC. He also provides strategic planning and analysis, technical review and support to other Air Force, Army, state, and private sector programs throughout the western US.
- From 2002 to 2004, Mr. Matin was the Remedial System Services Department Manager for URS, Inc. His department consisted of three groups: Monitoring and Reporting; Operation and Maintenance; and Data Management and Computer Modeling. Mr. Matin's responsibilities included managing day to day operation of these groups, which consist of approximately 40 environmental scientists, chemists, engineers, geologists, hydrogeologist, geophysicists, and data manager professionals working mainly on large, complex projects at the U. S. Army Corps of Engineers and Air Force bases in California. His other responsibilities included leading URS' Sacramento Office Air Force marketing efforts as well as program and quality management at the following facilities:

- **Travis AFB, Fairfield, CA.** Mr. Matin was the Program Manager for a complex environmental remediation program, including operations and maintenance (O&M) of three groundwater and three SVE treatment systems. The program includes basewide groundwater sampling and analysis of over 500 monitoring wells and semi-annual evaluation of system performance and optimization. The program also included community relation support, Remedial Design/Remedial Action, and risk assessment, including indoor air and ecological.
- **Army Corps of Engineers' HTRW Contract, CA.** Mr. Matin was the Program Manager for the implementation of all of the URS projects under this contract from 2002 to 2005. This was a multi-year and multi-million dollar program and included the following projects: Fort Irwin, Tooele Army Depot, Sacramento Army Depot, TEAD groundwater Alternative Measures Study and Hawthorne Army Depot.
- **McClellan AFB, Sacramento, CA.** Mr. Matin was the Quality Manger of all URS' assessment and remediation programs as well as the manager who oversees a large and complex O&M and LTM activities at the base, which ranked as the number one Superfund facility in the U.S. Air Force. He was the project manager for the implementation of a comprehensive PA/SI and was also the main author for a comprehensive Flow and Fate and Transport computer model, which was used for the development of the much contested Record of Decision (ROD) and groundwater system optimization.
- **Wake Island Airfield, Wake Atoll.** Mr. Matin was the technical program Manager for the implementation of this large assessment and cleanup program of the Wake Island. The work also included Removal Actions and Mr. Matin oversaw the implementation numerous Engineering Evaluations/Cost Analyses (EE/CA).

At *Jacobs Engineering Group Inc.*, Mr. Matin's accomplishments include the following:

- From December 2001 to October 2002, Mr. Matin was the office manager of the Jacobs' Sacramento Office; where he managed the daily operations of about 40 employees. He was also the Program Manager of several complex multi-disciplinary remediation projects at various Department of Energy and Department of Defense sites. These sites included Lawrence Livermore National Laboratory (LLNL), Vandenberg and McClellan Air Force Bases and at Vernal, Utah – United States Army Corps of Engineers' site. He was an integral part of the proposal development and review team for DOD nationwide contracts (e.g., AFCEE 3P-AE, 4P and ENRAC as well as Navy Southwest Div).
- From January 1998 to February 2002, Mr. Matin was the Deputy Office Manager and the program manager for all of the Jacobs' projects at Castle Air Force Base under the IRP and \$ 150 million full-service Remedial Action Contract (RAC) with the Air Force Center for Environmental Excellence (AFCEE). As the program manager, Mr. Matin was responsible for planning, proposals, budgets, staffing, cost and schedule performance, technical and contractual performance and compliance, and management coordination, including implementation of the Jacobs Quality

## AMIR MATIN, RG (5/8)

Advancement Process. The implementation of project tasks requires the coordination of Jacobs's personnel as well as subcontracted resources such as for construction, remediation and disposal services, analytical services, drilling and other field support services, as well as supplies and equipment in accordance with federal contract requirements. As the result of his outstanding performance, Jacobs has received 99.3, 100, 100 and 100 percents award fees from AFCEE for the last four years and Mr. Matin has received commendation letters from AFCEE and BRAC Environmental Coordinator at Castle AFB (e.g., one entitled A Delightful Experience).

- From February 1994 to January 1998, Mr. Matin was the lead Project Manager, and then Program Manager, for all projects at McClellan AFB under the Air Force IRP, McClellan ID/IQ, and AFCEE RI/FS contracts, totaling \$75 million. His responsibilities included managing large (178 sites) RI/FS and removal action projects at the site ranked as the number one Superfund facility in the U.S. Air Force. These projects use unique approaches to site characterization and remediation (e.g., utilization of mobile laboratory and borehole conversion criteria for real-time decisions on further characterization or installation of remedial action equipment) because of significant environmental problems at the base, including degraded groundwater that has migrated off base. He was responsible for the technical direction and quality of documents including sampling and analysis plans, quality assurance plans, RI/FS and engineering evaluation/cost analyses. He was also responsible for implementing field programs and for developing strategies for site prioritization and accelerated remediation. He also has provided technical input to several remedial action projects at other Air Force Bases in soil vapor extraction, bioventing, and air stripper/vapor phase carbon pump and treat systems. Mr. Matin has received numerous commendations from the Air Force for conducting excellent field programs and preparing innovative reports that received very few comments from the agencies. He also provided technical input to several remedial action projects at other CERCLA sites in SVE, bioventing, air/liquid strippers and carbon/oxidation treatment systems.
- During 1992 and 1993, he was the lead project manager for implementation of a major (\$25 million) RI/FS and removal action programs at Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms. He successfully managed the first implementation of an innovative, proactive, fast-track program called PEECP (Pilot Expedited Environmental Cleanup Program), which was established by Congress in 1992 to streamline the cleanup of contaminants on military installations using innovative, cost-effective methods. Mr. Matin reduced the estimated project completion time several years by overlapping investigative steps and incorporating a real-time decision-making process in the field to evaluate cleanup options, select appropriate remedies, and implement the latest cleanup technologies. On many sites, monitoring and remediation equipment was installed during the site investigation, which resulted in \$9 million in cost savings. Through ongoing communication with the regulatory agencies, Mr. Matin was instrumental in implementing a flexible work plan that complied with all environmental regulations. The program included extensive public participation. As a result of Mr. Matin's efforts, Jacobs was commended for the outstanding accomplishments achieved during the MCAGCC cleanup project, with the highest award fee rating (100%) secured since the inception of the Navy CLEAN Program. MCAGCC, in turn, received the prestigious Environmental Restoration Award from the Secretary of

## AMIR MATIN, RG (6/8)

Defense as well as the Environmental Cleanup Award from the Secretary of the Navy. Mr. Matin also received a Letter of Appreciation from General Sutton, U. S. Marine Corps Commanding General.

- During 1991 and 1992, he managed the RI/FS Department of the Pasadena Environmental Programs. His department consisted of seven groups: Geology, Geotechnical and Engineering Geology, Civil and Environmental Engineering, Chemistry, Air Quality and Risk Assessment, Planning and Regulatory Compliance and Field Services. These groups' tasks included site assessment, RI/FS studies, underground storage tank management and compliance activities, air toxics, community relations, RCRA permitting and compliance, and remediation. Mr. Matin's responsibilities included managing a diverse group of approximately 80 environmental scientists, chemists, engineers, geologists, hydrogeologists, geophysicists, and risk assessment professionals working mainly on large, complex projects at Navy and Air Force bases in California. He was one of the few lead technical reviewers on the Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, as well as on the Vandenberg, McClellan, and Edwards Air Force base projects. He also provided technical input to other major CLEAN projects such as NAS El Centro, MCLB Barstow, MCAS El Toro, NAS North Island (San Diego), MCAS Yuma, and MCAS Tustin.

At *CET Environmental Services* (formerly TG Environmental), Mr. Matin was Senior Vice President in charge of the Engineering and Remediation Services. In this capacity, he was responsible for the management and supervision of three area offices encompassing a staff of 75 environmental professionals conducting major soil and groundwater assessment and remediation programs. His accomplishments included:

- Stimulated growth by identifying the strengths and weaknesses of various departments and effectively reorganized administrative procedures to yield higher efficiency in the flow of information and reduce overhead costs
- Decreased bad debts by installing an effective collection system
- Actively pursued the attainment of new target markets in the remediation business
- Conducted senior review on all major projects and performed as specialized EPA ERCS Response Manager
- Increased technical quality, management care, technical efficiency, and computer applications
- Established strong controls in order to promote loss prevention and to effectively maintain maximum billability
- Ensured the development of technically sound, clearly written, and accurately calculated cost proposals
- Conducted quality control audits and contract approvals on all large projects
- Ensured the application of appropriate remedial action technologies across regional offices

## **AMIR MATIN, RG (7/8)**

As Vice President, *Med-Tox Associates* (a TG Environmental company), Mr. Matin successfully established a new division called GEO-TOX, performing environmental assessment and remediation programs. Mr. Matin:

- Developed a reputable company image through public relations and high-quality product and superior performance of projects
- Effectively executed administrative policies, which ensured loss prevention and higher profitability. The newly established division by Mr. Matin reached the highest level of profit margins within the company in less than one year
- Provided hands-on technical training to personnel in the field and office. The goal was to continually adhere to quality from proposal to project completion, which resulted in repeat business from existing clients and new businesses from outreach endeavors
- Reduced costs and improved efficiency by expanding computer applications in the field and office
- Decreased bad debts by installing a timely and effective collection system, providing strong contract administration and proposal development, and maintaining stringent quality assurance and control standards throughout project development
- As project director, effectively managed large and complex projects and gave technical input to all other projects
- Initiated innovative marketing approaches in an effort to be at the forefront of the industry with a name that was easily recognized and trusted. Marketing efforts included development of a sophisticated database with over 12,000 potential clients complete with detailed information, such as type of services they require

At *J.H. Kleinfelder and Associates*, Mr. Matin held two positions: As Engineering Manager/Operations Manager of the Southern California office, he effectively managed a staff of 26 environmental professionals conducting major soil and groundwater assessment and remediation programs. He also:

- Devised new systems to execute company goals such as reducing turnaround times and increasing collections
- Increased sales by systematically upgrading the production of the office through recognizing and eliminating problem areas and emphasizing quality performance
- Scheduled daily operations and monitored the staff's performance
- Purchased, inventoried, and controlled project equipment
- Devised and implemented time-saving procedures including staff scheduling and office capacity evaluation which resulted in identifying problem areas in projects and personnel
- Reduced cost through computerizing the office and increasing computer applications

As Senior Hydrogeologist/Project Manager, Mr. Matin was responsible for managing, planning, coordinating, and directing large projects as well as reviewing environmental and hydrogeologic studies for all projects, including underground storage tank investigations, environmental audits and assessments, landfill investigations, aquifer testing and groundwater contaminant modeling, and soil and groundwater remediation

## **AMIR MATIN, RG (8/8)**

programs. He also established a technical library and a mobile laboratory for the office, wrote effective proposals, and participated in marketing presentations. Mr. Matin was appointed to the company's Technical Advisory Committee, which was responsible for quality improvements across all offices.

*At Leroy Crandall and Associates/Law Environmental*, as a hydrogeologist/project manager, Mr. Matin supervised and conducted many diverse environmental assessment, remediation, and geotechnical projects involving landfills, high-rise structures, surface impoundments, large retail shopping centers, hospitals, chemical and industrial manufacturing companies, transportation companies, utilities, and government agencies. Mr. Matin conducted the following projects/tasks at Leroy Crandall and Associates:

- Long-term groundwater monitoring and sampling as well as operation and maintenance of pump-and-treat systems at several major aquifer restorations programs in California and Nevada for over six years continuously, including one of the very first Superfund sites. Duties also included design and installation of dewatering wells, water resource evaluation and development (basin, safe yield, and well field and productivity studies), field permeability, and water quality investigations.
- Field mapping, slope stability studies, geologic and seismic site investigations, landslide and fault investigations, soil boring and groundwater monitoring well installation and sampling, aquifer testing and analysis, groundwater flow and contaminant transport modeling, and soil and groundwater remediation
- Supervising subsurface geophysical studies using seismic refraction and reflection methods in hazardous waste landfills, power plants, and surface impoundment sites and testing the effectiveness of subsurface barriers in restraining migration of hazardous liquid

At AMCS, as a hydrogeologist, Amir worked on a project to determine the effects of water quality and soil properties on crop yield. One of the objective of the project was to ascertain the crop yield reduction as a function of water quality (i.e., increase in total dissolve solids). Amir also worked on basin study and well field projects with the objective of assessing and increasing ground water yield from wells and ganats.



**APPENDIX F**

**LAKEVIEW SUBSTATION GEOTECHNICAL REPORT**

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**SOUTHERN CALIFORNIA EDISON**  
**Geotechnical Investigation Report**  
**Lakeview Substation**  
**Nuevo, Riverside County, California**

**December 14, 2009**  
**Project # 09-082**



**TDBU** Civil/Structural & Geotechnical Engineering Group

December 14, 2009

Subject:     **GEOTECHNICAL INVESTIGATION REPORT**  
          Lakeview Substation  
          Southwest of 10<sup>th</sup> Street and Reservoir Ave.  
          Nuevo  
          Riverside County, California  
          Project No. 09-082

Geotechnical Engineering Group TDBU has prepared this report to present the findings of the geotechnical investigation performed for the proposed Lakeview Substation located southwest of the intersection of 10<sup>th</sup> Street and Reservoir Avenue in Nuevo, Riverside County, California. The subject substation can be developed from a geotechnical standpoint to support the proposed structures, provided the findings, conclusions, and recommendations presented in this report are incorporated in the preparation of the final grading plan, foundation design, and construction of the project.

The recommendations contained herein are contingent upon adequate monitoring of the geotechnical aspects of the construction.

If you should have any questions, please feel free to contact the undersigned.

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## TABLE OF CONTENTS

<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 PROJECT DESCRIPTION.....</b>	<b>1</b>
2.1 SITE LOCATION DESCRIPTION .....	1
2.2 PROPOSED DEVELOPMENT .....	1
<b>3.0 FIELD EXPLORATION &amp; LABORATORY TESTING.....</b>	<b>1</b>
3.1 FIELD EXPLORATION .....	2
3.2 GEOTECHNICAL LABORATORY TESTING .....	2
<b>4.0 GEOLOGIC SETTING .....</b>	<b>2</b>
<b>5.0 SITE CONDITIONS.....</b>	<b>3</b>
5.1 GENERAL .....	3
5.2 SUBSURFACE CONDITIONS .....	3
5.3 GROUNDWATER.....	3
5.4 FLOODING .....	4
5.5 GEOTECHNICAL LABORATORY TESTING RESULTS .....	4
<b>6.0 FAULTING .....</b>	<b>5</b>
6.1 SEISMIC COEFFICIENTS .....	6
6.2 SECONDARY EFFECTS OF SEISMIC ACTIVITY .....	6
<b>7.0 EARTHWORK/SITE GRADING RECOMMENDATIONS.....</b>	<b>8</b>
7.1 GENERAL .....	8
7.2 OVER-EXCAVATION/REMOVAL FOR PROPOSED SUBSTATION STRUCTURES .....	8
7.3 OVER-EXCAVATION/REMOVAL FOR PAVEMENT AREAS .....	9
7.4 STRUCTURAL FILL.....	9
7.5 SHRINKAGE AND SUBSIDENCE.....	10
7.6 EXCAVATIONS AND TEMPORARY SLOPES .....	10
7.7 SITE DRAINAGE .....	10
<b>8.0 DESIGN AND CONSTRUCTION RECOMMENDATIONS.....</b>	<b>11</b>
8.1 GENERAL EVALUATION .....	11
8.2 FOUNDATION TYPES AND BEARING PRESSURES .....	11
8.3 DRILLED CAST-IN-PLACE FRICTION PILES.....	12
8.4 LATERAL EARTH PRESSURES AND RESISTANCE TO LATERAL LOADS .....	12
8.5 SLABS-ON-GRADE.....	12
8.6 SOIL CORROSIVITY EVALUATION .....	13
8.7 ASPHALT CONCRETE PAVEMENT .....	13
8.8 SETTLEMENT .....	14
8.9 GEOTECHNICAL OBSERVATION.....	14

**9.0 CLOSURE..... 15**  
**10.0 REFERENCES..... 16**

**APPENDICES**

Figure 1 ..... Site Location Map  
Figure 2 ..... Approximate Boring Location Map  
Appendix A ..... Field Exploration  
Appendix B ..... Laboratory Testing Program  
Appendix C ..... Soil Corrosivity Study

## **1.0 INTRODUCTION**

This report presents the findings of the geotechnical investigation performed for the proposed Lakeview Substation located southwest of the intersection of 10<sup>th</sup> Street and Reservoir Avenue in Nuevo, Riverside County, California (see *Figure 1. Site Location Map*).

The purposes of this investigation were to determine the nature and engineering properties of the subsurface soils and to provide preliminary recommendations regarding general site-grading, foundation design and construction. The site plan is included in this report as *Figure 2. Approximate Boring Location Map*.

No site grading plan was available at the time this report was prepared. The site earthwork and design recommendations provided in this report should be considered preliminary. The final grading plan should be reviewed for compliance with the design recommendations.

## **2.0 PROJECT DESCRIPTION**

### **2.1 *Site Location Description***

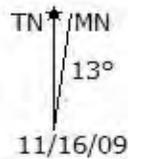
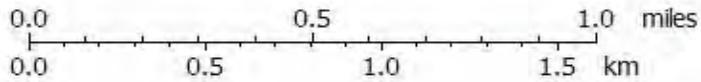
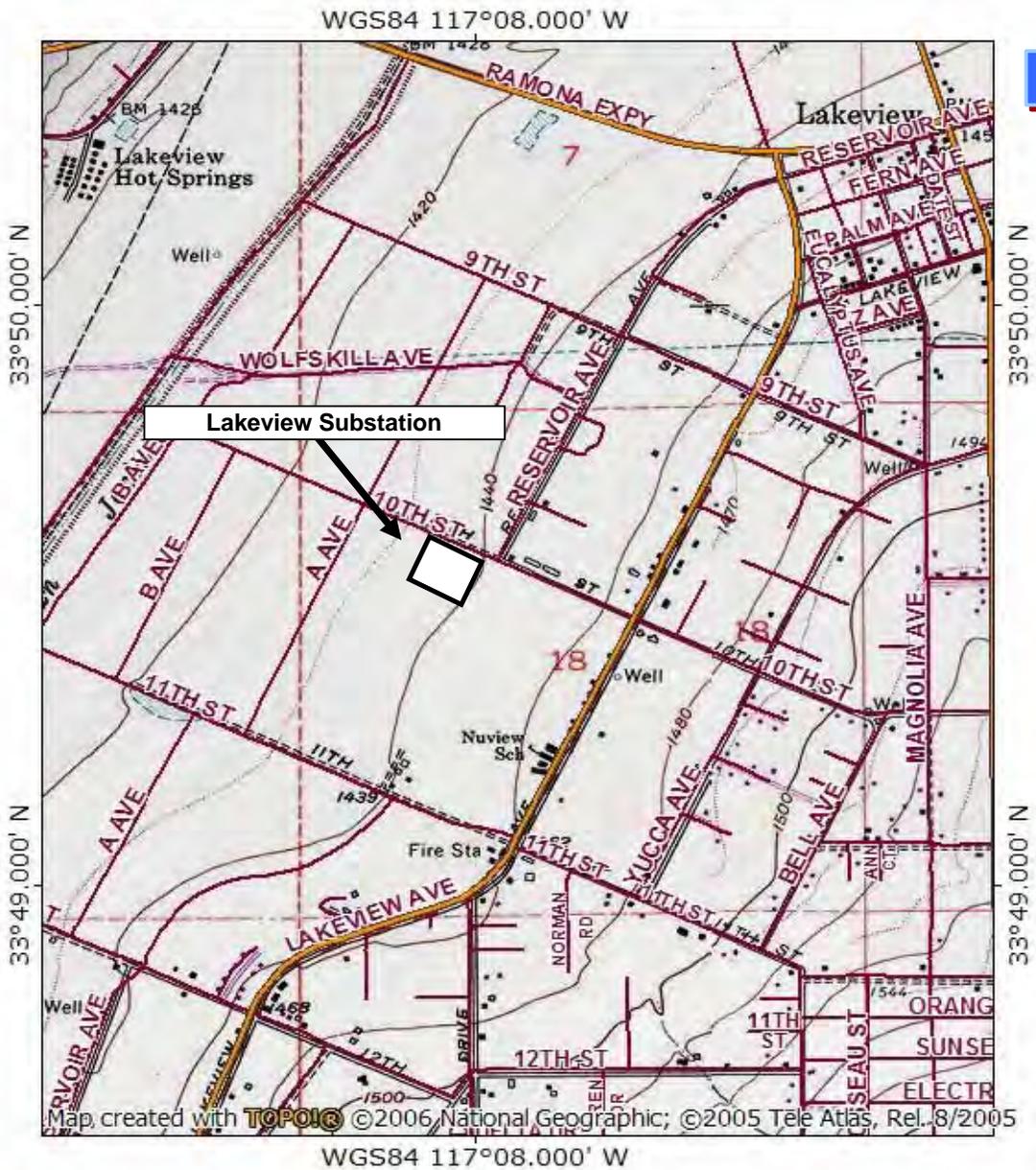
The proposed Lakeview Substation is a rectangular parcel measuring approximately 500 feet by 500 feet. The site comprises approximately 5 acres of flat farmland at an elevation of 1440 feet. The site drains to the northwest towards the San Jacinto River. A water well occurs near the northeast property corner outside the proposed substation. The water well is on a concrete pad covered by a steel plate and is not currently in use. The Perris Reservoir is approximately 2.75 miles northwest of the property and has a retained elevation of 1588 feet.

### **2.2 *Proposed Development***

The proposed Lakeview Substation is shown on *Figure 2, Approximately Boring Location Map*. The site is to be graded to accommodate the substation pad.

## **3.0 FIELD EXPLORATION & LABORATORY TESTING**

The scope of the field investigation and the laboratory testing included a review of existing information, site reconnaissance and a subsurface exploration for geotechnical soil sampling.



### Site Location Map

Project Name: Lakeview Substation

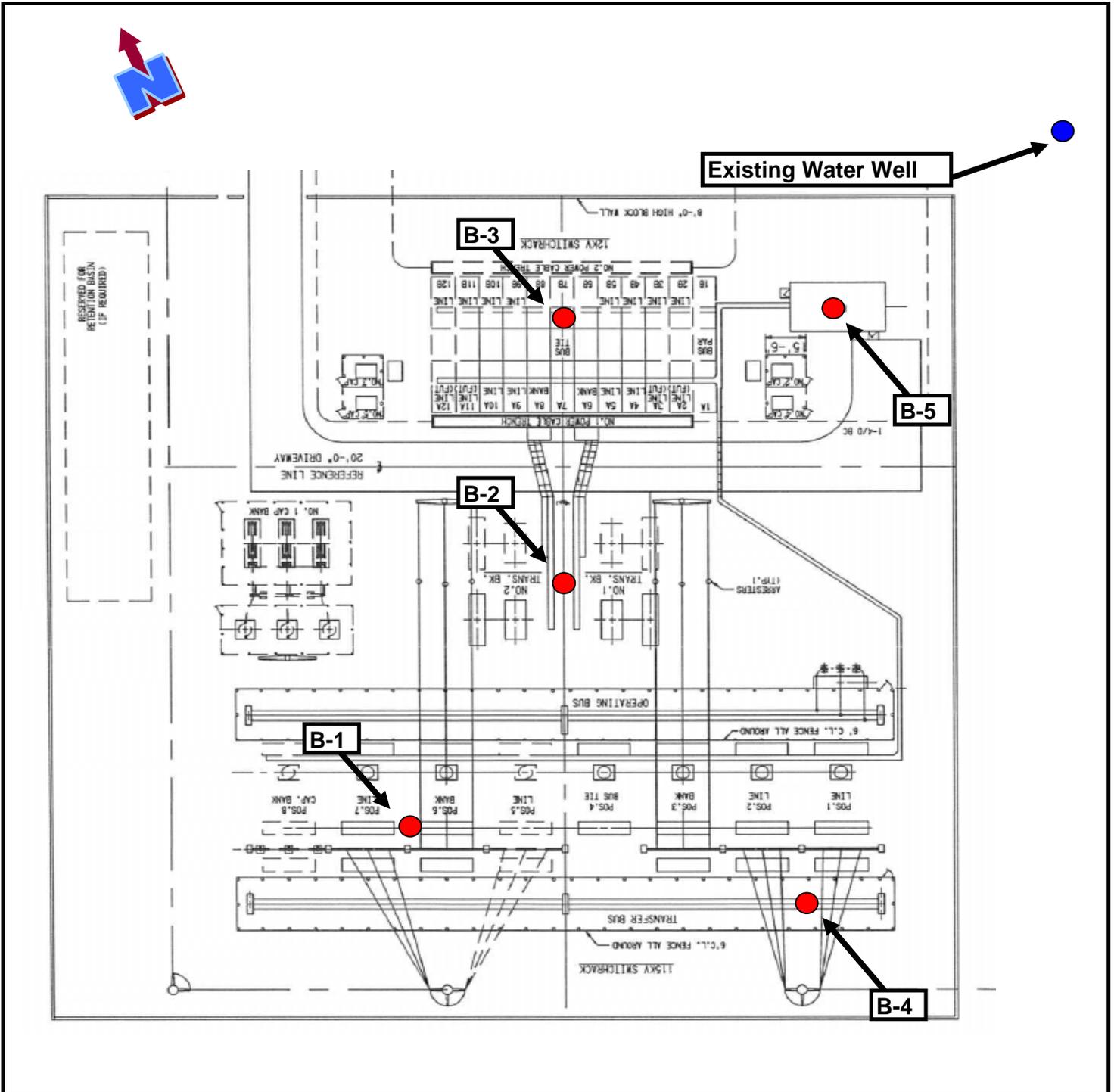
Source: NAT GEO

Location: Riverside, CA

**TDBU Civil/Structural & Geotechnical Engineering Group**

Figure No.

1



**Approximate Boring Locations**

Project Name: Lakeview Substation

Source: SCE drawing

Location: Riverside, CA

**TDBU Civil/Structural & Geotechnical Engineering Group**

Figure No.

**2**

### **3.1 Field Exploration**

A total of five (5) soil borings were drilled on September 4, 2009. These borings were completed under the observation of a representative of Southern California Edison Geotechnical Engineering Group. The approximate soil boring locations are shown in *Figure 2, Approximate Boring Location Map*.

The borings (BH-1 to BH-5) were drilled within the project site using a truck mounted drill rig equipped with 8-inch diameter hollow-stem augers for soil sampling. The boring depths ranged from 25.5 to 51.5 feet below the existing ground surface (bgs).

Relatively undisturbed thin-walled ring and bulk samples of representative subsurface materials were obtained from the borings for laboratory testing. Standard Penetration Tests (SPTs) were performed starting at 7 feet bgs using a standard split-barrel sampler (1.4 inches inside diameter and 2.0 inches outside diameter).

Boring logs are presented in *Appendix A, Field Exploration* and laboratory test results are presented in *Appendix B, Laboratory Testing Program*.

### **3.2 Geotechnical Laboratory Testing**

Representative samples of the site soils were tested in the laboratory to aid in the soil classification and to evaluate relevant engineering properties of the site soils. These tests included:

- ◆ *In situ* moisture contents and dry densities (ASTM Standard D2216)
- ◆ Expansion Index (ASTM Standard D4829)
- ◆ Soil corrosivity tests (Caltrans 643, 422, 417, and 532)
- ◆ R-value (ASTM Standard D244, Caltrans 301G)
- ◆ Grain size distribution (ASTM Standard C136)
- ◆ Maximum dry density and optimum-moisture content relationship (ASTM Standard D1557)
- ◆ Direct shear (ASTM Standard D3080)

For *in situ* moisture content, see the Logs of Borings in *Appendix A, Field Exploration*. For laboratory test results, see *Appendix B, Laboratory Testing Program*.

## **4.0 GEOLOGIC SETTING**

The project site is in the central portion of the Peninsular Ranges geomorphic province. This province extends northwesterly from Baja California into the Los Angeles Basin. The province is bounded by the Transverse Ranges to the north and the Colorado

Desert to the east. The Peninsular Ranges province is characterized by northwest trending mountains and intervening basins parallel to the major faults and folds in the region. The northwest trending San Jacinto fault zone is approximately 3.5 miles to the northeast.

The site is within Quaternary alluvium of the San Jacinto River (Dibblee, 2003). These materials consist primarily of silty sand and sandy silt with some clay. Bedrock exposed in the hillsides adjacent to the San Jacinto river valley are comprised of quartz diorite.

Faults have not been mapped on or near the project and the site is not within a State of California Alquist-Priolo Earthquake Fault Zone (California Geologic Survey, 2007). The nearest designated Alquist-Priolo Earthquake Fault Zone is associated with the San Jacinto fault, approximately 7.9 kilometers northeast of the site.

## **5.0 SITE CONDITIONS**

### **5.1 General**

This section contains a general description of the subsurface conditions and various materials encountered at the site during the field exploration and a discussion of site-specific geology.

### **5.2 Subsurface Conditions**

The subsurface conditions encountered at the site are discussed below. For additional information on the subsurface conditions, see *Appendix A, Field Exploration*. Based on the field observations and site exploration data, the site for the proposed substation is underlain by alluvial deposits consisting of mainly silty sand and sandy silt with some clay to the maximum depth explored of 51.5 feet bgs.

### **5.3 Groundwater**

The site is within the Lakeview Basin of the West San Jacinto River watershed (Metropolitan Water District, 2007). Groundwater occurrence in the Lakeview Basin is within unconfined alluvium with depths greater than 1,000 feet. Producing intervals within the basin range from 300 feet to 1,000 feet. Based on the groundwater contour map for the basin, groundwater is approximately 160 feet below the ground surface. The groundwater gradient near the site is to the northeast.

Groundwater was not encountered in any of the borings drilled to the maximum depth of 51.5 feet bgs. Therefore, groundwater does not need to be considered for design and construction.

It should be noted that the groundwater level could vary depending upon the seasonal precipitation, agriculture irrigation and possible groundwater pumping activity in the site vicinity.

A water well occurs near the northeast corner of the substation property. The well is on a concrete pad covered with a steel plate. The well is not currently being used and is outside the footprint of the current substation. No well records were requested by our geotechnical team. It is our understanding that if there is not a need for the well, Corporate Real Estate (CRE) will take the lead in ensuring the well is properly abandoned and removed from the site (Contact Justin Larson at 714-895-0539).

#### **5.4 Flooding**

Based on a review of the Flood Insurance Rate Map (FIRM), the site is in Zone X – areas determined to be outside the 0.2% annual chance floodplain (FEMA, 2008). Based on a review of County of Riverside Flood Zones Maps, the site is not within an area requiring a flood plain review.

#### **5.5 Geotechnical Laboratory Testing Results**

Laboratory testing was performed to determine the physical characteristics and engineering properties of the subsurface soils. Results of *in situ* moisture and dry density tests are presented on the Logs of Borings in *Appendix A, Field Exploration*, and remaining test results are presented in *Appendix B, Laboratory Testing Program*. Discussion on the various test results is presented below:

- ◆ *In situ* Moisture and Dry Density – *In situ* dry density at the upper 5 feet ranged from 106 to 121 pcf with corresponding moisture content ranged from 9 to 14 percent, respectively.
- ◆ Expansion Index – A representative sample from the upper 5 feet of the site soils was tested to evaluate Expansion Index (EI) in accordance with the ASTM Standard D4829. The value of the measured EI within the upper 5 feet of site soils was 0. These values of EI indicate that the site soils have “Very Low” expansion potential.
- ◆ Soil Corrosivity – One representative sample of the site soils were tested to determine soil corrosivity with respect to common construction materials such as concrete and steel. Evaluation of soil corrosivity is presented in Section 8.6, Soil Corrosivity Evaluation.
- ◆ Gradation Analysis – Results of three (3) tests indicated the soils tested are silty sand (SM).

- ◆ Maximum Dry Density and Optimum Moisture Content – A typical moisture-density relationship of the representative surficial soils are presented in Table 1.

**Table 1, Moisture-Density Relationship of Surficial Soil.**

Sample Location	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
BH-1 @ 0'-5'	133.0	8.0
BH-2 @ 0'-5'	126.5	9.0
BH-3 @ 0'-5'	134.5	10.0
BH-4 @ 0'-5"	124.5	10.0

- ◆ Direct Shear – Eight (8) direct shear tests were performed on representative samples. Tests were performed on relatively undisturbed samples in soaked moisture conditions. Direct shear tests were performed on three ring samples collected at the same depth with a range of normal loads. Results of direct shear tests indicate the soil tested has moderate shear strength.
- ◆ R-value Test – An R-value test was performed on a representative bulk soil sample. Based on the test result, the R-value of near surface site soils is 47. This value indicates that the subgrade soil have moderate resistance to traffic loading.

## 6.0 FAULTING

Based on the available geologic data, the site is not in the Alquist-Priolo Earthquake Fault Zone. The potential for surface rupture at the site due to fault plane displacement propagating to the ground surface during the design life of the project is considered low. An active fault is defined as one that has had surface displacement within Holocene time (about the last 11,000 years). Table No. 2 presents a few major regional active faults near the site.

**Table No. 2, Summary of Regional Faults**

Fault Name and Section	Approximate Distance (kilometers)	Source Type (A, B, C)	Maximum Magnitude (M <sub>w</sub> )	Slip Rate (mm/yr)
SAN JACINTO-SAN JACINTO VALLEY	7.9	B	6.9	12.0
SAN JACINTO-ANZA	22.2	A	7.2	12.0
SAN JACINTO-SAN BERNARDINO	23.3	B	6.7	12.0
ELSINORE-TEMECULA	28.4	B	6.8	5.0
ELSINORE-GLEN IVY	28.4	B	6.8	5.0
SAN ANDREAS - Southern	29.6	A	7.4	24.0
CHINO-CENTRAL AVE. (Elsinore)	40.1	B	6.7	1.0

Although the site could be subjected to strong ground shaking in the event of an earthquake, this hazard is common in Southern California and the effects of ground shaking on the structures can be mitigated by proper engineering design and construction in conformance with 2007 CBC, current building codes and engineering practices.

**6.1 Seismic Coefficients**

The project site is situated in a seismically active region. As is the case for most areas of Southern California, ground shaking may occur resulting from earthquakes associated with nearby and distant faults. During the life of the project, seismic activity associated with active faults in the area may generate moderate to strong ground shaking at the site.

The seismic site coefficients are determined in accordance with the 2007 California Building Code and ASCE 7-05 Standard (ASCE, 2005) using the United States Geological Survey (USGS, 2007) Earthquake Motion Parameters, Version 5.0.9, program. The site location used was Latitude 33.8259°N and Longitude 117.1339°W with a Site Class “D.” The seismic site coefficients under the new code are presented in the following table:

Table 1613.5.2	Site Class Definitions	D
<i>Maximum Considered Earthquake (MCE) Ground Motion</i>		
Figure 1613.5	0.2 second Sort Period Spectral Response, $S_s$	1.500 g
Figure 1613.5	1 second Spectral Response, $S_1$	0.600 g
Table 1613.5.3(1)	Site Coefficient, $F_a$	1.00
Table 1613.5.3(2)	Site Coefficient, $F_v$	1.50
<i>Design Earthquake Ground Motion</i>		
	Short Period Spectral Response, $SD_s$	1.000 g
	1 second Spectral Response, $SD_1$	0.600 g

**6.2 Secondary Effects of Seismic Activity**

Secondary effects of seismic activity include surface fault rupture, soil liquefaction, differential settlement and ground lurching, lateral spreading, landslides, earthquake-induced flooding, and seiches. Site-specific potential for each of these seismic hazards is discussed in the following sections.

**Surface Fault Rupture:** The site is not located within a currently designated State of California Earthquake Fault Zone. Based on review of existing geologic information, no known active fault zone crosses the site. The potential for surface rupture resulting from the movement of the nearby major faults is unknown with certainty but is considered low.

**Liquefaction:** Liquefaction is defined as the phenomenon in which a soil mass due to the development of excess pore pressures, soil mass suffers a substantial reduction in its shear strength. During earthquakes, excess pore pressures may develop in saturated soil deposits as a result of induced cyclic shear stresses, resulting in liquefaction. Soil liquefaction occurs in submerged granular soils during or after strong ground shaking. Due to the absence of shallow groundwater, the project site is not considered susceptible to liquefaction.

**Differential Settlement and Ground Lurching:** The potential of significant differential settlement at the site during earthquakes is considered to be low. The potential for ground lurching during earthquakes cannot be quantified; however, the potential for the ground lurching is considered to be minimal, and should not be an issue for the project.

**Lateral Spreading:** Seismically induced lateral spreading involves lateral movement of earth materials due to ground shaking. It differs from a slope failure in that ground failure involving a large movement does not occur due to the flatter slope of the initial ground surface. Lateral spreading is characterized by near-vertical cracks with predominantly horizontal movement of the soil mass involved over the liquefied soils towards and open face. The potential for lateral spreading at subject site is considered low.

**Landslides:** Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The site topography is relatively level and the absence of nearby slopes precludes any slope stability hazards. The potential for seismically induced landslides is considered low.

**Earthquake-Induced Flooding:** This is flooding caused by failure of dams or other water-retaining structures as a result of earthquakes. The Perris Reservoir is approximately 2.75 miles northwest of the project site. The water elevation within the reservoir can be as high as 1588 feet, approximately 148 feet above the site. The site is not downstream from the dam, however. Should a dam failure occur, water flow would be to the southwest away from the site. Therefore, the potential of earthquake-induced flooding of the subject site is considered to be low.

**Seiches:** Seiches are large waves generated in enclosed bodies of water in response to ground shaking. The Perris Reservoir is approximately 2.75 miles northwest of the project site. The water elevation within the reservoir can be as high as 1588 feet, approximately 148 feet above the site. In the event of an earthquake, a seiche generated from this reservoir could overtop the retention basin, however, based on the distance from the reservoir and the occurrence of the San Jacinto River between the reservoir and the site, it is considered unlikely that a seiche would pose a hazard to the site.

## **7.0 EARTHWORK/SITE GRADING RECOMMENDATIONS**

### **7.1 General**

This section contains the general recommendations regarding earthwork and site grading for the proposed development. These recommendations are based on the results of the field exploration, laboratory testing, and data evaluation as presented in the preceding sections. These recommendations may need to be modified based on observation of the actual field conditions during grading.

Prior to the start of any earthwork, the site should be cleared of all vegetation and debris. The materials resulting from the clearing and grubbing operations should be removed from the site.

The final bottom surfaces of all excavations should be observed and approved by the project soils engineer prior to placing any fill and/or structures. Based on observations, removal of localized areas deeper than those documented may be required during grading. Some variations in the depth and lateral extent of over-excavation recommended in this report should be anticipated.

### **7.2 Over-excavation/Removal for Proposed Substation Structures**

As a minimum, the upper two (2) to three (3) feet of surficial soils over the entire site should be overexcavated, moisture-conditioned, and compacted to at least 90 percent of the maximum dry density to produce a firm and unyielding surface.

- ◆ Continuous or isolated footings should be placed on at least 3.5 feet of compacted fill.
- ◆ Over-excavation should provide as a minimum of 3.5 feet of structural fill below the bottom of mat foundations and slab-on-grade.
- ◆ Over-excavations should extend at least three feet outside foundation footprints.
- ◆ The bottom of the foundation excavation should be scarified an additional six inches and compacted to at least 95 percent of the maximum dry density in accordance with ASTM D1557.

The foundation excavations should be backfilled with approved granular materials which should be placed in eight inch lifts or less and compacted to at least 95 percent of the laboratory maximum dry density in accordance with ASTM D1557.

**Liquefaction:** Liquefaction is defined as the phenomenon in which a soil mass due to the development of excess pore pressures, soil mass suffers a substantial reduction in its shear strength. During earthquakes, excess pore pressures may develop in saturated soil deposits as a result of induced cyclic shear stresses, resulting in liquefaction. Soil liquefaction occurs in submerged granular soils during or after strong ground shaking. Due to the absence of shallow groundwater, the project site is not considered susceptible to liquefaction.

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**Earthquake-Induced Flooding:** This is flooding caused by failure of dams or other water-retaining structures as a result of earthquakes. The Perris Reservoir is approximately 2.75 miles northwest of the project site. The water elevation within the reservoir can be as high as 1588 feet, approximately 148 feet above the site. The site is not downstream from the dam, however. Should a dam failure occur, water flow would be to the southwest away from the site. Therefore, the potential of earthquake-induced flooding of the subject site is considered to be low.

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Prior to the start of any earthwork, the site should be cleared of all vegetation and debris. The materials resulting from the clearing and grubbing operations should be removed from the site.

The final bottom surfaces of all excavations should be observed and approved by the project soils engineer prior to placing any fill and/or structures. Based on observations, removal of localized areas deeper than those documented may be required during grading. Some variations in the depth and lateral extent of over-excavation recommended in this report should be anticipated.

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As a minimum, the upper two (2) to three (3) feet of surficial soils over the entire site should be overexcavated, moisture-conditioned, and compacted to at least 90 percent of the maximum dry density to produce a firm and unyielding surface.

- ◆ Continuous or isolated footings should be placed on at least 3.5 feet of compacted fill.
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- ◆ Over-excavations should extend at least three feet outside foundation footprints.
- ◆ The bottom of the foundation excavation should be scarified an additional six inches and compacted to at least 95 percent of the maximum dry density in accordance with ASTM D1557.

The foundation excavations should be backfilled with approved granular materials which should be placed in eight inch lifts or less and compacted to at least 95 percent of the laboratory maximum dry density in accordance with ASTM D1557.

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The foundation excavations should be backfilled with approved granular materials which should be placed in eight inch lifts or less and compacted to at least 95 percent of the laboratory maximum dry density in accordance with ASTM D1557.

### **7.3 Over-Excavation/Removal for Pavement Areas**

In areas receiving asphalt concrete or Portland cement concrete paving, including driveways, street areas, sidewalks, curbs and gutters and other flatwork, the upper two feet of native surficial soils should be excavated. Such over-excavation should extend at least two feet beyond the pavement edges. The pavement sections should be placed on at least one foot of non-expansive fill, moisture conditioned if necessary, and recompact to at least 95 percent of the laboratory maximum dry density.

### **7.4 Structural Fill**

The approved bottom of the excavations should be scarified to a depth of at least six inches. The scarified soils should be moisture conditioned to within three percent of optimum moisture content for granular soils and above optimum for fine-grained soils and compacted to at least 90 percent of the laboratory maximum dry density if not specified elsewhere in this report to produce a firm and unyielding surface.

All structural fill should be placed on competent, scarified and compacted native materials as determined by the project engineer and in accordance with the specifications presented in this section.

Excavated site soils, free of deleterious materials and rock particles larger than three inches in the largest dimension, should be suitable for placement as compacted fill except where non-expansive soils are specified. The import fill should be non-expansive (expansion potential less than 20). The imported materials should contain sufficient fines (binder material) so as to be relatively impermeable and result in a stable subgrade when compacted. Any import fill should be tested and approved by the project engineer.

Prior to compaction, fill materials should be thoroughly mixed and moisture conditioned where necessary, to within three percent of optimum moisture content for sandy soils and above optimum for fine-grained soils. All fill, if not specified otherwise elsewhere in this report, should be compacted to at least 90 percent of the laboratory maximum dry density in accordance with the ASTM Standard D1557 test method.

- ◆ The upper 3.5 feet of fill under structure foundations and at least four feet outside of foundation perimeter should be compacted to at least 95 percent of the laboratory maximum dry density.
- ◆ The upper two feet of fill under perimeter wall footings and at least two feet outside of footings should be compacted to at least 95 percent of the laboratory maximum dry density.
- ◆ All other fill should be compacted to at least 90 percent of the laboratory maximum dry density in accordance with the ASTM Standard D1557 test method.

At the time of the field investigation, in-situ moisture content of the upper five feet of native soils ranged from 9.0% to 14.0%. The optimum moisture contents range from 8.0% to 10.0%. Therefore, some moisture conditioning/drying may be necessary prior to the material being placed as compacted fill. The amount of processing required for proper moisture conditioning at the site will depend on the seasonal variations in the in-situ moisture conditions, the depth of over-excavation, the equipment, and the processing method.

### **7.5 Shrinkage and Subsidence**

The shrinkage and/or bulkage would depend on, among other factors, the depth of cut and/or fill, and the grading method and equipment utilized. For preliminary estimation, shrinkage factors for various units of earth material at the site may be taken as presented below:

- ◆ In computing fill quantities, the approximate shrinkage factor for the upper five feet of alluvial soils is estimated to range from 2% to 7% when excavating and compacting the soils to 90% as recommended.
- ◆ Subsidence would depend on the construction methods including type of equipment utilized. For estimation purposes, ground subsidence may be taken as 0.10 feet.

Although these values are only approximate, they represent our best estimates of the factors to be used to calculate volume loss that may occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field-testing using the actual equipment and grading techniques be conducted.

### **7.6 Excavations and Temporary Slopes**

Where excavations are deeper than about 4 feet, the sides of the excavations should be sloped back at 2:1 (horizontal to vertical) or shored for safety. Unshored excavations should not extend below a plane drawn at 1½:1 (horizontal to vertical) extending downward from adjacent existing footings. All applicable safety requirements and regulations, including OSHA regulations, should be met.

### **7.7 Site Drainage**

Adequate positive drainage should be provided away from graded areas to prevent ponding and to reduce percolation of water into the foundation soils. Surface drainage should be directed to suitable non-erosive devices. Any slope should be planted as soon as possible after construction.

### **7.3 Over-Excavation/Removal for Pavement Areas**

In areas receiving asphalt concrete or Portland cement concrete paving, including driveways, street areas, sidewalks, curbs and gutters and other flatwork, the upper two feet of native surficial soils should be excavated. Such over-excavation should extend at least two feet beyond the pavement edges. The pavement sections should be placed on at least one foot of non-expansive fill, moisture conditioned if necessary, and recompact to at least 95 percent of the laboratory maximum dry density.

### **7.4 Structural Fill**

The approved bottom of the excavations should be scarified to a depth of at least six inches. The scarified soils should be moisture conditioned to within three percent of optimum moisture content for granular soils and above optimum for fine-grained soils and compacted to at least 90 percent of the laboratory maximum dry density if not specified elsewhere in this report to produce a firm and unyielding surface.

All structural fill should be placed on competent, scarified and compacted native materials as determined by the project engineer and in accordance with the specifications presented in this section.

Excavated site soils, free of deleterious materials and rock particles larger than three inches in the largest dimension, should be suitable for placement as compacted fill except where non-expansive soils are specified. The import fill should be non-expansive (expansion potential less than 20). The imported materials should contain sufficient fines (binder material) so as to be relatively impermeable and result in a stable subgrade when compacted. Any import fill should be tested and approved by the project engineer.

Prior to compaction, fill materials should be thoroughly mixed and moisture conditioned where necessary, to within three percent of optimum moisture content for sandy soils and above optimum for fine-grained soils. All fill, if not specified otherwise elsewhere in this report, should be compacted to at least 90 percent of the laboratory maximum dry density in accordance with the ASTM Standard D1557 test method.

- ◆ The upper 3.5 feet of fill under structure foundations and at least four feet outside of foundation perimeter should be compacted to at least 95 percent of the laboratory maximum dry density.
- ◆ The upper two feet of fill under perimeter wall footings and at least two feet outside of footings should be compacted to at least 95 percent of the laboratory maximum dry density.
- ◆ All other fill should be compacted to at least 90 percent of the laboratory maximum dry density in accordance with the ASTM Standard D1557 test method.

At the time of the field investigation, in-situ moisture content of the upper five feet of native soils ranged from 9.0% to 14.0%. The optimum moisture contents range from 8.0% to 10.0%. Therefore, some moisture conditioning/drying may be necessary prior to the material being placed as compacted fill. The amount of processing required for proper moisture conditioning at the site will depend on the seasonal variations in the in-situ moisture conditions, the depth of over-excavation, the equipment, and the processing method.

### **7.5 Shrinkage and Subsidence**

The shrinkage and/or bulkage would depend on, among other factors, the depth of cut and/or fill, and the grading method and equipment utilized. For preliminary estimation, shrinkage factors for various units of earth material at the site may be taken as presented below:

- ◆ In computing fill quantities, the approximate shrinkage factor for the upper five feet of alluvial soils is estimated to range from 2% to 7% when excavating and compacting the soils to 90% as recommended.
- ◆ Subsidence would depend on the construction methods including type of equipment utilized. For estimation purposes, ground subsidence may be taken as 0.10 feet.

Although these values are only approximate, they represent our best estimates of the factors to be used to calculate volume loss that may occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field-testing using the actual equipment and grading techniques be conducted.

### **7.6 Excavations and Temporary Slopes**

Where excavations are deeper than about 4 feet, the sides of the excavations should be sloped back at 2:1 (horizontal to vertical) or shored for safety. Unshored excavations should not extend below a plane drawn at 1½:1 (horizontal to vertical) extending downward from adjacent existing footings. All applicable safety requirements and regulations, including OSHA regulations, should be met.

### **7.7 Site Drainage**

Adequate positive drainage should be provided away from graded areas to prevent ponding and to reduce percolation of water into the foundation soils. Surface drainage should be directed to suitable non-erosive devices. Any slope should be planted as soon as possible after construction.

## **7.0 EARTHWORK/SITE GRADING RECOMMENDATIONS**

### **7.1 General**

This section contains the general recommendations regarding earthwork and site grading for the proposed development. These recommendations are based on the results of the field exploration, laboratory testing, and data evaluation as presented in the preceding sections. These recommendations may need to be modified based on observation of the actual field conditions during grading.

Prior to the start of any earthwork, the site should be cleared of all vegetation and debris. The materials resulting from the clearing and grubbing operations should be removed from the site.

The final bottom surfaces of all excavations should be observed and approved by the project soils engineer prior to placing any fill and/or structures. Based on observations, removal of localized areas deeper than those documented may be required during grading. Some variations in the depth and lateral extent of over-excavation recommended in this report should be anticipated.

### **7.2 Over-excavation/Removal for Proposed Substation Structures**

As a minimum, the upper two (2) to three (3) feet of surficial soils over the entire site should be overexcavated, moisture-conditioned, and compacted to at least 90 percent of the maximum dry density to produce a firm and unyielding surface.

- ◆ Continuous or isolated footings should be placed on at least 3.5 feet of compacted fill.
- ◆ Over-excavation should provide as a minimum of 3.5 feet of structural fill below the bottom of mat foundations and slab-on-grade.
- ◆ Over-excavations should extend at least three feet outside foundation footprints.
- ◆ The bottom of the foundation excavation should be scarified an additional six inches and compacted to at least 95 percent of the maximum dry density in accordance with ASTM D1557.

The foundation excavations should be backfilled with approved granular materials which should be placed in eight inch lifts or less and compacted to at least 95 percent of the laboratory maximum dry density in accordance with ASTM D1557.

### **7.3 Over-Excavation/Removal for Pavement Areas**

In areas receiving asphalt concrete or Portland cement concrete paving, including driveways, street areas, sidewalks, curbs and gutters and other flatwork, the upper two feet of native surficial soils should be excavated. Such over-excavation should extend at least two feet beyond the pavement edges. The pavement sections should be placed on at least one foot of non-expansive fill, moisture conditioned if necessary, and recompact to at least 95 percent of the laboratory maximum dry density.

### **7.4 Structural Fill**

The approved bottom of the excavations should be scarified to a depth of at least six inches. The scarified soils should be moisture conditioned to within three percent of optimum moisture content for granular soils and above optimum for fine-grained soils and compacted to at least 90 percent of the laboratory maximum dry density if not specified elsewhere in this report to produce a firm and unyielding surface.

All structural fill should be placed on competent, scarified and compacted native materials as determined by the project engineer and in accordance with the specifications presented in this section.

Excavated site soils, free of deleterious materials and rock particles larger than three inches in the largest dimension, should be suitable for placement as compacted fill except where non-expansive soils are specified. The import fill should be non-expansive (expansion potential less than 20). The imported materials should contain sufficient fines (binder material) so as to be relatively impermeable and result in a stable subgrade when compacted. Any import fill should be tested and approved by the project engineer.

Prior to compaction, fill materials should be thoroughly mixed and moisture conditioned where necessary, to within three percent of optimum moisture content for sandy soils and above optimum for fine-grained soils. All fill, if not specified otherwise elsewhere in this report, should be compacted to at least 90 percent of the laboratory maximum dry density in accordance with the ASTM Standard D1557 test method.

- ◆ The upper 3.5 feet of fill under structure foundations and at least four feet outside of foundation perimeter should be compacted to at least 95 percent of the laboratory maximum dry density.
- ◆ The upper two feet of fill under perimeter wall footings and at least two feet outside of footings should be compacted to at least 95 percent of the laboratory maximum dry density.
- ◆ All other fill should be compacted to at least 90 percent of the laboratory maximum dry density in accordance with the ASTM Standard D1557 test method.

At the time of the field investigation, in-situ moisture content of the upper five feet of native soils ranged from 9.0% to 14.0%. The optimum moisture contents range from 8.0% to 10.0%. Therefore, some moisture conditioning/drying may be necessary prior to the material being placed as compacted fill. The amount of processing required for proper moisture conditioning at the site will depend on the seasonal variations in the in-situ moisture conditions, the depth of over-excavation, the equipment, and the processing method.

### **7.5 Shrinkage and Subsidence**

The shrinkage and/or bulkage would depend on, among other factors, the depth of cut and/or fill, and the grading method and equipment utilized. For preliminary estimation, shrinkage factors for various units of earth material at the site may be taken as presented below:

- ◆ In computing fill quantities, the approximate shrinkage factor for the upper five feet of alluvial soils is estimated to range from 2% to 7% when excavating and compacting the soils to 90% as recommended.
- ◆ Subsidence would depend on the construction methods including type of equipment utilized. For estimation purposes, ground subsidence may be taken as 0.10 feet.

Although these values are only approximate, they represent our best estimates of the factors to be used to calculate volume loss that may occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field-testing using the actual equipment and grading techniques be conducted.

### **7.6 Excavations and Temporary Slopes**

Where excavations are deeper than about 4 feet, the sides of the excavations should be sloped back at 2:1 (horizontal to vertical) or shored for safety. Unshored excavations should not extend below a plane drawn at 1½:1 (horizontal to vertical) extending downward from adjacent existing footings. All applicable safety requirements and regulations, including OSHA regulations, should be met.

### **7.7 Site Drainage**

Adequate positive drainage should be provided away from graded areas to prevent ponding and to reduce percolation of water into the foundation soils. Surface drainage should be directed to suitable non-erosive devices. Any slope should be planted as soon as possible after construction.

## 8.0 DESIGN AND CONSTRUCTION RECOMMENDATIONS

### 8.1 *General Evaluation*

The various design recommendations provided in this section are based on the assumption that the earthwork and grading recommendations will be implemented in preparing the site.

### 8.2 *Foundation Types and Bearing Pressures*

The proposed substation structure(s) may be supported by shallow spread footings, mat foundations or drilled piers. Design recommendations for various types of foundations are presented below.

#### 8.2.1 **Shallow Spread Footing Design Parameters**

Continuous and isolated shallow spread footings should be at least 18 and 24 inches wide, respectively, and embedded at least 18 inches below lowest adjacent soil grade.

Footings should be placed on at least two feet of structural fill below the bottom of the footings, compacted as recommended in the grading section, and extending at least three feet beyond the edge of the footings. An allowable net vertical bearing pressure for 18 inches wide footing with minimum embedment of 18 inches below adjacent grade is 1,000 pounds per square foot. The allowable bearing capacity may be increased by 500 psf for each additional foot of embedment depth and 150 psf for each additional foot of width to a maximum value of 3,000 psf. The net allowable bearing values indicated above are for the dead loads and frequently applied live loads and are obtained by applying a factor of safety of 3.0 to the net ultimate bearing capacity. If normal code requirements are applied for design, the above vertical bearing value may be increased by 33 percent for short duration loadings, which will include loadings induced by wind or seismic forces.

#### 8.2.2 **Mat Foundations**

For design of mat foundations founded on native soil or compacted fill, the following equation may be used to calculate the modulus of subgrade reaction, k:

$$k = 200[(B+1)/2B]^2$$

k = modulus of subgrade reaction, kips per cubic feet

B = foundation width, feet

### **8.3 Drilled Cast-In-Place Friction Piles**

#### **8.3.1 Vertical Capacity**

The minimum center-to-center spacing between piles should be no less than three pile diameters. No group efficiency factors are considered necessary. Pile group efficiencies at other pile spacing should be evaluated on a case-by-case basis.

Vertical uplift capacities for intermittent loads can be calculated from the friction capacities.

#### **8.3.2 Pile Construction**

Pile drilling and concrete placement should be performed in accordance with the recommendations presented in the Standards and Specifications of ADSC, *An International Association of Foundation Drilling Contractors*.

### **8.4 Lateral Earth Pressures and Resistance to Lateral Loads**

The lateral earth pressures of 40 psf and resistance to lateral loads of 270 psf are estimated by using on-site native soils compacted to an average of 92 percent of the laboratory maximum dry density.

### **8.5 Slabs-On-Grade**

The design of the slabs-on-grade will depend on, among other factors, the expansive potential of the pad soils. Based on the soil classification the expansive potential of the pad soils is expected to be very low.

The slabs-on-grade should be at least four inches thick. Care should be taken to avoid slab curling if slabs are poured in hot weather. Moisture sensitive slabs-on-grade should be protected by polyethylene vapor barriers. The barrier should be overlain by two inches of sand to minimize punctures and to aid in the concrete curing.

Subgrade for slabs-on-grade should be firm and uniform. All slab subgrade should be moisture-conditioned between optimum and two percent above optimum at subgrade soils prior to the placement of concrete. All loose or disturbed soils including under slab utility trench backfills should be recompacted prior to the placement of clean sand underneath the moisture barrier.

**8.6 Soil Corrosivity Evaluation**

A soil corrosivity study was conducted by Schiff Associates. The study included testing of a bulk soil sample obtained from the site and a resistivity for electrical grounding study. The test includes normal electrical resistivity, pH, soluble sulfates, and chloride content. The results are included in Appendix C, *Soil Corrosivity Study*.

The sulfate content of the samples tested was 98 mg/kg or 0.0098 percent by weight, which indicated that site soils are not deleterious to concrete. Type II Portland Cement may be used for the construction of the foundations or slabs.

The chloride content was 72 ppm by weight. The pH value of the site soil was 7.1. The measured value of the electrical resistivity was 2,360 Ohm-cm, saturated. These soils are considered “moderately corrosive” to ferrous metals. Therefore, corrosion control measures may be necessary for ferrous metals in contact with soil.

**8.7 Asphalt Concrete Pavement**

Asphalt concrete pavement sections corresponding to Traffic Indices (TIs) ranging from 5 to 8 and an R-value of 47 (an R-Value of 47 was determined in the laboratory), are presented for preliminary design. Analysis was based on Caltrans' design procedure for flexible pavement structural sections. The results of our analysis are presented in Table No. 3.

**Table No. 3, Pavement Design.**

R-Value	Traffic Index (TI)	Pavement Sections	
		Asphalt Concrete (inches)	Aggregate Base (inches)
47	5.0	3.0	4.0
	6.0	4.0	5.0
	7.0	5.0	6.0
	8.0	6.0	8.0

At or near the completion of grading, subgrade samples should be tested to evaluate the actual subgrade for final pavement design.

Prior to placement of aggregate base, at least the two feet of subgrade soils should be scarified, moisture-conditioned, if necessary, and recompact to at least 95 percent of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

Base materials should conform with Section 200-2.2, "*Crushed Aggregate Base*," of the current Standard Specifications for Public Works Construction (SSPWC) and should be placed in accordance with Section 301.2 of the SSPWC.

Asphaltic concrete materials should conform to Section 203 of the SSPWC and should be placed in accordance with Section 302.5 of the SSPWC.

### **8.8 Settlement**

Total settlement of the proposed structures placed on compacted fill, designed as recommended above, from structural load-induced settlements should be 1-inch or less. The differential settlement can be taken as equal to one half of the total settlement over a distance of 50 feet.

### **8.9 Geotechnical Observation**

Prior to construction, the TDBU Geotechnical Group should be contacted to coordinate field observations during construction at (626) 302-9108.

The removal of deleterious materials, roots and the re-working of the upper soils, observation of removal bottoms, fill compaction and testing, foundation excavations and well abandonment/destruction should be observed by a representative of the TDBU Geotechnical Group. Footing excavations should be observed by TDBU Geotechnical Group representative prior to placement of reinforcing steel and concrete.

The governmental agencies having jurisdiction over the project should be notified prior to commencement of grading so that the necessary grading and well abandonment/destruction permits can be obtained and arrangements can be made for required inspection(s). The contractor should be familiar with the inspection requirements of the reviewing agencies and the content of this report. Records of well abandonment/destruction permits and procedures should be provided to the TDBU Geotechnical Group.

## **9.0 CLOSURE**

This report has been prepared to aid in the evaluation of the site, prepare site grading recommendations and to assist the civil and structural engineers in the design of the proposed substation structures and associated foundations.

Recommendations presented herein, are based upon the assumption that adequate earthwork monitoring will be provided. Excavation bottoms should be observed, any imported fill materials should be tested and approved by TDBU Geotechnical Engineer/Engineering Geologist prior to the delivery to the site. Structural fill and backfill should be placed and compacted during continuous observation and testing. Footing excavations and drilling for drilled pier foundations should be observed by TDBU Geotechnical Engineer/Engineering Geologist prior to placement of steel and concrete so that footings are founded on satisfactory materials and excavations are free of loose and disturbed materials.

The findings and recommendations of this report were prepared in accordance with the generally accepted professional engineering and engineering geologic principles and practice within our profession in effect at this time in Southern California.

## **10.0 REFERENCES**

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**APPENDIX A**  
**FIELD EXPLORATION**

# SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
<b>COARSE GRAINED SOILS</b>  MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	<b>GRAVEL AND GRAVELLY SOILS</b>  MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	<b>CLEAN GRAVELS</b>  (LITTLE OR NO FINES)		<b>GW</b>	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		<b>GRAVELS WITH FINES</b>  (APPRECIABLE AMOUNT OF FINES)		<b>GP</b>	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		<b>CLEAN SANDS</b>  (LITTLE OR NO FINES)		<b>SW</b>	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		<b>SANDS WITH FINES</b>  (APPRECIABLE AMOUNT OF FINES)		<b>SP</b>	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	<b>SAND AND SANDY SOILS</b>  MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	<b>CLEAN SANDS</b>  (LITTLE OR NO FINES)		<b>SW</b>	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		<b>SANDS WITH FINES</b>  (APPRECIABLE AMOUNT OF FINES)		<b>SP</b>	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		<b>SANDS WITH FINES</b>  (APPRECIABLE AMOUNT OF FINES)		<b>SM</b>	SILTY SANDS, SAND - SILT MIXTURES
		<b>SANDS WITH FINES</b>  (APPRECIABLE AMOUNT OF FINES)		<b>SC</b>	CLAYEY SANDS, SAND - CLAY MIXTURES
<b>FINE GRAINED SOILS</b>  MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	<b>SILTS AND CLAYS</b>  LIQUID LIMIT LESS THAN 50		<b>ML</b>	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
			<b>CL</b>	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			<b>OL</b>	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	<b>SILTS AND CLAYS</b>  LIQUID LIMIT GREATER THAN 50		<b>MH</b>	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			<b>CH</b>	INORGANIC CLAYS OF HIGH PLASTICITY	
			<b>OH</b>	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
<b>HIGHLY ORGANIC SOILS</b>				<b>PT</b>	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

## BORING LOG SYMBOLS

### SAMPLE TYPE

- STANDARD PENETRATION TEST**  
Split barrel sampler in accordance with ASTM D-1586-84 Standard Test Method
- DRIVE SAMPLE** 2.42" I.D. sampler
- DRIVE SAMPLE** No recovery
- BULK SAMPLE**
- GROUNDWATER WHILE DRILLING**
- GROUNDWATER AFTER DRILLING**

### LABORATORY TESTING ABBREVIATIONS

TEST TYPE	STRENGTH
(Results shown in Appendix B)	
<b>CLASSIFICATION</b>	
Plasticity	PI
Grain Size Analysis	GA
Passing No. 200 Sieve	WA
Sand Equivalent	SE
Expansion Index	EI
Compaction Curve	MC
Hydrometer	H
	<b>Pocket Penetrometer</b>
	<b>Direct Shear</b>
	<b>Direct Shear (single point)</b>
	<b>Unconfined Compression</b>
	<b>Triaxial Compression</b>
	<b>Vane Shear</b>
	Consolidation
	Collapse Test
	Resistance (R) Value
	Chemical Analysis
	Electrical Resistivity

## UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS



**Converse Consultants**

Lakeview Substation  
 Southwest of the Intersection of 10th Street and Reservoir Avenue  
 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. Drawing No.  
 09-81-272-01 A - 1

# Log of Boring No. BH - 1

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG

Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): ±1439      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<p style="text-align: center;"><b>SUMMARY OF SUBSURFACE CONDITIONS</b></p> <p>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.</p>	SAMPLES		BLOWS / 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
5	<p><b>ALLUVIUM (Qal):</b> <b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.</p>				2/2/3	11	112	max,ma  ds
					2/3/6	10	121	
					3/3/4	10	114	
			X		2/2/4			
10					3/7/10	9	108	ds
			X		5/9/9			
20		<p><b>SANDY SILT (ML):</b> fine-grained sand, trace clay, light brown.</p>			7/15/22	22	102	
			X		3/6/7			
25		<p><b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.</p>	X					
30		<p><b>CLAYEY SAND (SC):</b> fine- to coarse-grained, red-brown.</p>			5/22/33	12	124	
			X					



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Lakeview Substation  
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 For: Southern California Edison

Project No. 09-81-272-01      Drawing No. A - 2a

# Log of Boring No. BH - 1

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG

Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): ±1439      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<p style="text-align: center;"><b>SUMMARY OF SUBSURFACE CONDITIONS</b></p> <p>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.</p>	SAMPLES		BLOWS/ 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
		<p><b>CLAYEY SAND (SC):</b> fine- to coarse-grained, red-brown.</p>	X		9/13/14			
		<p>End of boring at 36.5 feet. No groundwater encountered during drilling. Borehole backfilled loose with soil cuttings on 9-4-2009.</p>						



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Project No.    Drawing No.  
 09-81-272-01    A - 2b

# Log of Boring No. BH - 2

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG

Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): ±1441      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS/ 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
5		<b>ALLUVIUM (Qal):</b> <b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.  - trace to little clay			3/3/3	12	112	max,ei,ma ca,er
					3/3/3	10	117	
		<b>SANDY SILT (ML):</b> fine-grained sand, brown.			5/10/9	13	123	ds
					6/8/6	18	102	ds
10			X		3/4/7			
15					15/21/35	13	114	
20			X		5/13/18			
25		<b>CLAYEY SAND (SC):</b> fine- to coarse-grained, brown.			10/19/24	12	126	
30			X		6/13/15			



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Lakeview Substation  
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 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. 09-81-272-01      Drawing No. A - 3a

# Log of Boring No. BH - 2

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG

Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): ±1441      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<b>SUMMARY OF SUBSURFACE CONDITIONS</b> This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS/ 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
40	[Graphic Log: Sand to Silty Sand]	<b>SAND TO SILTY SAND (SP-SM):</b> fine- to coarse-grained, brown.	■	X	8/14/28	6	109	
45	[Graphic Log: Silty Sand]	<b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.	X	X	7/13/17			
50	[Graphic Log: Silty Sand]	<b>SAND TO SILTY SAND (SP-SM):</b> fine- to coarse-grained, brown.	■	X	10/16/35	14	122	
		End of boring at 51.5 feet. No groundwater encountered during drilling. Borehole backfilled loose with soil cuttings on 9-4-2009.		X	7/11/15			



**Converse Consultants**

Lakeview Substation  
 Southwest of the Intersection of 10th Street and Reservoir Avenue  
 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. 09-81-272-01      Drawing No. A - 3b

# Log of Boring No. BH - 3

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG  
 Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in  
 Ground Surface Elevation (ft): ±1440      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<b>SUMMARY OF SUBSURFACE CONDITIONS</b> This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS / 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
5		<b>ALLUVIUM (Qal):</b> <b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.			1/1/2	9	106	r
					2/4/5	14	115	
10					7/14/19	12	126	ds
					2/5/6			
15					5/7/19	10	99	ds
					4/5/7			
20		<b>SANDY SILT (ML):</b> fine-grained sand, brown.			7/18/21	18	110	ds
					2/2/3			
25					6/19/20	11	126	ds
30		<b>SILTY SAND (SM):</b> fine- to coarse-grained, trace clay, brown.						ds



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 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. 09-81-272-01      Drawing No. A - 4a

# Log of Boring No. BH - 3

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG  
 Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in  
 Ground Surface Elevation (ft): ±1440      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<b>SUMMARY OF SUBSURFACE CONDITIONS</b> This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS/ 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
		<b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.	X		10/13/13			
		End of boring at 36.5 feet. No groundwater encountered during drilling. Borehole backfilled loose with soil cuttings on 9-4-2009.						



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Lakeview Substation  
 Southwest of the Intersection of 10th Street and Reservoir Avenue  
 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. 09-81-272-01      Drawing No. A - 4b

# Log of Boring No. BH - 4

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG  
 Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in  
 Ground Surface Elevation (ft): ±1442      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<b>SUMMARY OF SUBSURFACE CONDITIONS</b> This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS / 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
5		<b>ALLUVIUM (Qal):</b> <b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.			4/6/5	11	107	max
					2/2/3	12	119	
					2/5/8	12	122	
10					5/11/10	20	100	ds
					3/2/3			
15		<b>SANDY SILT (ML):</b> fine-grained sand, trace little clay, brown.			11/21/28	24	100	
					6/8/12			
25		<b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.			11/23/28	16	120	ds
					4/5/5			
30								



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Lakeview Substation  
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 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. 09-81-272-01      Drawing No. A - 5a

# Log of Boring No. BH - 4

Dates Drilled: 9/4/2009      Logged by: CG      Checked By: JG  
 Equipment: CME75 / 8" HSA      Driving Weight and Drop: 140 lbs / 30 in  
 Ground Surface Elevation (ft): ±1442      Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<b>SUMMARY OF SUBSURFACE CONDITIONS</b> This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS/ 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
		<b>SAND TO SILTY SAND (SP-SM):</b> fine- to coarse-grained, brown.			7/16/26	7	116	
		End of boring at 36.5 feet. No groundwater encountered during drilling. Borehole backfilled loose with soil cuttings on 9-4-2009.						



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Lakeview Substation  
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 For: Southern California Edison

Project No. 09-81-272-01      Drawing No. A - 5b

# Log of Boring No. BH - 5

Dates Drilled: 9/4/2009 Logged by: CG Checked By: JG

Equipment: CME75 / 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): ±1442 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	<p style="text-align: center;"><b>SUMMARY OF SUBSURFACE CONDITIONS</b></p> <p>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.</p>	SAMPLES		BLOWS / 6"	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TEST
			DRIVE	BULK				
5	[Patterned]	<p><b>ALLUVIUM (Qal):</b>  <b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.</p>	[Solid]	[Cross-hatched]	3/4/4	10	109	ds max,ma
			[Solid]	[Cross-hatched]	2/2/2	9	118	
			[Solid]	[Cross-hatched]	2/5/11	11	130	
			[X]	[X]	2/5/6			
10	[Patterned]	<p><b>SAND TO SILTY SAND (SP-SM):</b> fine- to coarse-grained, brown.</p>	[Solid]		4/4/7	6	110	
15	[Patterned]	<p><b>SANDY SILT (ML):</b> fine-grained sand, brown.</p>	[X]		6/9/11			
20	[Patterned]	<p><b>SILTY SAND (SM):</b> fine- to coarse-grained, brown.</p>	[Solid]		10/18/31	14	122	
25	[Patterned]		[X]		6/14/20			
		<p>End of boring at 26.5 feet.                      No groundwater encountered during drilling.                      Borehole backfilled loose with soil cuttings on 9-4-2009.</p>						



**Converse Consultants**

Lakeview Substation  
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Project No. Drawing No.  
 09-81-272-01 A - 6

**APPENDIX B**  
**LABORATORY TESTING PROGRAM**

## APPENDIX B

### LABORATORY TESTING PROGRAM

Tests were conducted in our laboratory on representative soil samples for the purpose of classification and evaluation of their physical properties and engineering characteristics. The amount and selection of tests were based on the geotechnical parameters required for this project. Test results are presented herein and on the Logs of Borings in Appendix A, *Field Exploration*. The following is a summary of the various laboratory tests conducted for this project.

#### Moisture Content and Dry Density

Results of these tests performed on relatively undisturbed samples, were used to aid in the classification and correlation of the soils and to provide qualitative information regarding soil strength and compressibility. For test results, see the Logs of Borings in Appendix A, *Field Exploration*.

#### Expansion Index Test

One (1) representative bulk sample was tested to evaluate the expansion potential of materials encountered at the site. The test was conducted in accordance with ASTM Standard D4829. The test result is presented in the following table.

**Table No. B-1, Expansion Index Test Results**

Boring No.	Depth (feet)	Description	Expansion Index	Expansion Potential
BH-2 / 0-5	0-5	Silty Sand (SM)	0	Very low

#### Soil Corrosivity

One (1) representative soil sample was tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests is to determine the corrosion potential of soils when placed in contact with common construction materials. These tests were performed by Schiff Associates, Claremont, California. For test results, see the following table.



**Table No. B-2, Soil Corrosivity Test Results**

Location / Depth (feet)	pH	Chloride (mg/kg)	Sulfate (mg/kg)	Min. Saturated Resistivity (Ohm-cm)
BH-2/0-5	7.5	38	43	2,076

### **Grain-Size Analysis**

To assist in classification of soils, mechanical grain-size analyses were performed on three (3) selected samples. Testing was performed in general accordance with the ASTM Standard C136 test method. Grain-size curves are shown in Drawing No. B-1, *Grain Size Distribution Results*.

### **Laboratory Maximum Density and Optimum Moisture Tests**

Four (4) representative samples were tested to determine the maximum density optimum-moisture content relationships. This test was conducted in accordance with ASTM Standard D1557 laboratory procedure. Test results are presented in Drawing No. B-2, *Moisture Density Relationship Results*.

### **Direct Shear Test**

Eight (8) direct shear tests were performed on undisturbed ring samples at soaked moisture conditions. For each test, three (3) samples contained in brass sampler rings were placed one at a time directly into the test apparatus and subjected to a range of normal loads appropriate for the anticipated conditions. Each sample was then sheared at a constant strain rate of 0.01 inch/minute. Shear deformation was recorded until a maximum of about 0.25-inch shear displacement was achieved. Both ultimate and peak strengths were selected from the shear-stress deformation data and plotted to determine the shear strength parameters. Test data, including sample density and moisture content are presented in the following table and test results are graphically presented in Drawing Nos. B-3 through B-10, *Direct Shear Test Results*.



**Table No. B-3, Direct Shear Test Results**

Boring No.	Depth (feet)	Soil Classification	Test Conditions	Friction Angle (degrees)	Cohesion (psf)
BH-1	5.0-6.5	Silty Sand (SM)	Saturated	31	150
BH-1	10.0-11.5	Silty Sand (SM)	Saturated	34	100
BH-2	5.0-6.5	Silty Sand (SM)	Saturated	33	100
BH-2	7.0-8.5	Sandy Silt (ML)	Saturated	34	150
BH-3	10.0-11.5	Silty Sand (SM)	Saturated	32	150
BH-4	7.0-8.5	Sandy Silt (ML)	Saturated	33	50
BH-4	25.0-26.5	Silty Sand (SM)	Saturated	31	250
BH-5	2.0-3.5	Silty Sand (SM)	Saturated	34	100

**R-value Test**

A representative bulk soil sample was tested for resistance value (R-value) in accordance with ASTM Standard D2844 test method. This test is designed to provide a relative measure of soil strength for use in pavement design. The test result is indicated in the following table.

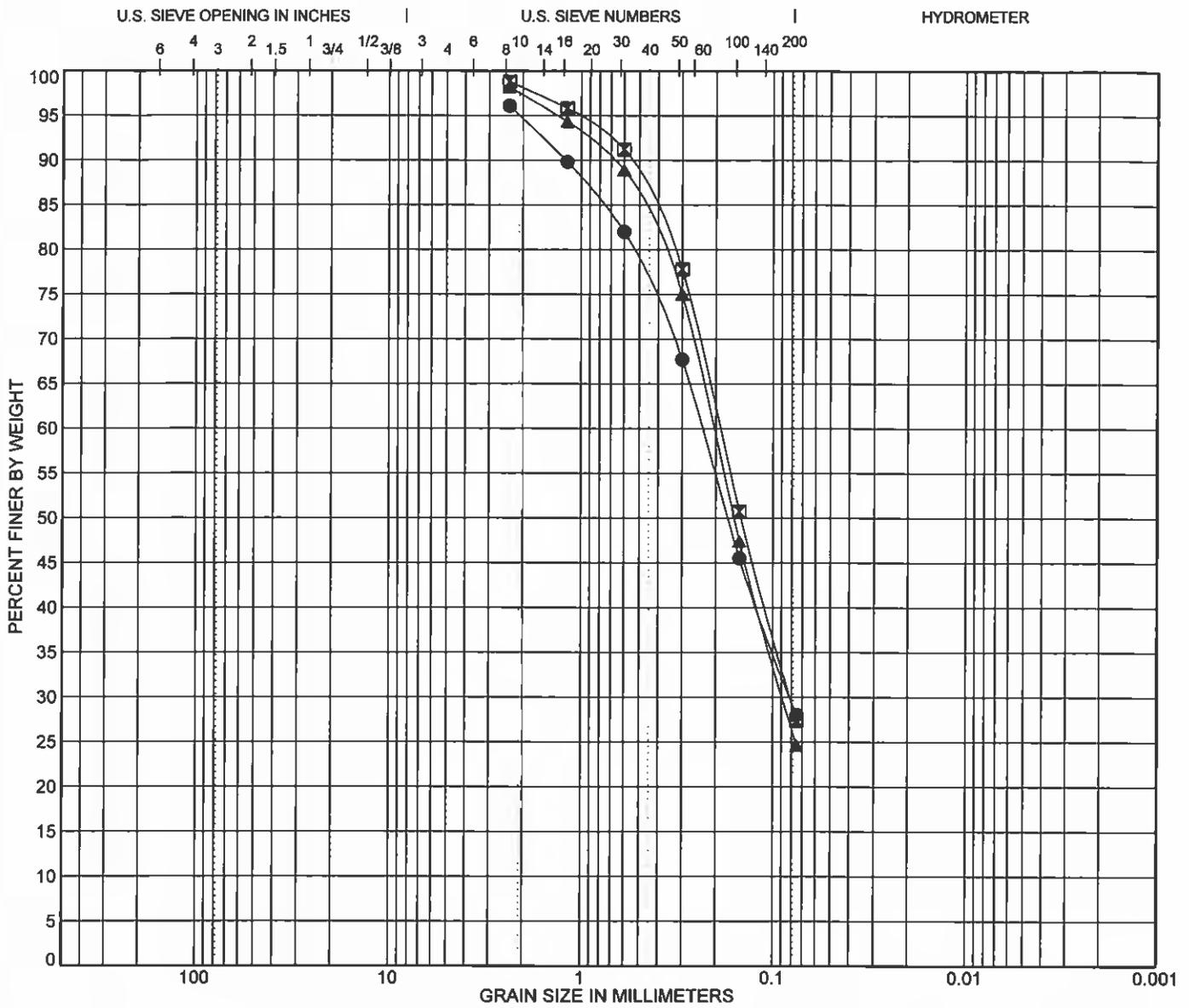
**Table No. B-4, R-value Test Result**

Boring No.	Depth (feet)	Soil Type	R-value
BH-3	0-5	Silty Sand (SM)	47

**Sample Storage**

Soil samples were discarded 30 days after the date of the initial report.





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth (ft)	Description	LL	PL	PI	Cc	Cu
● BH - 1	0-5	SILTY SAND (SM)					
☒ BH - 2	0-5	SILTY SAND (SM)					
▲ BH - 5	0-5	SILTY SAND (SM)					

Boring No.	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH - 1	0-5	2.36	0.236	0.081		0.0	68.1	28.0	
☒ BH - 2	0-5	2.36	0.19	0.081		0.0	71.4	27.4	
▲ BH - 5	0-5	2.36	0.206	0.088		0.0	73.6	24.6	

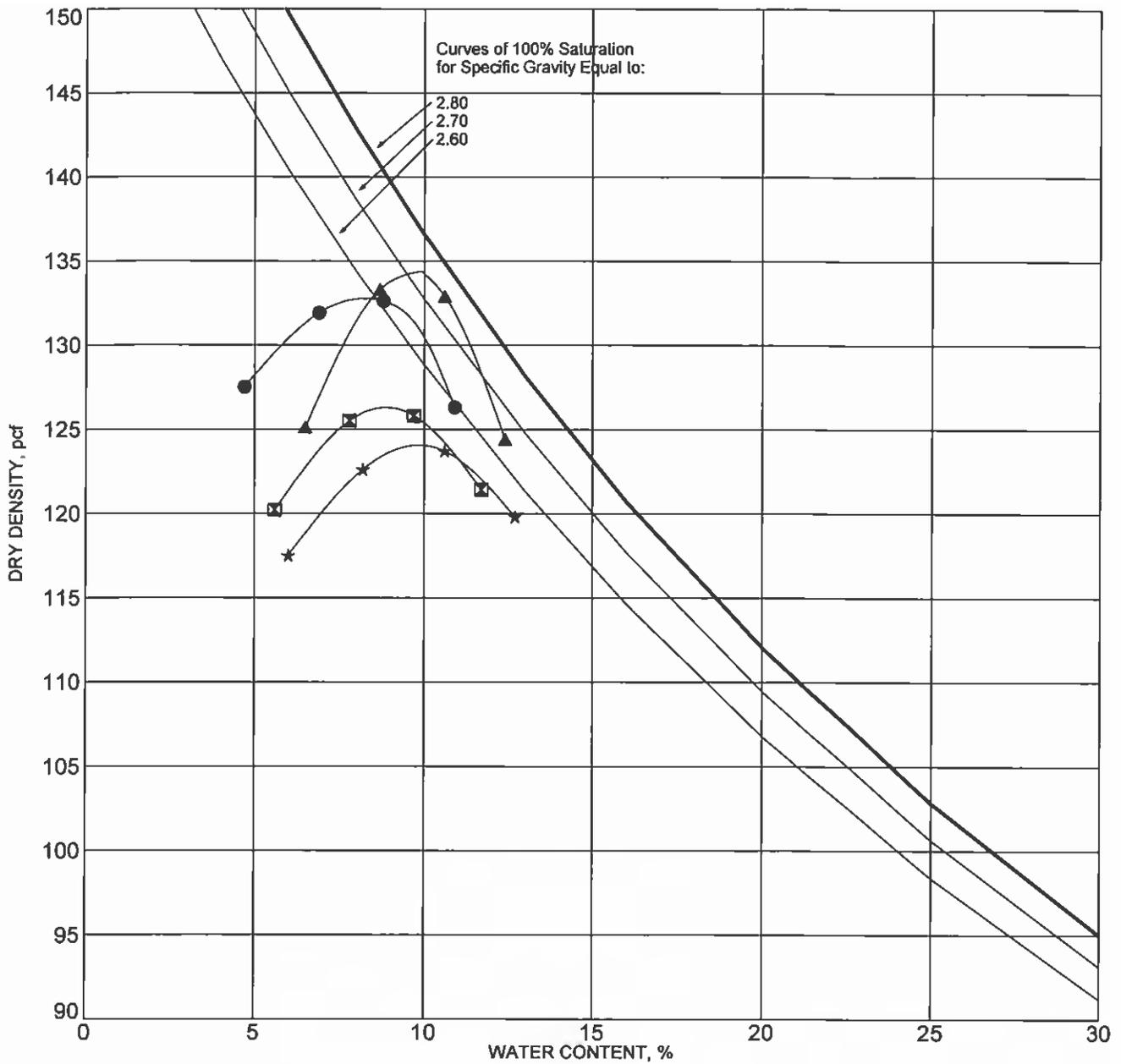
### GRAIN SIZE DISTRIBUTION RESULTS



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 Southwest of the Intersection of 10th Street and Reservoir Avenue  
 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. 09-81-272-01 Drawing No. B-1



SYMBOL	BORING NO.	DEPTH (ft)	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	BH - 1	0-5	SILTY SAND (SM), brown	D1557 - A	8.0	133.0
☐	BH - 2	0-5	SILTY SAND (SM), brown	D1557 - A	9.0	126.5
▲	BH - 4	0-5	SILTY SAND (SM), brown	D1557 - A	10.0	134.5
★	BH - 5	0-5	SILTY SAND (SM), brown	D1557 - A	10.0	124.5

## MOISTURE-DENSITY RELATIONSHIP RESULTS

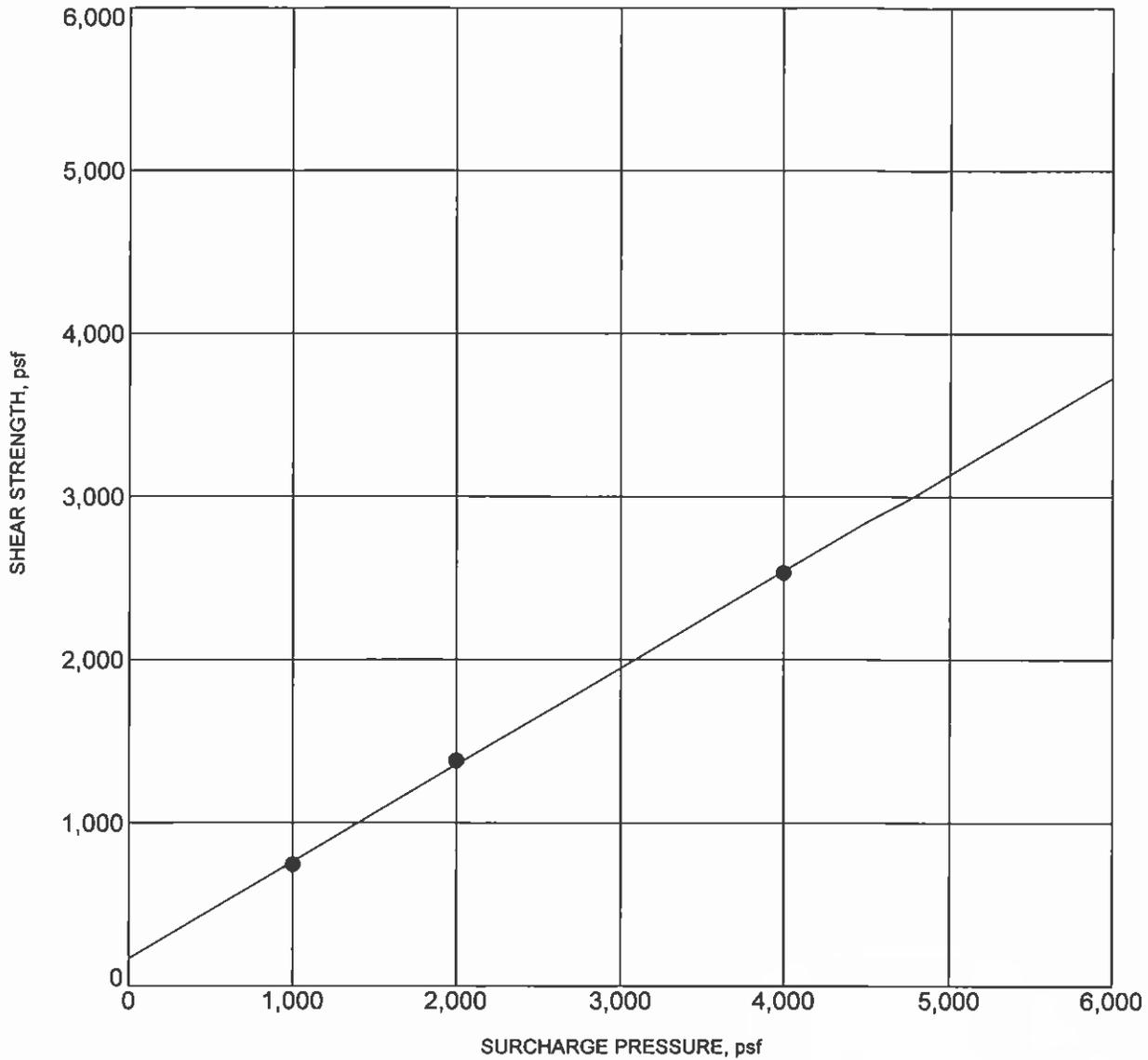


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Lakeview Substation  
 Southwest of the Intersection of 10th Street and Reservoir Avenue  
 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No.  
 09-81-272-01

Drawing No.  
 B - 2



BORING NO. :	BH - 1	DEPTH (ft) :	5.0-6.5
DESCRIPTION :	SILTY SAND (SM)		
COHESION (psf) :	150	FRICTION ANGLE (degrees):	31
MOISTURE CONTENT (%) :	9.6	DRY DENSITY (pcf) :	114.1

NOTE: Ultimate Strength.

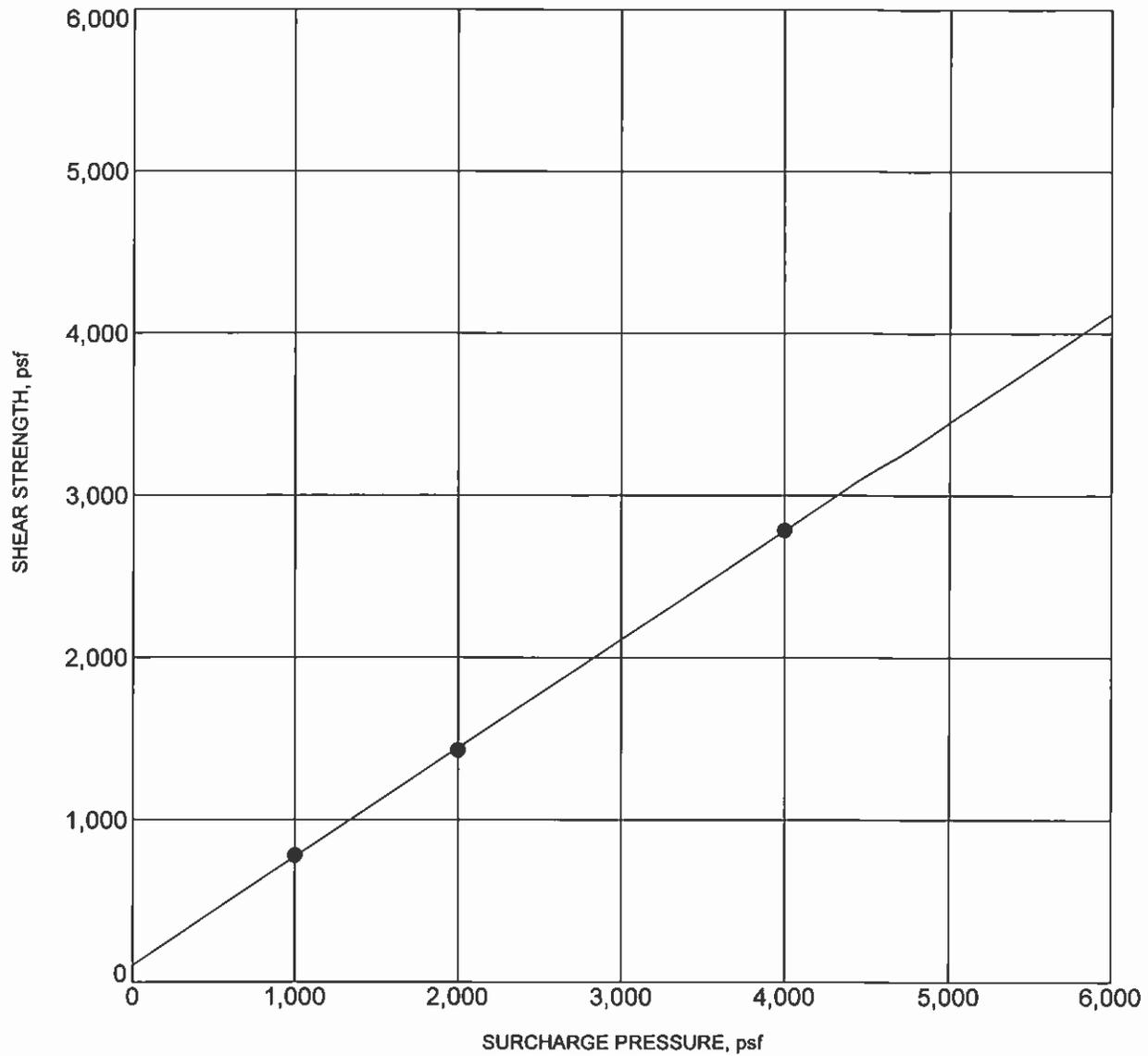
## DIRECT SHEAR TEST RESULTS



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 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. Drawing No.  
 09-81-272-01 B - 3



BORING NO. :	BH - 1	DEPTH (ft) :	10.0-11.5
DESCRIPTION :	SILTY SAND (SM)		
COHESION (psf) :	100	FRICTION ANGLE (degrees):	34
MOISTURE CONTENT (%) :	8.7	DRY DENSITY (pcf) :	107.9

NOTE: Ultimate Strength.

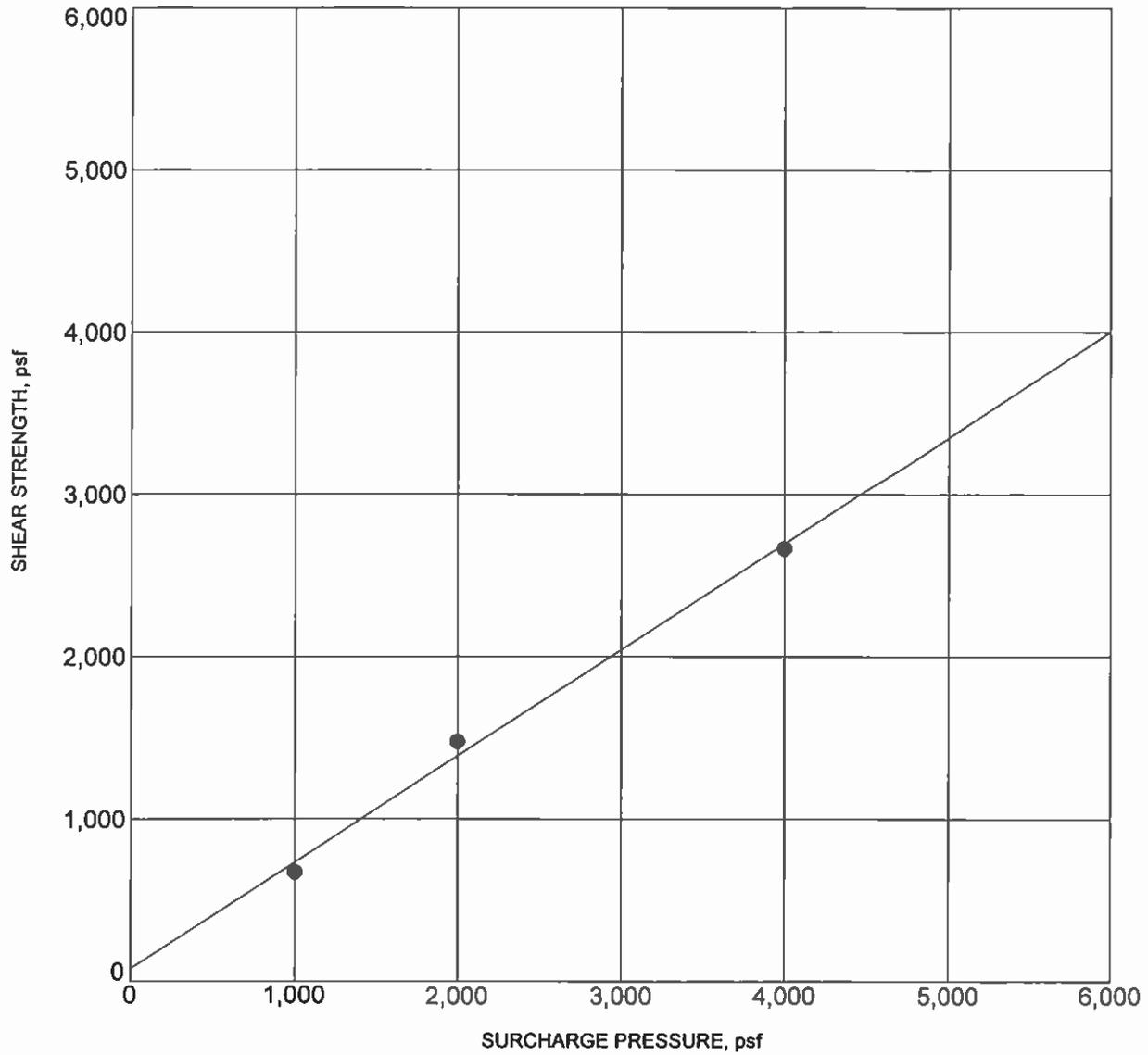
## DIRECT SHEAR TEST RESULTS



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 Nuevo, Riverside County, California  
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Project No. Drawing No.  
 09-81-272-01 B - 4



BORING NO.	: BH - 2	DEPTH (ft)	: 5.0-6.6
DESCRIPTION	: SILTY SAND (SM)		
COHESION (psf)	: 100	FRICTION ANGLE (degrees):	33
MOISTURE CONTENT (%)	: 13.4	DRY DENSITY (pcf)	: 122.7

NOTE: Ultimate Strength.

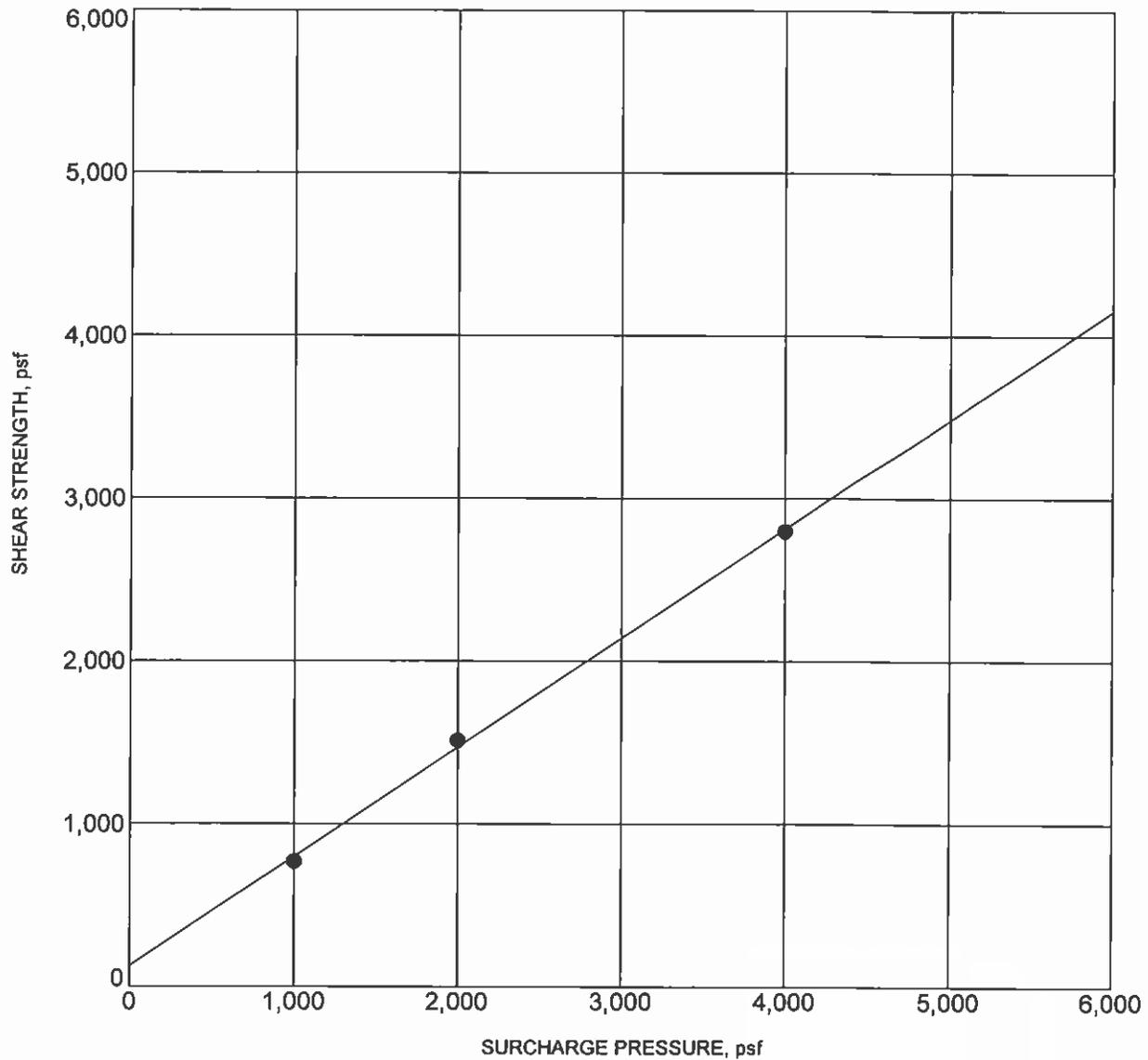
## DIRECT SHEAR TEST RESULTS



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 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. Drawing No.  
 09-81-272-01 B - 5



BORING NO. :	BH - 2	DEPTH (ft) :	7.0-8.5
DESCRIPTION :	SANDY SILT (ML)		
COHESION (psf) :	150	FRICTION ANGLE (degrees):	34
MOISTURE CONTENT (%) :	18.0	DRY DENSITY (pcf) :	102.1

NOTE: Ultimate Strength.

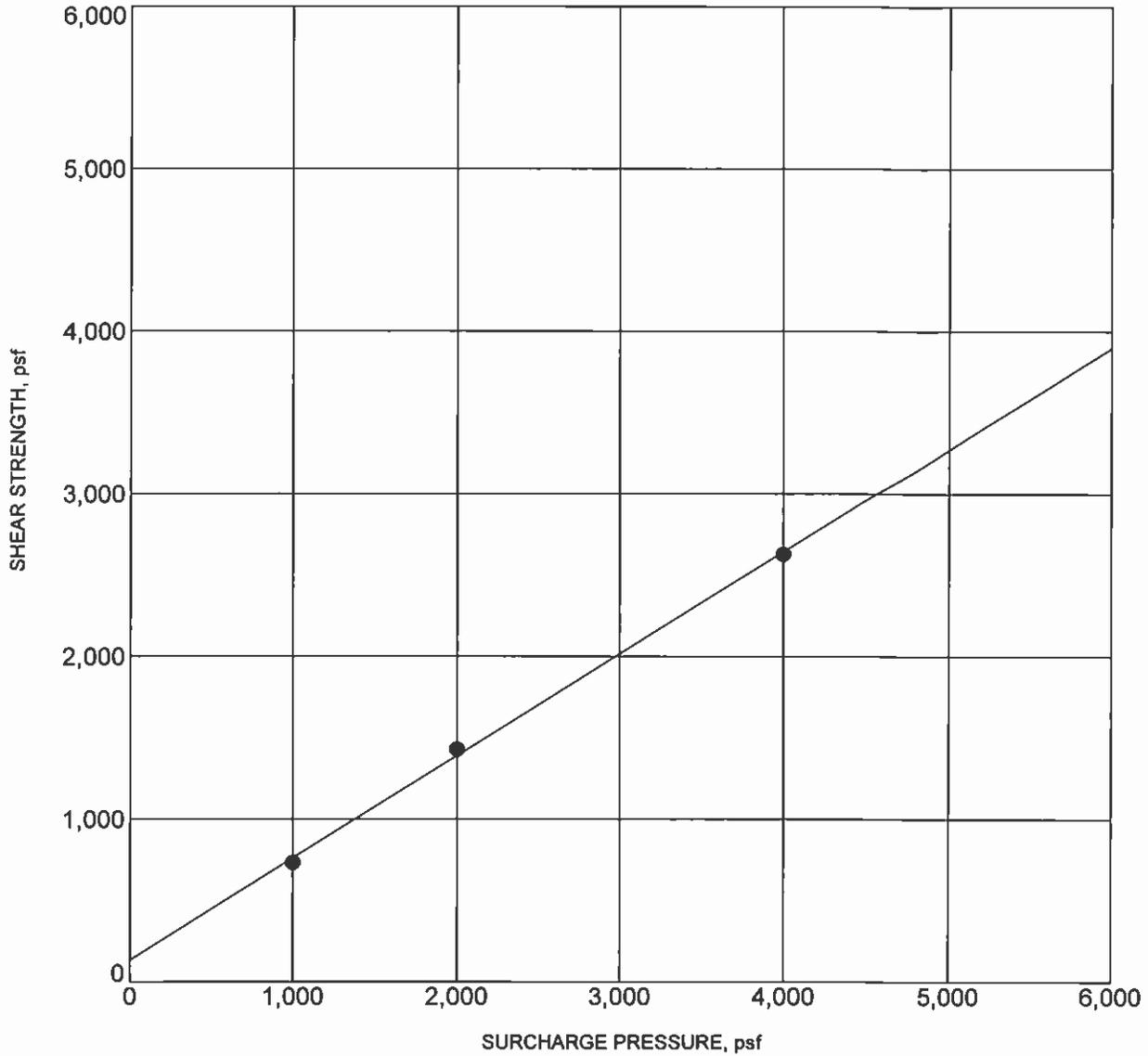
## DIRECT SHEAR TEST RESULTS



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 Nuevo, Riverside County, California  
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Project No. Drawing No.  
 09-81-272-01 B - 6



BORING NO. :	BH - 3	DEPTH (ft) :	10.0-11.5
DESCRIPTION :	SILTY SAND (SM)		
COHESION (psf) :	150	FRICTION ANGLE (degrees):	32
MOISTURE CONTENT (%) :	10.3	DRY DENSITY (pcf) :	98.9

NOTE: Ultimate Strength.

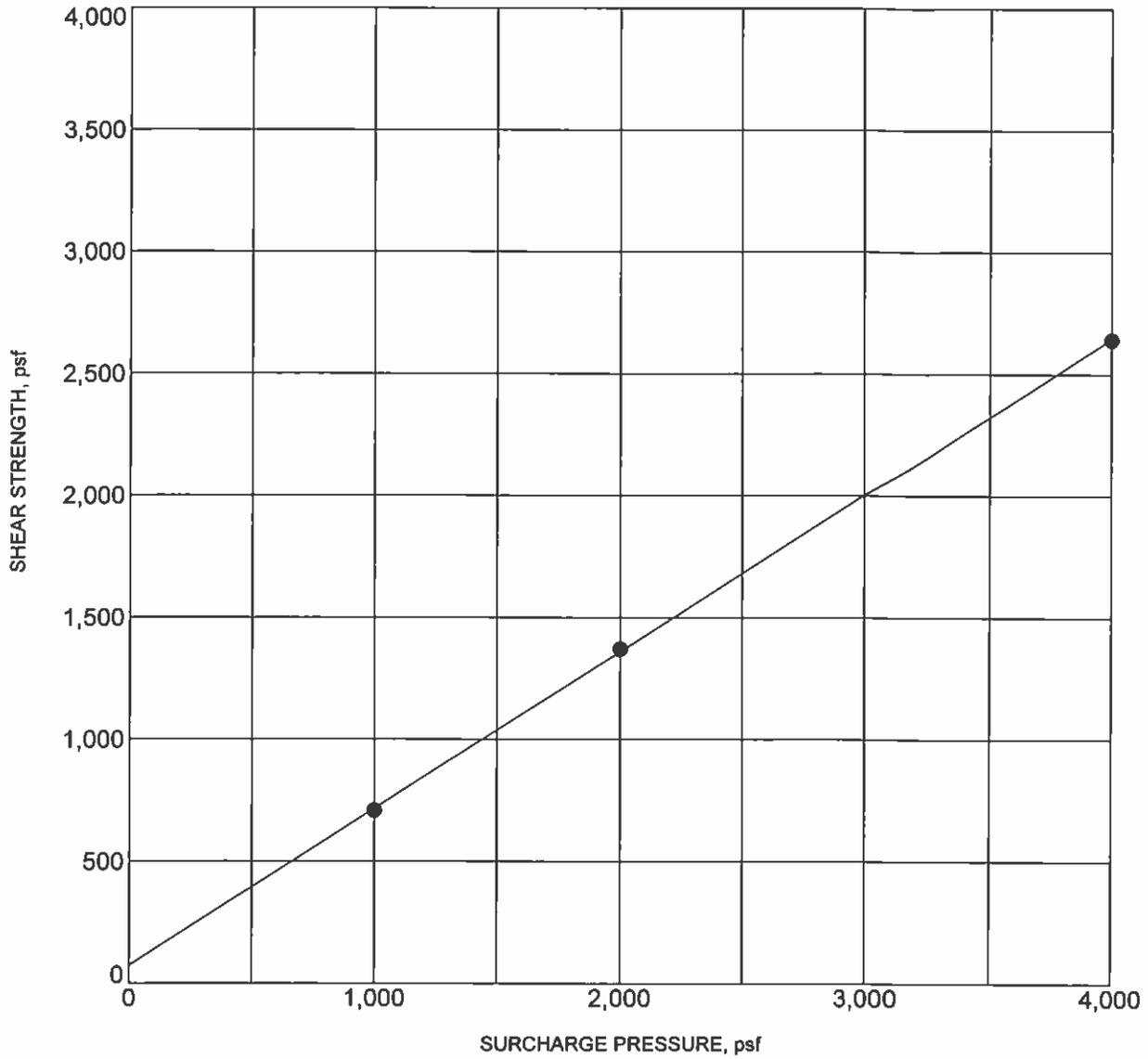
## DIRECT SHEAR TEST RESULTS



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Lakeview Substation  
 Southwest of the Intersection of 10th Street and Reservoir Avenue  
 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. Drawing No.  
 09-01-272-01 B - 7



BORING NO. :	BH - 4	DEPTH (ft) :	7.0-8.5
DESCRIPTION :	SANDY SILT (ML)		
COHESION (psf) :	60	FRICTION ANGLE (degrees):	33
MOISTURE CONTENT (%) :	20.1	DRY DENSITY (pcf) :	100.2

NOTE: Ultimate Strength.

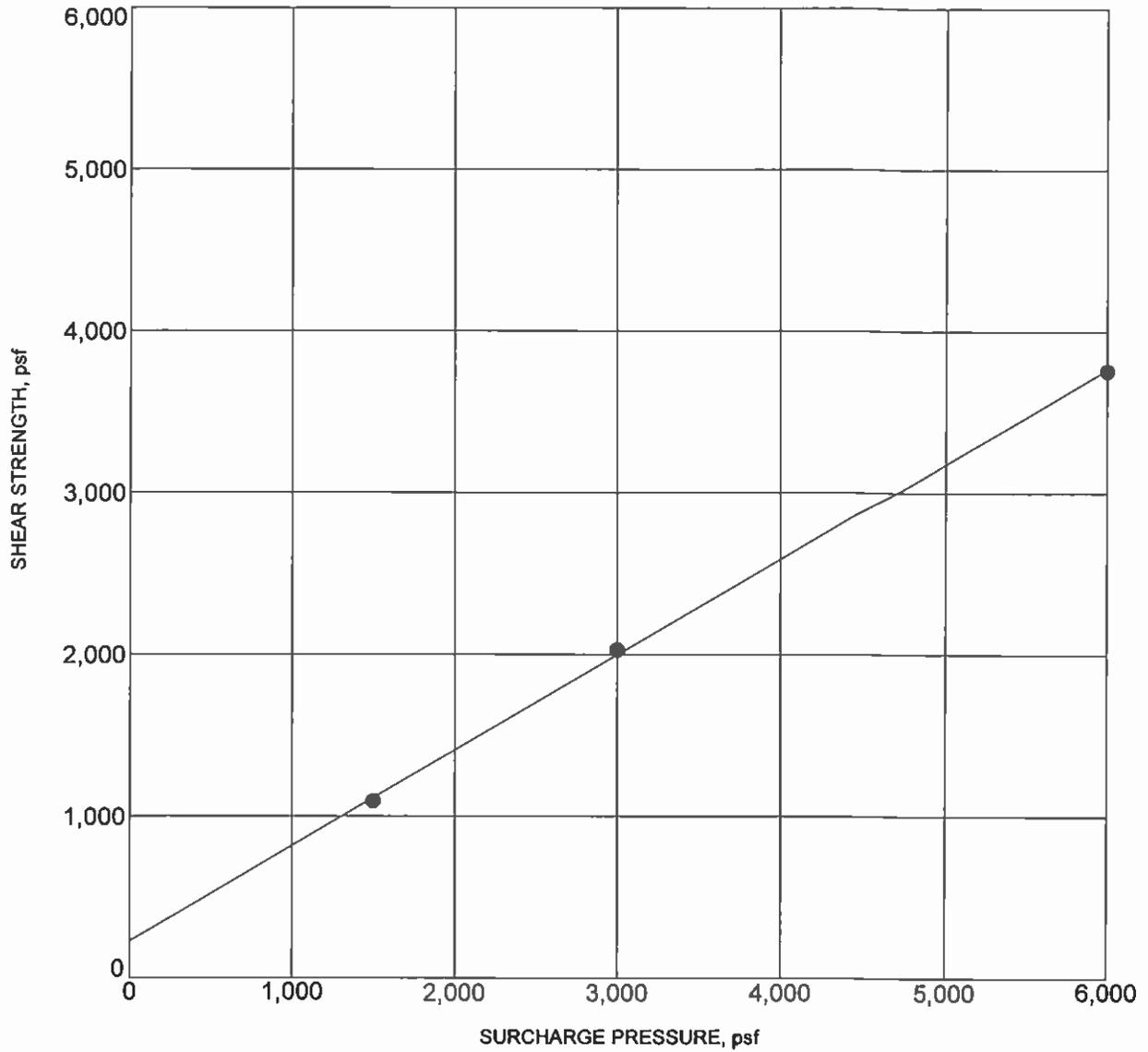
## DIRECT SHEAR TEST RESULTS



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 For: Southern California Edison

Project No. Drawing No.  
 09-81-272-01 B - 8



BORING NO. :	BH - 4	DEPTH (ft) :	25.0-26.5
DESCRIPTION :	SILTY SAND (SM)		
COHESION (psf) :	260	FRICTION ANGLE (degrees):	31
MOISTURE CONTENT (%) :	15.6	DRY DENSITY (pcf) :	119.8

NOTE: Ultimate Strength.

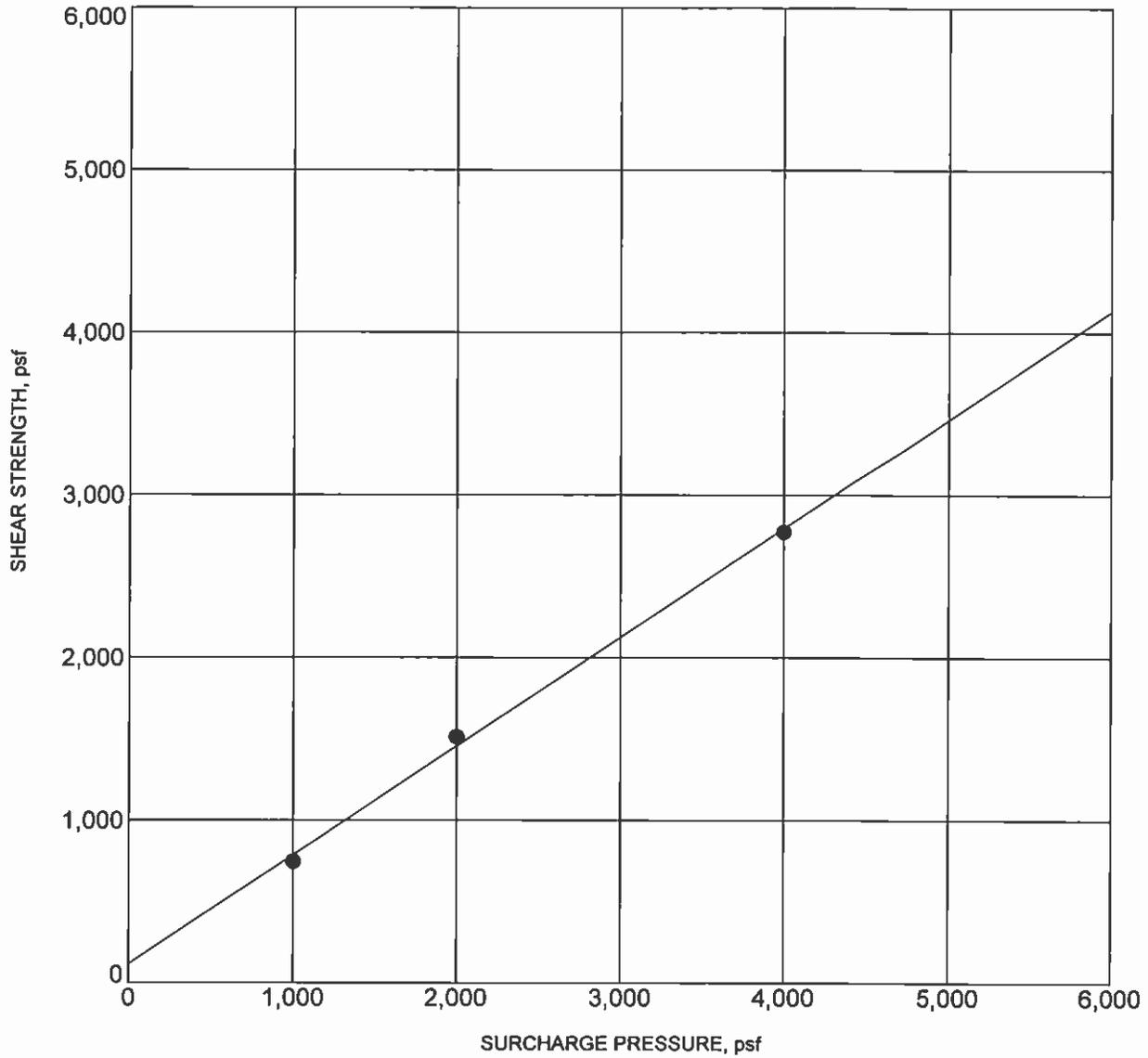
## DIRECT SHEAR TEST RESULTS



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Lakeview Substation  
 Southwest of the Intersection of 10th Street and Reservoir Avenue  
 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. Drawing No.  
 09-81-272-01 B - 9



BORING NO. :	BH - 5	DEPTH (ft) :	2.0-3.5
DESCRIPTION :	SILTY SAND (SM)		
COHESION (psf) :	100	FRICITION ANGLE (degrees):	34
MOISTURE CONTENT (%) :	9.4	DRY DENSITY (pcf) :	117.6

NOTE: Ultimate Strength.

## DIRECT SHEAR TEST RESULTS



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 Nuevo, Riverside County, California  
 For: Southern California Edison

Project No. Drawing No.  
 09-81-272-01 B - 10

**APPENDIX C**  
**SOIL CORROSIVITY STUDY**



[lsolis@schiffassociates.com](mailto:lsolis@schiffassociates.com)  
[www.schiffassociates.com](http://www.schiffassociates.com)  
Consulting Corrosion Engineers – Since 1959

December 10, 2009

via email: [Esam.Abraham@sce.com](mailto:Esam.Abraham@sce.com)

SOUTHERN CALIFORNIA EDISON  
2131 Walnut Grove Avenue  
Rosemead, CA 91770

Attention: Mr. Esam Abraham, P.E.

Re: Soil Corrosivity Study  
Lakeview Substation  
Nuevo, California  
SA #09-0982SCSP

## INTRODUCTION

Field and laboratory tests have been completed for the subject project. Laboratory tests have been completed on one soil sample provided for the referenced project. Schiff Associates assumes that the sample provided is representative of the most corrosive soil at the site. The purpose of these tests was to determine the electrical resistivity of the soil for grounding design and to determine if the soil might have deleterious effects on underground utility piping and concrete structures.

This report will address the latter. For grounding design, soil electrical resistivities are provided as 'data only' in order to aid other engineers in their design.

The proposed construction consists of an electrical substation. The site is located at the intersection of Reservoir Avenue and 10<sup>th</sup> Street in Nuevo, California. The water table depth was not provided; therefore, its effect on site corrosivity could not be accounted for in this analysis and report.

The scope of this study is limited to a determination of soil corrosivity and general corrosion control recommendations for materials likely to be used for construction. Our recommendations do not constitute, and are not meant as a substitute for, design documents for the purpose of construction. If the architects and/or engineers desire more specific information, designs, specifications, or review of design, Schiff Associates will be happy to work with them as a separate phase of this project.

## TEST PROCEDURES

The electrical resistivity of the soil was measured in-situ at one location with two orientations using the Wenner Four Pin Method in accordance with the EDSL 33-90-00 Soil Test Requirements. This procedure gives the average resistivity to a depth equal to the spacing between the pins. Pin spacings of 1, 1.5, 2.5, 5, 7, 10, 15, 25, 50, 75, 100, and 150 feet were used so that variations with depth could be evaluated. In addition to the EDSL 33-90-00 Soil Test Requirements, strata resistivities were calculated from resistance data using the Barnes Procedure. Test results are shown in Table 1. A sketch of the site map where the tests were performed is provided in the Appendix.

The electrical resistivity of the soil sample was measured in a soil box per ASTM G187 in its as-received condition and again after saturation with distilled water. Resistivities are at about their lowest value when the soil is saturated. The pH of the saturated sample was measured per CTM 643. A 5:1 water:soil extract from the sample was chemically analyzed for the major soluble salts commonly found in soil per ASTM D4327 and D513. Test results are shown in Table 2.

## SOIL CORROSIVITY

A major factor in determining soil corrosivity is electrical resistivity. The electrical resistivity of a soil is a measure of its resistance to the flow of electrical current. Corrosion of buried metal is an electrochemical process in which the amount of metal loss due to corrosion is directly proportional to the flow of electrical current (DC) from the metal into the soil. Corrosion currents, following Ohm's Law, are inversely proportional to soil resistivity. Lower electrical resistivities result from higher moisture and soluble salt contents and indicate corrosive soil.

A correlation between electrical resistivity and corrosivity toward ferrous metals is:<sup>1</sup>

<u>Soil Resistivity</u> <u>in ohm-centimeters</u>	<u>Corrosivity Category</u>
Greater than 10,000	Mildly Corrosive
2,000 to 10,000	Moderately Corrosive
1,000 to 2,000	Corrosive
0 to 1,000	Severely Corrosive

Other soil characteristics that may influence corrosivity towards metals are pH, soluble salt content, soil types, aeration, anaerobic conditions, and site drainage.

The average and stratum resistivities measured in the field within the upper 15-foot soil strata were in the moderately corrosive category.

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<sup>1</sup> Romanoff, Melvin. *Underground Corrosion*, NBS Circular 579. Reprinted by NACE. Houston, TX, 1989, pp. 166-167.

The electrical resistivity measured in the laboratory was in the mildly corrosive category with as-received moisture. When saturated, the resistivity was in the moderately corrosive category. The resistivity dropped considerably with added moisture because the sample was dry as-received.

The soil pH value was 7.1. This is neutral alkaline<sup>2</sup> and does not particularly increase soil corrosivity.

The soluble salt content of the sample was moderate.

Ammonium was detected in a low concentration. Nitrate was detected in a concentration high enough to be deleterious to copper.

Tests were not made for sulfide and negative oxidation-reduction (redox) potential because the sample did not exhibit characteristics typically associated with anaerobic conditions.

This soil is classified as moderately corrosive to ferrous metals and aggressive to copper.

## CORROSION CONTROL RECOMMENDATIONS

The life of buried materials depends on thickness, strength, loads, construction details, soil moisture, etc., in addition to soil corrosivity, and is, therefore, difficult to predict. Of more practical value are corrosion control methods that will increase the life of materials that would be subject to significant corrosion.

The following recommendations are based on the soil conditions discussed in the Soil Corrosivity section above. Unless otherwise indicated, these recommendations apply to the entire site or alignment.

### Steel Pipe

Implement *all* the following measures:

1. Underground steel pipe with rubber gasketed, mechanical, grooved end, or other nonconductive type joints should be bonded for electrical continuity. Electrical continuity is necessary for corrosion monitoring and cathodic protection.
2. Install corrosion monitoring test stations to facilitate corrosion monitoring and the application of cathodic protection:
  - a. At each end of the pipeline.
  - b. At each end of all casings.
  - c. Other locations as necessary so the interval between test stations does not exceed 1,200 feet.

---

<sup>2</sup> Romanoff, Melvin. *Underground Corrosion*, NBS Circular 579. Reprinted by NACE. Houston, TX, 1989, p. 8.

3. To prevent dissimilar metal corrosion cells and to facilitate the application of cathodic protection, electrically isolate each buried steel pipeline per NACE Standard SP0286 from:
  - a. Dissimilar metals.
  - b. Dissimilarly coated piping (cement-mortar vs. dielectric).
  - c. Above ground steel pipe.
  - d. All existing piping.
4. Choose one of the following corrosion control options:

**OPTION 1**

- a. Apply a suitable dielectric coating intended for underground use such as:
  - i. Polyurethane per AWWA C222 *or*
  - ii. Extruded polyethylene per AWWA C215 *or*
  - iii. A tape coating system per AWWA C214 *or*
  - iv. Hot applied coal tar enamel per AWWA C203 *or*
  - v. Fusion bonded epoxy per AWWA C213.
- b. Apply cathodic protection to steel piping as per NACE Standard SP0169.

**OPTION 2**

- a. As an alternative to dielectric coating and cathodic protection, apply a 3/4-inch cement mortar coating per AWWA C205 or encase in concrete 3 inches thick, using any type of cement. Joint bonds, test stations, and insulated joints are still required for these alternatives.

NOTE: Some steel piping systems, such as for oil, gas, and high-pressure piping systems, have special corrosion and cathodic protection requirements that must be evaluated for each specific application.

**Iron Pipe**

Implement *all* the following measures:

1. Electrically insulate underground iron pipe from dissimilar metals and from above ground iron pipe with insulating joints per NACE Standard SP0286.
2. Bond all nonconductive type joints for electrical continuity. Electrical continuity is necessary for corrosion monitoring and cathodic protection.
3. Install corrosion monitoring test stations to facilitate corrosion monitoring and the application of cathodic protection:
  - a. At each end of the pipeline.
  - b. At each end of any casings.
  - c. Other locations as necessary so the interval between test stations does not exceed 1,200 feet.
4. Choose one of the following corrosion control options:

### OPTION 1

- a. Apply a suitable coating intended for underground use such as:
  - i. Polyethylene encasement per AWWA C105; *or*
  - ii. Epoxy coating; *or*
  - iii. Polyurethane; *or*
  - iv. Wax tape.

NOTE: The thin factory-applied asphaltic coating applied to ductile iron pipe for transportation and aesthetic purposes does not constitute a corrosion control coating.

- b. Apply cathodic protection to cast and ductile iron piping as per NACE Standard SP0169.

### OPTION 2

- a. As an alternative to dielectric coating and cathodic protection, concrete encase all buried portions of metallic piping so that there is a minimum of 3 inches of concrete cover provided over and around surfaces of pipe, fittings, and valves using any type of cement.

### Copper Tubing

Protect buried copper tubing by *one* of the following measures:

1. Prevention of soil contact. Soil contact may be prevented by placing the tubing above ground or encasing the tubing using PVC pipe with solvent-welded joints.
2. Installation of a factory-coated copper pipe with a minimum 25-mil thickness such as Kamco's Aqua Shield™, Mueller's Streamline Protec™, or equal. The coating must be continuous with no cuts or defects.
3. Installation of 12-mil polyethylene pipe wrapping tape with butyl rubber mastic over a suitable primer. Protect wrapped copper tubing by applying cathodic protection per NACE Standard SP0169.



### Plastic and Vitrified Clay Pipe

1. No special precautions are required for plastic and vitrified clay piping placed underground from a corrosion viewpoint.
2. Protect all metallic fittings and valves with wax tape per AWWA C217 or epoxy.

### **All Pipe**

1. On all pipes, appurtenances, and fittings not protected by cathodic protection, coat bare metal such as valves, bolts, flange joints, joint harnesses, and flexible couplings with wax tape per AWWA C217 after assembly.
2. Where metallic pipelines penetrate concrete structures such as building floors, vault walls, and thrust blocks use plastic sleeves, rubber seals, or other dielectric material to prevent pipe contact with the concrete and reinforcing steel.

### **Concrete**

1. From a corrosion standpoint, any type of cement may be used for concrete structures and pipe because the sulfate concentration is negligible, 0 to 0.1 percent.<sup>3,4,5,6</sup>
2. Standard concrete cover over reinforcing steel may be used for concrete structures and pipe in contact with these soils due to the low chloride concentration<sup>7</sup> found onsite.

### **Resistivity for Electrical Grounding System**

1. Refer to Table 1 for average soil resistivity values to depth for design of electrical ground grids and ground rods for the proposed site.

---

<sup>3</sup> 1997 Uniform Building Code (UBC) Table 19-A-4

<sup>4</sup> 2006 International Building Code (IBC) which refers to American Concrete Institute (ACI-318) Table 4.3.1

<sup>5</sup> 2006 International Residential Code (IRC) which refers to American Concrete Institute (ACI-318) Table 4.3.1

<sup>6</sup> 2007 California Building Code (CBC) which refers to American Concrete Institute (ACI-318) Table 4.3.1

<sup>7</sup> Design Manual 303: Concrete Cylinder Pipe. Ameron. p.65

### CLOSURE

Our services have been performed with the usual thoroughness and competence of the engineering profession. No other warranty or representation, either expressed or implied, is included or intended.

Please call if you have any questions.

Respectfully Submitted,  
SCHIFF ASSOCIATES



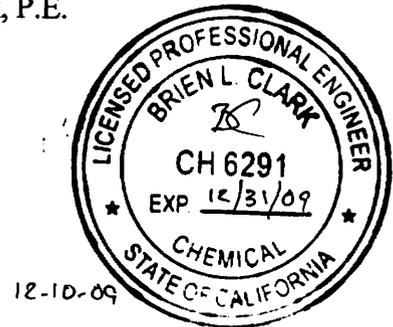
Leobardo Solis



Brien L. Clark, P.E.

Enc: Table 1-Soil Resistivity Field Tests  
Table 2-Laboratory Tests on Soil Samples  
Site Map

09-0982SCSP RPT LS Rev00



**Table 1 - Soil Resistivity Field Tests**

*Southern California Edison  
Lakeview Substation  
SA #09-0982SCSP  
30-Nov-09*

LOCATION	DEPTH (feet)	MEASURED RESISTANCE (ohms)	AVERAGE RESISTIVITY TO DEPTH (ohm-cm)	STRATUM RESISTIVITY (ohm-cm)
<b>R1</b>				3,447
NE Corner of Site N/S orientation	1.0	18	3,447	8,618
	1.5	15	4,309	7,900
	2.5	11	5,267	4,389
	5.0	5.0	4,788	4,070
	7.0	3.4	4,558	2,791
	10	2.0	3,830	2,341
	15	1.1	3,160	1,572
	25	0.47	2,250	1,275
	50	0.17	1,628	1,953
	75	0.12	1,724	1,193
	100	0.08	1,551	456
	150	0.03	862	

**Table 1 - Soil Resistivity Field Tests**

*Southern California Edison  
Lakeview Substation  
SA #09-0982SCSP  
30-Nov-09*

LOCATION	DEPTH (feet)	MEASURED RESISTANCE (ohms)	AVERAGE RESISTIVITY TO DEPTH (ohm-cm)	STRATUM RESISTIVITY (ohm-cm)
<b>R2</b>				3,639
NE Corner of Site	1.0	19	3,639	
E/W orientation	1.5	16	4,596	9,703
	2.5	10	4,788	5,107
	5.0	4.2	4,022	3,467
	7.0	2.9	3,888	3,589
	10	1.7	3,256	2,360
	15	0.92	2,643	1,920
	25	0.35	1,676	1,082
	50	0.10	958	670
	75	0.09	1,321	5,506
	100	0.08	1,609	4,625
	150	0.05	1,479	1,275

**Table 2 - Laboratory Tests on Soil Samples**

*Southern California Edison  
Lakeview Substation  
SA #09-0982SCSP  
1-Dec-09*

**Sample ID**

Soil

<b>Resistivity</b>	<b>Units</b>		
as-received	ohm-cm		33,600
saturated	ohm-cm		2,360
<b>pH</b>			7.1
<b>Electrical</b>			
<b>Conductivity</b>	mS/cm		0.21
<b>Chemical Analyses</b>			
<b>Cations</b>			
calcium	Ca <sup>2+</sup>	mg/kg	91
magnesium	Mg <sup>2+</sup>	mg/kg	16
sodium	Na <sup>1+</sup>	mg/kg	111
potassium	K <sup>1+</sup>	mg/kg	36
<b>Anions</b>			
carbonate	CO <sub>3</sub> <sup>2-</sup>	mg/kg	ND
bicarbonate	HCO <sub>3</sub> <sup>1-</sup>	mg/kg	168
flouride	F <sup>1-</sup>	mg/kg	0.6
chloride	Cl <sup>1-</sup>	mg/kg	72
sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/kg	98
phosphate	PO <sub>4</sub> <sup>3-</sup>	mg/kg	35
<b>Other Tests</b>			
ammonium	NH <sub>4</sub> <sup>1+</sup>	mg/kg	7.6
nitrate	NO <sub>3</sub> <sup>1-</sup>	mg/kg	50
sulfide	S <sup>2-</sup>	qual	na
Redox		mV	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.  
mg/kg = milligrams per kilogram (parts per million) of dry soil.  
Redox = oxidation-reduction potential in millivolts  
ND = not detected  
na = not analyzed



Site Map: Lakeview Substation



**APPENDIX G**

**LAKEVIEW SUBSTATION NOISE MEASUREMENTS**

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**Appendix E**  
**Project-Generated Construction Source Noise Prediction Model**  
 Lakeview PEA



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L <sub>eq</sub> dBA)	Assumptions:	Reference Emission Noise Levels (L <sub>max</sub> ) at	Usage Factor <sup>1</sup>
				50 feet <sup>1</sup>	
Threshold*	852	55.0	Excavator	85	0.4
	50	85.8	Dozer	85	0.4
	100	77.9	Grader	85	0.4
	150	73.2			
	200	69.9			
	250	67.4			
	300	65.3			
	350	63.5	Ground Type	Soft	
	400	62.0	Source Height	8	
	450	60.7	Receiver Height	5	
	500	59.5	Ground Factor	0.63	
550	58.4				
600	57.4				
				<b>Predicted Noise Level<sup>1</sup> L<sub>eq</sub> dBA at 50 feet<sup>2</sup></b>	
				Excavator	81.0
				Dozer	81.0
				Grader	81.0
				<b>Combined Predicted Noise Level (L<sub>eq</sub> dBA at 50 feet)</b>	
				85.8	

Sources:

<sup>1</sup> Obtained from the FHWA Roadway Construction Noise Model, January 2006.

<sup>2</sup> Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006.

$$L_{eq}(\text{equip}) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

\*Project specific threshold

**Appendix E**  
**Project-Generated Construction Source Vibration Prediction Model**  
 Lakeview Substation



Location	Distance to Nearest Receiver in feet	Predicted Vibration Level (PPV)		Predicted Vibration Level (VdB)		Equipment	Reference Distance	PPV at	Approximate
		Bulldozer	Trucks	Bulldozer	Trucks			25 feet (in/sec) <sup>1</sup>	Lv (VdB) at 25 feet <sup>2</sup>
CA Threshold (0.08 PPV)	70	0.019	0.016			Bulldozer	25	0.089	87
CA Threshold (80VdB)	70			74	72	Trucks	25	0.076	86

Notes:

<sup>1</sup> Where PPV is the peak particle velocity

<sup>2</sup> Where Lv is the RMS velocity expressed in vibration decibels (VdB), assuming a crest factor of 4.

Source: Caltrans 2002, FTA 2006

**APPENDIX H**  
**TECHNICAL MEMORANDA**

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## Memorandum

To	Nicole Berumen, Southern California Edison	Pages	2
CC			
Subject	Noise Methodology for Lakeview Substation Project		
From	Chris Shields		
Date	April 14, 2010		

For SCE's Lakeview Substation Project Proponent's Environmental Assessment (PEA), noise measurements were conducted on March 3, 2010 at two locations near the Proposed Project Area, which is located in the community of Lakeview of unincorporated Riverside County. The first location was at the intersection of 10<sup>th</sup> Street and Reservoir Avenue for a measurement period of 15 minutes beginning at 9:21 a.m. The second location was at the intersection of Yucca Avenue and 11<sup>th</sup> Street for a measurement period of 15 minutes beginning at 10:10 a.m. Both measurement sites were chosen based on their proximity to the Proposed Project Area, the Alternative Substation Site and Alternative Subtransmission Source Line Route, and the adjacent land use sensitivity to noise.

Land uses that are sensitive to noise are those uses where exposure would result in adverse effects (i.e., annoyance) and uses where quiet is an essential element of their intended purpose. In the community of Lakeview, residences of all types are of primary concern because of the potential for increased, prolonged exposure of individuals to both interior and exterior noise and vibration. Data included in the PEA Project Description, existing documentation, and site reconnaissance during on-site noise monitoring were used to determine the potential locations of noise-sensitive receptors.

Short-term noise measurements were taken in accordance with American National Standards Institute (ANSI) standards using a Larson Davis Laboratories Model 820 precision integrating sound-level meter (SLM). The SLM was calibrated before and after use with a Larson Davis Laboratories Model CAL200 acoustical calibrator to ensure that the meter was accurately measuring noise levels. The equipment used meets all pertinent specifications of ANSI for Type 1 sound-level meters (ANSI S1.4-1983 [R2006]). The SLM was programmed to collect 15 minute averages of "A" weighted noise data. The data output consisted of: Energy Equivalent Sound Level – Leq; Sound Exposure Level – SEL; Maximum Sound Level – Lmax; and; the Sound Levels - Ln at the 10, 50, and 90 percent levels.

To assess the potential short-term noise impacts from construction, sensitive receptors and their relative levels of exposure were identified. Noise generated by the Proposed Project in the near-term and long-term was predicted using the *Transit Noise and Vibration Impact Assessment* methodology for construction noise prediction.<sup>[1]</sup> The noise emission levels reference and usage factors are based on the

<sup>[1]</sup> Federal Transit Administration. 2006 (May). *Transit Noise and Vibration Impact Assessment*. Washington, DC. Pages 5-1 through 5-29 and 10-1 through 10-12.

Federal Highway Administration's (FHWA) Roadway Construction Noise Model.<sup>[2]</sup> Noise levels of specific construction equipment and resultant noise levels at the locations of sensitive receptors were calculated. Potential long-term (operational) noise impacts from stationary sources (substation, power lines) were assessed based on existing documentation and site reconnaissance data.

Groundborne vibration impacts were quantitatively assessed based on existing documentation (e.g., vibration levels produced by operation of specific construction equipment) and the distance of sensitive receptors from the given source. Near-term and long-term vibration sources and levels were calculated using the Federal Transit Administration (FTA) methodology for construction and transportation vibration sources.<sup>[3]</sup>

Land use compatibility with the Proposed Project was determined based on the proposed land use, adjacent parcels, and noise level standards outlined in the Riverside County General Plan and the Riverside County Municipal Code.

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<sup>[2]</sup> Federal Highway Administration. 2006 (January). *Roadway Construction Noise Model Version 1.0* (FHWA RCNM V. 1.0). Washington, DC. Page 3.

<sup>[3]</sup> Federal Transit Administration. 2006 (May). *Transit Noise and Vibration Impact Assessment*. Washington, DC. Pages 5-1 through 5-29 and 10-1 through 10-12.

## Memorandum

To	Nicole Berumen, Southern California Edison	Pages	2
CC			
Subject	Visual Simulation Methodology for Lakeview Substation Project		
From	Jeremy Palmer		
Date	4/19/2010		

For SCE's Lakeview Substation Project Proponent's Environmental Assessment (PEA), eight visual simulations were produced. These simulations included transmission line simulations, and two simulations of the Lakeview Substation Site.

To create the visual simulations, photos of the existing conditions from each Key Observation Point (KOP) were taken using various digital cameras. Cameras used included the Canon PowerShot A540, Canon PowerShot SD800 IS, Sony DSC – W90, and Nikon D50. For each of the respective cameras and existing conditions photos, the digital focal length was noted and then converted to a corresponding film focal length.

For each simulation, the point where the existing conditions photos were taken was placed on an aerial photo using Google Earth. The aerial imagery and KOP points were combined to create a project map and were then imported into AutoCAD and scaled. Each point was overlaid in three-dimensional (3D) space relative to the Proposed Subtransmission Source Line and Proposed Substation design base provided by SCE.

A virtual model was then created from the same design base provided by SCE, including transmission structure diagrams, transmission line corridors, and substation design data. 3D models of the Proposed Subtransmission Source Line structures, and Proposed Substation were created using 3D Studio Max. Transmission structures were placed at appropriate intervals (span lengths) along the Proposed Subtransmission Source Line Route at elevations specified by SCE's design.

In 3D Studio Max, a spatially accurate 3D model of the existing project site was created. Using the same dimensions as the project map .jpeg created for use with the KOP's, a two-dimensional (2D) plane was created. The .jpeg was draped on top of that plane. For example, if the project map was sized at 10 inches by 20 inches, and the scale was 1:2400 (1 inch = 200 feet), the 2D plane created in 3D Studio Max needed to be 2000 feet by 4000 feet. This assured that distances in the 3D model were exactly the same as distances on the project area map.

Finally, the 3D modeled transmission line structures, substation structures, and KOP points were imported into 3D Studio Max and combined with the 2D plane to create a virtual model of the Proposed Project on its site.

Next, a virtual camera needed to be created that matched the digital camera used to take the existing conditions photos. In 3D Studio Max, it is possible for the user to specify the focal length of a virtual camera, and the appropriate focal length values were used for all of the visual simulations. This virtual

camera was placed in its appropriate place, using the point reference created in AutoCAD on the project map .jpeg. Now that the camera was in its correct location in the model, it needed to be aligned correctly. To do this, objects that are visible in the existing conditions photo were identified on the aerial photo. These objects are referred to as Camera Alignment Aids (CAAs). Existing transmission structures, trees, light poles, roads, and fence lines are some examples of CAAs. When a CAA was identified, a cylinder was placed in the 3D model on top of its location on the aerial photo. For each camera view, a minimum of three CAAs were used to align the camera. Using the existing conditions photo as the background, the camera view was rendered. The camera target (the point which the camera is focusing on) was moved accordingly to match the CAAs with their place in the photo. Another component to matching the virtual camera to the actual camera was to incorporate the elevations of each of the CAAs, as well as the camera itself. Using topographical information for the Proposed Project, the elevations of both the photo point and the CAAs were recorded, and incorporated into the 3D model. The camera target was further adjusted to match the elevations of each of the CAAs, resulting in a virtual camera that was aligned correctly in all three directions (X, Y, & Z).

Now that the virtual camera was created, and its alignment exactly matched with its real-life counterpart, light and shadow needed to be created matching our existing conditions photos. 3D Studio Max has the capability to create time- and location-specific lighting using a daylight system. Digital cameras record the time that photos are taken. The time and location was translated into the 3D Studio Max to create this daylight system. Next, images were rendered of the 3D model from the various virtual cameras throughout our model. Rendering in 3D Studio Max is essentially taking a snapshot of the 3D model through the lenses of our virtual cameras. These rendered images are saved to the project folder.

The final step in the visual simulation process was blending the rendered image of the Proposed Project structures into the existing conditions photo. The two images were layered in Photoshop: existing conditions and Proposed Project structures. Next, a mask was created on the structures only image, and those areas that would be obscured by objects in the photo were erased. To finish the process, .pdf's of the existing conditions and the Proposed Project structures were created and saved in the project folder.

**APPENDIX I**  
**PUBLIC INVOLVEMENT**

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## **APPENDIX I            Public Involvement**

SCE encourages communication and outreach to local communities, local businesses, elected and appointed officials, and other interested parties. SCE's goal is to ensure that it understands and addresses, where possible, issues of interest or potential concern regarding its proposed projects.

SCE conducted the following activities as part of the public involvement for the Lakeview Substation Project:

- Dissemination of project information to the public by mail and website
- Outreach to the following target audiences:
  - Property owners within 300 feet of the proposed substation site;
  - Property owners within 300 feet of the proposed and alternative subtransmission line routes;
  - Elected and appointed government officials for the County of Riverside;
  - Community and business organizations;
  - Other interested parties in the area.

Below is a detailed description of the public involvement activities that SCE conducted for the Proposed Project.

### **Proposed Project Information Materials**

#### Proposed Project Fact Sheet

SCE developed and mailed a Project Fact Sheet (attached) to property owners and identified stakeholders. The Project Fact Sheet provided basic information about the Proposed Project's purpose, description, location, and schedule. It also provided the names and contact information for the local SCE Public Affairs Region Managers to answer questions.

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### Proposed Project Website

SCE created a Project Website ([www.sce.com/lakeview](http://www.sce.com/lakeview)). The website provides current information about the Proposed Project and project materials available for download such as the fact sheet and the open house storyboards.

### **Public Outreach**

#### Stakeholder Briefings

SCE conducted various briefings during the planning process of the project, received input on the project from stakeholders, and elected officials. The SCE project team members provided briefings to elected and appointed officials and County of Riverside staff. The Lakeview - Nuevo Municipal Advisory Commission (MAC) also received a briefing on the Project. All those who were briefed received a Project Fact Sheet. Project support letters were received from Riverside County Supervisor Marion Ashley and the Lakeview – Nuevo MAC (Attached).

#### Lakeview - Nuevo MAC Presentation

SCE gave a presentation to the Lakeview – Nuevo MAC on January 21, 2010 at 7:00 pm for the Proposed Project at the Mountain Shadows Middle School in Nuevo, California. The presentation was designed to provide area residents, property owners, businesses, local officials, and others interested in this project with direct access to the Lakeview Substation project team including SCE's project manager, technical experts, and others involved in project planning. The presentation provided project information and maps, and opportunities for the public to ask questions and submit comments.

Invitation letters to the presentation were mailed to all property owners within 300 feet of the proposed and alternative substation sites as well as the proposed and alternative subtransmission source line routes. The invitation was also mailed to elected and appointed government officials, and other interested parties in the project area.

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# Examples of SCE Substations



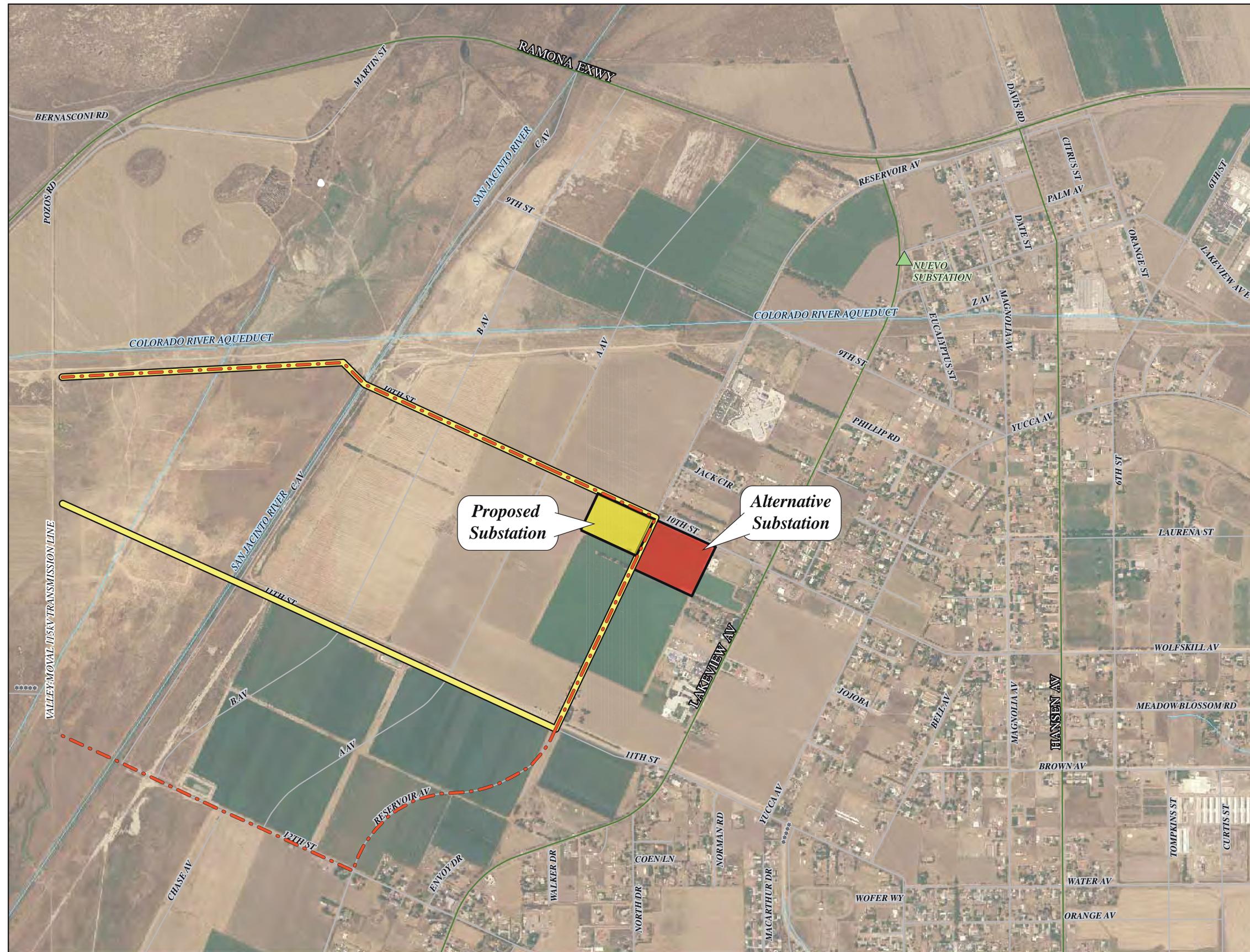
**Potrero Substation (Thousand Oaks, California)**



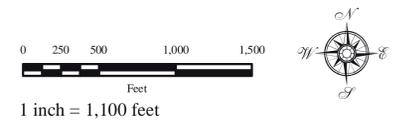
**Moreno Substation (Moreno Valley, California)**

# Lakeview Substation Project

## Lakeview Substation Project General Overview Map



- Proposed Substation Location
- Alternative Substation Location
- Proposed Subtransmission Line Route
- Alternative Subtransmission Line Route
- SCE Substations (SCE, 2009)

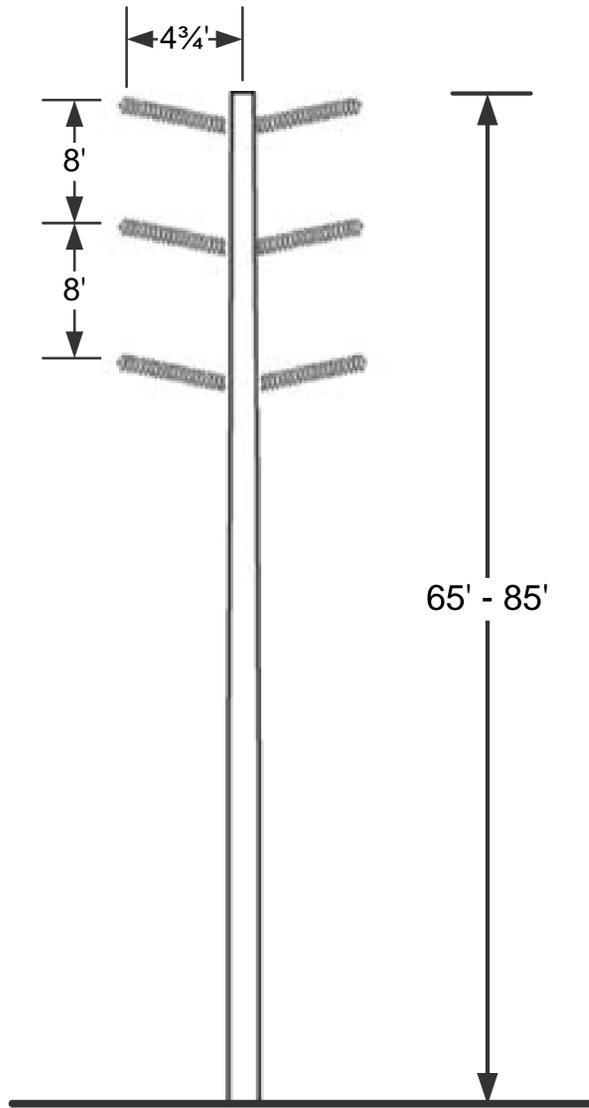


VICINITY MAP

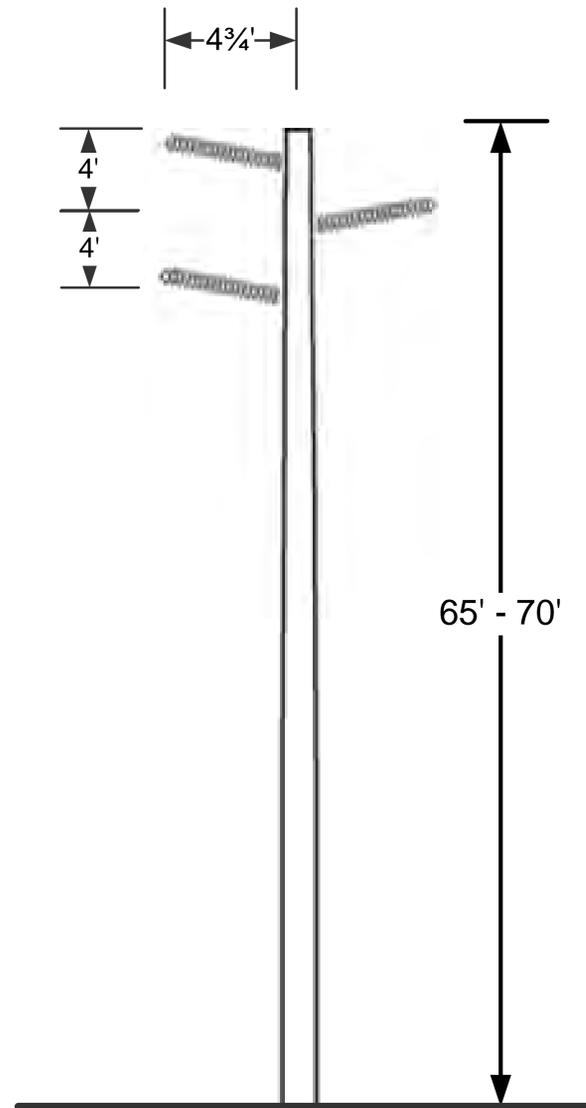
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features. © Corporate Real Estate Department, REO - Mapping and GIS.

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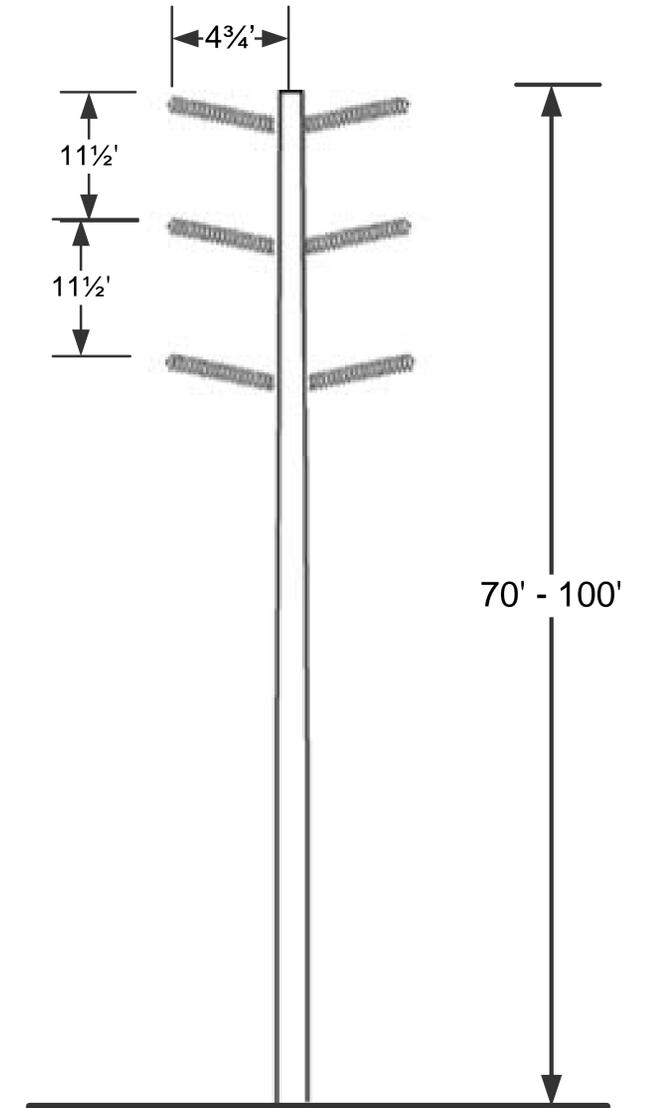
# Typical Pole Designs



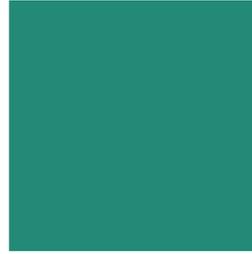
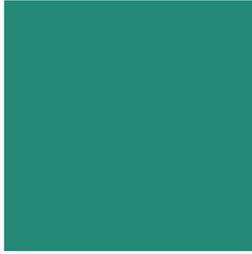
Wood Pole  
(Double Circuit)



Wood Pole  
(Single Circuit)



Tubular  
Steel Pole  
(Double Circuit)



# Lakeview Substation Project

Southern California Edison (SCE) proposes to construct a new substation in the Lakeview/Nuevo area to help meet the area's growing demand for electricity and improve reliability.

## Meeting the Area's Electrical Needs:

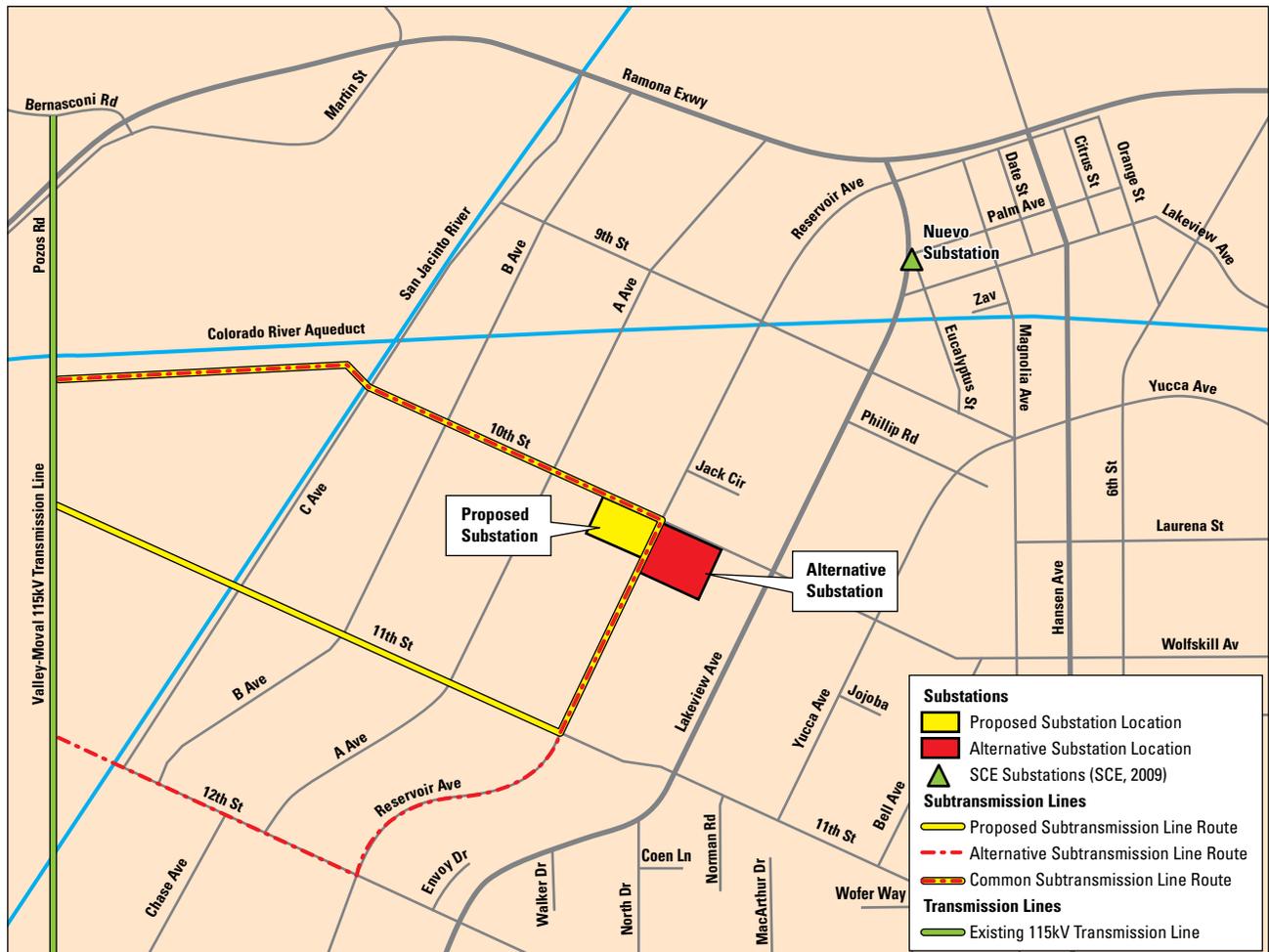
SCE is proposing a new substation to increase electrical capacity to the Lakeview/Nuevo area of western Riverside County. The Nuevo substation, which currently provides power to the area, has reached its full operating capacity and will be unable to keep up with the area's growing demand for electricity.

The proposed project will strengthen the area's electrical network in order to maintain and improve reliability and help meet the forecasted electrical demand. The substation would serve the communities of Lakeview and Nuevo as well as adjacent unincorporated areas.

## PROJECT DESCRIPTION

The proposed Lakeview Substation includes the following:

- Construction of a new 115/12 kilovolt (kV) substation;
- Installation of new 115 kV subtransmission lines;
- Construction of up to two new underground 12 kV distribution getaways; and
- Installation of new fiber optic cable and communications equipment to connect the proposed Lakeview Substation to SCE's existing telecommunication system.



# Lakeview Substation Project

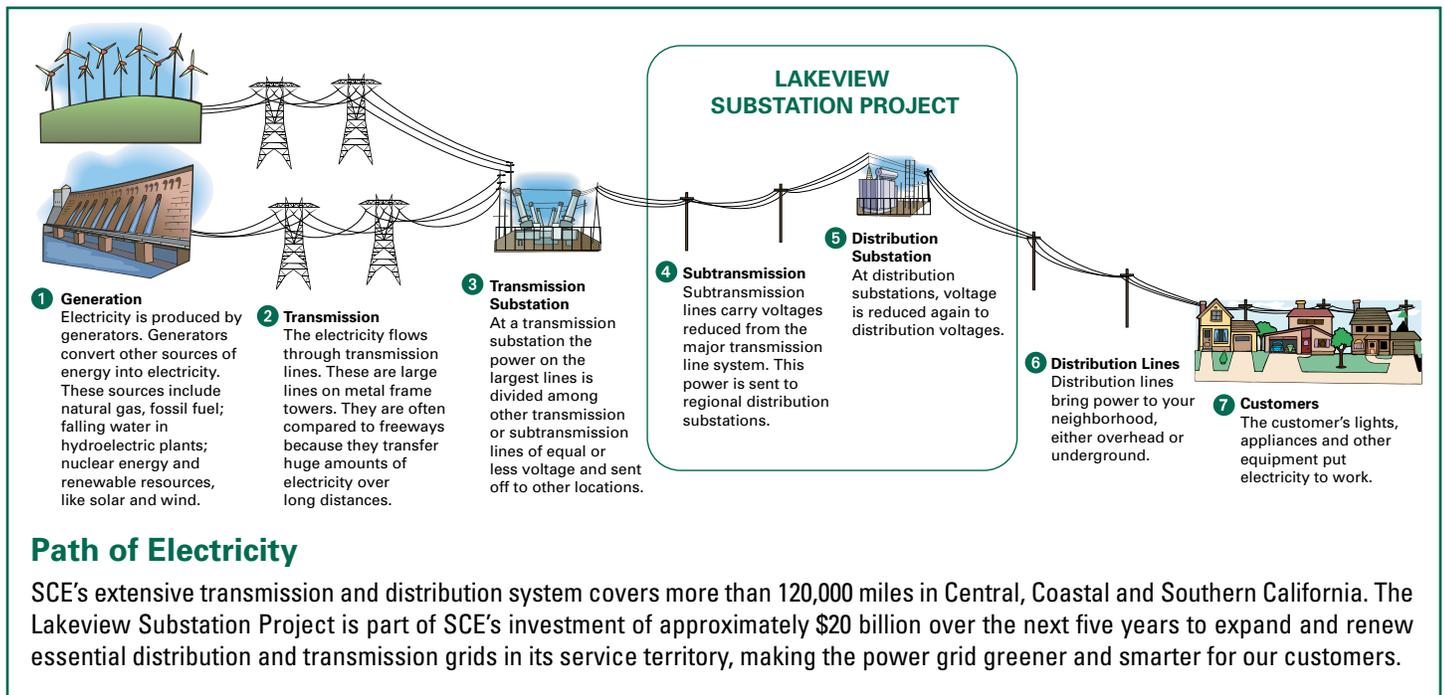
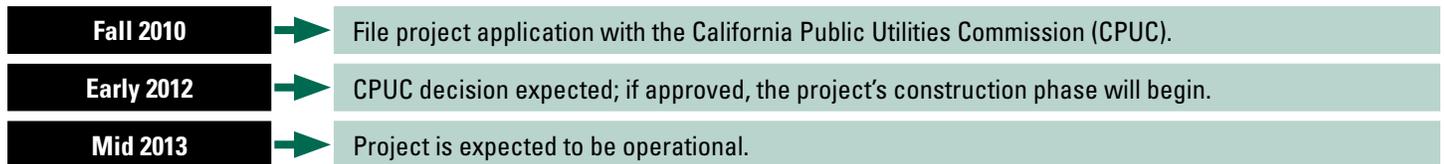
## Project Approval

- The California Public Utilities Commission (CPUC) is the state regulatory agency that issues permits for construction of certain electric facilities.
- The CPUC will review the application in accordance with the California Environmental Quality Act (CEQA) and will either approve the project as filed, approve the project with modifications, or deny the application.

## SCE in the Community

SCE has deep roots in the region, and the nature of our business ensures we will remain here in the future. The company has a long-standing tradition of supporting the communities we serve through corporate and employee giving programs. SCE also supports education through student scholarships and grants to educational institutions.

## Anticipated Project Schedule



## Path of Electricity

SCE's extensive transmission and distribution system covers more than 120,000 miles in Central, Coastal and Southern California. The Lakeview Substation Project is part of SCE's investment of approximately \$20 billion over the next five years to expand and renew essential distribution and transmission grids in its service territory, making the power grid greener and smarter for our customers.

## For More Information

For more information on the project, visit  
[www.sce.com/lakeview](http://www.sce.com/lakeview)

If you have any questions or comments or would like to be added to the project mailing list, please contact:

**Louis Davis**  
Region Manager  
Southern California Edison  
(951) 249-8468  
[Louis.Davis@sce.com](mailto:Louis.Davis@sce.com)

## About Southern California Edison

An Edison International (NYSE:EIX) company, Southern California Edison is one of the nation's largest electric utilities, serving a population of nearly 14 million via 4.9 million customer accounts in a 50,000-square-mile service area within Central, Coastal, and Southern California.



**LAKEVIEW/NUEVO  
MUNICIPAL ADVISORY COUNCIL**

March 18, 2010

Mr. Louis Davis  
Region Manager  
Southern California Edison  
24487 Prielipp Road  
Wildomar, CA 92595

RE: Lakeview Substation Project

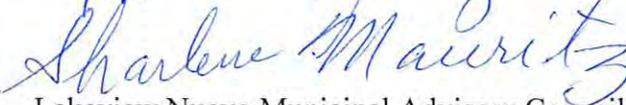
Dear Mr. Davis,

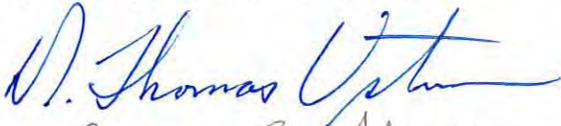
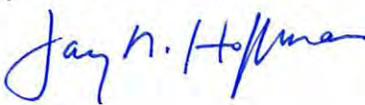
Thank you for your recent presentation to the Lakeview Nuevo Municipal Advisory Council (MAC) on Southern California Edison's (SCE) proposed Lakeview Substation Project located on the corner of 10<sup>th</sup> and Reservoir.

The MAC would like to express their full support on the proposed Lakeview Substation. The project will improve reliability and help meet the continued demand for electricity in the area.

Thank you also for the continued public outreach activities SCE has been conducting to inform local residents and organizations of the proposed project. Please continue to keep the MAC informed of the projects status and any future public outreach activities.

Sincerely,

  
  
Lakeview Nuevo Municipal Advisory Council



**LAKEVIEW/NUEVO MUNICIPAL ADVISORY COUNCIL**

**Thursday, March 18, 2010, 7:00 PM**

**Meeting Location: Mountain Shadows Middle School,  
30401 Reservoir Ave, Nuevo, CA 92567, (Library)**

IN ACCORDANCE WITH THE REQUIREMENTS OF THE CALIFORNIA CODE SECTION 59454.2 THIS  
AGENDA IS POSTED NO LESS THAN 72 HOURS PRIOR TO THE NOTED MEETING DATE AND TIME

1. Call to Order
2. Pledge of Allegiance
3. Roll Call and Introductions: Michael Foley, Sharlene Mauritz,  
Bill Bowker, Thomas Upton, John Lauda, and Diane Shott *Dr. Jay Hoffman*
4. Approval of Minutes *A*
5. New Business
  - a. Code Enforcement
  - b. Lake View Substation site Selection Approval (SCE) *Unanimously*  
Site Location: 10<sup>th</sup> Street and Reservoir
6. Staff Report- County Supervisor/Representative/County Departments
7. Public Comments:

*All persons wishing to address the Council on matters not on the agenda should do so at this time. Please limit your remarks to three (3) minutes. As determined by the chair, speakers may be deferred until a related agenda item is before the Council's consideration. Please state name and address.*

8. Items for future Agenda
  - Ramona Pageant
  - Park and Recreation
  - Citizens Patrol- May 20th

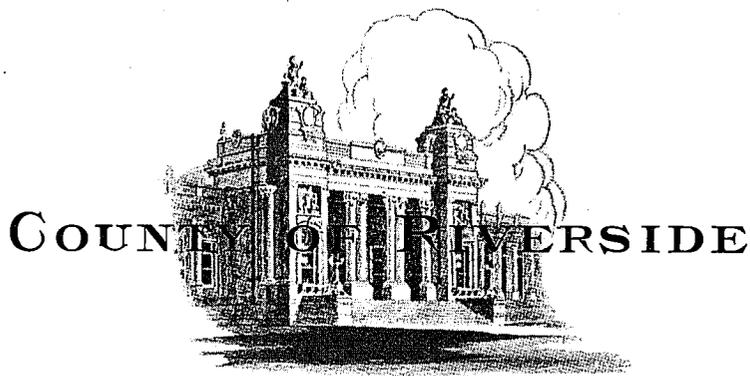
9. Announcements:

Next Meeting Date: Thursday, May 20, 2010 @ 7pm

10. Adjournment

Agendas may be found online the Friday prior to our meeting:  
<http://district5.co.riverside.ca.us/communities.html>

\*\*\*Further questions or comments please contact: Brenda Salas, 951.955.6046  
or email: [brendasalas@rivcoeda.org](mailto:brendasalas@rivcoeda.org)



## Board of Supervisors

<b>District 1</b> <i>Vice-Chairman</i>	<b>Bob Buster</b> 951-955-1010
<b>District 2</b>	<b>John F. Tavaglione</b> 951-955-1020
<b>District 3</b>	<b>Jeff Stone</b> 951-955-1030
<b>District 4</b>	<b>John J. Benoit</b> 951-955-1040
<b>District 5</b> <i>Chairman</i>	<b>Marion Ashley</b> 951-955-1050

March 23, 2010

Mr. Louis Davis  
Region Manager  
Southern California Edison  
24487 Prielipp Road  
Wildomar, CA 92595

### **RE: Lakeview Substation Project**

Mr. Davis:

Thank you for your recent presentation on Southern California Edison's (SCE) proposed Lakeview Substation Project.

The Board of Supervisors would like to express their full support on the proposed Lakeview Substation. The project will improve reliability and help meet the continued demand for electricity in the area.

Thank you also for the continued public outreach activities SCE has been conducting to inform local residents and organizations of the proposed project. Please continue to keep the Supervisors office informed of the projects status and any future public outreach activities.

Sincerely,

  
Marion Ashley, Chairman  
Riverside County Board of Supervisors