

# Draft Initial Study/Mitigated Negative Declaration

## Terminal Hill Tunnel and Shaft Project



Los Angeles Department of Water and Power  
Environmental Services  
111 North Hope Street, Room 1044  
Los Angeles, California 90012

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Los Angeles  Department of Water and Power

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# SECTION 1.0

## PROJECT DESCRIPTION

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### 1.1 Project Location

The Los Angeles Department of Water and Power (LADWP) is proposing to realign the existing Second Los Angeles Aqueduct (SLAA) pipeline where it crosses over Terminal Hill into a tunnel extending through the hill in the northeastern portion of the City of Los Angeles. The proposed project site is located north of Interstate 5, (I-5, Sacramento Freeway), between its intersection with Interstate 210 (I-210, Golden State Freeway) and State Route 14 (SR-14, Antelope Valley Freeway) near the communities of Sylmar and Granada Hills (see Figure 1, Regional Map). The site is bounded by Foothill Boulevard to the south and west, Magazine Canyon to the north, and the Cascades Golf Club to the east. The Angeles National Forest is located approximately 1.0 mile northeast (see Figure 2, Vicinity Map).

### 1.2 General Setting

The proposed project is located within an undeveloped area in the City of Los Angeles. Land uses in the vicinity of the site are predominantly open space and residential, though limited public facility and industrial uses occur to the south and southeast. No schools or hospitals occur in close proximity to the proposed project (i.e., within ½ mile). The Cascade Oil Field is located approximately 0.9 mile to the southwest.

### 1.3 Project Objectives

The objectives of the proposed project include the following:

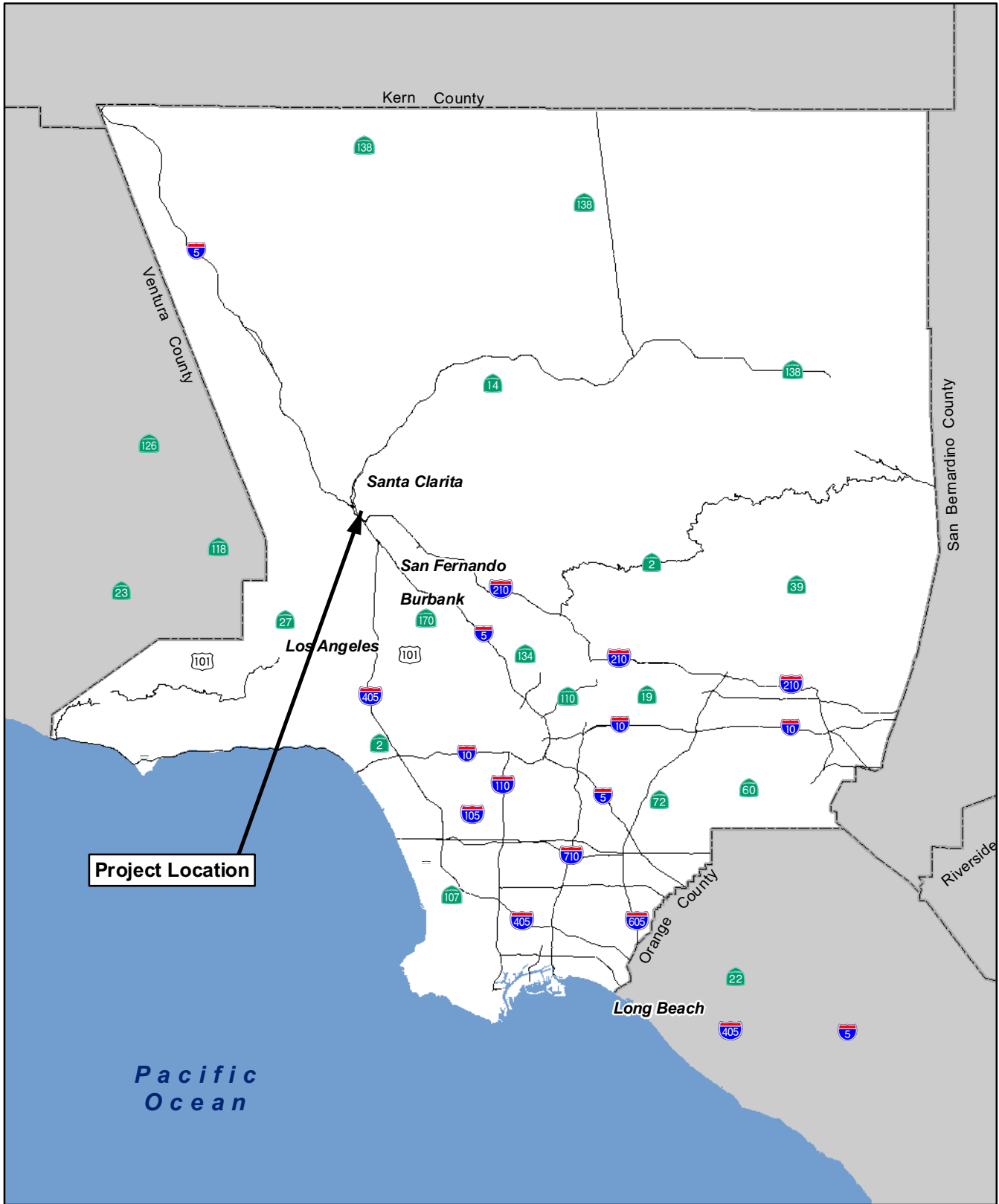
- Reduce the reoccurring seismic damage to the SLAA pipeline at Terminal Hill;
- Reduce the potential for seismic-related erosion and flooding resulting from rupture of the SLAA pipeline at Terminal Hill;
- Prevent collateral damage to the neighboring First Los Angeles Aqueduct (FLAA); and
- Improve reliability during seismic events.

### 1.4 Historical Perspective

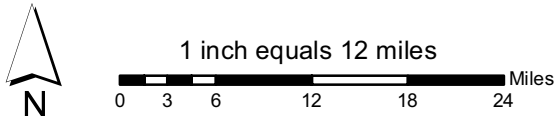
LADWP completed construction on the FLAA in 1913 in order to deliver water from the Owens River to the City of Los Angeles. The FLAA is entirely gravity driven and is capable of delivering 485 cubic feet per second (cfs) through 223 miles of pipeline. In order to maximize the City's water rights permits, LADWP constructed the SLAA in 1970 to add transport capacity. The gravity driven SLAA pipeline runs 137 miles from the Haiwee Reservoir south of Owens Lake, parallel to the FLAA. Combined, the two aqueducts provide on average 35 percent of the City's water supply; roughly 210 million gallons per day.<sup>1</sup>

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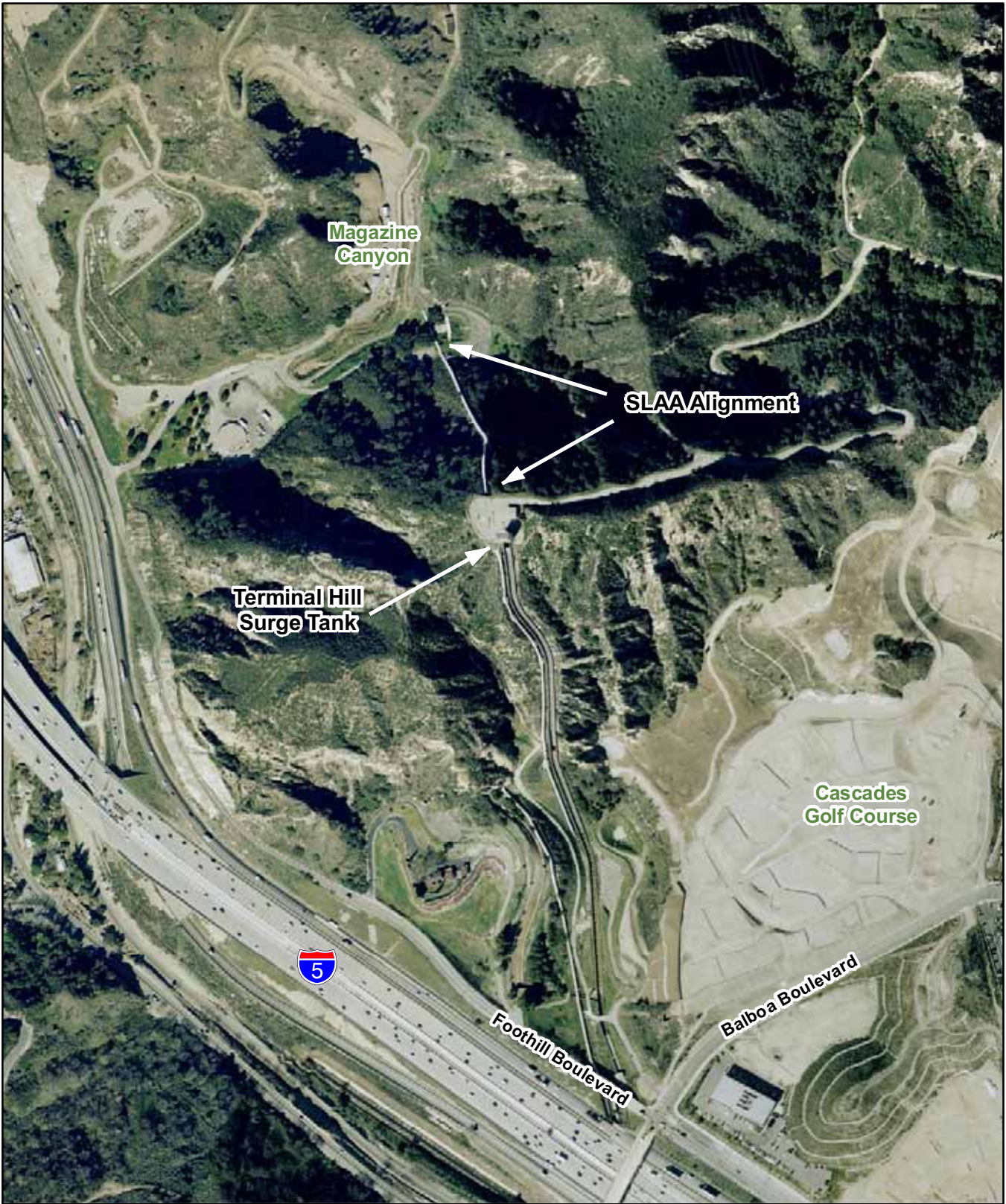
<sup>1</sup> Los Angeles, Department of Water and Power. City of Los Angeles Water Supply Action Plan. March 2008.



Source: California Geospatial Information Library (2003-5)

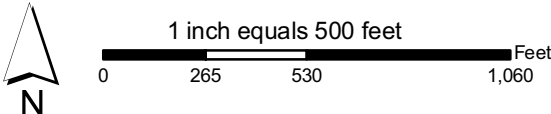


**Figure 1**  
**Regional Location Map**



Source: GlobeXplorer 2006

**Figure 2**  
**Vicinity Map**



The San Fernando Earthquake in 1971 and the Northridge Earthquake in 1994 caused significant damage to the SLAA. During both earthquakes, the pipeline section on the upper-north slope and crest of Terminal Hill was damaged due to severe ground shaking. Damage to the FLAA during these earthquakes was limited to minor cracking of the concrete lining in the southern third of the tunnel and also at the surface structure outside the north portal.

Following the Northridge Earthquake, a geological and geotechnical study was conducted by Woodward-Clyde Consultants and concluded that future strong ground shaking, amplified by topographic (ridge) effects, could result in repeated damage to the SLAA and cause collateral damage to the existing FLAA resulting in a significant shut down period to repair both Aqueducts. The study evaluated several options which included a no action alternative, a rock anchoring and crest stabilization remediation alternative, and an alternative to minimize ridge effects by realigning the SLAA through Terminal Hill. The study recommended replacing the existing surface pipeline on the north slope of Terminal Hill with a new pipeline constructed underground in a tunnel and a shaft. Realigning the pipeline through Terminal Hill would minimize ridge effects and mitigate future damage to the SLAA. The FLAA, which is in a tunnel through Terminal Hill, performed well under static and earthquake loading during both the San Fernando and Northridge Earthquake. Based on the performance of the existing FLAA tunnel and the minimization of ridge effects resulting from the placement of the SLAA through Terminal Hill, realignment of the SLAA is expected to perform well under the various loading conditions.

Several tunnel alignments through Terminal Hill were examined and evaluated to ensure the hydraulic requirements necessary to properly operate the SLAA were met. It was determined that the proposed realignment of the SLAA into a tunnel and shaft through Terminal Hill would reduce the SLAA's vulnerability to earthquakes and meet the hydraulic requirements to maintain the flow capacity of the SLAA.

## **1.5 Project Description**

The project would involve the demolition and removal of the existing SLAA pipeline on the northern side of Terminal Hill and the construction of a mining portal in Magazine Canyon, an approximately 580-foot long tunnel into Terminal Hill, and an approximately 290-foot deep shaft extending from the top of Terminal Hill down to the tunnel. All tunnel construction activities would occur at the portal in Magazine Canyon. Access to the portal would occur via Foothill Boulevard and an existing service road into Magazine Canyon. Access to the top of Terminal Hill for the shaft work would be via Silver Oaks Drive on the south side of Terminal Hill, crossing through the Cascades Golf Club and residential development, and an existing LADWP service road.

## **1.6 Construction Methods**

Table 1-1 contains a list of the equipment to be used during construction of the proposed project.

**TABLE 1-1 EQUIPMENT LIST**

Equipment	Quantity	Location
<b>Construction of Re-aligned Pipeline</b>		
Wheel Loader (CAT 966)	2	Magazine Canyon
1200 cfm Compressor	1	Magazine Canyon
Ventilation Fan (100 hp)	1	Magazine Canyon
Bobcat	1	Magazine Canyon
Concrete Trucks	2	Magazine Canyon
Roadheader (Tunnel Excavation Machine)	1	Magazine Canyon
Conveyor System or Muck Car	1	Magazine Canyon
Dump Trucks/Trailers	2	Magazine Canyon
Pipe Carrier	1	Magazine Canyon
Crawler Crane Rigged for Deep Shaft Excavation (American 9260)	1	Top of Terminal Hill
Truck Mounted Crane for Man Cage (Grove RT525)	1	Top of Terminal Hill
Ventilation Fan (100 hp)	1	Top of Terminal Hill
Wheel Loader (CAT 966)	1	Top of Terminal Hill
Dump Trucks/Trailers	2	Top of Terminal Hill
Concrete Trucks	4	Top of Terminal Hill
<b>Demolition of Existing Pipeline</b>		
D-6 or D-7 Dozer	1	Magazine Canyon
Dump Trucks/Trailers	2	Magazine Canyon
Helicopter	1	Magazine Canyon
Water Truck	1	Magazine Canyon
Front End Loader	1	Magazine Canyon
Vibration Compactor	1	Magazine Canyon
Roller Compactor	1	Magazine Canyon

**1.6.1 Tunnel and Shaft Construction**

The portal site in Magazine canyon would be prepared for construction by grading and paving the existing access road to the portal site and clearing and grubbing the slope around the existing SLAA. The slope adjacent to the SLAA would be excavated with equipment such as a bobcat or excavator to reach the portal of the tunnel. Temporary support systems such as soil nails or tiebacks would be installed to support the cut slopes.

Mechanical excavation equipment such as a roadheader would be utilized to excavate the tunnel starting at the portal in Magazine Canyon. The tunnel would be excavated at a slope of approximately 5.7 percent, crossing the existing FLAA tunnel approximately 440 feet from the tunnel entrance. An initial support system, such as steel rib supports with lagging would be installed to support the tunnel excavation as it proceeds to the end of the tunnel where it would intersect with the shaft. The reinforcement of the tunnel final lining would be placed and the concrete would be cast-in-place. Finished dimensions of the horseshoe shaped lining would be 13.5 feet by 11.8 feet. All debris generated by the work at the site would be hauled by dump trucks either offsite or to temporary stockpile areas in Magazine Canyon (see Section 1.6.4 below).

The shaft would be excavated using traditional top down mechanical shaft excavation utilizing a crane rigged for deep excavation with concurrent shaft excavation support



(i.e. steel rib supports and/or steel liner plates) installation until reaching the bottom of the shaft and end of the tunnel.

### **1.6.2 New Alignment Installation**

Pipe installation would start by placing an 87 degree steel elbow at the intersection of the tunnel and shaft. A crane stationed at the top of Terminal Hill would place segments of 84-inch diameter steel pipe, which would be welded together, into the shaft until the pipe reached the surface at the top of Terminal Hill. A ventilation system consisting of PVC pipes would also be installed in the excavated shaft parallel to the steel pipe. The annular space between the steel pipe and shaft excavation support would be backfilled with concrete to the top of the shaft at the top of Terminal Hill. The new steel pipe, butterfly valve, maintenance holes, and concrete vault and at the top of Terminal Hill would be installed and the final connections to the existing SLAA and Surge Tank would be completed.

The 84-inch steel pipe and concrete support saddles would be installed in the tunnel. The concrete box structure would be constructed at the portal site in Magazine Canyon and the remaining steel pipe and concrete saddles would be installed until reaching the final connection point to the existing SLAA in Magazine Canyon. Material previously excavated would be used to backfill around the concrete box structure and backfill the excavated slope to the final grade.

### **1.6.3 Old Alignment Removal**

Once the new tunnel and shaft segment of the SLAA is put into service, the existing pipeline crossing over Terminal Hill would be demolished and removed. The SLAA is able to be shut down for a one-month period of time to accommodate final connections. Accordingly, the existing pipeline can not be salvaged and reused for the proposed project.

Prior to removal, approximately 20 feet of vegetation along the entire length of both sides of the existing SLAA pipeline would be cleared, totaling approximately 0.74 acre. Rigging lugs would be installed on the existing pipe and temporary pipe supports would be installed in order to cut the existing steel pipe. The existing steel pipe would be cut into approximately 20 foot sections and removed from the hillside using a "Sky Crane" helicopter and taken to a storage area. After removing all sections of steel pipe from the slope, the existing concrete anchor blocks and concrete saddles would be demolished. All demolition debris would be hauled offsite with dump trucks and the holes created by the removal of the anchor blocks and saddles would be backfilled and compacted.

### **1.6.4 Site Restoration**

Site restoration of the slope would be completed once the demolition work is completed. The area beneath the former alignment as well as the areas to the east and west of the southern portion of the Cascades would be hydro-seeded. The locations of the portal and shaft worksites would be fully restored following pipeline installation.

### **1.6.5 Construction Staging and Stockpiling**

Staging for portal construction activities would occur on an unpaved, graded area on the west side of the existing SLAA surface structure (see Figure 3). The graded pad would be accessed via a partially paved service road along the south side of Magazine Canyon which would be widened and modified, requiring minor slope cuts and fills. Minor trimming of trees located along the service road would be performed if needed. Staging for shaft construction would occur on the graded pad area located at the top of Terminal Hill (see Figure 4).

It is not certain that temporary stockpiling of excavated soil onsite would be required during construction. The contractor may choose to haul the soil excavated from the tunnel and shaft to the disposal location immediately after excavation. Should the contractor choose to stockpile excavated soil onsite, potential temporary stockpile locations would be located on graded cement pad areas located on the south side of Terminal Hill adjacent to the cascades. These areas, shown on Figure 5, are located entirely within LADWP-owned property.

### **1.7 Construction Schedule**

If approved, the construction of the proposed project is anticipated to commence in early 2009 and is expected to last approximately 18 months. Construction activities would occur during two 10-hour shifts per 24-hour period.

### **1.8 Land Use Consistency**

Surrounding land uses to the southeast include the LA Aqueduct Filtration Plant, which is operated by the LADWP approximately 0.5 miles from the site, and the Cascades Golf Club at the Base of Terminal Hill. Single-family residences are currently being constructed on the Cascades Golf Club land. Parcels to the southwest are owned by De La Mare Engineering, Inc. and MWD and contain the existing MWD shaft. Parcels to the northwest, also owned by De La Mare Engineering, Inc. and MWD, contain firework magazine sheds. Construction and operation of the proposed project would be consistent with all surrounding land use designations within the project site. Compatibility with surrounding land uses is discussed below in Section 4.0.

### **1.9 Environmental Setting**

As mentioned previously, the area surrounding the proposed project is characterized by open space and some residences, as well as limited industrial and commercial development. Magazine Canyon lies adjacent to the northwest of the tunnel portal location and dense cover of coastal sage scrub covers a large portion of the hillside.



Source: GlobeXplorer 2006

**Figure 3**

**Staging and Stockpile Locations for Tunnel Construction**



Staging Locations



Source: GlobeXplorer 2006

**Figure 4**  
**Staging and Stockpile Locations for Shaft Construction**



 Staging Locations



Source: GlobeXplorer 2006

**Figure 5**  
**Temporary Stockpile Locations**



 Stockpile Locations

## **1.10 Required Permits and Approvals**

Several approvals and/or permits would be required to implement the proposed project. The environmental documentation for the project would be used to facilitate compliance with federal and state laws and the granting of permits by various state and local agencies having jurisdiction over one or more aspect of the project. These approvals and permits may include but may not be limited to the following:

### **Los Angeles Department of Water and Power**

- Certification by the Board of Water and Power Commissioners that the IS/MND was prepared in accordance with CEQA and other applicable codes and guidelines
- Approval by the Board of Water and Power Commissioners of the proposed project

### **State of California, Department of Fish and Game**

- Consultations, actions, and permits under various sections of the Fish and Game Code intended to protect rare, threatened, and endangered species

### **State of California, Los Angeles Regional Water Quality Control Board**

- Approval for general construction runoff and/or construction dewatering discharges under National Pollutant Discharge Elimination System (NPDES)
- Storm Water Pollution Prevention Plan

## SECTION 2.0 INITIAL STUDY CHECKLIST

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The following discussion of potential environmental effects was completed in accordance with Section 15063(d) of the CEQA Guidelines (2005) to determine if the project may have any significant effect on the environment.

A brief explanation is provided for all determinations. A "No Impact" or "Less than Significant Impact" determination is made when the project will not have any impact or will not have a significant effect on the environment for that issue area based on a project-specific analysis.

### **CEQA ENVIRONMENTAL CHECKLIST FORM AND INITIAL STUDY**

**Project Title:**

Terminal Hill Tunnel and Shaft Project

**Lead Agency Name and Address:**

Los Angeles Department of Water and Power  
Environmental Services  
111 North Hope Street, Room 1044  
Los Angeles, CA 90012

**Contact Person and Phone Number:**

Tom Dailor  
Environmental Supervisor  
Los Angeles Department of Water and Power  
(213) 367-0221

**Project Location:**

The project would be located within LADWP right-of-way, open space areas, and private property within the Sylmar Community Plan Area. The proposed project site is located at Terminal Hill near the communities of Sylmar and Granada Hills west of the Cascades Golf Club and southeast of Magazine Canyon.

**Council District:**

District 7

**Neighborhood Council:**

Sylmar Neighborhood Council

**Project Sponsor's Name and Address:**

Los Angeles Department of Water and Power  
Water Engineering and Technical Services  
111 North Hope Street, Room 1368  
Los Angeles, CA 90012

**General Plan Designation:**

The location of the proposed alignment would be located within an area designated as Minimum Residential by the City of Los Angeles General Plan. The project site is located within the Sylmar Community Plan Area.

**Zoning:**

The zoning designation is Agricultural (A1-1).

**Description of Project:**

The proposed project would involve the construction of approximately 970 feet of 84-inch diameter pipeline through Terminal Hill. Approximately 100 feet of pipeline would be installed in Magazine Canyon, 580 feet would be installed in a 13-foot 6-inch wide by 11-foot 9-inch high horseshoe-shaped tunnel into the side of Terminal Hill, and 290 feet would be installed in a vertical shaft in the center of the hill, connecting to the existing pipeline at the top. Construction of the pipeline would occur along LADWP right-of-way, while construction staging and access would occur within private property and county access roads. The project would also involve the demolition and removal of the existing pipeline associated with the SLAA where it crosses the hill. The proposed project would reduce the risk of seismic upset to the SLAA and prevent collateral damage to the FLAA from secondary seismic hazards such as flooding and landsliding.

**Surrounding Land Uses and Setting:**

The proposed project is located within a primarily undeveloped area in the City of Los Angeles. Land uses in the vicinity of the proposed project are predominantly open space, single- and multi-family residential, and public facilities; though limited industrial uses occur along Foothill Boulevard to the southeast and west. No schools or hospitals are located in proximity (i.e., within ½ mile) to the project site.

**Agencies that may have an interest in the proposed project:**Responsible/Trustee Agencies

- Los Angeles Regional Water Quality Control Board
- California Department of Fish and Game
- Metropolitan Water District

Reviewing Agencies

- California Department of Health Services




## ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, including at least one impact that is a "Potentially Significant Impact" as indicated by the Environmental Checklist below, and discussed in Section 3.0.

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

## DETERMINATION

- 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

9/5/08  
Date

Charles Holloway, Manager of Environmental Assessment  
Los Angeles Department of Water and Power

	Potentially Significant Impact	Less than Significant Impact After Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>I. AESTHETICS.</b> Would the project:				
a. Have a substantial adverse effect on a scenic vista?			X	
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c. Substantially degrade the existing visual character or quality of the site and its surroundings?				X
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?			X	
e. Create a new source of substantial shade or shadow that would adversely affect daytime views in the area?				X
<b>II. AGRICULTURE RESOURCES.</b> 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 Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. 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?			X	
b. Conflict with existing zoning for agricultural use, or a Williamson act contract?			X	
c. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X
<b>III. AIR QUALITY.</b> 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?			X	
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
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)?			X	
d. Expose sensitive receptors to substantial pollutant concentrations?			X	

	Potentially Significant Impact	Less than Significant Impact After Mitigation Incorporated	Less Than Significant Impact	No Impact
e. Create objectionable odors affecting a substantial number of people?		X		
<b>IV. BIOLOGICAL RESOURCES.</b> 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 U.S. Fish and Wildlife Service?		X		
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
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?				X
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?				X
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		X		
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?				X
<b>V. CULTURAL RESOURCES.</b> Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?				X
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?			X	
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d. Disturb any human remains, including those interred outside of formal cemeteries?			X	
<b>VI. GEOLOGY AND SOILS.</b> Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				

	Potentially Significant Impact	Less than Significant Impact After Mitigation Incorporated	Less Than Significant Impact	No Impact
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.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b. Result in substantial soil erosion, loss of topsoil, or changes in topography or unstable soil conditions from excavation, grading, or fill?			X	
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?			X	
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?			X	
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
<b>VII. HAZARDS AND HAZARDOUS MATERIALS:</b> Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				X
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?		X		
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d. Be located on a site that 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?			X	
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?				X

	Potentially Significant Impact	Less than Significant Impact After Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				X
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
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?			X	
<b>VII. HYDROLOGY AND WATER QUALITY.</b> Would the project:				
a. Violate any water quality standards or waste discharge requirements?			X	
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)?			X	
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?			X	
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 that would result in flooding on- or off-site?			X	
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?				X
f. Otherwise substantially degrade water quality?			X	
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?				X
h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?				X
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?			X	
j. Inundation by seiche, tsunami, or mudflow?			X	
<b>IX. LAND USE AND PLANNING.</b> Would the project:				

	Potentially Significant Impact	Less than Significant Impact After Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?				X
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?			X	
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
<b>X. MINERAL RESOURCES.</b> 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?				X
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?				X
<b>XI. NOISE.</b> 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?		X		
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				X
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
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?				X
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?				X
<b>XII. POPULATION AND HOUSING.</b> 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)?				X
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X

	Potentially Significant Impact	Less than Significant Impact After Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
<b>XIII. PUBLIC SERVICES.</b>				
a. 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:				
i) Fire protection?			X	
ii) Police protection?			X	
iii) Schools?				X
iv) Parks?				X
v) Other public facilities?				X
<b>XIV. RECREATION.</b>				
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?				X
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X
<b>XV. TRANSPORTATION/TRAFFIC.</b> Would the project:				
a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?			X	
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			X	
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?				X
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e. Result in inadequate emergency access?				X
f. Result in inadequate parking capacity?				X

	Potentially Significant Impact	Less than Significant Impact After Mitigation Incorporated	Less Than Significant Impact	No Impact
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X
<b>XVI. UTILITIES AND SERVICE SYSTEMS.</b> Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
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?				X
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e. Result in a determination by the wastewater treatment provider that 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?				X
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g. Comply with federal, state, and local statutes and regulations related to solid waste?			X	
<b>XVII. 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?			X	
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.			X	
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?				X



## SECTION 3.0

### DISCUSSION OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

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#### INTRODUCTION

The following discussion addresses impacts to various environmental resources, per the Initial Study Checklist questions contained in Appendix G of the State CEQA Guidelines, as summarized above in Section 2.0, Initial Study Checklist. It was prepared in accordance with Section 15070 and 15071 of the CEQA Guidelines (2005). In some instances, one response addresses two or more checklist questions.

#### I. AESTHETICS

##### Would the project:

##### a) Have a substantial adverse effect on a scenic vista?

**Less than Significant Impact.** The proposed project is located within a primarily undeveloped area surrounded by open space adjacent to the Angeles Forest to the northeast. Both I-210 and I-5 located south of the proposed project are designated as scenic highways within the Sylmar area; however, the proposed project would realign an existing aboveground pipeline into an underground tunnel.<sup>2</sup> As such, the construction and operation of the project would not have an effect on scenic vistas.

##### b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

**Less than Significant Impact.** Construction of the proposed project would require trimming of trees located along the access road on the south side of Terminal Hill and alteration of the root system of several mature trees located adjacent to the proposed tunnel alignment. Removal of the existing pipeline on the south side of the hill would also require the removal of several trees adjacent to the alignment. However, none of these trees are visible from I-210 or I-5 due to the location and lower elevation of the scenic freeways with respect to the project location.<sup>3</sup>

##### c) Substantially degrade the existing visual character or quality of the site and its surroundings?

**No Impact.** The proposed project would realign and existing aboveground crossing of the SLAA over Terminal Hill to a tunnel running through the hill. The existing pipeline would be removed, improving the visual character of Terminal Hill.

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<sup>2</sup> City of Los Angeles. Sylmar Community Plan. Adopted August, 8, 1997.

<sup>3</sup> EDAW, Inc. Site Visit. June 30, 2006 and August 10, 2006.

**d) Create new source of substantial light or glare that would adversely affect day or nighttime views in the area?**

**Less than Significant Impact.** Construction of the proposed project would require the use of lighting during nighttime work. While nighttime lighting at the top of Terminal Hill would be visible from the residences located to the southeast of the hill, only the work area would be illuminated, and impacts would be less than significant. No new sources of operational light or glare would be created.

**e) Create new source of substantial shade or shadow that would adversely affect daytime views in the area?**

**No Impact.** The proposed project would remove the existing aboveground 76-inch diameter pipeline. Although a minor shadow is created by the current alignment, the relocation of the pipeline into an underground tunnel would remove this source of shade and shadow.

**II. AGRICULTURE RESOURCES**

**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?**

**Less than Significant Impact.** The project site has been designated by the Department of Conservation as Prime Farmland, categorized as Grazing Land. However, the proposed temporary stockpiling and staging areas are either paved or cleared and regularly mowed. The property is LADWP-owned right-of-way and private property and is not used for grazing. In addition, the proposed project would realign an existing aboveground pipeline underground and would not alter the existing zoning or farmland designation of the site.

**b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?**

**Less than Significant Impact.** The parcel of land that Terminal Hill is located on is zoned A1-1, Agricultural. However, the project site consists of paved and unpaved clearings, access roads, and coastal sage scrub cover. No agricultural uses exist within the vicinity of the project area. In addition, the proposed project would operate passively underground and within LADWP-owned right-of-way.

**c) Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use?**

**No Impact.** As discussed, impacts to Farmland and agricultural would be less than significant. In addition, following completion of construction activities, no changes to the operational use of the project site would occur.

### III. AIR QUALITY

Would the project:

**a) Conflict with or obstruct implementation of the applicable air quality plan (e.g., the SCAQMD Plan or Congestion Management Plan)?**

**Less than Significant Impact.** The Terminal Hill site lies within the South Coast Air Basin (Basin), which is managed by the South Coast Air Quality Management District (SCAQMD). National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), inhalable particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>), and lead (Pb). The CAAQS also set standards for sulfates, hydrogen sulfide, and visibility.

Areas are classified under the Federal Clean Air Act as either “attainment” or “non-attainment” areas for each criteria pollutant based on whether the NAAQS have been achieved or not. Attainment relative to the State standards is determined by the California Air Resources Board (CARB). The project site is located in the Los Angeles County portion of the Basin. Los Angeles County is designated as a federal and state non-attainment area for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and an attainment area for CO SO<sub>2</sub>, NO<sub>2</sub>, and Pb (Table 3-1).

**TABLE 3-1 ATTAINMENT STATUS FOR THE LOS ANGELES COUNTY PORTION OF THE SOUTH COAST AIR BASIN**

Pollutant	Attainment Status	
	Federal	State
O <sub>3</sub> – 1-Hour	-- <sup>1</sup>	Non-attainment Extreme
O <sub>3</sub> – 8-hour	Non-attainment Severe 17	
PM <sub>10</sub>	Non-attainment Serious	Non-attainment
PM <sub>2.5</sub>	Non-attainment	Non-attainment
CO	Attainment/Maintenance <sup>2</sup>	Attainment
NO <sub>2</sub>	Attainment	Attainment
SO <sub>2</sub>	Attainment	Attainment
Pb	Attainment	Attainment

Sources: USEPA 2007; CARB 2006  
 1- Repealed by law in June 2005.  
 2- Redesignation to Attainment effective in June 2007.

The proposed tunnel and piping installation would not conflict with or obstruct the implementation of the AQMP. No land uses are proposed that are different than those anticipated for the property in long range planning. Standards set by the SCAQMD, CARB, and Federal agencies relating to the project would be required and incorporated at applicable design and approval stages. Specific air quality impacts related to criteria pollutants are discussed below.

**b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

**Mass Daily Thresholds**

**Less than Significant Impact.** Los Angeles County is designated as a Federal and State non-attainment area for O<sub>3</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, and a Federal maintenance area for CO. The SCAQMD, the regional agency that regulates stationary sources, maintains an extensive air quality monitoring network to measure criteria pollutant concentrations throughout the Basin.

State and Federal agencies have set ambient air quality standards for various pollutants. Both CAAQS and NAAQS have been established to protect the public health and welfare. The SCAQMD has prepared the CEQA Air Quality Handbook to provide guidance to those who analyze the air quality impacts of proposed projects. Based on Section 182(e) of the Federal Clean Air Act, the SCAQMD has set CEQA significance thresholds for potential air quality impacts as shown in Table 3-2.

Emissions for construction of the proposed project were quantified using the URBEMIS2007, a computer program used to estimate vehicle trips, emissions, and fuel use resulting from land use development projects (Rimpo and Associates 2007). URBEMIS computes emissions of reactive organic gases (ROG), NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. On projects of this type, SO<sub>2</sub> emissions would be negligible and are not included in the analysis below. Appendix A includes construction equipment assumptions and URBEMIS data sheets.

Construction Emissions

Excavation and grading activities would generate fugitive dust including PM<sub>10</sub>. Operation of diesel-engine construction equipment on-site, hauling of tunnel spoils (muck) from the site and materials to the site, and construction crew traffic would generate emissions of ROG, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. Construction would occur at two locations, Magazine Canyon and the top of Terminal Hill. Work at either site may occur on either one or two shifts per day. Equipment types, muck volumes, and other related data input into the model were taken from data provided by LADWP engineers and is detailed in Table 3-3. The construction fleet would be consistent with CARB's projected phase-in schedule for engine emissions control. It is assumed that work would start in early 2009 and continue for 18 months. Tasks in 2009 would include site preparation and excavation of the Magazine Canyon tunnel and Terminal Hill shaft. Tasks in 2010 would include installation of pipe, backfill and completion of the new piping, and demolition of the existing SLAA pipeline. Work at the two sites would overlap during the construction. Estimated construction-related mass emissions for various scenarios for the project are shown in Table 3-4.

**TABLE 3-2 SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

<b>Mass Daily Thresholds</b>		
<b>Pollutant</b>	<b>Construction</b>	<b>Operation</b>
NO <sub>x</sub>	100 lbs/day	55 lbs/day
ROC	75 lbs/day	55 lbs/day
PM <sub>10</sub>	150 lbs/day	150 lbs/day
PM <sub>2.5</sub>	55 lbs/day	55 lbs/day
SO <sub>x</sub>	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
<b>Toxic Air Contaminants (TACs) and Odor Thresholds</b>		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Hazard Index $\geq$ 1.0 (project increment) Hazard Index $\geq$ 3.0 (facility-wide)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
<b>Ambient Air Quality for Criteria Pollutants <sup>a</sup></b>		
NO <sub>2</sub>  1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
PM <sub>10</sub> 24-hour average  annual geometric average annual arithmetic mean	10.4 $\mu\text{g}/\text{m}^3$ (construction) <sup>b</sup> & 2.5 $\mu\text{g}/\text{m}^3$ (operation)  1.0 $\mu\text{g}/\text{m}^3$ 20 $\mu\text{g}/\text{m}^3$	
PM <sub>2.5</sub> 24-hour average	10.4 $\mu\text{g}/\text{m}^3$ (construction) <sup>b</sup> & 2.5 $\mu\text{g}/\text{m}^3$ (operation)	
Sulfate 24-hour average	25 $\mu\text{g}/\text{m}^3$	
CO  1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	
<p>SOURCE: SCAQMD, Air Quality Analysis Guidance Handbook. Available at <a href="http://www.aqmd.gov/ceqa/hdbk.html">http://www.aqmd.gov/ceqa/hdbk.html</a>. Accessed November 20, 2006</p> <p>lbs/day = pounds per day ppm = parts per million <math>\mu\text{g}/\text{m}^3</math> = micrograms per cubic meter <math>\geq</math> greater than or equal to</p> <p>a Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated. b Ambient air quality threshold based SCAQMD Rule 403. Table revision date: October 2006</p>		

**TABLE 3-3 CONSTRUCTION EQUIPMENT ASSUMPTIONS**

<b>Phase</b>	<b>Equipment<sup>1</sup></b>	<b>Number</b>
Demo Existing SLAA Pipeline	Concrete Industrial Saw	1
	Rubber-Tired Dozer	1
	Tractor/Loader/Backhoe	2
Site and Slope Preparation – Magazine Canyon	Excavator	1
Tunnel Excavation	Air Compressor	1
	General Industrial Equipment	1
	Skid Steer Loader	1
	Tractor/Loader/Backhoe	2
Pipe Installation	Air Compressor	1
	Crane	1
	Other Equipment	1

Phase	Equipment <sup>1</sup>	Number
	General Industrial Equipment	2
	Welder	2
Shaft Excavation	Crane	1
	Other Equipment	1
	General Industrial Equipment	1
	Tractor/Loader/Backhoe	1
1 Equipment assumptions are based on applicable URBEMIS input selections and do not reflect the complete list of equipment to be used during construction.		

**TABLE 3-4 ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS**

	Estimated Emissions (lbs/day)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>2009 – Excavation of Tunnel and Shaft<sup>1</sup></b>					
Magazine Canyon - 1 10 hr shift	3.5	24.4	11.9	2.1	1.5
Terminal Hill - 1 10 hr shift	4.0	33.4	14.5	1.8	1.6
<b>Total for single shift operation at both locations</b>	<b>7.5</b>	<b>57.8</b>	<b>26.5</b>	<b>3.8</b>	<b>3.2</b>
<i>SCAQMD Thresholds</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>55</i>
Exceeds SCAQMD Thresholds?	No	No	No	No	No
Magazine Canyon – 2 shifts, 17 hours work	5.9	41.4	20.3	0.0	3.5
Terminal Hill - 2 shifts, 17 hours work	6.7	56.8	24.7	0.0	3.0
<b>Total for two shift operation at both locations</b>	<b>12.7</b>	<b>98.3</b>	<b>45.0</b>	<b>0.0</b>	<b>6.5</b>
<i>SCAQMD Thresholds</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>55</i>
Exceeds SCAQMD Thresholds?	No	No	No	No	No
<b>2010 – Maximum Emissions<sup>2</sup></b>					
<b>Maximum Emissions</b>	<b>5.6</b>	<b>32.3</b>	<b>18.9</b>	<b>3.7</b>	<b>2.4</b>
<i>SCAQMD Thresholds</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>55</i>
Exceeds SCAQMD Thresholds?	No	No	No	No	No
Source: URBEMIS ver. 9.2 (Rimpo 2007)					
1 – Maximum 2009 emissions occur during excavation of tunnel and shaft; site preparation emissions would be less than the maxima; see Appendix A					
2 – Maximum 2010 ROG, NO <sub>x</sub> , CO, and PM <sub>2.5</sub> emissions occur during pipe and concrete installation; maximum PM <sub>10</sub> emissions occur during demolition of abandoned pipeline; see Appendix A.					

Based on preliminary review of the data, it was determined that tunnel and shaft excavation operations in 2009 would be limited to 17 hours of work per day at each location. With this limit, the emissions would not exceed the SCAQMD thresholds, as shown in Table 3-4. The impact would be less than significant.

#### Operational Emissions

Upon completion of installation of the new pipeline, there would be no new pollutant-generation activities.

## **Ambient Air Quality for Criteria Pollutants – Local Emissions**

### On-Site Emissions

**No Impact.** The SCAQMD has promulgated methodology and standards for calculation of impacts based on Localized Significance Thresholds (LST) (SCAQMD 2003). An LST analysis is a localized air dispersion modeling analysis used to predict maximum concentration levels of NO<sub>2</sub>, CO, and PM<sub>10</sub> emissions generated from a project site that could reach nearby sensitive receptors. Air dispersion modeling is a function of multiple variables, including local-specific meteorological conditions, site-specific air pollutant emission levels, and sensitive receptor distances to the modeling site.

The methodology examines potential impacts to receptors within 500 meters, or 1,640 feet from a project site. The closest sensitive receptors are residences on Saddletree Court and Filbert Street, approximately 4,000 feet southeast of the top of Terminal Hill. Therefore, there would be no impact.

### Off-Site Emissions

**Less than Significant Impact.** A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion at signalized intersections on major roadways. An appropriate qualitative screening procedure is provided in the procedures and guidelines contained in Transportation Project-Level Carbon Monoxide Protocol (the Protocol) to determine whether a project poses the potential for a CO hotspot (UCD ITS 1997). According to the Protocol, projects may worsen air quality if they: significantly increase the percentage of vehicles in cold start modes (i.e., the starting of a vehicle after at least one hour of non-operation) by 2 percent or more; significantly increase traffic volumes (by 5 percent or more) over existing volumes; or worsen traffic flow, defined for intersections, as increasing average delay at signalized intersections operating at Level of Service (LOS) E or F.

The proposed project would generate very little traffic on major roadways, limited to construction workers commuting to and from the site, and trucks delivering materials to the site. The volume of traffic would not be of the magnitude to create severe congestion nor substantially contribute to congestion at any major signalized intersection.

### **Global Climate Change**

**Less than Significant Impact.** Global climate change refers to variances in Earth's meteorological conditions, which are measured by wind patterns, storms, precipitation, and temperature. The term climate change is often used interchangeably with the term global warming, but according to the National Academy of Sciences, "the phrase 'climate change' is growing in preferred use to 'global warming' because it helps convey that there are [other] changes in addition to rising temperatures." Climate change is any significant change in measures of climate (such as temperature, precipitation,

or wind) lasting for an extended period (decades or longer). Climate change may result from:

- natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- natural processes within the climate system (e.g. changes in ocean circulation); or
- human activities that change the atmosphere's composition (e.g. through burning fossil fuels) and the land surface (e.g. deforestation, reforestation, urbanization, desertification, etc.)

Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced. In common usage, "global warming" often refers to the warming that can occur as a result of increased emissions of greenhouse gases (GHG) from human activities.

On September 27, 2006, AB 32, the California Global Warming Solutions Act of 2006, was enacted by the State of California. The legislature stated that "global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." AB 32 caps California's GHG emissions at 1990 levels by 2020. AB 32 defines GHG emissions as all of the following gases: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. This bill represents the first enforceable Statewide program in the United States to cap all GHG emissions from major industries. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the State that serve California residents and businesses.

CARB has been tasked to establish a "scoping" plan by January 1, 2009 for achieving reductions in GHG emissions, and regulations by January 1, 2011 for reducing GHG emissions to achieve the emissions cap by 2020, which rules would take effect no later than 2012. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic benefits for California, and complement the State's ongoing efforts to improve air quality. AB 32 also directs CARB to "recommend a de minimis threshold of greenhouse gas emissions below which emissions reduction requirements will not apply" by January 1, 2009 (HSC §38561(e)). CARB has suggested a 25,000 metric ton emissions level as a possible de minimis threshold.

California Senate Bill (SB) 97, passed in August 2007, is designed to work in conjunction with the California Environmental Quality Act (CEQA) and AB 32.



CEQA requires the State Office of Planning and Research (OPR) to prepare and develop guidelines for the implementation of CEQA by public agencies. SB 97 requires OPR by July 1, 2009 to prepare, develop, and transmit to the State Resources Agency its proposed guidelines for the feasible mitigation of GHG emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption. The Resources Agency is required to certify and adopt the guidelines by January 1, 2010, and OPR is required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to AB 32. SB 97 would apply to any proposed or draft environmental impact report, negative declaration, mitigated negative declaration, or other document prepared under CEQA that has not been certified or adopted by the CEQA lead agency as of the effective date of the new guidelines.

In addition to the State regulations, the City of Los Angeles has issued guidance promoting green building to reduce GHG emissions. The goal of the Green LA Action Plan (Plan) is to reduce greenhouse gas emissions 35 percent below 1990 levels by 2030. The Plan identifies objectives and actions designed to make the City a leader in confronting global climate change. The measures would reduce emissions directly from municipal facilities and operations, and create a framework to address City-wide GHG emissions. The Plan lists various focus areas in which to implement GHG reduction strategies. Focus areas listed in the Plan include energy, water, transportation, land use, waste, port, airport, and ensuring that changes to the local climate are incorporated into planning and building decisions. LADWP has modified its generation resource mix and undertaken numerous programs to reduce greenhouse gas emissions since 1990. In 1995, LADWP signed a Climate Challenge Participation Accord with the U.S. Department of Energy, voluntarily committing to reduce CO<sub>2</sub> emissions from electricity generation to keep LADWP's average annual CO<sub>2</sub> emissions from 1991 to 2000 below its 1990 baseline. In 2000, LADWP's Integrated Resource Plan set a new goal to reduce greenhouse gas emissions by at least 5 percent below 1990 levels by 2012. Due to these efforts, LADWP's 2006 CO<sub>2</sub> emissions were 7 percent lower than its 1990 emissions, while total electricity generation (MWh) grew 14 percent over the same period. In 2002, LADWP became a Charter Member of the California Climate Action Registry, and has reported its 2000-2006 entity-wide greenhouse gas emissions to the Registry. Currently, LADWP is aggressively pursuing a Renewable Portfolio Standard goal of meeting 20 percent of its customer's energy needs with renewable generation by 2010, with a long-term goal of 35 percent renewable energy by 2020. In addition, LADWP has implemented a number of programs with emission reduction benefits, including water conservation, customer energy efficiency and demand side management, solar power, building energy efficiency retrofits, recycling, operating electric and fuel-efficient vehicles, and tree planting (urban forestry).

As previously discussed, OPR has been tasked with developing CEQA global warming significance thresholds. OPR has indicated that many significant

questions must be answered before a consistent, effective, and workable process for completing global warming analyses can be created for use in CEQA documents. OPR has also indicated that there may not be sufficient amount of information or research available to develop significance thresholds.

In the absence of project-specific significance thresholds established by any State or local air quality management agency, the analysis of potential impacts should focus on regional emissions and compliance with plans aimed at reducing GHG emissions. As discussed, the proposed project would not conflict with or obstruct the implementation of the AQMP or alter the existing land use of the site in a way that would result in an increase in pollutant emissions, including GHG. Therefore, the proposed project would result in a less-than-significant global warming impact.

- 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)?**

**Less than Significant Impact.** The Basin is in a nonattainment area for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. As discussed above, the proposed addition would result in temporary increases in these criteria pollutants or their precursors during construction. Emissions of these pollutants would not exceed SCAQMD thresholds.

- d) Expose sensitive receptors to substantial pollutant concentrations?**

**Less than Significant Impact.** There are no existing sensitive receptors within approximately 4,000 feet of the construction site, or within approximately 3,300 feet of haul roads than may be used for muck disposal. Future homes in the Cascades Golf Course development may be approximately 1,200 feet from the top of Terminal Hill and 500 feet from the access road to Terminal Hill. At these distances, pollutant concentrations resulting from project activities would be less than significant.

- e) Create objectionable odors affecting a substantial number of people?**

**Less than Significant Impact After Mitigation Incorporated.** A potential source of odor would be the material (muck) that is removed during excavation of the tunnel and shaft. However, initial borings indicate there would be no offensive odor. LADWP has indicated that one possible temporary muck storage site would be located to the west of the Cascades Golf Course homes now being constructed. If the site is used, and if the muck emits offensive odors, there would be a significant impact. Mitigation Measure AIR-1 would be incorporated into the project to avoid the impact.

**Mitigation Measure AIR-1.** The LADWP shall include a requirement in the job specifications that shall prevent the use of the temporary storage site west

of the Cascade Golf Course homes if the muck is found to emit offensive or objectionable odors.

#### 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 U.S. Fish and Wildlife Service?**

**Less than Significant Impact After Mitigation Incorporated.** The California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2006), California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDDB) (CDFG, 2006a), and the current List of Special Status Animals (CDFG, 2006b) were reviewed. The survey area is within the U.S. Geological Survey 7.5 minute San Fernando quadrangle. The Oat Mountain quadrangle, west of the San Fernando quadrangle, was also queried because of its close proximity to the project site. The project site is not located within a Significant Ecological Area, as defined by the County of Los Angeles (DRP, 2007).

A survey of the project site was conducted on August 10, 2006 to identify any potential habitat for special status plants and wildlife species. No special status plants or wildlife were detected during the reconnaissance survey. None of the special status species listed in the literature discussed above are known to occur in the project site and none were detected during general reconnaissance surveys. In addition, the project site lacks suitable habitat for many of the special status species identified during the literature search.

The site contains mature coastal sage scrub with suitable density and diversity to support the federally threatened coastal California gnatcatchers (*Polioptila californica californica*) and the California Species of Concern San Diego desert woodrat (*Neotoma lepida intermedia*) and coast horned lizard (*Phrynosoma coronatum*). No coastal California gnatcatchers were observed on site during a reconnaissance site assessment conducted by URS during 2002. In addition, a previous Biological Opinion (BO) prepared for the site in 1998 (with amendments in 2000 and 2004) states that no incidental take is anticipated due to the absence of the coastal California gnatcatcher. However, no previous surveys were conducted for the San Diego desert woodrat or the coast horned lizard. Accordingly, there is potential for the San Diego desert woodrat and the coast horned lizard to exist onsite. Survey requirements for California Species of Special Concern (i.e. the San Diego desert woodrat and the coast horned lizard) are at the discretion of the CDFG.

The project would potentially impact nesting habitat temporarily during construction as well as permanently at the location of the tunnel portal. As

discussed, approximately 20 feet of vegetation along the entire length of both sides of the existing SLAA pipeline would be cleared, totaling approximately 0.74 acre. Mitigation measures BIO-1 and BIO-2 would address potential impacts to habitat during clearing of vegetation. Following construction, the area would be hydroseeded and fully restored. Accordingly, no permanent impacts to the vegetation along the existing alignments would occur.

The project disturbance limits for the construction of the tunnel portal is expected to require a temporary work area of less than 0.29 acre. The coastal sage scrub in the area is expected to be crushed or cut and the slope will not be graded; therefore, the root structure of this vegetation community will remain intact. However, the project is expected to result in a permanent loss of approximately 0.02 acre (based on current project design) of coastal sage scrub at the location of the tunnel portal. Mitigation measures BIO-1 and BIO-2 would address impacts to habitat during construction and mitigation measure BIO-3 would address permanent operational impacts. Areas designated for equipment staging and temporary placement of spoils are disturbed with little habitat value and are regularly mowed.

**Mitigation Measure BIO-1.** Should construction activities occur between March 15 and August 31, a qualified wildlife biologist will conduct a precautionary survey for nesting birds in the proposed project area and flag active bird nests. The nesting bird surveys shall take place no sooner than 72 hours prior to any ground disturbing activities or vegetation removal in order to comply with the requirements of the Migratory Bird Treaty Act. Should any nesting birds be discovered, a surrounding perimeter of 300-feet will be established as a construction off-limit zone. A biological monitor shall be present during all construction activities that occur within 500-feet of any flagged nest. Once a flagged nest is determined to be no longer active, the biological monitor shall remove all flagging and allow construction activities to proceed.

**Mitigation Measure BIO-2.** Prior to the start of construction, a qualified wildlife biologist shall conduct a precautionary presence/absence surveys for the San Diego desert woodrat and the coast horned lizard within the project area. Should either species be discovered, consultation with the CDFG shall be required to determine a preferred course of action. In addition, daily pre-work tailgate meetings shall include information on identification and proper avoidance procedures for both species.

**Mitigation Measure BIO-3.** LADWP shall compensate for the permanent loss of 0.02 acre of coastal sage scrub habitat in the location of the tunnel portal via a 2:1 replacement ratio, as stated in the biological opinion, or through purchase of appropriate mitigation credits.

- 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 U.S. Fish and Wildlife Service?**

**Less than Significant Impact.** The literature search revealed the recorded current and historic presence of sensitive plant communities within the vicinity of the project site including: California walnut woodland, Riversidian alluvial fan sage scrub, southern coast live oak riparian forest, southern cottonwood willow riparian forest, southern mixed riparian forest, southern sycamore alder riparian woodland, southern willow scrub, and valley oak woodland.

As discussed, the project disturbance limits is expected to require a temporary work area of less than 1.03 acres (0.74 acre along the existing alignment and 0.29 at the location of the tunnel portal), while the permanent impacts to coastal sage scrub would be less than 0.02 acre. The required compensation of 2:1 replacement for affected habitat is expected to be acceptable mitigation for impacts to coastal sage scrub associated with project development.

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

**No Impact.** The project site does not exhibit any function or value typical of jurisdictional waters or wetlands protected by Section 404 of the Clean Water Act. There are no jurisdictional wetlands or waters of the U.S. located within the project site.

- 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/breeding sites?**

**No Impact.** There are no rivers, streams, or other water bodies present within the project site. Wildlife corridors are relatively narrow landscape features that provide connections between larger blocks of native habitat. Habitat linkages are broader native habitat patches that join larger patches of habitat and can reduce the adverse effects of habitat fragmentation. The proposed project contains habitat that could be used by migratory wildlife, however, project construction would not result in any permanent impacts to native habitat nor permanently disrupt wildlife movement or migration.

- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (e.g., oak trees)?**

**Less than Significant Impact After Mitigation Incorporated.** Coast live oak (*Quercus agrifolia*) are subject to Los Angeles County and City of Los

Angeles regulations. The Los Angeles County Oak Tree Ordinance (Los Angeles County Code Section 22.56.2060) and City of Los Angeles Protected Tree Ordinance assure the protection of and regulate the removal of protected trees, including coast live oak.<sup>4</sup> The ordinances require permits and mitigation for damaged and/or removed oak trees within the project site. The project site contains two mature oak trees, which would potentially be removed during construction of the tunnel and additional oak trees along the tunnel access road would be trimmed to allow adequate access of construction equipment. All tree trimming required along the access road to the tunnel site would be conducted by a certified arborist to ensure the impacts would be less than significant. Additionally, mitigation is provided below to address the potential removal of the two mature oak trees.

**Mitigation Measure BIO-4.** Prior to removal, LADWP shall obtain a permit for removal from the Board of Public Works and pay all required fees in accordance with the City of Los Angeles Municipal Code Sections 46.02 and 46.04. LADWP shall replace each oak tree removed with two oak trees of a variety set forth in Section 46.01. Each replacement oak tree shall be at least a 15-gallon or larger in size specimen, measure one-inch in diameter, and be not less than seven feet tall.

**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?**

**No Impact.** The project site is not within a Natural Community Conservation Plan area or other approved local or regional habitat conservation plan area.

**V. CULTURAL RESOURCES**

**Would the project:**

**a) Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations Section 15064.5?**

**No Impact.** A Cultural Resources Survey Report was prepared for the proposed project and is included in Appendix B.<sup>5</sup> The report identified no prehistoric archaeological resources; however, the Los Angeles Aqueduct system is listed as a historic resource and it has been identified as a historic civil engineering landmark. In addition, the Los Angeles Cascades that run along the southern slope of Terminal Hill are on the list of California Registered Historical Landmarks. While the FLAA at Terminal Hill is eligible for listing on the California Register of Historic Resources, the report finds that the SLAA, completed in 1970 is not eligible and no impacts to a historical resource would occur under the proposed project.

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<sup>4</sup> City of Los Angeles, Municipal Code Article 6, Section 46.00 et seq. April 23, 2006.

<sup>5</sup> Garcia and Associates. Draft Cultural Resources Survey Report, Los Angeles Department of Water and Power Terminal Hill Tunnel Project Los Angeles County, California. November 2006.

**b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5?**

**Less than Significant Impact.** An Archaeological survey was conducted as part of the Cultural Resources Report. No cultural materials were identified during the archaeological survey; however, there still exists the potential for significant cultural resources to be discovered in the project area. In addition, the project impact area extends belowground to areas not visible during the survey. Therefore, should any cultural materials be exposed during ground disturbing activities, all subsurface work shall be halted until a qualified archaeologist can assess the nature and content of the resources, and to evaluate their integrity and importance.

**c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

**Less than Significant Impact.** Excavation of the proposed tunnel and shaft would encounter artificial fill, Holocene surficial deposits, and sedimentary rocks of the Pico and Towsley Formations.<sup>6</sup> None of these are considered to be unique geologic features; however, the marine sandstone nature of the Pico and Towsley Formations indicates a high potential for fossil occurrences. However, it is not anticipated that the relatively small area of disturbance would encounter any unique paleontological resources based on the lack of such findings during the excavation for the FLAA.

**d) Disturb any human remains, including those interred outside of formal cemeteries?**

**Less than Significant Impact.** No evidence of cultural resources, including human remains were observed during the site survey.<sup>7</sup> Should human remains be uncovered during subsurface activities, construction would be halted in accordance with the provisions of Sections 7052 and 7050.5 of the California Health and Safety Code.

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<sup>6</sup> Los Angeles, Department of Water and Power. Draft Geotechnical Data Report. September 15, 2006.

<sup>7</sup> Garcia and Associates. Draft Cultural Resources Survey Report, Los Angeles Department of Water and Power Terminal Hill Tunnel Project Los Angeles County, California. November 2006.

## 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.**

**Less than Significant Impact.** Terminal Hill is located within the Santa Susana Fault Zone. The State Special Studies Zones Map for the San Fernando Quadrangle shows a fault running east-west on the south side of the hill which displayed surface rupture during the 1971 San Fernando earthquake.<sup>8</sup> Additionally, the Safety Element of the Los Angeles City General Plan shows the proposed site as located within an Alquist-Priolo Special Study Zone Area and a Fault Rupture Study Area.<sup>9</sup> As discussed, the SLAA suffered damage during both the 1971 San Fernando and the 1994 Northridge earthquakes.

As discussed in Section 1.4, the existing aboveground crossing of Terminal Hill by the SLAA has a high potential for seismic rupture and the resulting secondary seismic hazards could disrupt the City's water supply. The proposed project would realign the SLAA to a tunnel through the hill, reducing the risk of seismic upset in the future. Construction of the tunnel and pipeline shaft would be in accordance with applicable construction standards. In addition, design of the tunnel, shaft, portal, and pipeline would adhere to the recommendations and findings of the Geotechnical Data Report (GDR) and Geotechnical Baseline Report (GBR).<sup>10,11</sup> As such, the project would reduce potential impacts to the SLAA and surrounding areas from the site's location within and Alquist-Priolo fault zone. The project would not expose people or structures to significant risk of upset due to rupture of a known fault.

### ii) **Strong seismic ground shaking?**

**Less than Significant Impact.** Seismic activity at area faults may result in groundshaking at the project site. Seismic hazards from groundshaking are typical for many areas of Southern California and the potential for seismic activity would not be greater than for much of the City of Los Angeles. The peak ground acceleration for the site was determined to be 0.93 g (the acceleration due to gravity) at the portal and shaft-tunnel connection location

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<sup>8</sup> Department of Mines and Geology (DMG). Special Studies Zones Map for the San Fernando Quadrangle. March 1, 2000.

<sup>9</sup> City of Los Angeles. General Plan, Safety Element, Exhibit A. November 26, 1996.

<sup>10</sup> City of Los Angeles, Department of Water and Power. Draft Geotechnical Data Report. September 15, 2006.

<sup>11</sup> Ibid.



and 1.4 g at the top of Terminal Hill.<sup>12</sup> The design of the project features would be based on the results and data provided in the GDR and the GBR.

In addition, the proposed project would realign the SLAA underground in order to minimize the potential for aboveground secondary seismic hazards such as flooding and landsliding. Accordingly, the proposed project is intended to reduce potential impacts from seismic groundshaking and would be expected to reduce the risk of exposure of people or structures to strong seismic ground shaking.

### **iii) Seismic-related ground failure, including liquefaction?**

**Less than Significant Impact.** Seismic-related ground failure, including liquefaction, occurs when saturated, granular deposits of low relative density are subject to extreme shaking and, as a result, lose strength or stiffness due to increased pore water pressure. Evidence of liquefaction is typically characterized by settlement or uplift of structures, and an increase in lateral pressure on buried structures. The project site is not located within a liquefaction hazard zone as mapped by the State of California in accordance with the Seismic Hazard Mapping Act.<sup>13</sup> In addition, the proposed project is designed to reduce secondary hazards, including liquefaction, resulting from seismic activity.

### **iv) Landslides?**

**Less than Significant Impact.** As discussed, the southern side of Terminal Hill experienced localized soil instability and erosion following previous seismic events. In addition, the southern side of the hill is located within a landslide hazard zone.<sup>14</sup> The proposed project would realign the SLAA into an underground tunnel running through Terminal Hill. One of the primary objectives of the project would be to reduce the potential for seismic-related erosion and flooding resulting from rupture of the SLAA pipeline. The potential for landsliding resulting from rupture of the SLAA would be greatly reduced as a result of implementation of the proposed realignment and construction of the tunnel and pipeline would be in accordance with applicable UBC and LADWP safety and engineering standards.

## **b) Result in substantial soil erosion or the loss of topsoil?**

**Less than Significant Impact.** During construction, short-term erosion impacts could occur as a result of grading/excavation from construction activities. Exposed soils could potentially lead to erosion impacts during windy conditions, during storm events from runoff, and from construction vehicles traveling through the site. The contractor would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) for the proposed project. The SWPPP would contain erosion and sediment controls in order to

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<sup>12</sup> Ibid.

<sup>13</sup> California Geological Survey. Seismic Hazard Zones Map for the San Fernando Quadrangle. March 25, 1999.

<sup>14</sup> California Geological Survey. Seismic Hazard Zones Map for the San Fernando Quadrangle. March 25, 1999.

reduce potential erosion impacts to a less than significant level during construction.

Operation of the proposed project would occur below grade and is intended to reduce potential soil instability impacts, including erosion, occurring as a result of seismic activity.

**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?**

**Less than Significant Impact.** Most of the alignment is located on a geologic unit or soil that is unstable when subject to strong seismic ground shaking (refer to IV a(i-iv)). However, as indicated above, there is no liquefaction hazard at the site, and any landsliding hazards associated with rupture of the SLAA would be minimized or avoided by relocating the pipeline into a tunnel through Terminal Hill and complying with other seismic safety and engineering standards during construction. Additionally, operation of the proposed project is intended to reduce the risk of soil instability within the project area.

**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?**

**Less than Significant Impact.** Excavation of the proposed tunnel and shaft would encounter artificial fill, Holocene surficial deposits (alluvium, colluvium, slope wash, and landslide debris), and sedimentary rocks of the Pico and Towsley Formations (weakly cemented, weathered, marine sedimentary units).<sup>15</sup> These geologic units have the potential to be expansive and can exhibit evidence of lateral movement. However, design and support for the tunnel, shaft, pipeline, and portal would be based on the conclusions and recommendations in the GBR and GDR. Construction and operation of the proposed project would adhere to the recommendations in these reports as well as all applicable UBC and LADWP safety and engineering standards.

**e) Have soils incapable of adequately supporting use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

**No Impact.** No septic tanks or alternative wastewater disposal systems are proposed as part of the project. The project site is served by a sewer system operated and maintained by the City of Los Angeles Department of Public Works. Construction and operation of the proposed tunnel and pipeline would not affect any existing, or hinder future, septic tanks or alternative wastewater disposal systems.

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<sup>15</sup> City of Los Angeles, Department of Water and Power. Draft Geotechnical Data Report. September 15, 2006.

## VII. 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?**

**No Impact.** Operation of the proposed project would involve the conveyance of water through the SLAA and would not involve the routine transport, use, or disposal of hazardous materials. Uses of the project site would remain the same following construction of the tunnel and pipeline; the process would only be realigned underground.

- 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?**

**Less than Significant Impact After Mitigation Incorporated.** Construction activities associated with the proposed project would involve excavation of a 580-foot long tunnel and a 290-foot deep shaft and construction of approximately 970 feet of pipeline. Prior to excavation activities, the contractor would be required to contact Dig Alert in order to receive clearance for underground utilities located within proximity to the proposed tunnel. The contractor would also be required to prepare a SWPPP for the proposed construction activities which would detail best management practices (BMPs) for the use, storage, and disposal of hazardous materials used for construction equipment, such as fuel, oils, and lubricants. In addition, BMPs for spill prevention and response would also be required as part of the SWPPP.

A Phase I Environmental Site Assessment was conducted for the project site (see Appendix C). Currently, there are eight sites within the vicinity of the project site which are listed on hazardous materials databases. These sites are detailed in Table 3-5 below.

**TABLE 3-5 HAZARDOUS DATABASE SEARCH RESULTS**

Site #	Site Address	Hazard Database	Location Relative to Site
1	Los Angeles Fireworks 17011 Foothill Blvd.	CERCLIS	North within Magazine Canyon
2	Browning Ferris 14747 San Fernando Rd.	State Landfill	0.4 mile southwest Same/Higher Elevation
3	Sunshine Canyon City Landfill 14747 San Fernando Rd.	State Landfill	0.4 mile southwest Same/Higher Elevation
4	Facility 23633 14747 San Fernando Rd.	State Landfill, SWRCY	0.4 mile southwest Same/Higher Elevation
5	Sukut Equipment 14747 San Fernando Rd.	WMUDS/SWAT	0.4 mile southwest Same/Higher Elevation
6	Ted Sakaida & Sons Trucking Co. 14950 San Fernando Rd.	UST, CA FID, SWEEPS	0.4 mile southwest Same/Higher Elevation
7	K/K Sheet Metal Inc. 14928 San Fernando Rd.	CA FID, SWEEPS	0.4 mile southwest Same/Higher Elevation

Site #	Site Address	Hazard Database	Location Relative to Site
8	Rosa Leong/Buford A Graves 14980 San Fernando Rd.	CA FID, SWEEPS	0.4 mile southwest Same/Higher Elevation
Notes: CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System SWRCY: Recycling Facilities in California WMUDS/SWAT: Waste Management Unit Database System/Solid Waste Activity Tracking UST: Underground Storage Tank CA FID: California Facility Inventory Database SWEEPS: Statewide Environmental and Planning System			

The report stated that Site Number 1 was used to store confiscated illegal fireworks and no impact to the groundwater or soil at the project site is anticipated.<sup>16</sup> Although the remaining seven sites are located at the same or higher elevation as the project site, they are separated from the project site by Newhall Pass, which is located at a lower elevation. Therefore, releases from these sites would not have migrated to the project site and no impact to the groundwater or soil beneath the project site would have occurred.

The Phase I Site Assessment determined that the project site is located approximately 1,800 feet from the I-5 and I-5/State Route 14 interchange, which would potentially have historically contaminated the site with aerially deposited lead (ADL). Although the project site is located approximately 400 feet above the freeway and interchange, the potential still exists for previous contamination to have occurred on the site.<sup>17</sup> Accordingly, mitigation measure HAZ-1 is provided below to reduce potential impacts to a less than significant level.

As discussed, operation of the SLAA would remain the same after implementation and would not involve the transport, use, or disposal of hazardous materials. Accordingly, no impacts related to accidental release of hazardous materials during operation of the proposed project would occur.

**Mitigation Measure HAZ-1.** Prior to the start of construction, an ADL survey shall be conducted in the vicinity of planned excavation areas.

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

**No Impact.** No schools are located within ¼-mile of the project site. The closest school is the Van Gogh Street Elementary School (17160 Van Gogh Street), located 1.6 miles south of the project site in Granada Hills.

<sup>16</sup> Parsons. Phase I Environmental Site Assessment, Terminal Hill Site. December.

<sup>17</sup> Parsons. Phase I Environmental Site Assessment, Terminal Hill Site. December.

- 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?**

**Less than Significant Impact.** The project site is not listed on a hazardous materials site. Large quantities of fireworks and explosives are stored within Magazine Canyon. However, these fireworks are stored in accordance with applicable federal, state, and local regulations by authorized personnel only and no impact is anticipated.<sup>18</sup> No construction work would be conducted adjacent to the storage facilities and the fireworks storage site does not pose a hazard to the proposed project. Other listed sites within the vicinity of the project site are associated with the Sunshine Canyon Landfill, located approximately 0.4 mile to the southwest.<sup>19</sup> The landfill is an active permitted facility and given its distance from the site, does not pose a hazard to the project.

- 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?**

**No Impact.** The proposed project site is not located within an airport land use plan nor is it located within two miles of a public airport. The nearest public airport to the site is Whiteman Airport, located approximately 6.3 miles southeast of the project site.<sup>20</sup>

- 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?**

**No Impact.** The proposed project site is not located within the vicinity of a private airstrip. The nearest private airstrip to the project site is the Goodyear Blimp Base Airstrip, located approximately 34.7 miles to the southeast in the city of Carson.<sup>21</sup>

- g) **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

**No Impact.** The proposed project would not impair or physically interfere with an adopted emergency response plan or a local, state, or federal agency's emergency evacuation plan. All construction staging would occur onsite (see Figures 3 and 4) and emergency access to the site would be maintained during construction. Operation of the proposed project would essentially revert to pre-construction conditions, with the exception that the SLAA would be located underground.

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<sup>18</sup> Ibid.

<sup>19</sup> Parsons. Phase I Environmental Site Assessment, Terminal Hill Site. December.

<sup>20</sup> AirNav Website (available at <http://www.airnav.com>). Accessed September 21, 2006.

<sup>21</sup> Ibid.

**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?**

**Less than Significant Impact.** Portions of the project site are located within selected wildfire hazard areas, namely the City of Los Angeles Mountain Fire District area and Very High Fire Hazard Severity Zone.<sup>22,23</sup> However, the proposed project would not involve the placement of people or populated structures within these areas. Furthermore, the proposed pipeline would not pose a risk of loss, injury, or death that could result from wildland fires, as it would only serve to convey water. During construction, the contractor would comply with the construction specifications, which would include fire prevention BMPs, such as prohibiting smoking equipping construction equipment with spark arresters. As such, construction and operation of the proposed project would not expose any people or structures to a significant risk of loss, injury or death involving wildland fires.

**VIII. HYDROLOGY AND WATER QUALITY**

**Would the project:**

**a) Violate any water quality standards or waste discharge requirements?**

**Less than Significant Impact.** The proposed addition would be subject to the regulations established in the statewide National Pollutant Discharge Elimination Standards (NPDES) general construction activity stormwater permit administered by the Regional Water Quality Control Board (RWQCB). Specific requirements include, at a minimum, BMPs for sediment control, construction materials control, site management, and erosion control. In addition, a SWPPP would be developed for construction materials and waste management as the project would require disturbance of more than 1 acre of land. In the event construction activities require the disturbance of soil during the rainy season as defined as October 1 through April 15, a wet weather erosion control plan (WWECP) would also be developed.

Compliance with the above-mentioned requirements would reduce sediment-laden runoff, prevent the migration of contaminants from construction areas to surface waters, and ensure discharges do not violate applicable water quality standards. Construction activities and staging and stockpiling areas would occur outside of Magazine Canyon.

Operation of the proposed project would provide the City of Los Angeles with water via the realigned SLAA and the water conveyed would meet all applicable water quality requirements. Accordingly, operation of the proposed project would not violate any water quality standards or waste discharge requirements.

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<sup>22</sup> City of Los Angeles. General Plan, Safety Element, Exhibit D. November 26, 1996.

<sup>23</sup> City of Los Angeles, Department of City Planning. ZIMAS Website (available at <http://zimas.lacity.org>). Accessed September 21, 2006.

- 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)?**

**Less than Significant Impact.** Construction reports for Terminal Hill indicate that groundwater is well below the proposed tunnel and shaft and would not be encountered during construction.<sup>24</sup> Perched groundwater may exist within the limits of the excavations; however, the base of the portal would be located above groundwater level and no seepage would be expected to occur.<sup>25</sup> In addition, the proposed project would not involve the extraction of local groundwater supplies and would increase the reliability of the existing water supply system.

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

**Less than Significant Impact.** The proposed project would realign the SLAA underground and remove the existing aboveground pipeline. The project would not alter the course of a stream or river and would not result in substantial erosion or siltation on- or off-site. As discussed, the contractor would prepare a SWPPP for construction activities associated with the project and appropriate erosion BMPs would be implemented.

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

**Less than Significant Impact.** The proposed project would not alter the course of a river or stream and the relatively small area of construction footprint would not result in an increase in the amount of surface runoff.

- 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?**

**No Impact.** The project area would continue to drain to Magazine Canyon and would have no effect on existing or planned stormwater drainage systems.

- f) **Otherwise substantially degrade water quality?**

**Less than Significant Impact.** The SWPPP which would be prepared for the project would include BMPs to address potential impacts from erosion and

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<sup>24</sup> City of Los Angeles, Department of Water and Power. Draft Geotechnical Baseline Report. September 15, 2006.

<sup>25</sup> Ibid.

contamination of stormwater runoff during construction activities. As such, impacts related to the degradation of water quality during construction would be less than significant. Operation of the proposed project would be in a closed system belowground and would not degrade water quality.

**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?**

**No Impact.** The project site is not located within the 100-year flood hazard area.<sup>26</sup> The proposed project does not involve the construction of housing.

**h) Place within a 100-year flood area structures to impede or redirect flood flows?**

**No Impact.** As discussed, the project site is not located within the 100-year flood area. The proposed project would realign the existing aboveground SLAA into a tunnel running through Terminal Hill and would not involve the construction of structures which would impede flood flows.

**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?**

**Less Than Significant Impact.** The construction and operation of the proposed project would not involve the placement of people or structures (including housing) within a 100-year flood hazard area, or impede or redirect flood flows. Operation of the proposed pipeline would occur passively below grade. The proposed project would not expose people or structures to a significant risk of loss, injury or death involving flooding.

**i) Inundation by seiche, tsunami, or mudflow?**

**Less Than Significant Impact.** The proposed project is not subject to seiche- or tsunami-related inundation as it is not located within the range of a seiche hazard zone or tsunami hazard zone.<sup>27</sup> Given the project site's location on a hillside area, there may be some potential for mudflows during storm events. However, the pipeline would be designed and constructed to meet applicable building codes, and would operate entirely underground. Accordingly, the potential for impacts to the pipeline from mudflows is expected to be very low.

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<sup>26</sup> City of Los Angeles, Bureau of Engineering. Navigate LA Website (available at <http://navigatela.lacity.org>). Accessed September 22, 2006.

<sup>27</sup> City of Los Angeles. General Plan, Safety Element, Exhibit G. November 26, 1996.



## IX. LAND USE AND PLANNING

### Would the project:

#### a) Physically divide an established community?

**No Impact.** Construction impacts from the proposed project would be short term and would occur entirely on undeveloped LADWP owned land and private property. The proposed project would not alter the existing operation of the site and Terminal Hill would continue to function as the crossing point of the SLAA into the City.

#### 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?

**Less than Significant Impact.** The proposed project site is zoned A1-1, Agricultural. The proposed project would realign the existing SLAA pipeline through an underground tunnel into Terminal Hill. While the SLAA is not considered to be an agricultural use, the LADWP owns the land along the SLAA alignment and the current use would not change as a result of the proposed project. No changes to the existing zoning designation or land use policies would be required for the proposed project.

#### c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

**No Impact.** The proposed project site is not located within an area subject to a habitat conservation plan or natural community conservation plan. Temporary construction impacts would occur on the backside and top of Terminal Hill and in proposed stockpile locations; entirely within LADWP-owned property. Operation of the proposed project would occur passively underground.

## X. 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?

**No Impact.** The project site is not located within a designated mineral resource zone.<sup>28</sup> Construction of the proposed project would involve the use of construction materials, which include negligible quantities of non-renewable resources. Construction of the proposed project would follow industry standards. Once constructed, the proposed project would not affect known mineral resources, due to the passive nature of its operation.

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<sup>28</sup> City of Los Angeles, General Plan, Conservation Element, Exhibit A. September 26, 2001.

**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?**

**No Impact.** The project site is not located within an area designated as a mineral resource recovery site by local land use plans.<sup>29</sup> In addition, construction and operation of the proposed pipeline would not prevent, or otherwise restrict, access to any such mineral resources in the project vicinity.

**XI. NOISE**

**Would the project result in:**

**a) Exposure of persons to or generation of noise levels in excess of applicable standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

The magnitude of construction noise impacts depends on the type of construction activity, the noise level generated by various pieces of construction equipment, the distance between the activity and noise sensitive receivers, and any shielding effects that might result from local barriers, including topography.

**Construction Noise**

Applicable Regulations

Section 41.40 of the Los Angeles Municipal Code indicates that no construction or repair work shall be performed between the hours of 9:00 PM and 7:00 AM of the following day on any weekday, before 8:00 AM or after 6:00 PM on any Saturday, or at any time on any Sunday. Variances to this restriction may be granted by the Executive Director of the Board of Police Commissioners.<sup>30</sup>

Section 112.05 of the Los Angeles Building Code specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or powered hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet from construction and industrial machinery shall be prohibited. This noise limitation shall not apply where compliance therewith is technically infeasible. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment.

Equipment Noise

Construction noise levels at and near the proposed project would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Table 3-6 shows maximum noise levels (Lmax) associated with various types of construction related equipment at 50

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<sup>29</sup> City of Los Angeles, General Plan, Conservation Element, Exhibit A. September 26, 2001.

<sup>30</sup> City of Los Angeles Municipal Code, Chapter IX, Article 1, Section 41.40(b). February 12, 2007.

feet from the noise source compiled by the Federal Transit Administration (2006). The list was used in this analysis to estimate construction noise.

**TABLE 3-6 TYPICAL CONSTRUCTION NOISE LEVELS**

Equipment	Typical Noise Level 50 feet from Source (dBA)
Air Compressor	81
Backhoe	80
Compactor	82
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Loader	85
Paver	89
Truck	88
Source: Federal Transit Administration, 2006	

Sensitive Noise Receptors

Noise-sensitive receptors are generally considered humans engaged in activities, or utilizing land uses, that may be subject to the stress of significant interference from noise. Land uses often associated with sensitive receptors include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, education facilities, concert halls, houses of worship, and libraries. There are no sensitive receptors within one mile of Terminal Hill to the west, north, or east. The closest existing sensitive receptors are residences on Saddletree Court and Filbert Street, approximately 4,000 feet southeast of the top of Terminal Hill. It is expected that new homes at the Cascades Golf Club will be occupied when the work at Terminal Hill is performed. These new homes are approximately 1,200 feet from the top of Terminal Hill.

Nighttime noise levels were measured at the site of the Cascades Golf Club homes between midnight and 1:00 a.m. on August 29, 2007. The average noise level was 51 dBA Leq. The principal source(s) of the noise was local traffic along Foothill Boulevard and Balboa Boulevard.

Magazine Canyon Portal

**Less than Significant Impact.** For work at the Magazine Canyon tunnel portal, a reasonable worst-case assumption is that five pieces of equipment, 2 loaders, 1 truck, and one other piece of equipment would operate simultaneously. These four pieces would be considered a point source of noise with a noise level of approximately 91 dBA Lmax at a distance of 50 feet. The acoustic usage factor, or duty cycle of the equipment is typically 40 percent. Therefore, the average noise level, Leq, is estimated at 87 dBA at a distance of 50 feet.

Due to the topography, the noise to the receptors to the southeast would be attenuated by Terminal Hill as well as by distance. The noise reduction over distance would be more than 31 dBA, and the reduction from shielding would be 15 to 20 dBA, with a resulting noise level at the homes of less than 40 dBA

Leq. This noise would not likely be audible except occasionally in the very late night – early morning hours and would not be of a magnitude to disturb sleep.

#### Top of Terminal Hill - Daytime

**Less than Significant Impact.** At the work site at the top of Terminal Hill a reasonable worst-case assumption is that six pieces of equipment, 1 loader, 2 trucks, and one crane, would operate simultaneously. These four pieces would be considered a point source of noise with a noise level of approximately 92 dBA Lmax at a distance of 50 feet. The acoustic usage factor would be approximately 35 percent, and the average noise level is estimated at 87 dBA Leq.

There would be no significant topography to shield the noise to the receptors to the southeast. The noise reduction over distance would be approximately 28 dBA, with a resulting noise level at the homes of approximately 59 dBA Leq.

#### Top of Terminal Hill - Nighttime

**Less than Significant After Mitigation incorporated.** Should the LADWP require nighttime work at the top of Terminal Hill, a waiver to Municipal Code Section 41.40 would be required. As described above, the maximum noise level without mitigation is estimated at 59 dBA Leq. During the quieter hours of the night, this noise level, which would be approximately 8 dBA above the ambient noise level, could be disturbing and a potentially significant impact. Mitigation measures NOISE-1 provided below would reduce construction noise impacts at the homes to the southeast.

**Mitigation Measure NOISE-1.** The following requirements shall be included in the project construction specifications:

- Prior to the initiation of nighttime operations, the LADWP shall obtain a waiver in accordance with Municipal Code Section 41.40 and inform the nearby residents of the plans and schedules for work, and advising that construction noise may be heard but is not anticipated to be excessive or sleep-disturbing. The notices to residents shall provide a telephone contact where noise complaints may be made.
- At the commencement of night work, the LADWP shall conduct a nighttime noise survey without and with equipment operating at the top of Terminal Hill work site. If the survey demonstrates that nighttime noise level at the housing areas would not exceed 5 dBA Leq greater than the noise level without equipment operating, no further measures would be required. Surveys shall be repeated whenever there is a significant change in the operating mode at the Terminal Hill site, or when there is more than one complaint from a resident within a 24-hour period.
- If the noise level with equipment operating is greater than 5 dBA Leq above the ambient noise level, the construction contractor shall install a combination of physical improvements and operating procedures that

would reduce the noise level difference to 5 dBA or less. The physical improvements and operating procedures used may include, but not be limited to,

- Installation of “hospital grade” mufflers;
- Use of electric power, if available, to power lights, fans, welders, air compressors, etc;
- Erection of a solid noise barrier on the site that would block the line of sight from the equipment to the housing area; and
- Procedural limitation of the number of pieces of equipment operating simultaneously.

#### Trucking and Spoils Stockpiles

**Less than Significant Impact After Mitigation Incorporated.** Spoils removed from the tunnel and shaft excavations – muck – would be trucked to a disposal site or to temporary stockpile locations. LADWP has proposed locations east and west of the Magazine Canyon portal and south of Terminal Hill (see Figure 5). These locations and the access roads are more than 3,300 feet from any existing sensitive receptor. However, future homes in the Cascades Golf Course development may be approximately 500 feet from the access road to Terminal Hill, and one option for a muck storage site is a location west of the Cascades homes development and east of the Terminal Hill access road. Daytime noise of muck trucks on the haul roads would be less than significant. It is not known whether the contractor selected for the work would choose to use the storage site adjacent to the Cascades homes. If the site was used, and muck was delivered at night, the truck noise could be disturbing and excessive and could be a significant impact. Mitigation Measure NOISE – 2 would be incorporated into the project to avoid the impact.

**Mitigation Measure NOISE-2.** The LADWP shall include a requirement in the job specifications that shall prevent the use of the temporary storage site west of the Cascade Golf Course between the hours of 7 p.m. and 7 a.m. on Monday through Saturday and all day on Sundays and holidays.

#### **Operational Noise**

**No Impact.** When the pipeline installation is complete, no operational noise is anticipated.

#### **b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

**No Impact.** As discussed, it is anticipated that the homes at the Cascades Golf Club may be occupied during construction. The homes would be located approximately 1,200 feet from the top of Terminal Hill. At this distance, vibrations originating from the construction sites would not be felt by any sensitive receptors.

- c) **A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

**No Impact.** Operation of the proposed project would occur passively underground and no increase in the permanent ambient noise levels within the vicinity of the proposed project would occur.

- d) **A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

**Less Than Significant After Mitigation Incorporated.** As discussed above, there would be an increase in ambient noise levels during construction. At the closest sensitive receptors, the temporary noise levels in the daytime would have a less than significant impact. If construction is required at nighttime at the top of Terminal Hill, mitigation measure NOISE-1 would be implemented and would reduce impacts to a less than significant level.

- 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?**

**No Impact.** The proposed project site is not located within an airport land use plan nor is it located within two miles of a public airport. The nearest public airport to the site is the Whiteman Airport, located approximately 6.3 miles south of the project site.

- 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?**

**No Impact.** The proposed project site is not located within the vicinity of a private airstrip. The nearest private airstrip to the project site is the Goodyear Blimp Base Airstrip, located approximately 34.7 miles to the southeast in the city of Carson.

## **XII. 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)?**

**No Impact.** Construction and operation of the proposed project would serve to increase the reliability of water supply in the LADWP service area, and would not increase the available supply of potable water in the region. In addition, no housing is proposed as part of the proposed project. As such, the project would not induce population growth in the area, either directly or indirectly. The project would accommodate existing LADWP customers and no growth inducing impacts would occur as a result of implementation of the proposed project.

**b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**

**No Impact.** The proposed project would realign the existing SLAA into a tunnel through Terminal Hill. Construction would occur on undeveloped land owned by the LADWP and private property and no housing exists onsite. Accordingly, no housing would be impacted or require relocation as a result of the proposed pipeline relocation.

**c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

**No Impact.** As discussed above, neither construction nor operation of the proposed project would result in the displacement of housing and therefore, would not result in the displacement of people.

**XIII. PUBLIC SERVICES**

**a) 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:**

**i) Fire protection?**

**Less than Significant Impact.** Construction of the proposed project would occur on LADWP- and privately-owned land. Construction traffic would use public streets to access different areas of the site only and would not interfere with Fire Department access or traffic. No road closings or temporary detours would occur as a result of the project and all construction activities would be carried out in accordance with all applicable LADOT and LAFD emergency access standards. Operation of the proposed project would occur passively and would not require additional fire protection.

**ii) Police protection?**

**Less than Significant Impact.** As with fire protection above, construction would not interfere with police traffic or access to or through the site and all construction activities would be carried out in accordance with applicable LADOT and LAPD emergency access standards. Operation would occur passively and no additional police protection would be required.

**iii) Schools?**

**No Impact.** The closest school to the proposed project site are the Peachland Avenue Elementary School (24800 Peachland Avenue), in the Newhall School District and the Van Gogh Street Elementary School (17160 Van Gogh Street), in the Los Angeles Unified School District, located just under 3 miles northwest and southeast of the project site, respectively. Neither construction nor operation of the proposed project would increase population within the surrounding community and would not lead to an

overloading of local schools. In addition, given their distance from the project site, no physical impacts to the schools would occur.

**iv) Parks?**

**No Impact.** The proposed project site is located 1.25 miles north of Omelveny Park and 2 miles west of the southwestern boundary of the Angeles National Forest. The proposed project would not generate additional population which would increase the demand for parks or open space.

**iv) Other public facilities?**

**No Impact.** Construction and operation of the proposed project would not be expected to result in physical impacts associated with any other public facilities in the project vicinity.

**XIV. RECREATION**

**Would the project:**

- a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

**No Impact.** Neither the construction nor operation of the proposed project would generate any additional population that would increase the use of existing neighborhood or regional parks or other recreational facilities. Construction activities would occur entirely on LADWP- and privately-owned land and no temporary detours or road closures would occur during construction which would impact park access. Operation of the proposed project would occur passively underground.

- b) Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

**No Impact.** The proposed project would realign the existing aboveground SLAA crossing of Terminal Hill to a belowground tunnel through Terminal Hill. Construction and operation of the proposed project would not include recreational facilities or require construction or expansion of recreational facilities, which might have an adverse physical effect on the environment.

**XV. TRANSPORTATION/TRAFFIC**

**Would the project:**

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

**Less Than Significant Impact.** A traffic study was prepared for the construction of the proposed project; the operation of the project would have



no impact on traffic or transportation.<sup>31</sup> The report analyzed the impacts of the proposed project on one intersection (Foothill Boulevard and Balboa Boulevard) and three street segments (Foothill Boulevard north and south of Balboa Boulevard and Balboa Boulevard west of Silver Oaks Drive).

Future base conditions for the build year (2008) were projected based on existing base conditions and a 2% per year ambient growth factor. Impacts were determined using City of Los Angeles Department of Transportation (LADOT) thresholds, which are presented in Table 3-7.

**TABLE 3-7 LADOT SIGNIFICANCE THRESHOLDS**

Preproject		Project V/C Increase
LOS	V/C	
C	0.700 – 0.800	0.040 or more
D	0.800 – 0.900	0.020 or more
E/F	0.900 or more	0.010 or more

LOS – Level of Service  
V/C – Volume to Capacity Ratio

Construction equipment necessary for the proposed project would remain on-site in staging areas and would not require transport to and from the site daily. The report estimated that the project would result in approximately 142 additional daily trips during construction; 37 during the peak AM hour and 50 during the peak PM hour. Tables 3-8 and 3-9 show the anticipated impacts on the analyzed intersection and street segments.

**TABLE 3-8 INTERSECTION LEVEL OF SERVICE ANALYSIS**

Foothill Boulevard and Balboa Boulevard	Peak Hour	V/C or Delay	LOS
Existing Conditions (2008)	AM	0.961	E
	PM	0.841	D
Cumulative Base Conditions (2010)	AM	1.047	F
	PM	0.937	E
Cumulative plus Project Conditions (2010)	AM	1.055	F
	PM	0.955	E

LOS – Level of Service  
V/C – Volume to Capacity Ratio

**TABLE 3-9 STREET IMPACT ANALYSIS**

Street Segment	Weekday Two-Way Daily Volume				
	Existing Base	Cumulative Base	Project Only	Cumulative Plus Project	Project % Change
Foothill Boulevard north of Balboa Boulevard	10,911	12,496	15	12,511	0
Foothill Boulevard south of Balboa Boulevard	7,482	10,691	110	10,801	1
Balboa Boulevard west of Silver Oaks Drive	1,471	3,487	16	3,503	0

<sup>31</sup> Fehr and Peers/KAKU Associates. Draft Memorandum, Traffic Impact Assessment of the LADWP Terminal Hill Tunnel Project. August 13, 2008.

As shown in Table 3-8, the project would result in a minor increase in volume to capacity (V/C) ratio in the AM peak hour, which would not be considered significant. The project would result in an increase in the V/C ratio during the PM peak hour of 0.018. Although the traffic report determines that this increase would not be considered significant, the report contains recommendations in order to further reduce potential impacts during the PM peak hours. These recommendations are included as mitigation measures below. Table 3-9 shows that the proposed project would add 1 percent or less to the projected traffic volumes on the three analyzed street segments. These minor increases would not be considered significant.

**Mitigation Measure TRAFF-1.** The project shall prepare a construction traffic management plan prior to the start of any construction work. The plan shall include such elements as the designation of haul routes for heavy vehicles and the location of access to the construction site for both employees and construction vehicles.

**Mitigation Measure TRAFF-2.** To the extent feasible, work shifts and the movement of heavy trucks (concrete and dump trucks) shall be scheduled to avoid the AM and PM peak periods.

**b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?**

**Less Than Significant Impact.** A Congestion Management Program (CMP) Mainline Freeway Segment Analysis is required for all freeway monitoring stations where the proposed project will add 150 or more trips. As discussed above, the proposed project is anticipated to result in an increase of 142 daily trips during construction. As such, no CMP Mainline Freeway Segment Analysis is required. In addition, the study intersection is not one of the 164 CMP Arterial monitoring locations. Accordingly, impacts would be less than significant for the proposed project.

**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?**

**No Impact.** The proposed project would not generate air traffic or alter existing air traffic patterns.

**d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**No Impact.** Construction of the proposed pipeline would temporarily result in minor increases in vehicle trips along nearby roadways. These increases would be temporary and limited to the immediate area in which construction activities are occurring. No design features (e.g., sharp curves or dangerous intersections) or incompatible uses are proposed as part of this project.

**e) Result in inadequate emergency access?**

**No Impact.** As discussed above, all construction activities would be carried out in accordance with LADOT, LAFD, and LAPD emergency access requirements and access would be maintained during construction. Operation of the proposed project would be passive and occur belowground.

**f) Result in inadequate parking capacity?**

**No Impact.** Construction of the proposed project would occur entirely within LADWP- and privately-owned property. The project would not involve the construction of facilities which would necessitate the construction or use of additional parking.

**g) Would the project conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?**

**No Impact.** The proposed project would operate passively underground and roadways within the vicinity do not contain designated bike lanes or public transportation facilities.

**XVI. UTILITIES AND SERVICE SYSTEMS**

**Would the project:**

**a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

**No Impact.** The proposed project would not result in changes to facilities or operations at existing wastewater treatment facilities. As such, no modification to a wastewater treatment facility's current wastewater discharges would occur.

**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?**

**No Impact.** Construction activities would utilize existing water supplies and would not generate wastewater. Operation of the proposed project would not require water supplies nor would it generate wastewater.

**c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

**No Impact.** Runoff from Terminal Hill would continue to drain into Magazine Canyon, which is drained by an ephemeral creek. The amount of runoff would not increase as a result of either construction or operation-related activities.

- d) **Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

**No Impact.** The proposed project would replace existing water supply infrastructure and would not require new or expanded water supply entitlements during construction or operation.

- e) **Result in a 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?**

**No Impact.** Neither construction nor operation of the proposed project would generate wastewater.

- f) **Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

**Less than Significant Impact.** Excavation and construction debris would be recycled or transported to an appropriate landfill and disposed of in accordance with applicable City and County regulations. The amount of debris generated during project construction is not expected to significantly impact landfill capacities. Operation of the proposed project would not generate any solid waste.

- g) **Comply with federal, state, and local statutes and regulations related to solid waste?**

**Less than Significant Impact.** As discussed, solid waste would be disposed of at Sunshine Canyon Landfill. Transportation and disposal of construction debris would be in accordance with all applicable Federal, State, and local regulations. No waste would be generated during operation of the proposed project.

## **XVII. MANDATORY FINDINGS OF SIGNIFICANCE**

- 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?**

**Less than Significant Impact.** The analysis conducted in this IS/MND results in a determination that the proposed project, individually and cumulatively, would not have a significant effect on the local environment. Since the proposed pipeline would be placed underground under existing LADWP right-of-way and the proposed site is devoid of fish and/or significant wildlife, the proposed project would not have the potential to degrade the environment in this regard. As described above, the potential for impacts to

cultural and biological resources from construction of the proposed project would be less than significant following implementation of the provided mitigation measures. The analysis also concluded that the project would not result in the temporary degradation of the environment through construction-related noise and/or air quality impacts following implementation of the provided mitigation. It is hereby found that the proposed project involves no potential for significant impacts, either individually or cumulatively, on the environment or to biological or cultural resources. No mitigation would be required.

**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.)**

**Less than Significant Impact.** As discussed in the IS/MND, the proposed project would have minor impacts to some environmental resources. The implementation of the identified project-specific mitigation measures and compliance with applicable codes, ordinances, laws and other required regulations would reduce the magnitude of any impacts associated with construction activities to a level of less than significant. Mitigation provided in the analysis would also reduce operational impacts to site-specific biological resources and hazards and hazardous materials to a less than significant level.

At this level of planning, it is not possible to identify all present and probable future projects in the vicinity of the proposed project alignment. However, one non-LADWP project has been identified in close proximity to the project. This project is a 500-unit condominium and 290-unit apartment project on Silver Oaks Drive, adjacent to the Cascades Golf Club. Construction of the proposed project could occur simultaneously with this related project and has the potential to result in cumulative temporary impacts with respect to air quality, noise, and transportation.

With regard to air quality, the SCAQMD has established incremental emissions thresholds to determine whether a project will contribute to significant impacts. Measures are provided above which would reduce impacts to air quality during construction activities to a less than significant level. It is assumed that the residential development has also implemented measures to ensure that air quality impacts during the construction of the housing would be less than significant. In addition, for the majority of the overlap in construction activities, no sensitive receptors would be present, as the housing would not yet be occupied. As such, the project is not anticipated to result in cumulatively considerable impacts to air quality.

Noise impacts, similar to those related to air quality, would be dependent on the timing and location of related project construction in conjunction with the construction of the proposed project. Noise impacts related to construction of

the proposed project would be reduced to a less than significant level by the provided mitigation and as stated, no sensitive receptors would exist for the majority of the duration of construction activities. No cumulatively considerable impacts are anticipated for the proposed project.

With regard to traffic, construction activities would generate truck traffic and vehicular traffic associated with construction worker travel. Impacts resulting from the proposed project's construction traffic would be temporary and are not expected to be significant, as discussed above. Traffic impacts of the proposed project, in conjunction with the residential development's were analyzed in the traffic study. As Discussed in the IS/MND, the proposed project is not anticipated to result in traffic impacts that are cumulatively considerable.

Operation of the proposed project would result in permanent impacts to biological resources due to habitat loss. The very minor amount of habitat lost at the location of the tunnel portal would be mitigated by habitat replacement. Should the potential exist for the residential development to result in the permanent loss of habitat, the project would also be expected to compensate for this loss. Accordingly, the project is not anticipated to result in cumulatively considerable impacts to biological resources.

Cumulative impacts would be less than significant for the proposed project.

**c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?**

**No Impact.** The proposed project would have no adverse effect on human beings either indirectly or directly. The project would provide a more reliable water conveyance system and would reduce potentially adverse effects from future disruption of the pipeline.

**SECTION 4.0**  
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## SECTION 5.0

### REFERENCES

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#### AirNav, LLC

- 2006 AirNav Website (available at <http://www.airnav.com>). Accessed September 21.

#### California Air Resources Board (CARB)

- 2006 Area Designations. Available at <http://www.arb.ca.gov/desig/desig.htm>. Accessed December 16.

#### California Geological Survey (formerly California Department of Mines and Geology)

- 1999 Seismic Hazard Zones Map for the San Fernando Quadrangle. March 25.
- 2000 Special Studies Zones Map for the San Fernando Quadrangle. March 1.

#### City of Los Angeles, Bureau of Engineering

- 2006 Navigate LA Website (available at <http://navigatela.lacity.org>). Accessed September 22.

#### City of Los Angeles, Department of City Planning

- 2006 ZIMAS Website (available at <http://zimas.lacity.org>). Accessed September 21.

#### City of Los Angeles, Department of Water and Power

- 2006 Draft Geotechnical Baseline Report. September 15.
- 2006 Draft Geotechnical Data Report. September 15.
- 2006 Terminal Hill Tunnel Project Los Angeles County, California. November.

#### City of Los Angeles

- 1996 General Plan, Safety Element, Exhibit A. November 26.
- 1996 General Plan, Safety Element, Exhibit D. November 26.
- 1996 General Plan, Safety Element, Exhibit G. November 26.
- 1997 Sylmar Community Plan. Adopted August, 8.
- 2001 General Plan, Conservation Element, Exhibit A. September 26.
- 2006 Municipal Code Article 6, Section 46.00 et seq. April 23.

#### County of Los Angeles, Department of Regional Planning (DRP)

- 2007 GIS-NET Website. Available at:  
[http://regionalgis.co.la.ca.us/imf/sites/GISNET\\_pub/jsp/launch.jsp](http://regionalgis.co.la.ca.us/imf/sites/GISNET_pub/jsp/launch.jsp).  
Accessed June 18.

#### EDAW, Inc.

- 2006 Site Visit. June 30 and August 10.

#### Fehr and Peers/KAKU Associates.

- 2008 Memorandum, Traffic Impact Assessment of the LADWP Terminal Hill Tunnel Project. August 13.

Garcia and Associates

- 2006 Cultural Resources Survey Report, Los Angeles Department of Water and Power Terminal Hill Tunnel Project Los Angeles County, California. November.

Rimpo and Associates (Rimpo)

- 2007 URBEMIS2007 for Windows, Version 9.2 Available at [http://www.urbemis.com/software/Urbemis2007v9\\_2.html](http://www.urbemis.com/software/Urbemis2007v9_2.html)

Parsons

- 2006 Phase I Environmental Site Assessment, Terminal Hill Site. December.

South Coast Air Quality Management District (SCAQMD)

- 2003 Final Localized Significance Threshold Methodology. June.
- 2006 SCAQMD Air Quality Significance Thresholds. Available at: <http://www.aqmd.gov/ceqa/hdbk.html>.

University of California, Davis. Institute of Transportation Studies (UCD ITS)

- 1997 Transportation Project-Level Carbon Monoxide Protocol (UCD-ITS-RR-97-21). December.

U.S. Environmental Protection Agency (USEPA)

- 2007 Green Book, Criteria Pollutant Area Summary Report. Available at <http://www.epa.gov/oar/oaqps/greenbk/ancl2.html>.

Woodward-Clyde Consultants

- 2005 Final Report Second Los Angeles Aqueduct Terminal Hill Realignment Feasibility Studies. November.

# Draft Initial Study/Mitigated Negative Declaration Technical Appendices

## Terminal Hill Tunnel and Shaft Project



Los Angeles Department of Water and Power  
Environmental Services  
111 North Hope Street, Room 1044  
Los Angeles, California 90012

**September 2008**

Los Angeles  Department of Water and Power



# **URBEMIS Calculations**



Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\LA\Terminal Hill\Urbemis\THill 090307.urb9

Project Name: Terminal Hill Tunnel and Shaft Project - 1 shift, 16 months

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	7.45	57.80	26.48	0.00	0.47	3.35	0.10	3.08	3.18	5,562.66
2010 TOTALS (lbs/day unmitigated)	5.58	32.29	18.89	0.01	2.96	2.53	0.62	2.33	2.43	3,011.45

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\LA\Terminal Hill\Urbemis\THill\_090307.urb9

Project Name: Terminal Hill Tunnel and Shaft Project - 1 shift, 16 months

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emiac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 1/2/2009-2/27/2009 Number Active Days: 41	0.84	6.72	3.91	0.00	0.45	0.38	0.83	0.10	0.35	0.44	681.56
Mass Grading 01/02/2009-02/28/2009 - Site Preparation	0.84	6.72	3.91	0.00	0.45	0.38	0.83	0.10	0.35	0.44	681.56
Time Slice 3/2/2009-12/30/2009 Number Active Days: 218	7.45	57.80	26.46	0.00	0.47	3.35	3.82	0.10	3.08	3.18	5,582.66
Mass Grading 03/01/2009-12/30/2009 - Excavate Magazine	3.49	24.37	11.94	0.00	0.46	1.60	2.06	0.10	1.47	1.57	2,301.01
Canyon Tunnel											
Mass Grading Dust	0.00	0.00	0.00	0.00	0.45	0.00	0.45	0.09	0.00	0.09	0.00
Mass Grading Off Road Diesel	3.40	23.81	10.30	0.00	0.00	1.57	1.57	0.00	1.45	1.45	2,087.47
Mass Grading On Road Diesel	0.04	0.48	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.06
Mass Grading Worker Trips	0.05	0.09	1.45	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.48
Trenching 03/01/2009-12/30/2009 - Excavate Terminal Hill Shaft	3.96	33.42	14.54	0.00	0.01	1.75	1.76	0.00	1.61	1.61	3,281.65
Trenching Off Road Diesel	3.92	33.35	13.37	0.00	0.00	1.75	1.75	0.00	1.61	1.61	3,157.26
Trenching Worker Trips	0.04	0.07	1.16	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39
Time Slice 1/4/2010-3/31/2010 Number Active Days: 63	5.58	32.29	18.89	0.00	0.47	2.53	3.00	0.10	2.33	2.43	3,011.45
Mass Grading 01/02/2010-03/31/2010 - Install Pipe and Concrete	5.58	32.29	18.89	0.00	0.47	2.53	3.00	0.10	2.33	2.43	3,011.45
Mass Grading Dust	0.00	0.00	0.00	0.00	0.45	0.00	0.45	0.09	0.00	0.09	0.00
Mass Grading Off Road Diesel	5.40	30.69	16.39	0.00	0.00	2.46	2.46	0.00	2.27	2.27	2,595.17
Mass Grading On Road Diesel	0.12	1.49	0.60	0.00	0.01	0.06	0.07	0.00	0.06	0.06	198.68
Mass Grading Worker Trips	0.06	0.11	1.90	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.60
Time Slice 4/1/2010-4/30/2010 Number Active Days: 22	1.43	10.84	7.02	0.01	2.96	0.72	3.68	0.62	0.66	1.28	1,236.71
Demolition 04/01/2010-04/30/2010 - Remove Abandoned Pipeline	1.43	10.84	7.02	0.01	2.96	0.72	3.68	0.62	0.66	1.28	1,236.71
Fugitive Dust	0.00	0.00	0.00	0.00	2.94	0.00	2.94	0.61	0.00	0.61	0.00
Demo Off Road Diesel	1.14	7.68	4.68	0.00	0.00	0.59	0.59	0.00	0.54	0.54	700.30
Demo On Road Diesel	0.25	3.09	1.25	0.00	0.01	0.13	0.14	0.00	0.12	0.13	412.07
Demo Worker Trips	0.03	0.06	1.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.34

Phase Assumptions

- Phase: Demolition 4/1/2010 - 4/30/2010 - Demo existing SLAA pipeline
- Building Volume Total (cubic feet): 80000
- Building Volume Daily (cubic feet): 7000
- On Road Truck Travel (VMT): 97.22
- Off-Road Equipment:
  - 1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day



9/11/2007 01:50:17 PM

- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 1/2/2009 - 2/28/2009 - Site and slope preparation - Magazine Cyn

- Total Acres Disturbed: 0.09
- Maximum Daily Acreage Disturbed: 0.02
- Fugitive Dust Level of Detail: Default
- 20 lbs per acre-day
- On Road Truck Travel (VMT): 24.39
- Off-Road Equipment:
- 1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

Phase: Mass Grading 3/1/2009 - 12/30/2009 - Excavate tunnel

- Total Acres Disturbed: 0.09
- Maximum Daily Acreage Disturbed: 0.02
- Fugitive Dust Level of Detail: Default
- 20 lbs per acre-day
- On Road Truck Travel (VMT): 13.7
- Off-Road Equipment:
- 1 Air Compressors (106 hp) operating at a 0.4 load factor for 10 hours per day
- 1 Other General Industrial Equipment (100 hp) operating at a 1 load factor for 10 hours per day
- 1 Skid Steer Loaders (44 hp) operating at a 0.3 load factor for 10 hours per day
- 2 Tractors/Loaders/Backhoes (200 hp) operating at a 0.4 load factor for 10 hours per day

Phase: Mass Grading 1/2/2010 - 3/31/2010 - Install Pipe

- Total Acres Disturbed: 0.09
- Maximum Daily Acreage Disturbed: 0.02
- Fugitive Dust Level of Detail: Default
- 20 lbs per acre-day
- On Road Truck Travel (VMT): 46.88
- Off-Road Equipment:
- 1 Air Compressors (106 hp) operating at a 0.4 load factor for 10 hours per day
- 1 Cranes (200 hp) operating at a 0.5 load factor for 10 hours per day
- 1 Other Equipment (190 hp) operating at a 0.2 load factor for 10 hours per day
- 2 Other General Industrial Equipment (100 hp) operating at a 1 load factor for 10 hours per day
- 2 Welders (45 hp) operating at a 0.45 load factor for 10 hours per day

Phase: Trenching 3/1/2009 - 12/30/2009 - Excavate shaft

- Off-Road Equipment:
- 1 Cranes (399 hp) operating at a 0.7 load factor for 10 hours per day
- 1 Other Equipment (190 hp) operating at a 0.5 load factor for 10 hours per day
- 1 Other General Industrial Equipment (100 hp) operating at a 1 load factor for 10 hours per day
- 1 Tractors/Loaders/Backhoes (200 hp) operating at a 0.2 load factor for 10 hours per day



## **Cultural Resources Survey Report**



**DRAFT CULTURAL RESOURCES SURVEY REPORT:**  
**LOS ANGELES DEPARTMENT OF WATER AND POWER**  
**TERMINAL HILL TUNNEL PROJECT,**  
**LOS ANGELES COUNTY, CALIFORNIA**



*Prepared by:*



GANDA

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Confidential Information- Limited Distribution

November 2006

J-406/8

## Statement of Confidentiality

This report identifies the locations of cultural resources. Disclosure of this information to the public may be a violation of both federal and state laws. Applicable U.S. laws include, but may not be limited to, Section 304 of the National Historic Preservation Act (16 USC 470w-3) and the Archaeological Resources Protection Act (16 USC 470hh). California state laws that apply include, but may not be limited to, Government Code Sections 6250 *et seq.* and 6254 *et seq.* Furthermore, disclosure of site location information to individuals other than those meeting the U.S. Secretary of the Interior's professional standards or California State Personnel Board criteria for Associate State Archaeologist or State Historian II violates the California Office of Historic Preservation's records access policy.

# National Archaeological Data Base Information

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**Report Date:** November 2006

**Report Title:** Cultural Resources Survey Report,  
Los Angeles Department of Water and Power  
Terminal Hill Tunnel Project, Los Angeles County,  
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**Submitted to:** EDAW, Inc.  
3780 Wilshire Blvd., Ste. 250  
Los Angeles, California 90010

**Contract No:** 406/8

**U.S.G.S. Quads:** San Fernando

**Acreage:** ~2 acres

**Key words:** Los Angeles Metropolitan Water District, Los Angeles  
Aqueduct, Terminal Hill, Los Angeles Aqueduct  
Cascades, CA-LAN-2105H, CA-INY-4951H, CA-KER-  
3549H

## SUMMARY OF FINDINGS

This report presents the findings of an intensive pedestrian survey conducted for the Terminal Hill Tunnel Project for the Los Angeles Aqueduct. Brent Leftwich, M.A., performed the archaeological survey on August 10, 2006. The purpose of the pedestrian survey was to locate and record cultural resources within, and adjacent to, the Project's Area of Potential Effects (APE). The survey consisted of an intensive cultural resources survey of the areas immediately adjacent to the existing above-ground aqueduct, the proposed tunnel entrance and exit points, and proposed equipment staging areas, comprising an area of approximately 2 acres. Project areas were surveyed at a transect interval of ten meters.

No prehistoric archaeological resources were discovered during the cultural resources survey. However, portions of the Los Angeles Aqueduct system (outside of the Project Area) are listed as a historic resource under designations CA-LAN-2105H, CA-INY-4951H, and CA-KER-3549H, and it has been identified as a historic civil engineering landmark. In addition, the Los Angeles Aqueduct Cascades that run along the southern slope of Terminal Hill are on the list of California Registered Historical Landmarks (#19-196560).

The historic resources at Terminal Hill, in particular, bear special historic significance as the terminus of the aqueduct and as the location of the momentous celebratory event that marked the first spill of water down the Cascades in 1913. This study has revealed that the original Los Angeles Aqueduct system, completed in 1913, is eligible for listing on the California Register of Historic Resources.

A segment of the second aqueduct, constructed in 1970, will be removed during the proposed project. However, there remains a potential for discovering archaeological deposits associated with the nearly seven years of construction for the original aqueduct, including the work and supply camps scattered along the pipeline route. As such, an on site crew education program will be implemented by a qualified archeologist prior to the start of work. If cultural materials are exposed during construction or site preparation in the proposed staging areas, then work should be halted immediately, and the construction supervisor will be responsible for contacting a qualified archaeologist to assess the nature and content of the resources, and to evaluate their integrity and importance.



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### APPENDICES

Appendix A Correspondence

## 1.0 INTRODUCTION

The Los Angeles Department of Water and Power (LADWP) proposes to re-route the Los Angeles Aqueduct at the north side of Terminal Hill. The project entails drilling underground along the north slope of Terminal Hill, from the base to its summit, at the west side of the existing above-ground aqueduct pipe. A bore hole will be inserted at the base of Terminal Hill near an access road, and a receiving bore hole will be placed at the summit through a paved parking area. The new pipe will turn 90 degrees from the summit bore opening and connect into the Los Angeles Aqueduct Cascades. The existing surface aqueduct pipe is slated for removal, including the metal pipe, concrete footings, and supports. Vegetation at either side of the pipe will be also removed in preparation for the old aqueduct's demolition. Two gravel covered parking areas / landings will be used as staging areas, including one at the base of Terminal Hill, to the northeast of the existing aqueduct pipeline, and the other to the east of the base of the Cascades.

GANDA has completed the cultural resources study for the project pursuant to the requirements of Los Angeles County and the California Environmental Quality Act (CEQA). CEQA requires a review of projects sponsored by public agencies to determine the effects of the project on historical resources. According to CEQA, "historical resources" comprise buildings, structures, objects, districts, or sites that may possess prehistoric or historical archaeological, architectural, cultural, or scientific importance. For the purposes of this study, the focus was prehistoric and historical archaeological resources. The only cultural resource identified in the project area is the Los Angeles Aqueduct, Cascades, and associated structures.

Garcia and Associates archaeologist Carole Denardo, M.A., R.P.A. served as Principal Investigator and Project Manger. Staff archaeologist Brent Leftwich, M.A. conducted the archaeological survey on August 10, 2006. LADWP personnel Marisa Gravis, Andrea Currylow, Jeanette Duffels, and Tania Bonfiglio accompanied the archaeologist during the survey.

This report, *Cultural Resources Survey Report, LADWP Terminal Hill Project, Los Angeles County, California*, comprises sections that include a summary of findings, followed by an introduction in Section 1.0 and project description in Section 2.0. Section 3.0 offers a brief summary of the environmental setting and prehistoric, ethnographic, and historic contexts. Section 4.0 describes previous research and Native American consultation. Section 5.0 details field methods and survey results. Section 6.0 provides management recommendations.

## **2.0 PROJECT DESCRIPTION**

Terminal Hill lies north of the intersection of Foothill and Balboa boulevards. Interstate Highway 5 is to the south-southwest of the project area. Grapevine Canyon extends to the west-northwest of Terminal Hill. The Los Angeles Aqueduct approaches the base of Terminal Hill from the northwest, then turns due south and travels up the northern slope of Terminal Hill. Aqueduct waters are channeled through above-ground pipes before descending underground near the summit of Terminal Hill. The water then travels under a paved parking area and exits into the Los Angeles Aqueduct Cascades. From there, it runs under Interstate Highway 5 into the Upper Van Norman Reservoir. Figures 1 and 2 depict the project area, whereas Figure 3 shows the archaeological survey area.



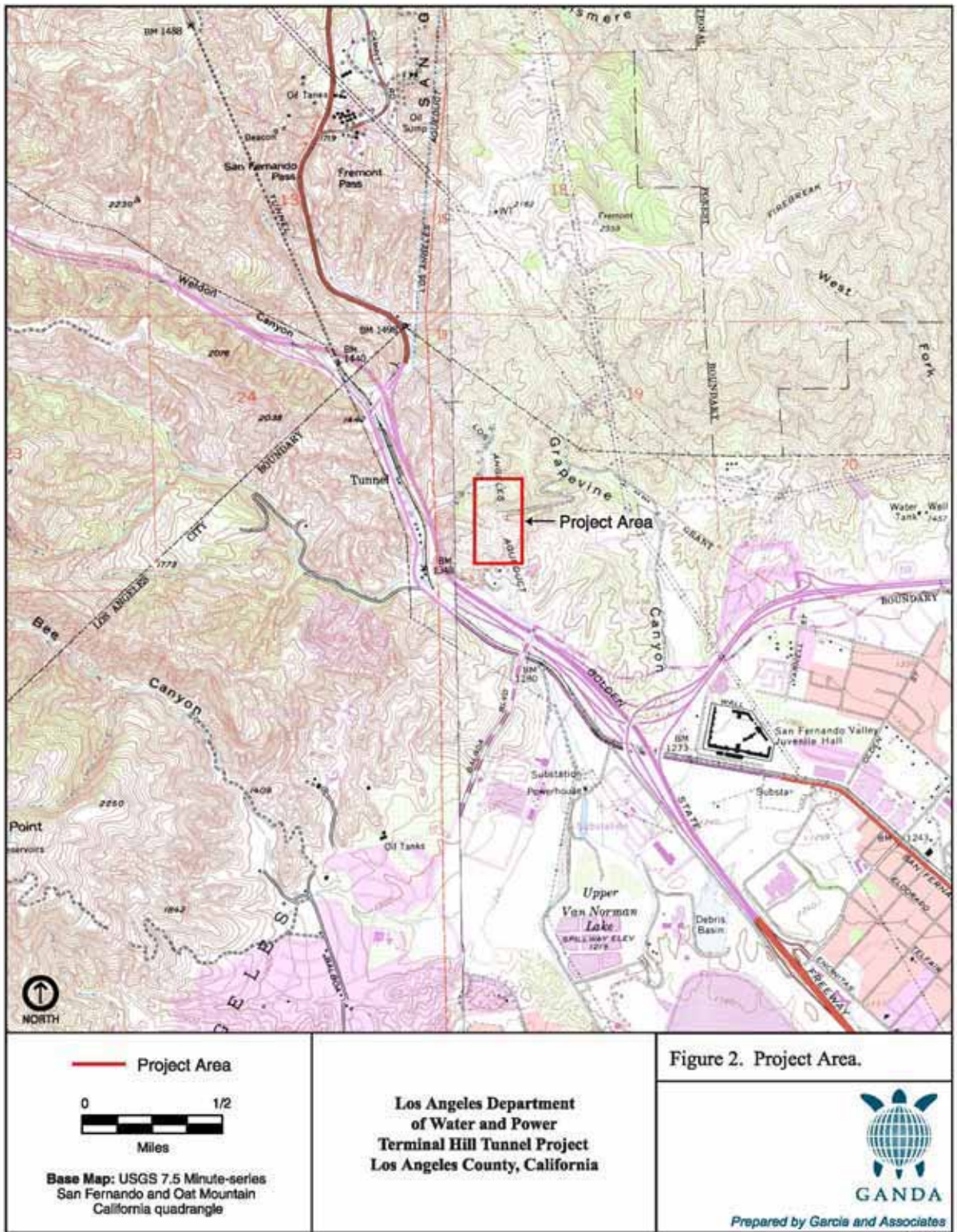
Los Angeles Department  
of Water and Power  
Terminal Hill Tunnel Project  
Los Angeles County, California

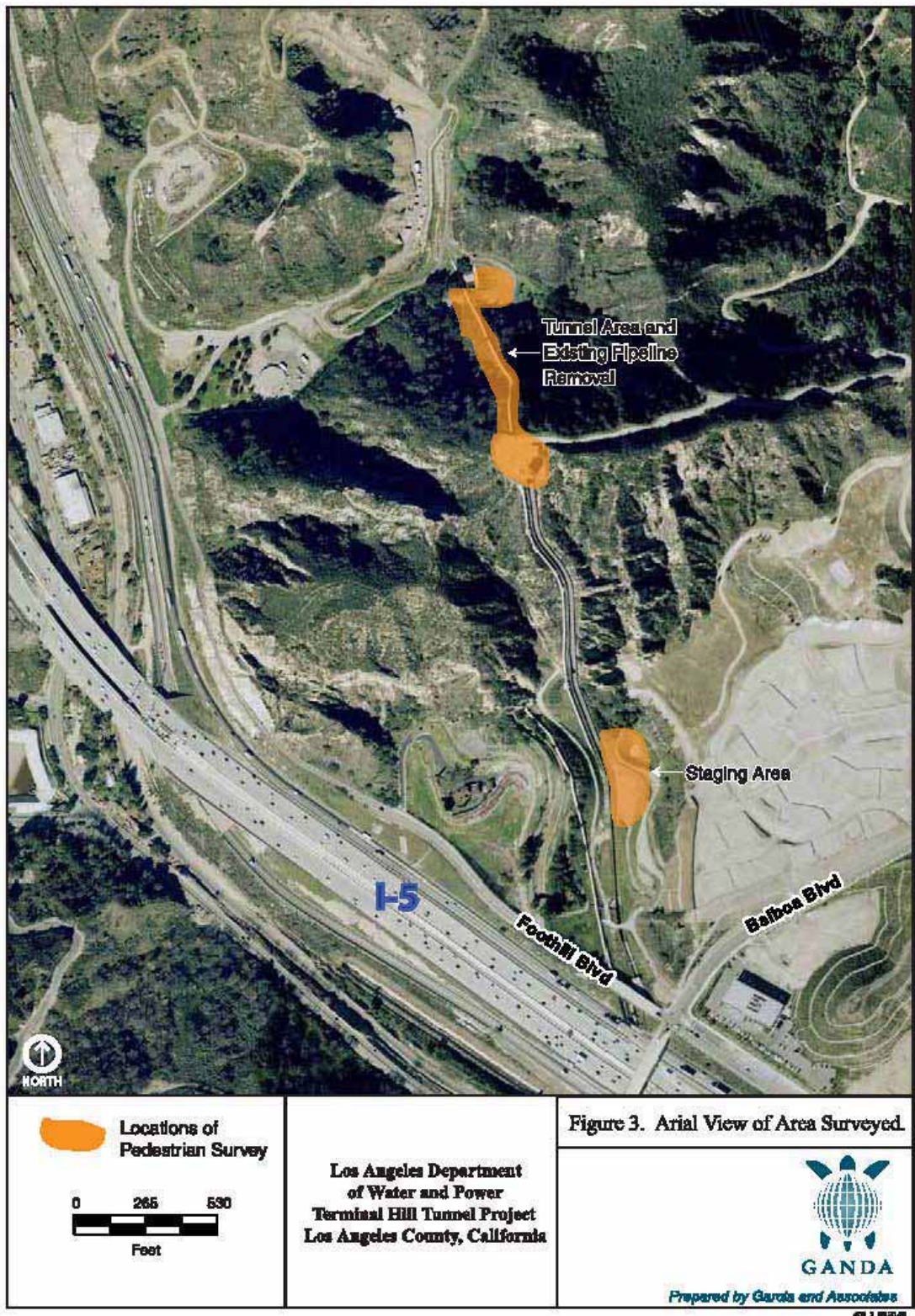
Figure 1. Project Vicinity.



Prepared by Garcia and Associates

406.3.06.02.01





## 3.0 PROJECT CONTEXT

### 3.1 ENVIRONMENTAL SETTING

The project area is located in the Los Angeles Basin, at the northern limits of the city of Los Angeles. The Central Transverse Ranges Province forms an east-west trending northern backdrop, while the northwest-oriented Penninsular Ranges Province bounds to the south. Terminal Hill and the Los Angeles Aqueduct Cascades lie to the west of Grapevine Canyon; they are nestled at the foot of San Fernando Pass that straddles the San Gabriel Mountains to the northeast and Santa Susana Mountains to the north. The generally Mediterranean-like climate is characterized as mild, with warm, nearly rainless summers and comfortable winters with only occasional storms.

Native and introduced plant species that typify the coastal sage scrub and valley grassland communities exist within the Los Angeles Basin. Among the represented species are wild oat (*Avena* spp.), rush (*Juncus* spp.), fescue (*Festuca* spp.), brome grass (*Bromus* spp.), bush sunflower (*Encelia californica*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), and California buckwheat (*Erigonum fasciculatum*). Introduced species, comprising Mexican elderberry (*Sambucus mexicana*), tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), and mule fat (*Baccharis glutinosa*) constitute the most common plant species in the area (Engineering Science 1992:3.4-1, 3.4-2).

Several bird species are common to the area; they include red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), scrub jay (*Aphelacoma coerulescens*), American crow (*Corvus brachyrhynchos*), and song sparrow (*Melospiza melodia*). In prehistoric times, mule deer (*Odocoileus hemionus*), grizzly bear (*Ursus arctos*), coyote (*Canis latrans*), and rabbits (*Sylvilagus auduboni*) were some of the terrestrial mammal species hunted by aboriginal people of the Los Angeles Basin region. Mammals that presently inhabit the area include coyote (*Canis latrans*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), California ground squirrel (*Spermophilus beecheyi*) and five species of small rodents. Four species of lizards and gopher snakes (*Pituophis melanoleucus*) represent reptiles inhabiting the region (Engineering Science 1992:3.4-3, 3.4-4).

### 3.2 CULTURAL SETTING

#### 3.2.1 Prehistoric Context

The archaeological record identifies human occupation in the coastal region of Los Angeles County for approximately 9,000 years. Histories of archaeological research in the region are presented elsewhere in Bean and Smith (1978), Jones (1992), Moratto (1984), Wallace (1955), and Warren (1968). For the purposes of this report, the

chronological framework postulated by Wallace (1955) is used to discuss the Early, Millingstone, Intermediate, and Late Prehistoric periods of cultural development in Los Angeles County.

### ***Early Period (11,000-8,000 B.P.)***

Wallace's culture sequence depicts early occupants of the region to be transitory hunters of large and small terrestrial mammals (Wallace 1955). However, dense accumulations of shellfish and marine mammal species found in early California coastal sites to the south and within the Santa Barbara Channel attest to aboriginal reliance on maritime resources. Accounts of early human occupation in Los Angeles County are limited. The oldest instance is "La Brea Woman," comprising skeletal and skull remains recovered from a six-to-nine-foot pit and dating to 9,000 B.P. (Moratto 1984; Stock 1965:26). Archaeological excavations at Malaga Cove, near Santa Monica Bay north of Palos Verdes, recovered evidence showing the site to be inhabited prior to 6,500 years ago (Moratto 1984).

### ***Millingstone Period (8000-3000 B.P.)***

Larger numbers of archaeological sites dating between 8000 B.P. and 3000 B.P., marked by high densities of groundstone implements used for milling seeds, reflect a more widespread habitation in Los Angeles County (Wallace 1955). This shift has been attributed to stabilized plant resources coinciding with warmer, more arid climatic conditions of the Antithermal. Subsistence also began to diversify, depending on the regional availability of marine and terrestrial fauna resources.

### ***Intermediate Period (3000-1500 B.P.)***

Beginning about 3000 B.P., there is a subsistence shift from hard seeds and plants to a more widespread adaptation of hunting, gathering, and marine foraging (Wallace 1955). This shift appears to be the result of increased population growth and decreased mobility coupled with an increase in seasonal specialized sites. Coinciding with the stress of increased population densities and subsistence shifts are technological advancements, including the development of the mortar and pestle for processing acorns, and the inception of dart points for hunting and shell fishhooks for fishing (Erlandson 1994).

### ***Late Prehistoric Period (1500-1300 B.P.)***

During this 200-year period, profound changes occur in socio-political organization and technological advancements; these changes correspond with a striking increase in population densities, particularly evident in villages clustered along the coast (Wallace 1955). As with the neighboring Chumash of the Santa Barbara Channel, the emergence



of plank canoes opened up offshore fishing for the Gabrielino inhabitants. A well-developed maritime subsistence system ensued, with intensification of hook-and-line fishing, harpooning, netting, and water fowling to complement shellfish gathering (Bean and Smith 1978, Moratto 1984). Inland settlements, strategically placed near water sources and plentiful food resources that included deer, rabbit, acorns, and various plants, were linked to coastal villages.

### ***Ethnohistoric Period (Post 1300 B.P.)***

The Gabrielino belong to the Shoshonean linguistic group, with the Fernandeano Gabrielino speaking a slightly different dialect. The historic territory of the Gabrielino comprised the Los Angeles Basin, including watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers, the coastal region extending from Topanga Creek southward to Aliso Creek, and San Clemente and Santa Catalina islands. The eastern boundary included western San Bernadino and Riverside counties.

Patriarchal descent was used for selecting chiefs in each village, and marriage was patrilocal (Kroeber 1925:633). Subsistence relied on hunting deer with a bow-and-arrow or trapping rabbits and other small prey with snares or drives. Fishing depended on plank canoes and a variety of fishing techniques. Portable mortars milled acorns, and a variety of seeds, bulbs, and other plant resources were consumed. The Gabrielino constructed dome-shaped houses from a framework of poles gathered at the top, and covered with tule thatching or woven tule mats. Clothing consisted of buckskin loincloths for the men and knee-length skirts for the women. In winter months, cloaks of rabbit fur were worn (Weber 1995:20).

In late prehistoric and protohistoric times, the Gabrielino adopted the shell bead monetary system created by the Chumash. Trade networks became established with groups living as far away as Nevada and Arizona (Glassow 1996:17). Among Gabrielino commodities, steatite, found on Santa Catalina Island, was the trade item coveted most by the Chumash and other groups. Spanish colonization and exposure to mission life resulted in declining birthrates and devastation by disease and economic deficiencies, contributing to a depletion of the Gabrielino population. In 1770, census figures showed 5,000 Gabrielino inhabitants in the region; by 1910, only negligible numbers of individuals were reported (Kroeber 1927:883, 887).

### **3.2.2 Historic Context**

The first land expedition of Gaspar de Portolá in 1769 established Alta California as a Spanish possession. Presidios and missions were constructed throughout California as a means to avert Russian and other foreign settlement. In 1772, Don Fages Padres was the first European to provide a written record of his exploration in the region he described as Canada del los Uvas, currently known as Grapevine Canyon. In 1795, the Rancho Encino land grant was awarded to Francisco Reyes, the alcalde of Los Angeles (Lantis et

al. 1963). Two years later, Reyes exchanged the property in favor of other land. This allowed Father Fermín Francisco de Lasuén to found the seventeenth mission, San Fernando, Rey de España on September 8, 1797, (Weber 1995). To establish a work force, the Franciscans brought Gabrielino natives to the mission where they were converted to Christianity. The missions engaged in cattle ranching with the primary focus of producing hides and tallow for export. San Fernando was one of the most affluent missions, with choice crops of wheat and grapes (Lantis et al. 1963:217). The key to bountiful crops was the discovery of a spring on the north slope of the nearby foothills.

“With the assistance of the natives, this water was diverted into a common ditch by damming a “draw” with brush, earth, and rocks. Some distance away, a stone-masonry dam was built in 1808, to impound the waters until the accumulation was released by a floodgate for irrigation or other purposes. A clay-pipe aqueduct, installed in 1811, 1½ miles in length, conducted the water to the fountain at the mission” (Weber 1995:14).

Mexico declared independence from Spain in 1821, resulting in Mexican rule of Alta California. When mission secularization occurred in 1834, control of the mission and all its lands transferred from the clergy to the Mexican government. In 1846, in exchange for \$14,000, Governor Pio Pico granted nearly 117,000 acres of Ex-Mission San Fernando land to his friend and relative, Eulogio de Celis. De Celis was issued a patent in 1862 to confirm the sale (Lantis et al 1963:217; Los Angeles County Deed Book 2:193).

The San Fernando Pass, discovered by Gaspar de Portolá in 1769 to the northwest of Terminal Hill, was renamed Fremont Pass after General John C. Fremont passed through the treacherous route in 1847 on his way to sign the Treaty of Cahuenga. The Fremont Pass became the main route into Los Angeles from the north, and stagecoach traffic traversed through the steep pass to Fort Tejon as early as 1854. The pass was also used by the Butterfield Overland Mail from about 1858. It appears that at least portions of the route would later become the Interstate 5 Freeway that passes near Terminal Hill.

The region north of San Fernando was mostly used for cattle ranching and shepherding until oil was discovered as early as the 1860s. In 1876, the first commercial oilfield, known as the California Star Oil Works Company, went into production to the northwest of San Fernando (Ripley 1948).

The Southern Pacific Railroad connected Bakersfield with Los Angeles through Fremont Pass in the 1874, and the San Fernando Station opened for business (Fogelson 1967:5). In 1876, a railroad tunnel, professed the country’s longest at the time, was excavated north of San Fernando. Land speculators platted their subdivisions along the railroad routes in anticipation of an increasing populations demand for housing (Newmark 1970:570).

In 1874, successors to the Eulogio de Celis property sold approximately 56,000 acres of the northern half of the San Fernando Valley to George K. Porter and Charles Maclay, who were two former state senators from Northern California, for the sum of \$80,000. That same year, Maclay prepared a subdivision map and filed it with the Los Angeles County Recorder's office. The subdivision would later develop into the city of San Fernando (Robinson 1961).

### *Los Angeles Aqueduct*

The Los Angeles Aqueduct brings much needed water from the mountain lakes and streams of the Sierra Nevada to the San Fernando Valley. As early as 1905, Mayor Fred Eaton and William Mulholland, the Superintendent and Chief Engineer of the Los Angeles City Water Department (now the Department of Water and Power) envisioned a water conveyance system that would bring water from the Owens River to the city of Los Angeles (Walton 1986). As early as 1905, Mayor Eaton began purchasing property in the Owens Valley for the City of Los Angeles (LADWP 1987). After a meeting with President Theodore Roosevelt and the Secretary of the Interior in 1906 to secure water rights, a final bond of \$23,000,000 was voted by the citizens of Los Angeles for construction of the aqueduct. Mulholland served as chief engineer and J.B. Lippincott was assistant engineer (Costello and Marvin 1992).

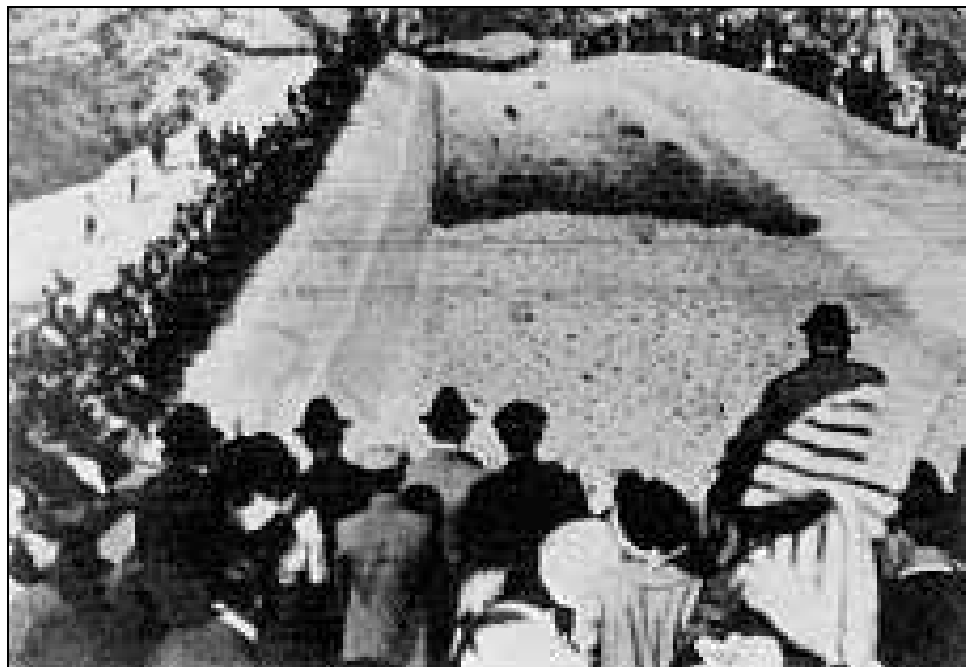
The largest part of 1907 and 1908 was spent on infrastructure for the aqueduct project, including building roads and connecting telephone and power lines, and organizing food and water supplies for various work camps along its route (Costello and Marvin 1992; JRP 2000). The original phase of the water conveyance project occurred between 1907 and 1913, and covered a distance of 223 miles. It is composed of 63 miles of lined and unlined ditches and 171 miles of covered conduits, tunnels, siphons, and reservoirs between the Owens River and the San Fernando Valley. At the aqueduct intake, approximately 35 miles north of Owens Lake, the Owens River reaches a height of 3,800 feet amsl. From here, the aqueduct path leads due south into the Haiwee Reservoir, where it enters the Mojave Desert through Jawbone Canyon, and then extends southwest through Antelope Valley into Fairmont Reservoir. From that point, the aqueduct travels through San Francisqui Canyon, Dry Canyon Reservoir and finally south into Van Norman Lake. During construction, approximately 100 work and supply camps were scattered about 15 miles apart along the pipeline route (Howell pers. com. 2006; Costello and Marvin 1992).

Construction of the Los Angeles Aqueduct was divided into 11 segments. From north to south, they included Long Valley (the later constructed Mono Lake segment), Owens Valley, Olancho, Rose Valley, Grapevine, Freeman, Jawbone, Mojave, Antelope, Elizabeth, and Saugus divisions (Mulholland 2002). Terminal Hill and the Cascades are within the Saugus Division, at the terminus of the aqueduct, at an elevation of 1,450 feet amsl (Mulholland 2002:143,207). The Cascades is a concrete chute that is used to diffuse the water's energy before entering the Van Norman Reservoir Complex (LADWP 1987).

According to Craig Howell of the Public Utility Information Center, 12-foot diameter steel water pipes constructed in Germany were shipped to California between 1911 and 1913 to complete the aqueduct (Howell pers. com. 2006). During construction, the pipe segments were riveted together. Once work commenced on the aqueduct, it proceeded swiftly; as a result, the project was completed on time and under-budget for a final cost of less than \$23,000,000. At the time, it was publicized as the third largest engineering achievement of its time, only outshined by the New York water system and the Panama Canal (Costello et al. 1992).

To mark the project's completion, a grand celebration was held by William Mulholland and a group of community leaders on September 1, 1913. They gathered north of San Fernando, at the south portal of the last tunnel, where they observed the first flow of water spill down the Cascades (Mulholland 2002:239). To mark this momentous event, a plaque was placed at the Cascades by the California State Park Commission, the History and Landmarks Association of the San Fernando and Antelope Valley Parlors, Native Sons and Native Daughters of the Golden West, and the San Fernando Mission Parlor No. 260 on December 7, 1958. It reads:

“THIS IS THE TERMINUS OF THE LOS ANGELES – OWENS RIVER AQUEDUCT, BRINGING WATER 338 MILES FROM THE EASTERN SLOPES OF THE SIERRA NEVADA TO THE CITY OF LOS ANGELES. BEGUN IN 1905, THE GREAT AQUEDUCT WAS COMPLETED NOVEMBER 5, 1913. THE MONO CRATERS TUNNEL PROJECT, COMPLETED IN 1940, EXTENDED THE SYSTEM 27 MILES TO ITS PRESENT NORTHERNMOST INTAKE NEAR TIOGA PASS.”



**Figure 4. First Aqueduct water released down the Cascades in 1913**

(<http://www.ladwp.com/ladwp/cms/ladwp001562.jsp>).

Once the aqueduct was constructed, the city of Los Angeles and its municipalities began to grow considerably. However, the aqueduct has seen numerous repairs and improvement projects since its initial construction, including acquisition and construction of a segment in the Mono Lake area in the 1930s and the 11-mile Mono Craters Tunnel through the Mono Basin in 1940. The tunnel was built in an effort to increase the water intake of the aqueduct.

During the Northridge Earthquake of 1994, the Terminal Hill area of the Los Angeles Aqueduct sustained damage, including breaks in the concrete aqueduct pipes, minor damage to the tunnel through Terminal Hill, and compression damage to a 77-inch steel pipe at the north side (Grases 1997).

The Los Angeles Second Aqueduct, extending 137 miles, commencing at an elevation of 3760 feet amsl south of the Haiwee Reservoirs and winding its way solely by force of gravity to Los Angeles, was constructed in 1970. It was constructed to ensure that the full capacity of water from the Mono Basin was received. Another Cascades and structure at the top of Terminal Hill, both associated with the Second Aqueduct, are located to the east of the original water conveyance system (Figure 5). The more recent Cascades begin approximately 350 feet higher than the older Cascades. The Terminal Hill structure promotes standardized pressure for pipes in transporting water from the Second Aqueduct to the San Fernando Valley and Foothill Power Plant. Surplus water flows into the Second Aqueduct Cascades and on to the Los Angeles Reservoir facility (LADWP 1987).

The Los Angeles Aqueduct still provides the bulk of Los Angeles' water as well as hydroelectric power along its length (LADWP 1987). Together, the two aqueducts have facilitated the water needs of Los Angeles into the twenty-first century.

## 4.0 PREVIOUS RESEARCH AND CONSULTATION

### 4.1 RECORD SEARCH RESULTS

Archaeologist Brent Leftwich, M.A., conducted a record search on August 16, 2004 at the California Historical Resources Information System at the South Central Coastal Information Center at California State University, Fullerton. The record search included a review of all recorded historic and prehistoric sites and cultural resources studies within a 0.25-mile radius of the project areas.

The following resources were consulted as a part of the records search:

- National Register of Historic Places (NRHP), Index of Listed Properties
- Office of Historic Preservation Historic Property Data File for Los Angeles County
- California Historical Landmarks
- California Points of Historical Interest

The records search indicated that no archaeological investigations have occurred within 0.25 miles of the area of potential affect and no prehistoric archaeological sites were noted in the area. However, the Los Angeles Aqueduct has been designated a historic resource, under site numbers CA-LAN-2105H, CA-INY-4951H, and CA-KER-3549H. Furthermore, the Los Angeles Cascades that run along the southern slope of Terminal Hill is a California Registered Historical Landmark (#19-196560).



**Figure 5. Overview of Cascades**

[http://www.wikimedia.org/wikipedia/commons/f/fb/LA\\_Aqueduct\\_Cascades](http://www.wikimedia.org/wikipedia/commons/f/fb/LA_Aqueduct_Cascades)

## 4.2 HISTORIC BACKGROUND RESEARCH

Additional archival research was conducted to determine if potential historical archaeological sites might be present within the project area and to find additional information about the Los Angeles Aqueduct. The research included a review of historic maps that included 1925, 1929, and 1940 U.S.G.S. San Fernando Quadrangle maps, and additional historic maps. The California State University at Fullerton Library Special Collections, the University of California at Santa Barbara Library, Los Angeles City Historical Society, and San Fernando Valley Historical Society were also consulted for pertinent documents and information.

There are three parallel water routes visible on the hill, so research was done to positively identify which was the original 1913 aqueduct and which was the 1970 watercourse. According to the Mono Basin Information Public Affairs Division, the “long pipe is the main pipe of the 1970 aqueduct; the open channel is the spillway for the 1970 aqueduct” and “the pipe emerging half way down the hillside on the left of the spillway is the original 1913 aqueduct, which is still in use. It was next to this pipe where William Mulholland stood on the aqueduct’s opening day in 1913, addressing the assembled citizens, saying “This rude platform is an altar, and on it we are here consecrating this water supply and dedicating this Aqueduct to you and your children and your children’s children for all time” (Mono Basin Public Affairs Division 2006).

## 4.3 NATIVE AMERICAN CONSULTATION

The California Native American Heritage Commission (NAHC) was contacted by letter on August 5, 2006 regarding the proposed project. The commission provided Garcia and Associates with a list of Native American contacts in the region. The NAHC also performed a record search of their Sacred Lands file to determine if any sacred sites were located within the proposed project areas. This search failed to indicate the presence of Native American cultural resources in the area.

On September 27, 2006, letters were written to each of the 11 groups and individuals that might have an interest in the Terminal Hill project. Table 1 below provides a summary of follow-up telephone calls made to each contact.

**Table 1. Summary of Follow-up Phone Calls to Contacts**

Contact Date	Name	Affiliation	Discussion
09/28/06	Anthony Morales, Chairperson	Gabrieleno/Tongva Tribal Council	GANDA called and left a voice-mail message at 9:35 for him to call with concerns or if he needs additional information about the project
09/28/06	Beverly Salazar Folkes		GANDA called and left a voice-mail message at 9:21 for her to call with concerns or if she needs additional information about the project
09/28/06	Samuel Dunlap		GANDA called and left a voice-mail message at 9:17 for him to call with concerns or if he needs additional information about the

			project
09/28/06	Rudy J. Ortega, Sr.	Fernandeno/Tataviam/San Fernando Mission Indians	GANDA called at 9:45; however there was no answer. GANDA tried again at 10:03, but still no answer.
09/28/06	Ron Andrade, Director	LA City/County Native American Indian Commission	GANDA called and left a voice-mail message at 9:38 for him to call with concerns or if he needs additional information about the project
09/28/06	Cindi Alvitre	Ti'At Society	GANDA called and left a voice-mail message at 9:55 for her to call with concerns or if she needs additional information about the project
09/28/06	Robert F. Dorame, Chairperson	Gabrielino Tongva Indians of California Tribal Council	GANDA called and left a voice-mail message at 9:25 for him to call with concerns or if he needs additional information about the project
09/28/06	John Valenzuela, Chairperson	San Fernando Band of Mission Indians	GANDA called and left a voice-mail message at 9:50 for him to call with concerns or if he needs additional information about the project
09/28/06	Randy Guzman-Folkes		GANDA called and left a voice-mail message at 9:30 for him to call with concerns or if he needs additional information about the project.
09/28/06	Los Angeles City Historical Society		GANDA called and left a voice-mail message at 10:45 for them to call with concerns or if they needs additional information about the project
09/28/06	San Fernando Valley Historical Society		GANDA called at 10:55. Phone rang with no answer. GANDA called again at 12:05, but again no answer. Received a return call from Mr. Craig Howell of the Public Utilities Information Center. Mr. Howell had concerns about removal of the historic pipeline and possible evidence of Aqueduct work camps in the area.



## **5.0 FIELD METHODS AND SURVEY RESULTS**

### **5.1 FIELD METHODS**

The entire APE for the two project areas was surveyed using ten-meter intervals, with 100 percent pedestrian coverage (Figure 3). In the areas immediately adjacent to the existing above-ground aqueduct pipe extending up the north side of Terminal Hill, one transect was walked along each side of the water pipe. Generally, surface visibility was good to poor, depending on the ground cover. Soil conditions and gross type, vegetation, slope, aspect, and previous disturbances were noted. A handpick was used to expose the soil at spaced intervals. When present, rodent burrows and other exposed areas were examined to assess the potential for subsurface cultural soils or artifacts. Of particular interest would be evidence of prehistoric habitation (shell midden, dark soil features, or artifacts) or historic features or structures. Field notes, digital images, and a photo log from this project are on file at Garcia and Associates Lompoc office under Job 406/8.

### **5.2 SURVEY RESULTS**

Survey was conducted alongside the existing above-ground aqueduct pipe slated for removal at the entrance and exits points of the planned tunnel, and in designated staging areas. The pipe to be removed is the from the 1970 Second Aqueduct construction. Survey conducted along side the existing pipe proved difficult and visibility was poor because of thick grasses and bushes growing in the area. The survey was also challenging, with a slope ranging from approximately 55 to 75 degrees. No cultural materials were observed other than the aqueduct, concrete footings and supports, and concrete tailings and debris remnants from construction of the water conveyance system.

There was fair visibility at the proposed tunnel entrance at the base of Terminal Hill and the area near the proposed tunnel exit has been heavily disturbed by the construction of a parking lot. The proposed staging areas consisted of two gravel lots or landings; these heavily disturbed areas have been modified by earth moving machinery. No cultural materials were observed in any of these locations.

## **6.0 CALIFORNIA REGISTER OF HISTORIC RESOURCES EVALUATION**

### **6.1 CEQA CRITERIA**

Cultural resources are defined as buildings, sites, humanly modified landscapes, Traditional Cultural Properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. CEQA states that if a project will have a significant effect on important cultural resources, then alternative plans or mitigation measures need to be developed. However, only significant cultural resources need to be considered in the mitigation plans.

CEQA defines significant historical resources as “resources listed or eligible for listing in the California Register of Historical Resources (CRHR)” (Public Resources Code Section 5024.1). Under CEQA, a resource is considered “historically significant” if it meets the criteria for listing on the California Register of Historic Resources (CRHR). A historical resource must be significant at the local, state, or national level, under one or more of the following four criteria:

- A. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
- B. It is associated with the lives of persons important to local, California, or national history; or
- C. It embodies the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values; or
- D. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (CEQA PRC SS5024.1, Title 14 CCR, Section 4852; California State Office of Historic Preservation website).

In addition, for a property to be eligible for listing on the CRHR, it must retain sufficient integrity. The seven elements of integrity include location, design, setting, materials, workmanship, feeling, and association.

### **6.2 LOS ANGELES AQUEDUCT CRHR SIGNIFICANCE EVALUATION**

The Second Los Angeles Aqueduct was constructed in 1970, so it does not qualify as a significant historic resource. However, the nearby original Los Angeles Aqueduct was evaluated as part of this study, so the following evaluation mostly applies to that specific

segment of the historic aqueduct, although it is probable that the entire historic Los Angeles Aqueduct is eligible for listing on the CRHR. The original Cascades have already been placed on the list of California Registered Historical Landmarks (#19-196560), but it appears that the entire historic water system is significant.

Background research indicates that the Terminal Hill portion of the original Los Angeles Aqueduct, including the Cascades is associated with significant events in California history. The terminus of the aqueduct at the south portal of the last tunnel was the location of the renowned celebration held by William Mulholland and a group of community leaders when the first water spilled down the Cascades in 1913. Under Criterion A, the historic resources appear to be eligible for listing on the CRHR.

The first Los Angeles Aqueduct is associated with William Mulholland who was one of the state's most famous engineers, and engineer J.B. Lippincott. The historic water conveyance system is also associated with Fred Eaton, mayor of Los Angeles during the early years of the twentieth century. Because the aqueduct is associated with important individuals, it appears to be eligible for listing on the CRHR under Criterion B.

The original Los Angeles Aqueduct was identified as the third largest engineering achievement of its time, only surpassed by the New York water system and the Panama Canal. Accordingly, it has been declared a historic civil engineering landmark. Under Criterion C, the entire aqueduct appears to be eligible for listing on the CRHR.

Much can be learned about the daily lives of individuals associated with the original aqueduct construction work camps. Due to the reportedly large number of camps spaced throughout the aqueduct route, it is possible that at least one of the former camps had been located in the project area. As such, archaeological deposits associated with the work camps may be present. The aqueduct appears to be eligible for listing on the CRHR under Criterion D.

### **6.3 LOS ANGELES AQUEDUCT CRHR INTEGRITY DISCUSSION**

For a property to be eligible for listing on the CRHR, it must retain sufficient integrity. However, a structure must meet one or more of the criteria (A, B, C, or D) before a determination can be made about its integrity. As such, this study has demonstrated that the historic aqueduct and cascade structures are associated with important events and persons in California history, and they represent an engineering masterpiece. Furthermore, the property has the potential to produce important information.

The seven elements of integrity include location, design, setting, materials, workmanship, feeling, and association. The original Cascades and segment of the first aqueduct adjacent to the project area are intact and retain sufficient integrity in regard to each of the seven characteristics. The 1913 Los Angeles Aqueduct and Cascades appear to be eligible for inclusion in the CRHR under Criterion A, B, C, and possibly D, and it retains integrity.

## 7.0 MANAGEMENT RECOMMENDATIONS

Significant impacts on cultural resources that are listed or eligible for listing on the CRHR require mitigation. Potential mitigation measures include site avoidance, site capping, integration of the site into a recreation space, or data recovery excavations. Other mitigation measures include preparing a plan, with agency consultation, to identify, evaluate, and determine the potential impacts of the Project on a resource. Because the original Los Angeles Aqueduct and Cascades are outside the Project Area and will not be impacted by the current scope of work, there will not be an effect on these resources. However, it is recommended that care be taken to ensure that a policy of avoidance is implemented at or adjacent to the original aqueduct pipe and associated features to ensure they are not impacted by the proposed construction.

The aqueduct pipe to be removed is not considered a historic resource because it is not 50 years old. Therefore, no mitigative measures are required during its removal.

Although no cultural materials were identified during the archaeological survey, there still exists the potential for significant cultural resources to be discovered in the Project Area, so it is recommended that a qualified archaeologist conduct onsite training on the proper procedures to follow in the event that cultural resources are uncovered during project excavations. The training will be initiated prior to the onset of construction and all construction crew will be required to attend the session. If cultural materials are exposed during construction or site preparation in the proposed staging areas, then work should be halted immediately, and the construction supervisor will be responsible for contacting a qualified archaeologist to assess the nature and content of the resources, and to evaluate their integrity and importance.

In the event human remains are encountered, project management should adhere to the provisions of Sections 7052 and 7050.5 of the California Health and Safety Code. Section 7052 states that disturbance of Indian cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped near discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are Native American, Section 7052 states that the coroner must contact the California Native American Heritage Commission.

## 8.0 REFERENCES CITED

Bean, J.L., and C. R. Smith

1978 Gabrielino. In *Handbook of North American Indians*. Vol. 8, California. Editor, R. F. Heizer, pp. 538-549. Smithsonian Institute, Washington.

Costello, Julia G. and Judith Marvin

1992 *Archaeological Survey Report and Historic Study Report for Highway 395, Alabama Gates Four Lane Project, Inyo County, California*. Caltrans Contract No 09H078. Foothill Resources, Ltd.

Engineering Science

1992 *Draft Environmental Impact Report for the Police Bond Program Police Driver Training Facility*. Submitted to City of Los Angeles, Bureau of Engineering, Los Angeles, California.

Erlandson, J.M.

1994 *Early Hunter-Gatherers of the California Coast*. Plenum Press, New York.

Fogelson, Robert

1967 *The Fragmented Metropolis: Los Angeles, 1850-1930*. Cambridge: Harvard University Press.

Glassow, M.A.

1996 *Purisimeño Chumash Prehistory: Maritime Adaptations along the Southern California Coast*. Series Editor, J. Quilter. Harcourt Brace & Company, Orlando, Florida.

Grases, José.

1997 Annex 1 Examples of Effects of Earthquakes on Pipeline Systems\* (1969-1997). Page 63. <http://www.paho.org/English/Ped/nd-annex1.pdf>

Jones, T.L.

1992 Settlement Trends Along the California Coast. In *Essays on the Prehistory of Maritime California*, edited by T. Jones, No. 10, pp. 1-38. Center for Archaeological Research at Davis, University of California, Davis, California.

JRP Historical Consulting

2000 Water Conveyance Systems in California- Historic Context Development and Evaluation Procedures. Prepared jointly with California Department of Transportation, Sacramento, California.

King, C.

1994 *Prehistoric Native American Cultural Sites in the Santa Monica Mountains*. Topanga Anthropological Consultants, Topanga Canyon, California.

- Kroeber, A. L.  
1925 Handbook of the Indians of California. *Bureau of American Ethnology Bulletin* 78, Smithsonian Institution, Washington D.C.
- Lantis, D.W., R. Steiner, and A.E. Karinen  
1963 *California: Land of Contrast*. Wadsworth Publishing, Co., Inc., Belmont, California.
- LADWP (Los Angeles Department of Water and Power)  
1987 *Points of Interest: Los Angeles Aqueduct System*. LADWP document. Los Angeles, CA.
- Mono Basin Information Public Affairs Division  
2006 Los Angeles Aqueduct Terminus, the Cascades. Archive ID# CA4950. (<http://ludb.clui.org/ex/i/CA4950/>).
- Moratto, M.J.  
1984 *California Archaeology*. Academic Press, New York.
- Mulholland, Catherine  
2002 *William Mulholland and the Rise and Fall of Los Angeles*. University of California Press, Berkeley.
- Newmark, Harris  
1970 *Sixty Years in Southern California: 1853-1913*. Los Angeles: Zeitline & Ver Brugge.
- Ripley, Vernetta Snyder  
1948 The San Fernando (Newhall Pass). Chapter 14. 1865-76: Oil and the San Fernando Pass. In *The Quarterly, Historical Society of Southern California*.
- Robinson, W.W.  
1961 The Story of the San Fernando Valley. Title Insurance Company, Los Angeles.
- Stock, C.  
1965 *Rancho La Brea*. Los Angeles County Museum 20(11):26.
- Wallace, W. J.  
1955 *A Suggested Chronology for Southern California Coastal Archaeology*. Southwestern Journal of Anthropology 11(3):214-230.
- Walton, John  
1986 "Picnic at Alabama Gates." *California History*, 55(3), the Magazine of the California Historical Society, San Francisco.

Warren, C.N.

1968 Cultural Traditions and Ecological Adaptation on the Southern California Coast. In *Archaic Prehistory in the Western United States*, edited by C. Irwin-Williams. *Eastern New Mexico University Contributions in Anthropology* 1(3):1-14.

Weber, Msgr. F.J.

1975 *The Mission in the Valley: A Documentary History of San Fernando, Rey de España*. Kimberly Press, Santa Barbara, California.

## **Other Reference Materials**

### **Maps**

1925 U.S.G.S. San Fernando Quadrangle map

1929 U.S.G.S. San Fernando Quadrangle map

1940 U.S.G.S. San Fernando Quadrangle map

1994 U.S.G.S. San Fernando Quadrangle map

### **Documents**

Los Angeles County Deed Book 2:193





## **Phase I Environmental Site Assessment**



***FINAL***

***PHASE 1 ENVIRONMENTAL  
SITE ASSESSMENT***

***TERMINAL HILL SITE***

*Prepared for*



**Los Angeles Department of Water  
And Power, Environmental Services**

**111 N. Hope St, Los Angeles, CA 90012**

**December 2006**

*Prepared by*

**PARSONS**

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LOS ANGELES DEPARTMENT OF WATER AND POWER  
TERMINAL HILL PROJECT**

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## **ACRONYMS AND ABBREVIATIONS**

ADL	Aerially Deposited Lead
AST	Aboveground Storage Tank
ASTM	American Society of Testing and Materials
AUL	Activity and Use Limitation
CA FID	California Facility Inventory Database
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
COR	Corrective Action Report
CORRACTS	Corrective Action Report
EDR	Environmental Data Resources
EP	Environmental Professional
ERNS	Emergency Response Notification System
°F	Degrees Fahrenheit
FAA	Federal Aviation Administration
FCC	Federal Communication Commission
FINDS	Facility Index System
FOS	Finding of Suitability
FRS	Facility Registry System
FTTS	FIFRA/TSCA Tracking System
GEN	Generator
HMIRS	Hazardous Materials Incident Response System
km	Kilometer
LADWP	Los Angeles Dept of Water and Power
lbs	Pounds
LQG	Large Quantity Generator
LUST	Leaking Underground Storage Tank
LUSTIS	Leaking Underground Storage Tank Information System
m	Meter
MS	Master of Science
µg/ft <sup>2</sup>	Micrograms per Square Foot
NCDB	National Compliance Data Base System
NESHAP	National Emission Standard for Hazardous Air Pollutants
NFRAP	No Further Remedial Action Planned

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NLR	No Longer Report
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
pCi/L	picoCuries per liter
Ph.D	Doctor of Philosophy
PE	Professional Engineer
ppm	parts per million
REC	Recognized Environmental Condition
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SQG	Small Quantity Generator
SWEEPS	Statewide Environmental Evaluation and Planning System
TRIS	Toxic Release Inventory System
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and/or Disposal
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground storage tank
WRCC	Western Regional Climate Center Web Page ( <a href="http://www.wrcc.dri.edu/">http://www.wrcc.dri.edu/</a> )

## 1.0 SUMMARY

Parsons conducted a Phase I Environmental Site Assessment in conformance with the American Society of Testing and Materials (ASTM) Standard Practice E 1527-05 for the following site:

- Parcel 1 of the Terminal Hill Project of the Los Angeles Department of Water and Power (LADWP) that is located at 17011 Foothill Blvd, Los Angeles, CA.

The site is 2.08 acres. Appendix A presents the project location and a site plan.

The 1971 San Fernando earthquake and 1994 Northridge Earthquakes illustrated the importance of seismic reliability for water systems pipelines, dams, tanks, and other facilities. The reliability and seismic safety of LADWP dams and facilities is being improved through seismic stability evaluations, completion of repairs caused by the 1994 Northridge earthquake, and the mitigation of seismic hazards to critical facilities. Parcel 1 will be acquired for hazard mitigation by relocating the second Los Angeles Aqueduct at Terminal Hill into a tunnel to bypass poor rock conditions and improving soil conditions under the High Speed and Bypass Channels (LADWP, 2006).

Available information for the parcel and surroundings was collected and evaluated to identify Recognized Environmental Conditions. According to the American Society for Testing and Materials (ASTM) Standard Practice E 1527-05, the term Recognized Environmental Conditions (RECs) means “the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.” The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Based on the definition of a REC in the ASTM Standard Practice E 1527-05, the following RECs have been identified for the site:

- ADL is common in the immediate vicinity of freeways and highways. The closest distance to I-5 from the site is about 1800 ft (although the I-5 is located at an elevation approximately 400 ft lower than the site elevation), so there is potential for historical contamination from this heavily traveled roadway. Prior to construction, an ADL survey should be performed in the vicinity of planned excavation areas.

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A Phase I Environmental Site Assessment does not include any sampling and analysis of potentially contaminated materials. The scope of work of this Phase I Environmental Site Assessment did not specifically include sampling and analysis, therefore no independent soil or groundwater or other sampling and analyses were conducted.

## **2.0 INTRODUCTION**

### **2.1 PURPOSE**

Parsons conducted a Phase I Environmental Site Assessment in conformance with the American Society of Testing and Materials (ASTM) Standard Practice E 1527-05 for the following site:

- Parcel 1 of the Terminal Hill Project of the Los Angeles Department of Water and Power (LADWP) that is located at 17011 Foothill Blvd, Los Angeles, CA.

The site is 2.08 acres. Appendix A presents the project location and a site plan.

The 1971 San Fernando earthquake and 1994 Northridge Earthquakes illustrated the importance of seismic reliability for water systems pipelines, dams, tanks, and other facilities. The reliability and seismic safety of LADWP dams and facilities is being improved through seismic stability evaluations, completion of repairs caused by the 1994 Northridge earthquake, and the mitigation of seismic hazards to critical facilities. Parcel 1 will be acquired for hazard mitigation by relocating the second Los Angeles Aqueduct at Terminal Hill into a tunnel to bypass poor rock conditions and improving soil conditions under the High Speed and Bypass Channels (LADWP, 2006).

The term REC, as defined in ASTM Standard Practice E 1527-05, means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with applicable laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

### **2.2 PHASE I TASKS**

Parsons performed the following tasks:

#### **2.2.1 Records review**

Available current and historical documents pertinent to environmental activities conducted in or near the site were reviewed. Topics of interest include chemical usage or inventories, waste management records, Resource Conservation and Recovery Act

(RCRA) or Comprehensive Environmental Response Compensation and Liability Act (CERCLA) activities.

### **2.2.2 Site reconnaissance and Interviews**

Site reconnaissance of the site to visually and physically observe and document conditions on the property was performed on November 9, 2006. Interviews were conducted in keeping with the requirements of ASTM Standard Practice E 1527-05, § 7.1 – 7.2.

### **2.2.3 File search and records review**

A search of federal, state, and local regulatory agency electronic databases was performed. This database search identifies locations that are regulated under various environmental laws, notably CERCLA, RCRA, and Toxic Substances Control Act (TSCA). It also identifies locations where a release of hazardous substances has occurred or is suspected.

### **2.2.4 Historical Records review**

Available historical aerial photographs were reviewed to confirm that a historic use information review was conducted to identify all obvious uses from the present back to the first developed use or 1940, whichever is earlier.

### **2.2.5 Evaluate data and prepare report**

Significant findings from the above-stated tasks were summarized, RECs were identified, and recommendations were made for additional site assessment activities, if needed.

## **2.3 SPECIAL TERMS AND CONDITIONS**

- The information and conclusions presented in this report are valid only for the circumstances of the site investigated as described as of the dates in this report.
- Parsons evaluated the reasonableness and completeness of available relevant information, but does not assume responsibility for the truth or accuracy of any information provided to Parsons by others or for the lack of information that is intentionally, unintentionally, or negligently withheld from Parsons by others.
- After acceptance of this report, if Parsons obtains information that it believes warrants further exploration and development, Parsons will endeavor to provide that information, but Parsons will not be liable for not doing so.



## **2.4 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT**

To achieve the study objectives stated in this report, Parsons based its conclusions on the best information available during the period of the investigation and within the limits prescribed by the ASTM Standard.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Professional judgment was exercised in gathering and evaluating the information obtained, and Parsons commits itself to the usual care, thoroughness, and competence of the engineering profession.

## **2.5 LIMITING CONDITIONS AND METHODOLOGY USED**

The Phase I Environmental Site Assessment investigations were completed in accordance with the ASTM Standard Practice E 1527-05.

## **2.6 USER RELIANCE**

This report was prepared for LADWP. It may be relied upon by LADWP and each of its respective officers, directors, employees, affiliates, successors, assigns, legal counsel and advisors.

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### 3.0 SITE DESCRIPTION

#### 3.1 LOCATION AND LEGAL DESCRIPTION OF PROPERTY

The subject site is located at 17011 Foothill Blvd, Los Angeles, CA at 34° 19' 40.08" N latitude and -118° 29' 52.46" W longitude (NAD 83 system). The parcel is adjacent to the existing Los Angeles Aqueduct and is located on the west side of the Aqueduct (see Appendix A). The majority of the parcel is located on the north face of Terminal Hill while the remaining portion is located on the west face of Terminal Hill. The parcel is best viewed from the north base of Terminal Hill and from the top of Terminal Hill. The rest of the parcel cannot be easily accessed by road, and is covered by vegetation. No structures are present on the parcel.

#### 3.2 SITE AND VICINITY CHARACTERISTICS

Table 3-1 provides a description of the properties directly adjacent to the site.

**Table 3-1  
Adjacent Properties**

Direction	Description of Adjacent Properties
Northeast	This quadrant comprises of the north slope of Terminal Hill and mountainous terrain of the San Gabriel Mountains further to the east.
Southeast	This quadrant comprises of the south slope of Terminal Hill and the Cascades Golf Club at the base of Terminal Hill. The LA Aqueduct drops from the top of Terminal Hill to the LA Aqueduct Filtration Plant that is operated by the LADWP (0.5 miles distant). The treatment plant is located south of Interstate 5.
Southwest	Parcels owned by the De La Mare Engineering, Inc and MWD are located in this quadrant. The existing MWD shaft is located on the MWD parcel.
Northwest	The parcels in this quadrant are owned by De La Mare Engineering Inc and the MWD. Several firework magazine sheds are located in the "Magazine Canyon" at the base of Terminal Hill.

#### 3.3 DESCRIPTIONS OF STRUCTURES, ROADS, OTHER IMPROVEMENTS ON THE SITE

The parcel is covered by vegetation and no structures, roads and other improvements exist on the parcel.

**3.4 INFORMATION REPORTED BY USER REGARDING ENVIRONMENTAL LIENS  
OR SPECIALIZED KNOWLEDGE OR EXPERIENCE**

**3.4.1 Title Records**

The parcel is currently owned by De La Mare Engineering, Inc. According to the Environmental Lien Report (see Appendix H), the title was received by De La Mare Engineering, Inc., from Ireco, Inc. The deed was dated May 18, 1993, and was recorded on June 18, 1993.

**3.4.2 Environmental Liens**

An Environmental Lien Search was performed by Environmental Data Resources, Inc. (EDR) on the parcel (see Appendix H for report dated Nov 18, 2006). No environmental liens were found against the site.

**3.4.3 Specialized Knowledge or Experience**

Other than the information provided by the LADWP or contained herein, no specialized knowledge or experience was reported or discovered for the site.

**3.4.4 Commonly Known or Reasonably Ascertainable Information**

Other than the information provided by the LADWP or contained herein, no information was reported concerning commonly known or reasonably ascertainable information.

**3.4.5 Valuation Reduction for Environmental Issues**

No information was reported by LADWP concerning valuation reduction for environmental issues.

**3.4.6 Owner, Property Manager, and Occupant Information**

The parcel is owned and occupied by De La Mare Engineering, Inc. The property owner and manager is George Jackman.

**3.4.7 Reason for Performing Phase I**

The LADWP is entering into a real estate transaction with De La Mare Engineering, Inc. This Phase I is performed to allow LADWP, consistent with good commercial and customary practice, to satisfy the all appropriate inquiry into the previous ownership and use of the property

**3.4.8 Other**

No other information of environmental interest was provided by LADWP.

**3.5 CURRENT USES OF THE PROPERTY**

The parcel that will be acquired is part of property that is held by the De La Mare Engineering Inc. The parcel of interest is a vacant hill slope that is adjacent to the LA Aqueduct. The northern section of the property in Magazine Canyon that is also owned by De La Mare Engineering, Inc., is utilized for storage of explosives. However, no explosives are currently being stored on the property.

**3.6 PAST USES OF THE PROPERTY**

The owner of De La Mare Engineering Inc., George Jackman, stated that the property was not utilized for storing fireworks or explosives. However, the EDR database search (EDR, 2006a) has identified illegal fireworks stored on the property. According to the owner, illegal fireworks and explosives were stored further up in Magazine Canyon by the Fire Marshall, and not on his property. This was confirmed by Richard Martyn, EPA On-Scene Coordinator, who stated that the Fire Marshall stored confiscated fireworks in Magazine Canyon. The entrance to the Canyon has the same address as the project site.

**3.7 CURRENT AND PAST USES OF THE ADJOINING PROPERTIES**

Table 3-1 in Section 3.2, *Site and Vicinity Characteristics*, provides a description of the current uses of the adjoining properties.

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## **4.0 RECORDS REVIEW**

This section presents information concerning the site and the surroundings from various recorded sources. Electronic databases representing standard environmental record sources and physical setting sources were reviewed. Information pertinent to the site is summarized in this section.

### **4.1 STANDARD ENVIRONMENTAL RECORD SOURCES, FEDERAL AND STATE**

Parsons has retained the services of an environmental database company, Environmental Data Resources, Inc. (EDR), to search applicable regulatory agency lists and standard environmental record sources to identify locations of potential concern within the ASTM Standard Practice E 1527-05 (Standard) minimum search distances. The following summarizes the environmental database report, dated November 06, 2006. Appendix C presents the complete environmental data report. The report includes maps indicating the search distance of 0.12, 0.25, 0.5, 1 and 2 mile from the center from the site, which include the ASTM database required search distances of zero, 0.125, 0.25, 0.5, and 1 mile (zero, 0.2, 0.4, 0.8, and 1.6 km).

The following subsections summarize sites listed within the respective database search distances. A search of the respective environmental databases identified four sites within the ASTM-prescribed minimum search distances. Twenty seven sites were not mapped by EDR due to poor or inadequate location information. These sites are listed in the Orphan Summary of the EDR report in Appendix C.

#### **4.1.1 Federal ASTM Records**

##### **National Priorities List**

The National Priorities List (NPL) listing, also known as the Superfund list, is a subset of the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database. The NPL database identifies over 1,200 sites nationwide for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As a result, the environmental database company provides coverage for over 1,000 NPL site boundaries produced by the United States Environmental Protection Agency (USEPA) Environmental Photographic Interpretation Center.

Currently, there are no NPL sites within the 1.25-mile search distance from the site.

### **Comprehensive Environmental Response, Compensation, and Liability Information System**

The CERCLIS database contains data on potentially hazardous waste sites that have been reported to USEPA by states, municipalities, private companies, and private persons.

Notification to USEPA is pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CERCLIS database contains sites that are either proposed to be on or on the NPL, and sites that are in the screening and assessment phase for possible inclusion on the NPL.

Currently, there is one listed CERCLIS site located within the 0.625-mile search distance from the site. The Los Angeles Fireworks is listed in this database at the target property address, 17011 Foothill Blvd. Richard Martyn, the EPA On-Scene Coordinator listed in the EDR report, clarified that it was a "Removal Only Site (No Site Assessment Work Needed)". Confiscated, illegal fireworks, 700,000 to 1 million pounds, were stored by the Fire Marshall further north in Magazine Canyon that is also associated with the site address. The removal work was carried out by the LA County Fire Marshall and the LA County Sheriff.

Therefore, no impact to the project site is expected.

### **CERCLIS – No Further Remedial Action Planned**

Beginning in February 1995, CERCLIS site designated No Further Remedial Action Planned (NFRAP) have been removed from the CERCLIS database. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action of NPL consideration. USEPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived these as historical records so that USEPA does not needlessly repeat the investigations in the future.

Currently, there are no listed CERCLIS-NFRAP sites located within the 0.625-mile search distance from the site.

### **Corrective Action Report**

The Corrective Action Report (CORRACTS) database identifies hazardous waste handlers with Resource Conservation and Recovery Act (RCRA) action activity. The



database shows which nationally defined corrective action core events have occurred for every handler that has currently or previously had corrective action activity.

Currently, there are no sites listed in the CORRACTS database that are within the 1.125-mile search distance.

**Resource Conservation and Recovery Act information System/Treatment, Storage, and/or Disposal**

The Resource Conservation and Recovery Act Information System/ Treatment, Storage and/or Disposal (RCRA TSD) database list identifies those facilities or locations that have notified USEPA of their activities relative to their onsite treatment, storage, and/or disposal of hazardous wastes. A listed site does not necessarily indicate environmental problems at the site but rather that the site is (or was) engaged in hazardous waste activities; therefore, it may have the potential to cause environmental degradation if hazardous wastes have been mishandled or otherwise released in an uncontrolled manner.

Currently, there are no RCRA TSD sites within the 0.625-mile search distance from the site.

**Resource Conservation and Recovery Act / Quantity Generators**

The Resource Conservation and Recovery Act Information System Sites / Quantity Generators (RCRA GEN) is a database of facilities that generate or transport hazardous waste or meet other RCRA requirements. Two categories of RCRA GEN are usually considered. Large Quantity Generators (LQGs) list identifies those facilities or locations that have notified USEPA that they generate (or have generated) at least 2,200 lbs of non-acutely hazardous wastes and/or 2.2 lbs of acutely hazardous waste, monthly. Small Quantity Generators (SQGs) list identifies those facilities or locations that have notified USEPA that they generate (or have generated) less than 2,200 lbs of non-acutely hazardous wastes and/or 2.2 lbs of acutely hazardous waste, monthly. A listed site does not necessarily indicate environmental problems on the site, but rather that the site is (or was) engaged in hazardous waste activities; therefore, it may have the potential to cause environmental degradation if hazardous wastes have been mishandled or otherwise released in an uncontrolled manner.

Currently, there are no listed RCRA GEN sites within the 0.375-mile search distance from the site.

### **Emergency Response Notification System**

The Emergency Response Notification System (ERNS) is an USEPA national computer database system that is used to store information on the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party. The ERNS report only includes releases from 1988 to the most recent quarterly update.

Currently, there are no ERNS sites within the 0.125-mile search distance from the site.

### **Hazardous Material Incident Report System**

The Hazardous Material Incident Report System (HMIRS) is an EPA national computer database system that reports hazardous material spill incidents that have been reported to the Department of Transportation.

Currently, there are no listed HMIRS sites within the 0.125-mile search distance from the project site.

### **Facility Index System**

The Facility Index System (FINDS) is a database maintained by USEPA/National Technical Information Service that contains both facility information and “pointers” to other sources or more detailed information. The FINDS is the index of identification numbers associated with a property or facility which the USEPA has investigated or has been made aware of in conjunction with various regulatory programs. Each record indicates the USEPA office that may have files on the site or facility. A Facility Registry System (FRS) site has an FRS in the status field.

Currently, there are no FINDS sites within the 0.125-mile search distance from the site.

### **Toxic Release Inventory System**

The Toxic Release Inventory System (TRIS) is a USEPA database that identifies all facilities that have had or may be prone to toxic material releases.

Currently, there are no TRIS sites within the 0.125-mile search distance from the site.

#### **4.1.2 State and Local Records**

##### **CAL-Sites – Annual Work Plan**

The CAL-Sites Annual Work Plan (AWP) database contains a list of known hazardous waste sites targeted for cleanup. The database is maintained by DTSC and was formerly known as the Bond Expenditure Plan database.

Currently, there are no listed CAL-Sites AWP sites within the 1.125-mile search distance from the project site.

##### **CAL-Sites**

The CAL-Sites database contains verified and potential hazardous waste sites that are, or will be, targeted for cleanup by DTSC under the Hazardous Substance Cleanup Bond Act of 1984 and the Hazardous Substance Account. A site may be discovered by DTSC directly or referred to DTSC for confirmation and follow-up action by another government agency, such as a local health department, the Regional Water Quality Control Board (RWQCB), a responsible party, or a concerned citizen. New sites are added to this database as they are verified and the “Preliminary Assessment, Site Investigation, and Hazard Ranking System” processes are completed. The database was formerly known as ASPIS.

Currently, there are no sites identified in the CAL-Sites database that fall within the 1.125-mile search distance of the project site.

##### **California Hazardous Material Incident Reporting System**

The California Hazardous Material Incident Reporting System (CHMIRS) list, compiled by the California Office of Emergency Services, contains information on reported hazardous material incidents (accidental releases or spills).

Currently, there are no sites identified in the CHMRIS database that fall within the 0.125-mile search distance.

##### **CORTESE**

The CORTESE database identifies public drinking water wells with detectable levels of contamination; hazardous substance sites selected for remedial action; sites with known toxic material identified through the abandoned site assessment program; sites with underground storage tanks (USTs) having a reportable release; leaking underground storage tanks (LUSTs); and all solid waste disposal facilities from which there is known

migration. Sites are identified from the California Environmental Protection Agency (Cal-EPA) Office of Emergency Information data.

Currently, there are no sites identified in the CORTESE database that fall within the 0.625-mile search distance.

#### **NOTIFY 65**

Proposition 65 Notification Records are maintained by the California Water Resources Control Board. The database, aptly called NOTIFY 65, contains facility notifications about any release that could impact drinking water sources and thereby expose the public to a potential health risk.

Currently, there are no sites identified in the NOTIFY65 database that fall within the 1.125-mile search distance.

#### **Toxic PITS Cleanup Act Sites**

The Toxic PITS database, maintained by the California Water Resources Control Board, identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Currently, no sites were identified in the Toxic PITS database within the 1.125-mile search distance of the project site.

#### **State Landfill Database**

The State Landfill database contains active, closed, and inactive landfills in a particular state. These include active or inactive facilities that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Currently, there are three sites listed on the State Landfill Database that fall within the 0.625-mile search distance. All three sites, Browning-Ferris Ind of California, Sunshine Canyon City Landfill and Facility 23633 are located at 14747 San Fernando Road about 0.4 miles west from the project site. These sites are shown to be at the same or at higher elevation than the project site. The Newhall Pass, with an elevation that is lower by about 400 ft than the sites (through which the I-5 traverses), separates the sites on San Fernando Road from the project site. Therefore, releases from the San Fernando Road sites will not migrate towards the project site and impact the soil or groundwater.

#### **Waste Management Unit Database System/Solid Waste Activity Tracking Database**

The Waste Management Unit Database System/Solid Waste Activity Tracking (WMUDS/SWAT) database is used for program tracking and inventory of waste

management units. The database is used by the California Water Resources Control Board and the RWQCB, and it is composed of various databases.

Currently, there is one site in the WMUDS/SWAT database that falls within 0.625-mile search distance. Sukut Equipment is located at 14747 San Fernando Road about 0.4 miles southwest from the project site. This site is shown to be at the same or at higher elevation than the project site. The Newhall Pass, with an elevation that is lower by about 400 ft than the site (through which the I-5 traverses), separates the site on San Fernando Road from the project site. Therefore, releases from the San Fernando Road site will not migrate towards the project site and impact the soil or groundwater.

### **SWRCY**

This database is a listing of recycling facilities in California

Currently, there is one site in the SWRCY database that falls within 0.625-mile search distance. Facility 23633 is located at 14747 San Fernando Road about 0.4 miles southwest from the project site. This site is shown to be at the same or at higher elevation than the project site. The Newhall Pass, with an elevation that is lower by about 400 ft than the site (through which the I-5 traverses), separates the site on San Fernando Road from the project site. Therefore, releases from the San Fernando Road site will not migrate towards the project site and impact the soil or groundwater.

### **Leaking Underground Storage Tanks**

The California Water Resources Control Board, in cooperation with the Office of Emergency Services, compiles a list of all leaks of hazardous substances from USTs in the State of California. Each of the nine regional boards maintains information on all reported leak cases within their jurisdiction for sites where the regional board, as well as other local agencies, take the lead in overseeing investigations and remedial actions. The Cal-EPA Department of Hazardous Materials Data Management collects the nine regional lists and publishes them as one database called the Leaking Underground Storage Tank Information System (LUSTIS).

Currently, there are no sites in the LUSTIS database that fall within 1 mile of the project site.

### **State Registered Underground Storage Tanks**

The California Water Resources Control Board maintains a database for all registered USTs in the state. Under RCRA, USTs must be registered with the state department responsible for administering the UST program.

Currently, there is one site in the UST database that falls within the 0.625-mile search distance. Ted Sakaida & Sons Trucking Co is located at 14950 San Fernando Road about 0.4 miles southwest from the project site. This site is shown to be at the same or at higher elevation than the project site. The Newhall Pass, with an elevation that is lower by about 400 ft than the site (through which the I-5 traverses), separates the site on San Fernando Road from the project site. Therefore, releases from the San Fernando Road site will not migrate towards the project site and impact the soil or groundwater.

### **Facility Inventory Database**

The Facility Inventory Database (CA FID) contains a historical listing of both active and inactive UST locations compiled by the California Water Resource Control Board.

Currently, there are three sites listed on the State Landfill Database that fall within the 0.625-mile search distance. The three sites are located about 0.4 miles west from the project site at the following address: K/K Sheet Metal Inc at 14928 San Fernando Road, Ted Sakaida & Sons Trucking Co at 14950 San Fernando Road and Rosa Leong/Buford A Graves at 14980 San Fernando Road. These sites are shown to be at the same or at higher elevation than the project site. The Newhall Pass, with an elevation that is lower by about 400 ft than the sites (through which the I-5 traverses), separates the sites on San Fernando Road from the project site. Therefore, releases from the San Fernando Road sites will not migrate towards the project site and impact the soil or groundwater.

### **Hazardous Substance Storage Container Database**

The Hazardous Substance Storage Container Database (HIST UST) is a historical listing of UST sites. The database is maintained by the State Water Resources Control Board.

Currently, there are no sites in the HIST UST database that fall within the 0.375-mile search distance.

### **State Wide Environmental Evaluation and Planning System (SWEEPS)**

The Statewide Environmental Evaluation and Planning System (SWEEPS) is a UST listing that was updated and maintained by a company contracted by the State Water Resource Control Board in the early 1980's. The listing is no longer updated or maintained. The local agency is the contract for more information on a site in the SWEEPS list.

Currently, there are three sites listed on the State Landfill Database that fall within the 0.625-mile search distance. The three sites are located about 0.4 miles west from the project site at the following address: K/K Sheet Metal Inc at 14928 San Fernando Road, Ted Sakaida & Sons Trucking Co at 14950 San Fernando Road and Rosa Leong/Buford A Graves at 14980 San Fernando Road. These sites are shown to be at the same or at

higher elevation than the project site. The Newhall Pass, with an elevation that is lower by about 400 ft than the sites (through which the I-5 traverses), separates the sites on San Fernando Road from the project site. Therefore, releases from the San Fernando Road sites will not migrate towards the project site and impact the soil or groundwater.

## **Radon**

Based on available documents, a radon gas assessment has not been conducted on the site. The USEPA has categorized LA County as Zone 2 for radon (EPA, 2006). A Zone 2 classification is for areas with indoor average radon levels from 2 to 4 picoCuries/liter (pCi/L). Therefore, the site is located in a zone that is underneath the USEPA radon recommended action level (RAL) of 4 pCi/L.

## **4.2 ENVIRONMENTAL AGENCY RECORDS**

Findings from the environmental database review did not reveal any RECs, and therefore there is no need for further review of agency records.

## **4.3 PHYSICAL SETTINGS SOURCE(S)**

### **4.3.1 USGS Topographic Map**

Appendix E presents the historical topographic maps for the project area.

### **4.3.2 Geological, Hydrogeological, and Meteorological Review**

#### **Geology**

The site is located in the San Fernando 7.5 minute quadrangle, which covers an area of approximately 62 miles in western Los Angeles County. The site is located northwest of the community of Sylmar, California in the western end of the San Gabriel Mountains. This range of mountains is composed primarily of plutonic and metamorphic rocks that are being thrust over the San Fernando Valley from the north. As the San Gabriel Mountain Range is being elevated and deformed, the San Fernando Valley has subsided and filled with sediments derived from the San Gabriel Mountains and the Santa Susana Mountains to the west. Sediments derived from the San Gabriel Mountains feed the San Fernando Valley from the Pacoima and Little Tujunga Washes (DOC, 1998).

The site is underlain directly by the Miocene to lower Pliocene Towsley Formation which consists of sandstone and conglomerate with local beds of breccia, some siltstone and shale, and conglomerate that commonly contains clasts of anorthosite. Beneath the Towsley Formation is a series of sedimentary rocks from the Oligocene to upper Miocene eras. This series is underlain by the basement complex of the San Gabriel Mountains. This basement complex is comprised of Precambrian gneisses and gabbroic

rocks and assorted pre-Cenozoic rocks including serpentinite, shist, limestone, gneiss and granodiorite. The contact between the Towsley Formation and the underlying upper Miocene marine silty/pebbly sandstone and shales of the Castiac Formation is generally confirmable and gradational (DOC, 1998).

The site is in an area of active faulting and movement. Approximately three miles to the northeast of the site is the San Gabriel Fault Zone and immediately to the south and east of the site is a series of unnamed thrust faults. To the north and west of the site, historic landslides, typically induced by earthquakes and/or heavy rainfall, have been documented.

### **Hydrogeology**

Because the site is located on bedrock, groundwater levels beneath the Site are unknown. However, in the downslope areas to the south of the site, groundwater has been encountered at approximately 10 feet bgs in the vicinity of the Van Norman Dam (DOC, 1998).

### **Meteorology**

The subject site is located in the Newhall Pass area, about 20 miles inland from the Pacific Ocean. Similar to other areas of the LA basin, synoptic influences on the San Fernando Valley include the semi-permanent North Pacific Subtropical High that results in persistent summertime temperature inversion, the Great Basin High that result in the Santa Ana winds during fall, and an array of mid-latitude winter Pacific cyclones and rare tropical storms (Woodruff, 2006). The local name for the Santa Ana winds that blow from the desert uplands south to the Valley through the Newhall Pass are called the "Newhall Winds". Mesoscale influences include the subtropical inversion (misleadingly termed "June Gloom"), diurnal land and sea breezes and the quasi-stationary shallow cyclonic circulation ("Catalina Eddy").

Meteorological data from a weather station located in San Fernando (5 miles southeast), for a period from 12/1/1927 to 3/31/1974, have indicated that the average high of 92.7 degrees Fahrenheit (°F) occurs during the summer months and a low of 49.3°F occurs in the winter months. The average annual maximum temperature is 78.2°F and the average annual minimum temperature is 43.2°F. Very little rainfall or no rainfall at all occurs during the summer months. Rainfall typically occurs from October through April, providing an average annual rainfall of 16.16 inches of rain (Western Regional Climate Center, 2006).



## **4.4 HISTORICAL USE INFORMATION**

### **4.4.1 Aerial Photographs**

Copies of aerial photographs of the site and surrounding areas were obtained for the years 1928, 1938, 1947, 1956, 1965, 1976, 1989, 1994 and 2002 from EDR. These photographs are presented in Appendix D. The following historical information was identified on the aerial photographs:

1928, 1938 and 1947: The major visible features are the LA Aqueduct, the Southern Pacific Railroad and the Pacific Highway (as named in the 1928 topographic map). The highway was renamed as the U.S Highway 99 (as seen in the 1935 Sylmar topo map), and Highway 157/158 (as seen in the 1947 San Fernando topo map). No features are visible on the Terminal Hill project site.

1956: The major visible features are the LA Aqueduct, the Southern Pacific Railroad and Interstate 5. No features are visible on the Terminal Hill project site.

1965: No change.

1976: The MWD shaft is visible to the west of the project site. The fireworks magazine sheds are visible in Magazine Canyon to the north of the project site. The water tank and the storage building on top of Terminal Hill are visible.

1989, 1994 and 2002: The MWD shaft is visible to the west of the project site. The fireworks magazine sheds are visible in Magazine Canyon to the north of the project site. The water tank and the storage building on top of Terminal Hill are visible. Development of the I-5/SR 14 interchange is seen in the northwest corner of the map.

### **4.4.2 Historic Topographic Maps**

Copies of historic topographic maps of the site and surrounding areas were obtained for the years 1900 (Fernando quad), 1903 (Camulos quad), 1916 (Santa Susana quad), 1928 (Sylmar quad), 1933 (Newhall quad), 1935 (Sylmar quad), 1947 (Santa Susana quad), 1947 (San Fernando quad), 1952 (Oat Mountain quad), 1953 (San Fernando quad), 1966 (San Fernando quad), 1969 (Oat Mountain quad), 1972 (San Fernando quad), 1988 (San Fernando quad), and 1995 (San Fernando quad) from EDR. These maps are presented in Appendix E. The site development as recorded on the historic topographic maps is closely aligned with the development presented in the historical aerial photographs.

### **4.4.3 Fire Insurance Maps**

Sanborn® fire insurance maps were not available for the site (see Appendix F).

**4.4.4 Recorded Land Title Records**

The parcel is currently owned by De La Mare Engineering, Inc. According to the Environmental Lien Report (see Appendix H), the title was received by De La Mare Engineering, Inc., from Ireco, Inc. The deed was dated May 18, 1993, and was recorded on June 18, 1993.

**4.4.5 Zoning/Land Use Records**

The zoning designation for the site is A1-1, Minimum Residential.

## **5.0 INFORMATION FROM SITE RECONNAISSANCE AND INTERVIEWS**

Parsons conducted reconnaissance of the site on November 9, 2006 (Parsons, 2006). An interview with LADWP was conducted on November 9, 2006, while an interview with De La Mare Engineering, Inc., the current owner of the property, was conducted on November 17, 2006.

### **5.1 HAZARDOUS SUBSTANCES IN CONNECTION WITH IDENTIFIED USES**

During the site reconnaissance, hazardous substances were not observed at the site.

### **5.2 HAZARDOUS SUBSTANCE CONTAINERS AND UNIDENTIFIED SUBSTANCE CONTAINERS**

No containers were identified during the site reconnaissance.

### **5.3 STORAGE TANKS**

No storage tanks were observed on the site.

### **5.4 INDICATIONS OF PCBS**

Three pole based transformers were observed on top of Terminal Hill, and are located outside the project site (see Appendix B-10 for picture). The oil from one of the transformers was tested for PCBs, which was found to contain 2 ppm of PCBs (Faeustle, 2006). However, no staining was observed at the base of the pole. Contamination of the soil within the project site, from the pole based transformers, is unlikely.

### **5.5 INDICATIONS OF ASBESTOS**

The only structures that were observed in the vicinity of the site were a storage building and a water tank on top of Terminal Hill (see Appendix B-12 for picture). These buildings will not be disturbed for the project so that there will be no asbestos release.

### **5.6 INDICATIONS OF SOLID WASTE DISPOSAL**

During the site reconnaissance, minimal domestic trash (litter) was observed.

**5.7 PHYSICAL SETTING ANALYSIS, IF MIGRATING HAZARDOUS SUBSTANCES ARE AN ISSUE**

The only migrating substances of concern would be those generated from activities conducted on top of Terminal Hill. During the site reconnaissance, no activities were identified that would cause a downslope migration of hazardous substances.

**5.8 WETLANDS AND FLOODPLAINS**

No wetlands or floodplains were observed during the site reconnaissance.

**5.9 LEAD**

The only structures that were observed in the vicinity of the site were a storage building and a water tank. These buildings will not be disturbed for the project so that there will be no lead release.

**5.10 ENDANGERED SPECIES AND SENSITIVE ENVIRONMENTS**

**5.10.1 Endangered Species**

No endangered species were observed during the site reconnaissance.

**5.10.2 Sensitive Environments**

No sensitive environments were observed during the site reconnaissance.

**5.11 INTERVIEWS**

The following representatives from the LADWP and from De La Mare Engineering, Inc., were interviewed.

- George Faeustle, Industrial Hygienist, City of Los Angeles, 111 N. Hope St, Room 1050, LADWP Environmental Services, Los Angeles, CA 90012; Phone; 213-367-4708.
- George Jackman, Owner, De La Mare Engineering Inc., 1910 First Street, San Fernando, CA 91340, Phone; 818 998-6456.

Mr. Jackman was interviewed by telephone on Nov 17, 2006 (Jackman, 2006). His company, De La Mare Engineering, purchased the site in 1990. The owner did not recall the name of the previous owner. Mr. Jackman stated that the site had either 3 or 4 owners since the 1800s. It was owned by Dupont upto 1913, when it was purchased by Hercules. The canyons around Terminal Hill have been utilized for storing explosives since the 1940's, and hence the canyon has

been called Magazine Canyon. The land currently owned by the MWD was used for storing explosives during the Second World War, which have since been removed. The State Fire Marshall and the Dept of Roads store explosives further into the canyon.

The owner currently has 13 magazines in the Canyon in which he stores tiny explosives for special effects in the movie industry. This stock is constantly rotated. In his opinion, the owner states that these magazines would not effect the project site since it is on the slope of Terminal Hill. He was not aware of explosives previously being stored on the project site. The owner was informed that the EDR search identified confiscated fireworks at the project site as a potential concern, but he clarified that the State Fire Marshall stored confiscated explosives in the Canyon that were not related to his business, which has always been operated with legal permits.

#### **5.12 OTHER CONDITIONS OF CONCERN**

The project site was observed to be in the immediate vicinity of the I-5 freeway and the I-5/SR-14 interchange. The closest distance to I-5 from the site is about 1800 ft (although it is located about 400 ft lower in relation the project site), so there is potential for historical ADL contamination from this heavily traveled roadway. Prior to construction, an ADL survey should be performed in the vicinity of planned excavation areas

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## **6.0 FINDINGS**

### **6.1 FINDINGS SUMMARY**

In conclusion, based upon the definition of a REC in the ASTM Standard Practice E 1527-05, the following RECs have been identified:

- ADL is common in the immediate vicinity of freeways and highways. The closest distance to I-5 from the site is about 1800 ft (although it is located about 400 ft lower in relation the project site), so there is potential for historical contamination from this heavily traveled roadway. Prior to construction, an ADL survey should be performed in the vicinity of planned excavation areas.

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## **7.0 OPINION**

Based on the findings of our assessment, Parsons provides the following opinions on the observed conditions:

- It is the opinion of the EP that ADL is a REC. ADL is common in the immediate vicinity of freeways and highways. The closest distance to I-5 from the site is about 1800 ft (although it is located about 400 ft lower in relation to the project site), so there is potential for historical contamination from this heavily traveled roadway. Prior to construction, an ADL survey should be performed in the vicinity of planned excavation areas.
- It is the opinion of the EP that none of the sites mapped by the EDR report on San Fernando Road are RECs. These sites are shown to be at the same or at higher elevation than the project site. The Newhall Pass, with an elevation that is lower by about 400 ft than the sites (through which the I-5 traverses), separates the sites on San Fernando Road from the project site. Therefore, releases from the San Fernando Road sites will not migrate towards the project site and impact the soil or groundwater.
- It is the opinion of the EP that pesticide contamination from historical agricultural use is unlikely. Examination of aerial photos (Appendix D) reveals that the project site and its surroundings have not been used for agricultural purposes.

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## **8.0 CONCLUSIONS**

Parsons has conducted this Phase I Environmental Site Assessment in accordance with the American Society for Testing and Materials Standard Practice E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Assessment Process*. This assessment has revealed that ADL is a REC. Prior to construction, a Phase II ADL survey should be performed in the vicinity of planned excavation areas.

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## **9.0 DEVIATIONS AND DATA GAPS**

### **9.1 DEVIATIONS**

No deviations have been noted.

### **9.2 DATA GAPS**

No data gaps have been noted.

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## 10.0 REFERENCES

DOC, 1998. Seismic Hazard Zone Report 015 - Seismic Hazard Zone Report for the San Fernando 7.5-Minute Quadrangle Los Angeles County, California prepared by the Department of Conservation, Division of Mines and Geology, 1998

Environmental Database Review (EDR). 2006a. EDR Radius Map with Geocheck® Report. EDR. Nov 6, 2006.

\_\_\_\_\_. 2006b. EDR Aerial Photography Print Service. EDR. Nov 6, 2006.

\_\_\_\_\_. 2006c. EDR Historical Topographic Map Report. EDR, Nov 6, 2006.

\_\_\_\_\_. 2006d. EDR Sanborn. EDR, Nov 6, 2006.

\_\_\_\_\_. 2006e. EDR City Directory. EDR, Nov 6, 2006.

\_\_\_\_\_. 2006f. EDR Environmental Lien Search Report. EDR, Nov 18, 2006.

EPA website. 2006. (<http://www.epa.gov/radon/zonemap/california.htm>) Website accessed Nov 16, 2006.

Faeustle, George (2006). Provided in 12/22/06 email from Faeustle to Parsons. Information was provided to Faeustle by Gary Jacoby, also from LADWP.

LADWP website. 2006. (<http://www.ladwp.com/ladwp/cms/ladwp004159.jsp>) Website accessed November 16, 2006.

Parsons. 2006. Site reconnaissance notes and photographs by Parsons staff, Shudeish Mahadev and Paul Farmanian, on Nov 9, 2006.

Western Regional Climate Center (WRCC). 2006. Western Regional Climate Center Database ([www.wrcc.dri.edu](http://www.wrcc.dri.edu)). Website accessed Nov 16, 2006.

Woodruff, Steve W. 2006. San Fernando Valley Climate Summary ([http://www.piercecollege.edu/offices/weather/sfv\\_summary.html](http://www.piercecollege.edu/offices/weather/sfv_summary.html)). Website accessed Nov 16, 2006.

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**11.0 SIGNATURE(S) OF ENVIRONMENTAL PROFESSIONAL(S)**

Parsons declares that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of Title 40, Code of Federal Regulations (CFR), Part 312 dated 1 November 2005.

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 the all appropriate inquires in conformance with the standards and practices set forth in 40 CFR 312.

Signature:

Date:

Paul Farmanian

December 28, 2006

Paul Farmanian, P.E.

Shudeish Mahadev

December 28, 2006

Shudeish Mahadev, Ph.D

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**12.0 QUALIFICATION(S) OF ENVIRONMENTAL PROFESSIONAL(S)**

<b>Name</b>	<b>Degree</b>	<b>Years of Experience</b>	<b>Project Responsibilities</b>
Paul Farmanian, P.E.	M.S., Chemical Engineering	28	Site reconnaissance, data review and report review
Shudeish Mahadev	Ph.D, Environmental Engineering	10	Site reconnaissance, data review and report preparation

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## APPENDIX A

### PROPOSED PROJECT LOCATION AND SITE PLAN

# APP A. SITE LOCATION OF LADWP TERMINAL HILL PROJECT



## APPENDIX B

### PHOTOGRAPHS OF PROJECT SITE AND VICINITY

# APP B. AERIAL VIEW OF FLADWP TERMINAL HILL SITE



Please see B-1 to B-12 for ground level pictures.

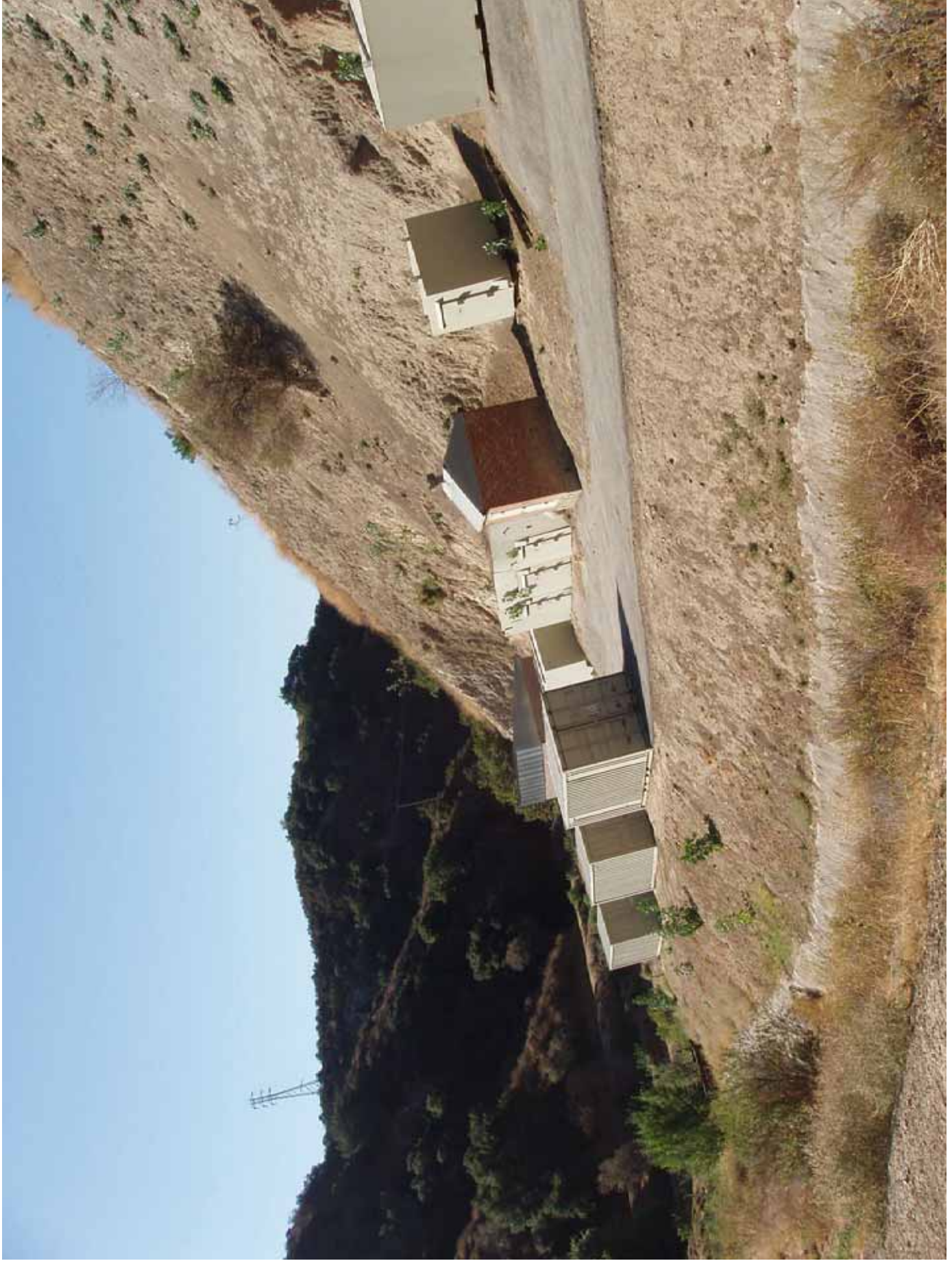




**B-1 West View Towards MWD Shaft And Foothill Blvd.**



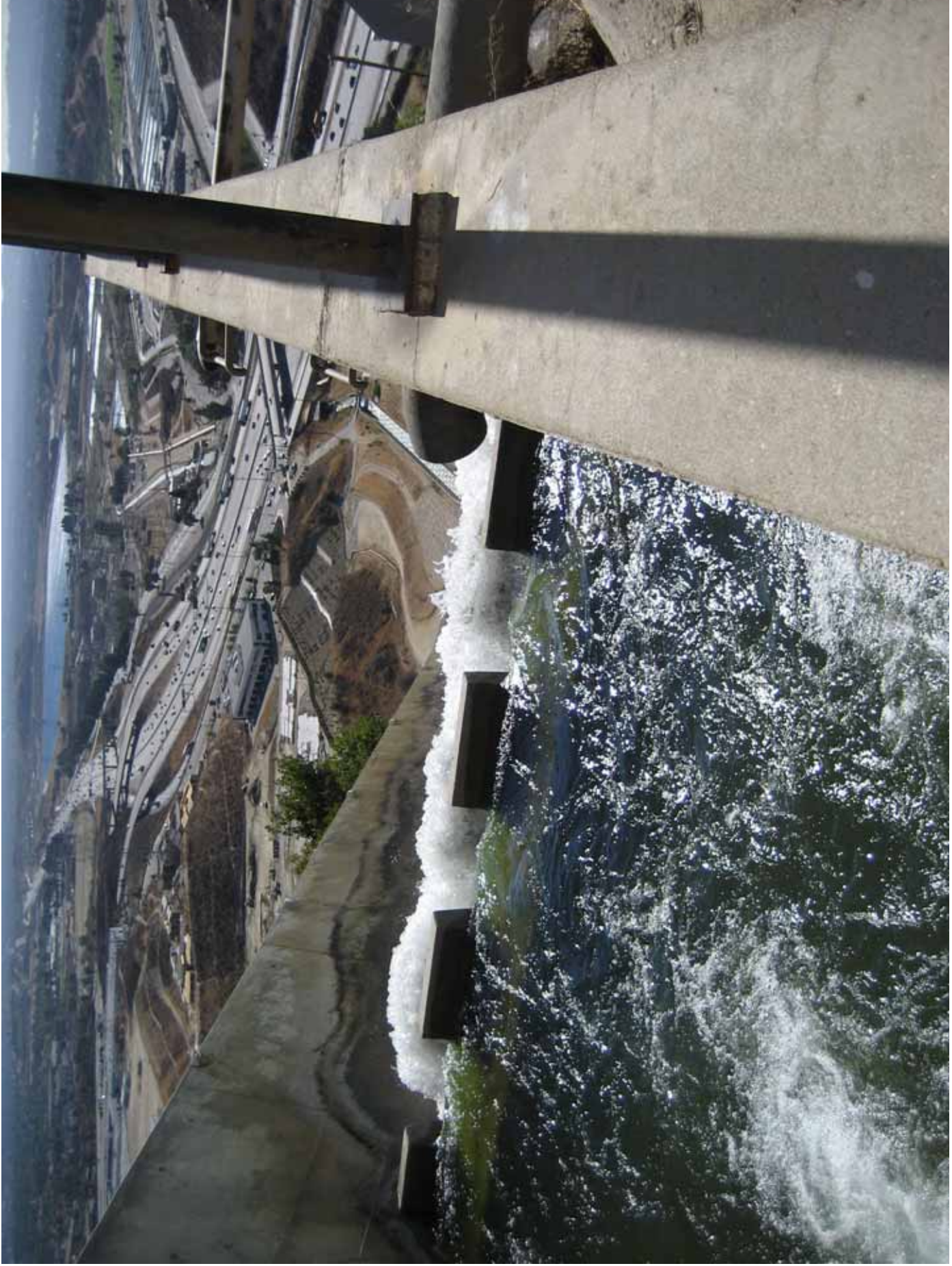
**B-2 West View From Project Site At Base Of Terminal Hill**



**B-4 Southwestern View Of Explosive Bunkers From Magazine Canyon**



**B-5 South View Of L.A. Aqueduct From Magazine Canyon**



**B-8 South View From Top Of Terminal Hill Into San Fernando Valley**



**B-3 East View From Project Site At The Base Of Terminal Hill**



**B-6 West View From Top Of Terminal Hill Towards I-5/SR-14 Interchange**

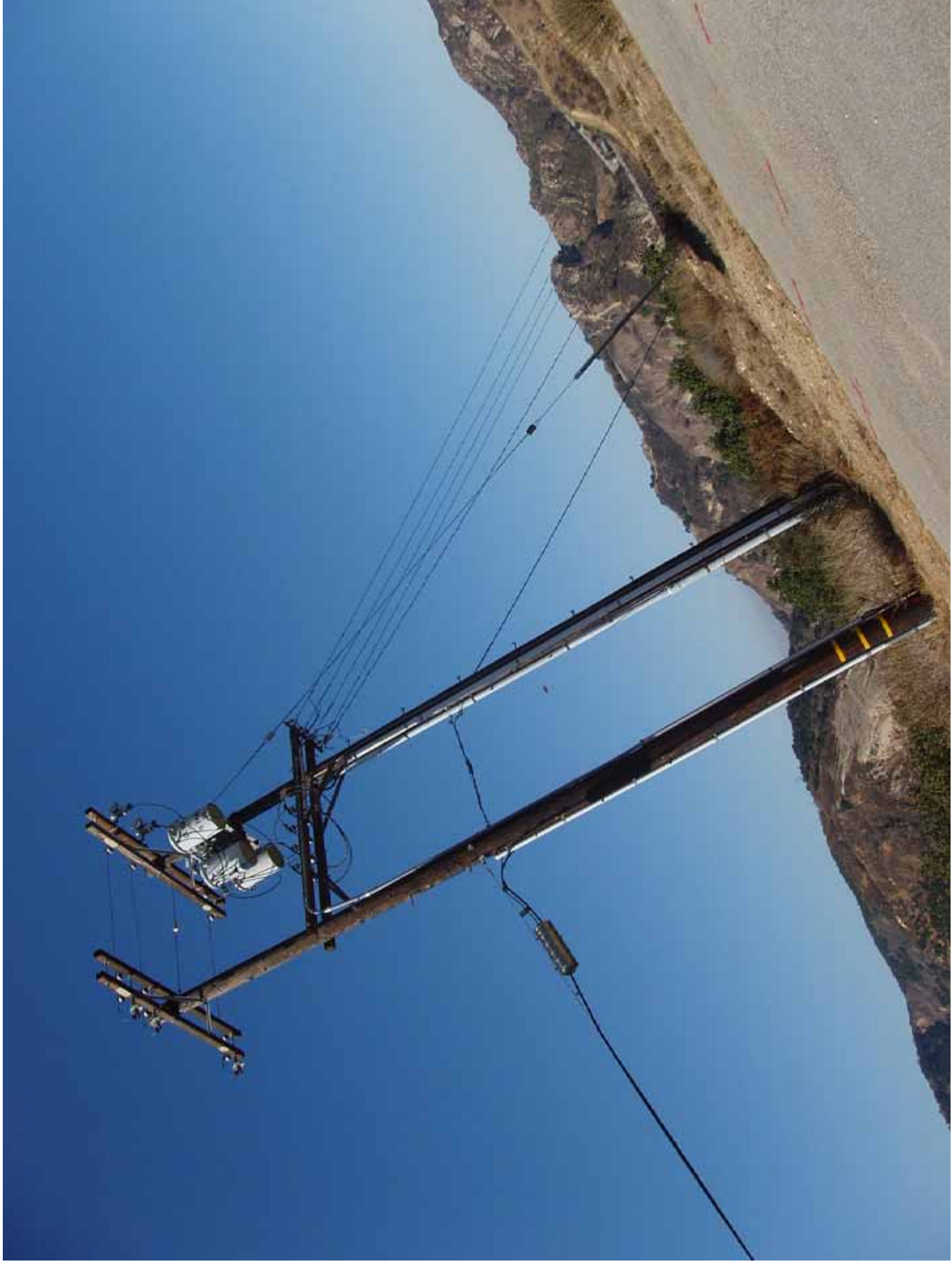


**B-7 North View From The Top Of Terminal Hill Into Magazine Canyon**





**B-9 South View Of The Top Of Terminal Hill**



**B-10 Pole Mounted Transformers On Top Of Terminal Hill**



**B-11 Rock Coring (Not A Monitoring Well) On Top Of Terminal Hill**



**B-12 Water Storage Tank On Top Of Terminal Hill**

## APPENDIX C

### EDR ENVIRONMENTAL DATABASE REPORT



**EDR**® Environmental  
Data Resources Inc

## **The EDR Radius Map with GeoCheck®**

**Terminal Hill  
17011 Foothill Blvd  
Los Angeles, CA 91342**

**Inquiry Number: 1789893.2s**

**November 06, 2006**

## **The Standard in Environmental Risk Management Information**

440 Wheelers Farms Road  
Milford, Connecticut 06461

### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)

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

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## 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

17011 FOOTHILL BLVD  
LOS ANGELES, CA 91342

#### COORDINATES

Latitude (North): 34.327800 - 34° 19' 40.1"  
Longitude (West): 118.498600 - 118° 29' 55.0"  
Universal Transverse Mercator: Zone 11  
UTM X (Meters): 362132.5  
UTM Y (Meters): 3799324.2  
Elevation: 1661 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 34118-C4 SAN FERNANDO, CA  
Most Recent Revision: 1988  
  
West Map: 34118-C5 OAT MOUNTAIN, CA  
Most Recent Revision: 1988

### TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following government records. For more information on this property see page 6 of the attached EDR Radius Map report:

<u>Site</u>	<u>Database(s)</u>	<u>EPA ID</u>
LOS ANGELES FIREWORKS 17011 FOOTHILL BLVD SYLMAR, CA 91342	CERCLIS US INST CONTROL	CAN000906022

### 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:

### FEDERAL RECORDS

NPL..... National Priority List



## EXECUTIVE SUMMARY

<b>Proposed NPL</b> .....	Proposed National Priority List Sites
<b>Delisted NPL</b> .....	National Priority List Deletions
<b>NPL RECOVERY</b> .....	Federal Superfund Liens
<b>CERC-NFRAP</b> .....	CERCLIS No Further Remedial Action Planned
<b>CORRACTS</b> .....	Corrective Action Report
<b>RCRA-TSDF</b> .....	Resource Conservation and Recovery Act Information
<b>RCRA-LQG</b> .....	Resource Conservation and Recovery Act Information
<b>RCRA-SQG</b> .....	Resource Conservation and Recovery Act Information
<b>ERNS</b> .....	Emergency Response Notification System
<b>HMIRS</b> .....	Hazardous Materials Information Reporting System
<b>US ENG CONTROLS</b> .....	Engineering Controls Sites List
<b>DOD</b> .....	Department of Defense Sites
<b>FUDS</b> .....	Formerly Used Defense Sites
<b>US BROWNFIELDS</b> .....	A Listing of Brownfields Sites
<b>CONSENT</b> .....	Superfund (CERCLA) Consent Decrees
<b>ROD</b> .....	Records Of Decision
<b>UMTRA</b> .....	Uranium Mill Tailings Sites
<b>ODI</b> .....	Open Dump Inventory
<b>TRIS</b> .....	Toxic Chemical Release Inventory System
<b>TSCA</b> .....	Toxic Substances Control Act
<b>FTTs</b> .....	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
<b>SSTS</b> .....	Section 7 Tracking Systems
<b>ICIS</b> .....	Integrated Compliance Information System
<b>PADS</b> .....	PCB Activity Database System
<b>MLTS</b> .....	Material Licensing Tracking System
<b>MINES</b> .....	Mines Master Index File
<b>FINDS</b> .....	Facility Index System/Facility Registry System
<b>RAATS</b> .....	RCRA Administrative Action Tracking System

### STATE AND LOCAL RECORDS

<b>HIST Cal-Sites</b> .....	Historical Calsites Database
<b>CA BOND EXP. PLAN</b> .....	Bond Expenditure Plan
<b>SCH</b> .....	School Property Evaluation Program
<b>Toxic Pits</b> .....	Toxic Pits Cleanup Act Sites
<b>CA WDS</b> .....	Waste Discharge System
<b>Cortese</b> .....	"Cortese" Hazardous Waste & Substances Sites List
<b>LUST</b> .....	Geotracker's Leaking Underground Fuel Tank Report
<b>SLIC</b> .....	Statewide SLIC Cases
<b>AOCONCERN</b> .....	San Gabriel Valley Areas of Concern
<b>HIST UST</b> .....	Hazardous Substance Storage Container Database
<b>AST</b> .....	Aboveground Petroleum Storage Tank Facilities
<b>CHMIRS</b> .....	California Hazardous Material Incident Report System
<b>Notify 65</b> .....	Proposition 65 Records
<b>LA Co. Site Mitigation</b> .....	Site Mitigation List
<b>DEED</b> .....	Deed Restriction Listing
<b>VCP</b> .....	Voluntary Cleanup Program Properties
<b>CLEANERS</b> .....	Cleaner Facilities
<b>WIP</b> .....	Well Investigation Program Case List
<b>LOS ANGELES CO. HMS</b> .....	HMS: Street Number List
<b>CDL</b> .....	Clandestine Drug Labs
<b>RESPONSE</b> .....	State Response Sites
<b>HAZNET</b> .....	Facility and Manifest Data
<b>EMI</b> .....	Emissions Inventory Data

# EXECUTIVE SUMMARY

**ENVIROSTOR**..... EnviroStor Database

**TRIBAL RECORDS**

**INDIAN RESERV**..... Indian Reservations  
**INDIAN LUST**..... Leaking Underground Storage Tanks on Indian Land  
**INDIAN UST**..... Underground Storage Tanks on Indian Land

**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.

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.

**STATE AND LOCAL RECORDS**

**SWF/LF:** The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 09/13/2006 has revealed that there are 3 SWF/LF sites within approximately 0.625 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b><i>BROWNING-FERRIS IND OF CALIFOR</i></b>	<b><i>14747 SAN FERNANDO RD</i></b>	<b><i>1/4 - 1/2 SW</i></b>	<b><i>B6</i></b>	<b><i>11</i></b>
SUNSHINE CANYON CITY LANDFILL	14747 SAN FERNANDO ROAD	1/4 - 1/2 SW	B8	19
<b><i>FACILITY 23633</i></b>	<b><i>14747 SAN FERNANDO RD</i></b>	<b><i>1/4 - 1/2 SW</i></b>	<b><i>B9</i></b>	<b><i>20</i></b>

**WMUDS/SWAT:** The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board.

A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 WMUDS/SWAT site within approximately 0.625 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b><i>SUKUT EQUIPMENT</i></b>	<b><i>14747 SAN FERNANDO RD</i></b>	<b><i>1/4 - 1/2 SW</i></b>	<b><i>B7</i></b>	<b><i>14</i></b>

## EXECUTIVE SUMMARY

**SWRCY:** A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 10/10/2006 has revealed that there is 1 SWRCY site within approximately 0.625 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>FACILITY 23633</b>	<b>14747 SAN FERNANDO RD</b>	<b>1/4 - 1/2 SW</b>	<b>B9</b>	<b>20</b>

**CA FID:** The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 3 CA FID UST sites within approximately 0.375 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>K/K SHEET METAL INC.</b>	<b>14928 SAN FERNANDO RD</b>	<b>1/4 - 1/2 W</b>	<b>A2</b>	<b>7</b>
<b>TED SAKAIDA &amp; SONS TRUCKING CO</b>	<b>14950 SAN FERNANDO RD</b>	<b>1/4 - 1/2 W</b>	<b>A3</b>	<b>7</b>
<b>ROSA LEONG/BUFORD A GRAVES</b>	<b>14980 SAN FERNANDO RD</b>	<b>1/4 - 1/2 WNW</b>	<b>5</b>	<b>10</b>

**UST:** The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, and dated 07/11/2006 has revealed that there is 1 UST site within approximately 0.375 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>TED SAKAIDA &amp; SONS TRUCKING CO</b>	<b>14950 SAN FERNANDO RD</b>	<b>1/4 - 1/2 W</b>	<b>A4</b>	<b>9</b>

**SWEEPS:** 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 1980'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.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 3 SWEEPS UST sites within approximately 0.375 miles of the target property.

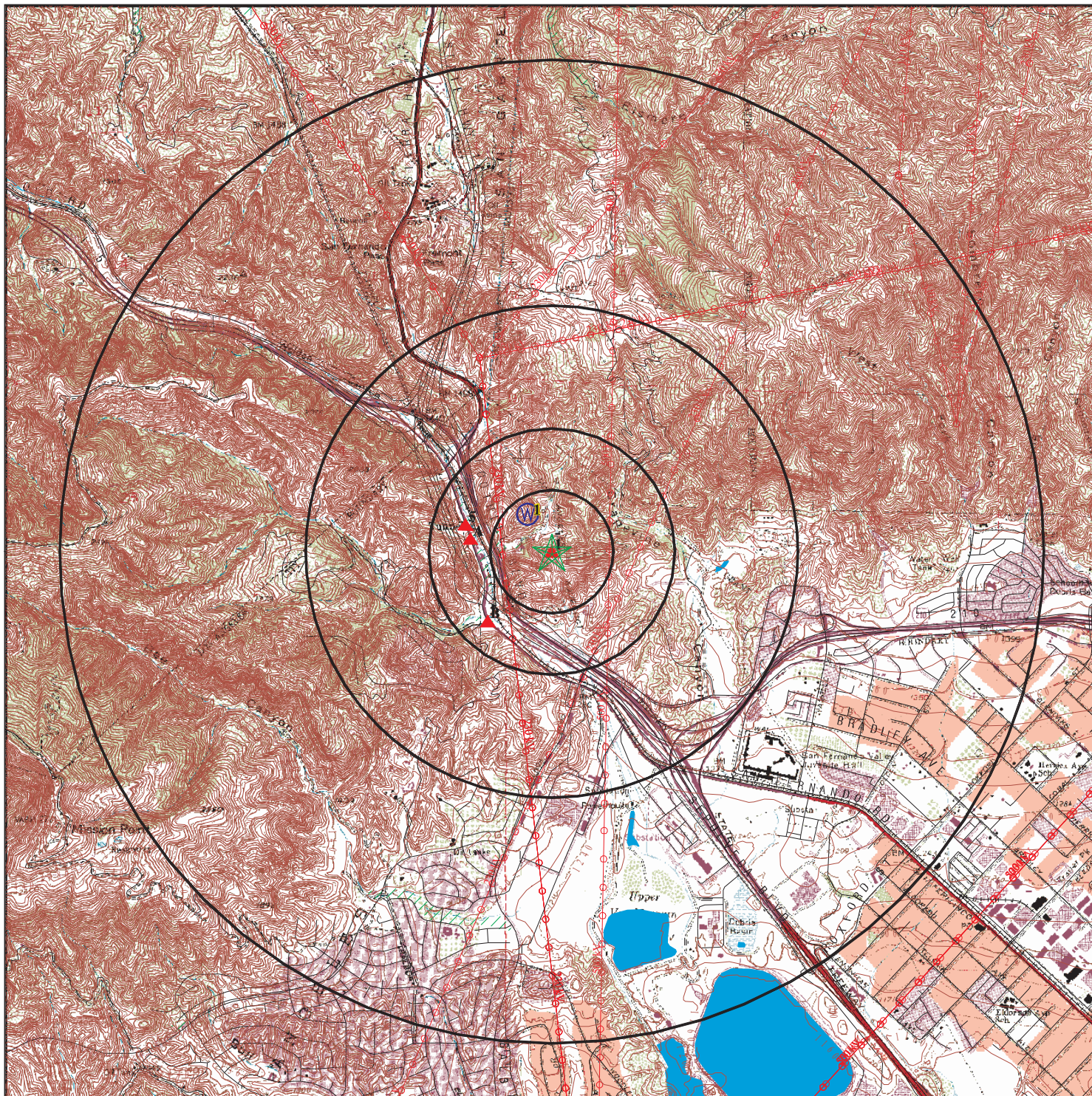
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>K/K SHEET METAL INC.</b>	<b>14928 SAN FERNANDO RD</b>	<b>1/4 - 1/2 W</b>	<b>A2</b>	<b>7</b>
<b>TED SAKAIDA &amp; SONS TRUCKING CO</b>	<b>14950 SAN FERNANDO RD</b>	<b>1/4 - 1/2 W</b>	<b>A4</b>	<b>9</b>
<b>ROSA LEONG/BUFORD A GRAVES</b>	<b>14980 SAN FERNANDO RD</b>	<b>1/4 - 1/2 WNW</b>	<b>5</b>	<b>10</b>

## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

<u>Site Name</u>	<u>Database(s)</u>
LA CO FMD WAYSIDE HONOR RANCHO	SWEEPS UST
MOBIL OIL CORP-WEST COAST PIPE	SWEEPS UST
TEXACO-HONOR RANCHO TANK BATT	SWEEPS UST
SAN FERNANDO RD / N HOLLYWOOD	CDL
VEH STOP @ SO ON HWY 5/N OF ST	CDL
SOUTHERN CALIFORNIA FLEET SERVICE	CLEANERS
JOY CLEANERS	HAZNET, CLEANERS
MOBIL #11-J1L	LUST
CONOCOPHILLIPS CO # 252008	LUST
TOSCO/UNOCAL #30421	LUST
CALTRANS DIST 7/MAINTENANCE	HAZNET
MURPHY INDUSTRIAL COATINGS INC	HAZNET
MURPHY IND COATING LOS ANGELES	HAZNET
BARNARD TRANSPORTATION	HAZNET
UNOCAL SO CAL. DIV. PIPE LINE	HAZNET
1X MOUNTAINS RECRTN & CONCV AUTHOR	HAZNET
PACIFIC RIM TRANSPORTATION INC	HAZNET
CIRCUS LIQUIOR	HAZNET
BIG GUY, LLC	HAZNET
GTE CALIFORNIA INC	HAZNET
LUMARK MOBILE HOME PARK	LA Co. Site Mitigation
HURT'S TRANSPORTATION	SLIC
SHELL OIL #204-2928-0538	LOS ANGELES CO. HMS
SANTA FE PACIFIC REALTY CORP	LOS ANGELES CO. HMS
DRAGON EXPRESS	LOS ANGELES CO. HMS
HAWAIIAN BBQ	LOS ANGELES CO. HMS
ASIAN TASTY	LOS ANGELES CO. HMS

# OVERVIEW MAP - 1789893.2s



- ★ 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
- ▨ Landfill Sites
- ▨ Dept. Defense Sites

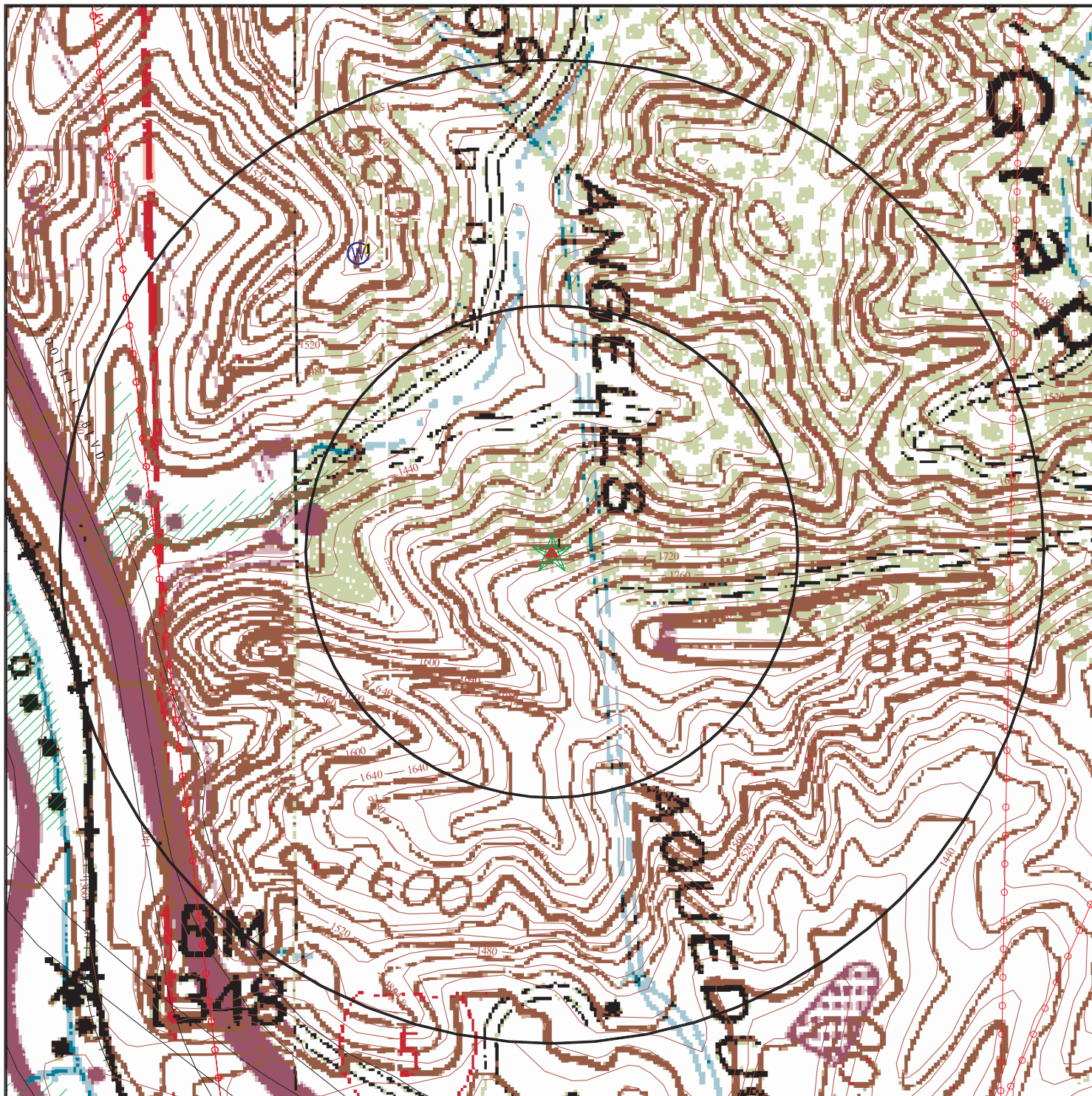
- ▨ Indian Reservations BIA
- ▨ Areas of Concern
- ▨ Power transmission lines
- ▨ Oil & Gas pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone

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: Terminal Hill  
 ADDRESS: 17011 Foothill Blvd  
 Los Angeles CA 91342  
 LAT/LONG: 34.3278 / 118.4986

CLIENT: Parsons Engineering Science  
 CONTACT: Shudeish Mahadev  
 INQUIRY #: 1789893.2s  
 DATE: November 06, 2006 7:27 am

DETAIL MAP - 1789893.2s



- ★ 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
- Landfill 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: Terminal Hill  
 ADDRESS: 17011 Foothill Blvd  
 Los Angeles CA 91342  
 LAT/LONG: 34.3278 / 118.4986

CLIENT: Parsons Engineering Science  
 CONTACT: Shudeish Mahadev  
 INQUIRY #: 1789893.2s  
 DATE: November 06, 2006 7:28 am

## APPENDIX D

### EDR HISTORICAL AERIAL PHOTOGRAPHS

# **The EDR Aerial Photo Decade Package**

**Terminal Hill  
17011 Foothill Blvd  
Los Angeles, CA 91342**

**Inquiry Number: 1789893.5**

**November 06, 2006**



## **The Standard in Environmental Risk Management Information**

**440 Wheelers Farms Road  
Milford, Connecticut 06461**

### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [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:**

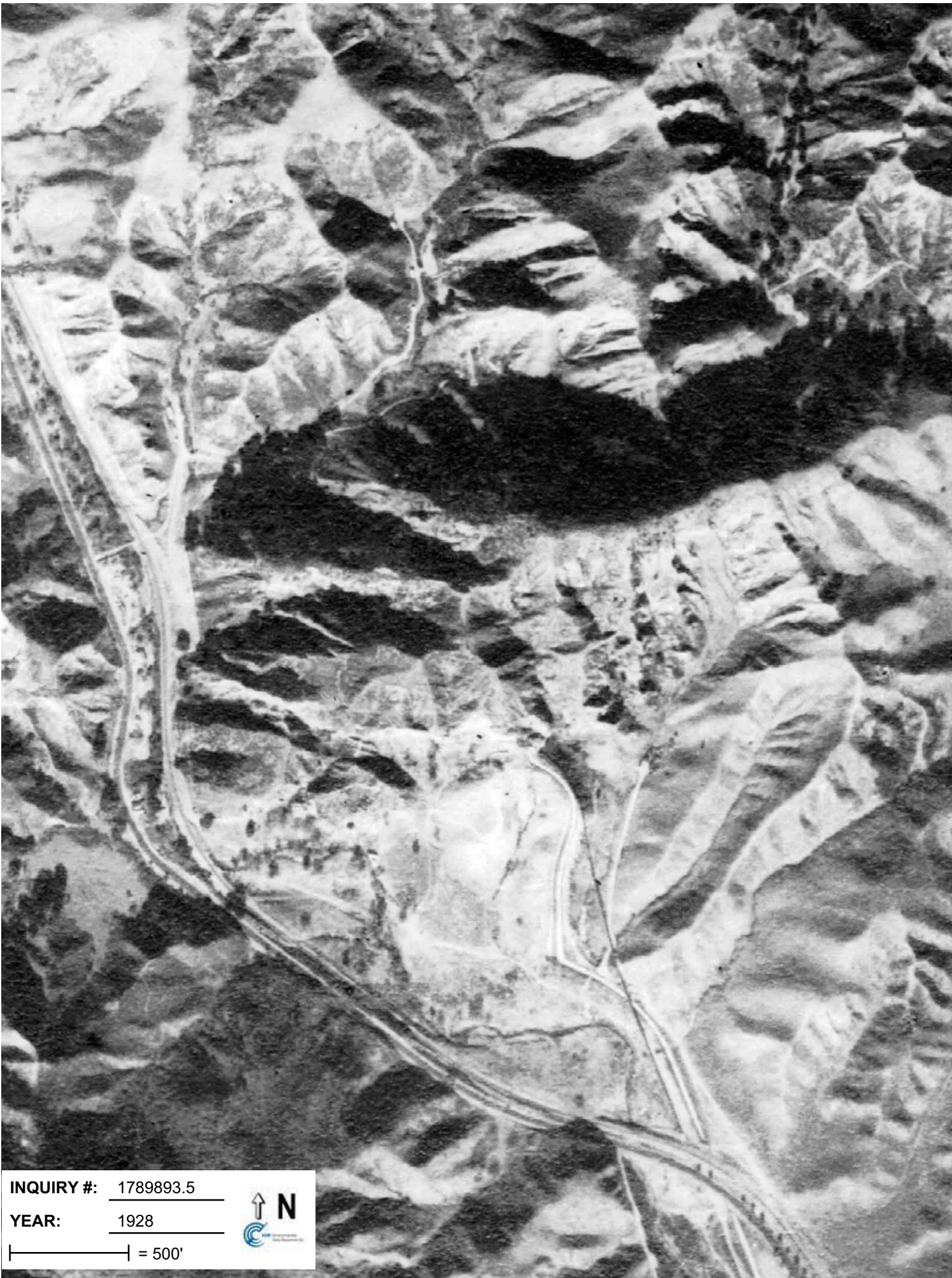
Aerial Photography November 06, 2006

**Target Property:**

17011 Foothill Blvd

Los Angeles, CA 91342

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1928	Aerial Photograph. Scale: 1"=500'	Flight Year: 1928	Fairchild
1938	Aerial Photograph. Scale: 1"=555'	Flight Year: 1938	Laval
1947	Aerial Photograph. Scale: 1"=666'	Flight Year: 1947	Tubis
1956	Aerial Photograph. Scale: 1"=400'	Flight Year: 1956	Fairchild
1965	Aerial Photograph. Scale: 1"=666'	Flight Year: 1965	Fairchild
1976	Aerial Photograph. Scale: 1"=666'	Flight Year: 1976	Teledyne
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



INQUIRY #: 1789893.5

YEAR: 1928

| = 500'





**INQUIRY #:** 1789893.5

**YEAR:** 1938

| = 555'





INQUIRY #: 1789893.5

YEAR: 1947

| = 666'





**INQUIRY #:** 1789893.5

**YEAR:** 1956

| = 400'





**INQUIRY #:** 1789893.5

**YEAR:** 1965

| = 666'





**INQUIRY #:** 1789893.5

**YEAR:** 1976

| = 666'







**INQUIRY #:** 1789893.5

**YEAR:** 1989

| = 666'





**INQUIRY #:** 1789893.5

**YEAR:** 1994

| = 666'





INQUIRY #: 1789893.5

YEAR: 2002

| = 666'



## APPENDIX E

### EDR HISTORICAL TOPOGRAPHICAL MAPS

# **EDR Historical Topographic Map Report**

**Terminal Hill  
17011 Foothill Blvd  
Los Angeles, CA 91342**

**Inquiry Number: 1789893.4**

**November 06, 2006**



**EDR®** Environmental  
Data Resources Inc

## **The Standard in Environmental Risk Management Information**

440 Wheelers Farms Rd  
Milford, Connecticut 06461

### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topographic Map Report

Environmental Data Resources, Inc.'s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

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

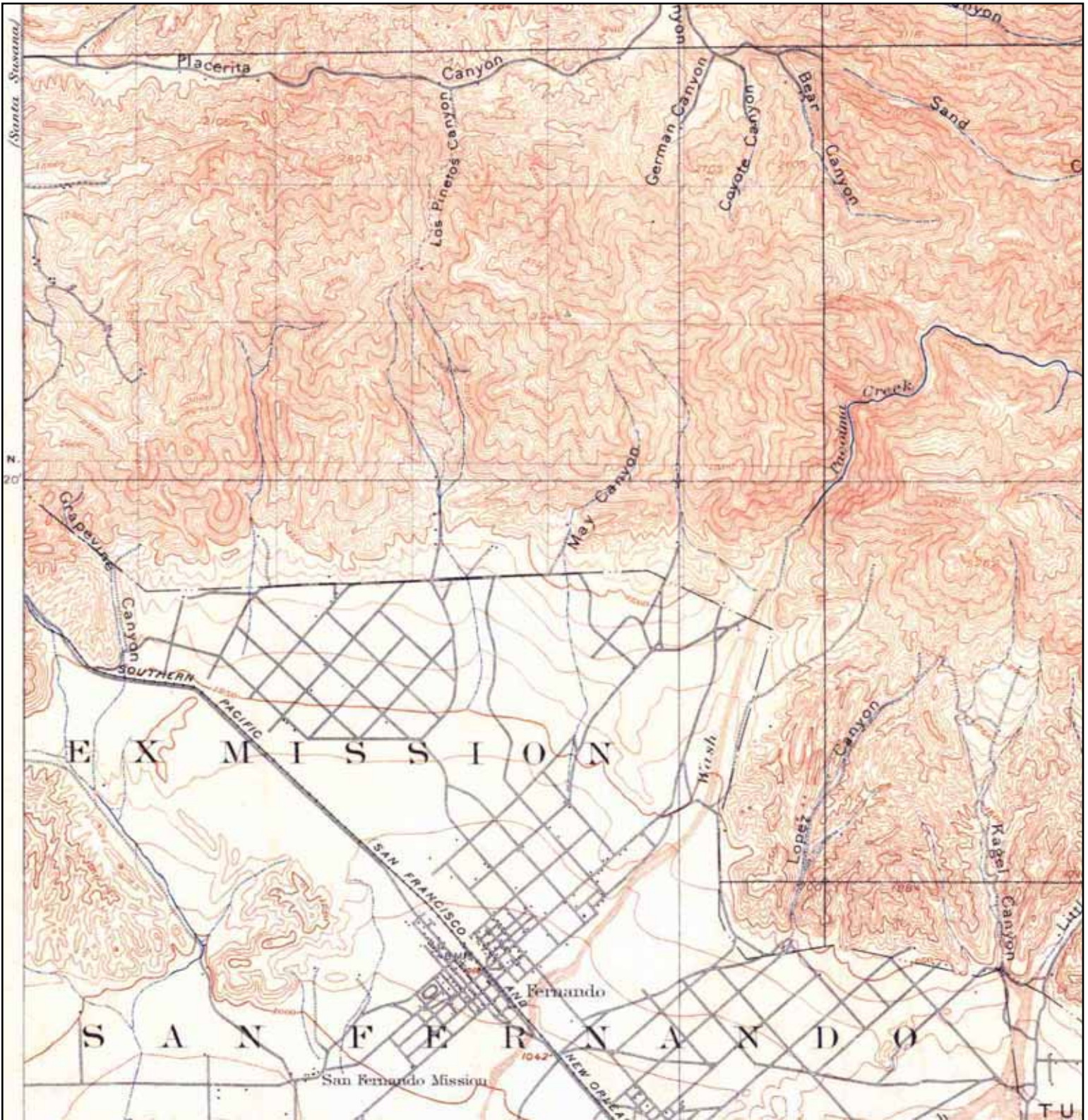
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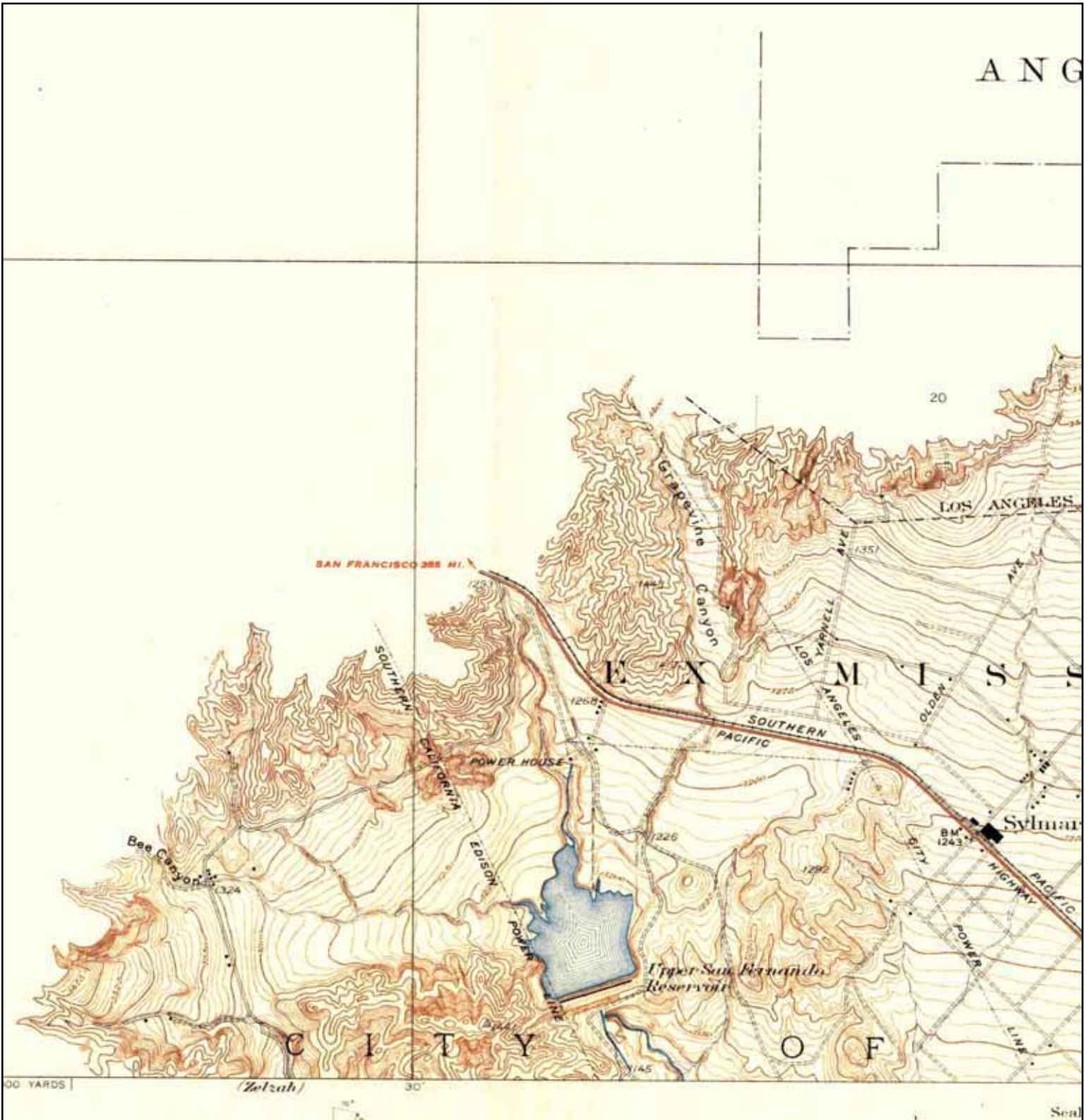
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# Historical Topographic Map



<p>N ↑</p>	<p>TARGET QUAD NAME: FERNANDO MAP YEAR: 1900</p>	<p>SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986</p>	<p>CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006</p>
	<p>SERIES: 15 SCALE: 1:62500</p>		

# Historical Topographic Map




	<b>TARGET QUAD</b> NAME: SYLMAR MAP YEAR: 1928	<b>SITE NAME:</b> Terminal Hill <b>ADDRESS:</b> 17011 Foothill Blvd Los Angeles, CA 91342 <b>LAT/LONG:</b> 34.3278 / 118.4986	<b>CLIENT:</b> Parsons Engineering Science <b>CONTACT:</b> Shudeish Mahadev <b>INQUIRY#:</b> 1789893.4 <b>RESEARCH DATE:</b> 11/06/2006
	SERIES: 7.5 SCALE: 1:24000		

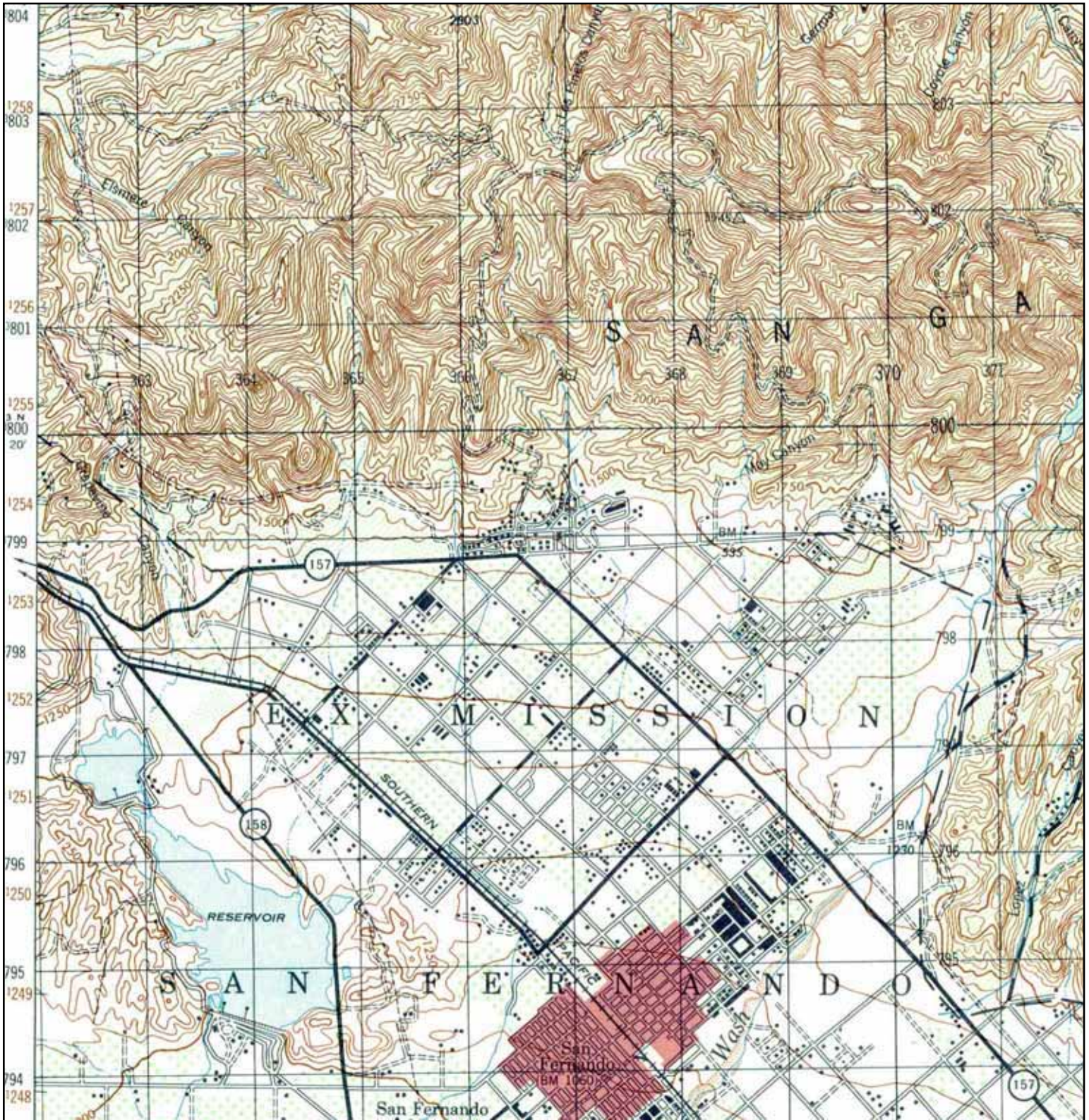


# Historical Topographic Map



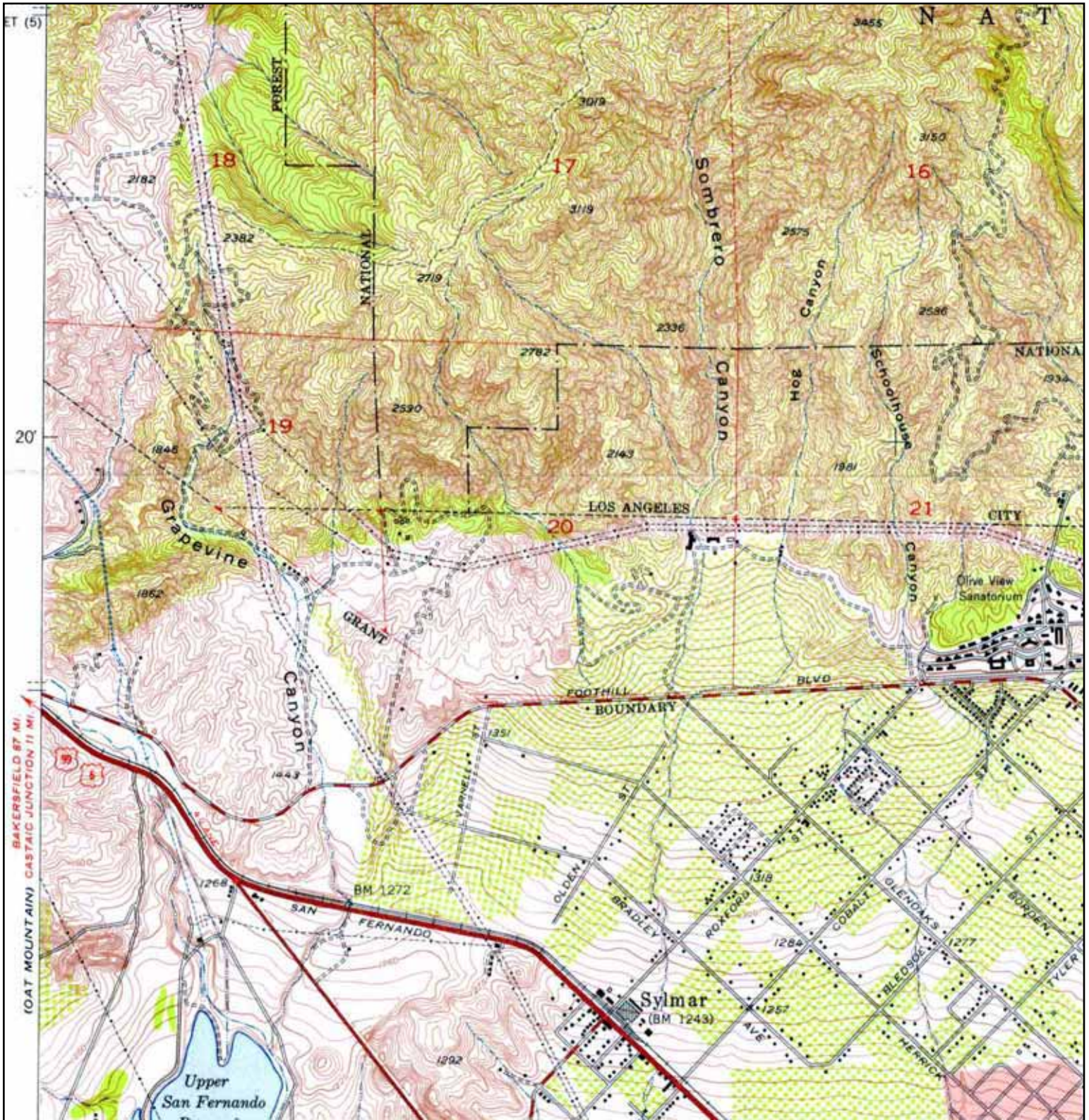
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	SERIES: 6 SCALE: 1:24000		


# Historical Topographic Map



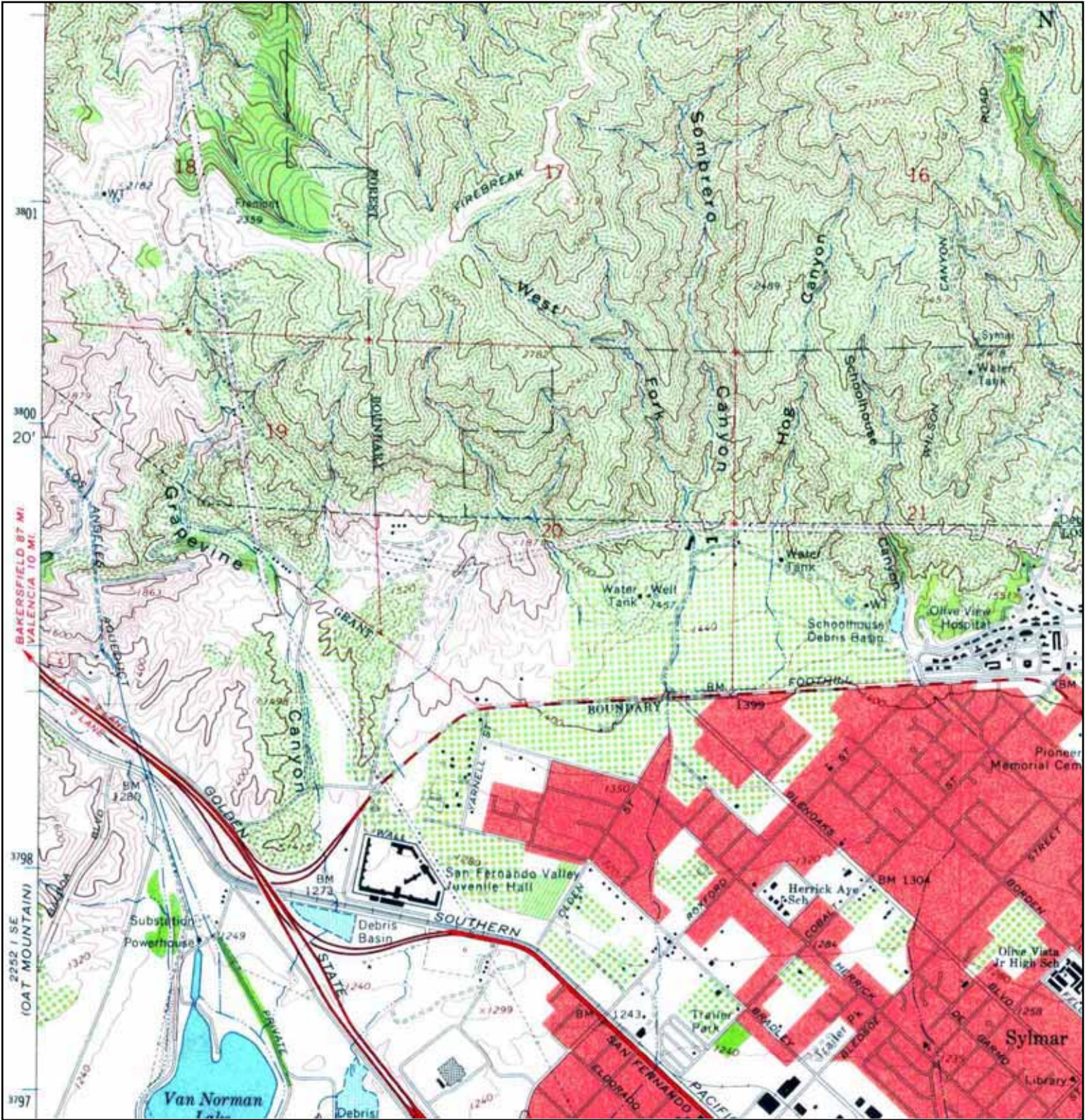
<p>N ↑</p>	<p>TARGET QUAD NAME: SAN FERNANDO MAP YEAR: 1947</p>	<p>SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986</p>	<p>CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006</p>
	<p>SERIES: 15 SCALE: 1:50000</p>		


# Historical Topographic Map



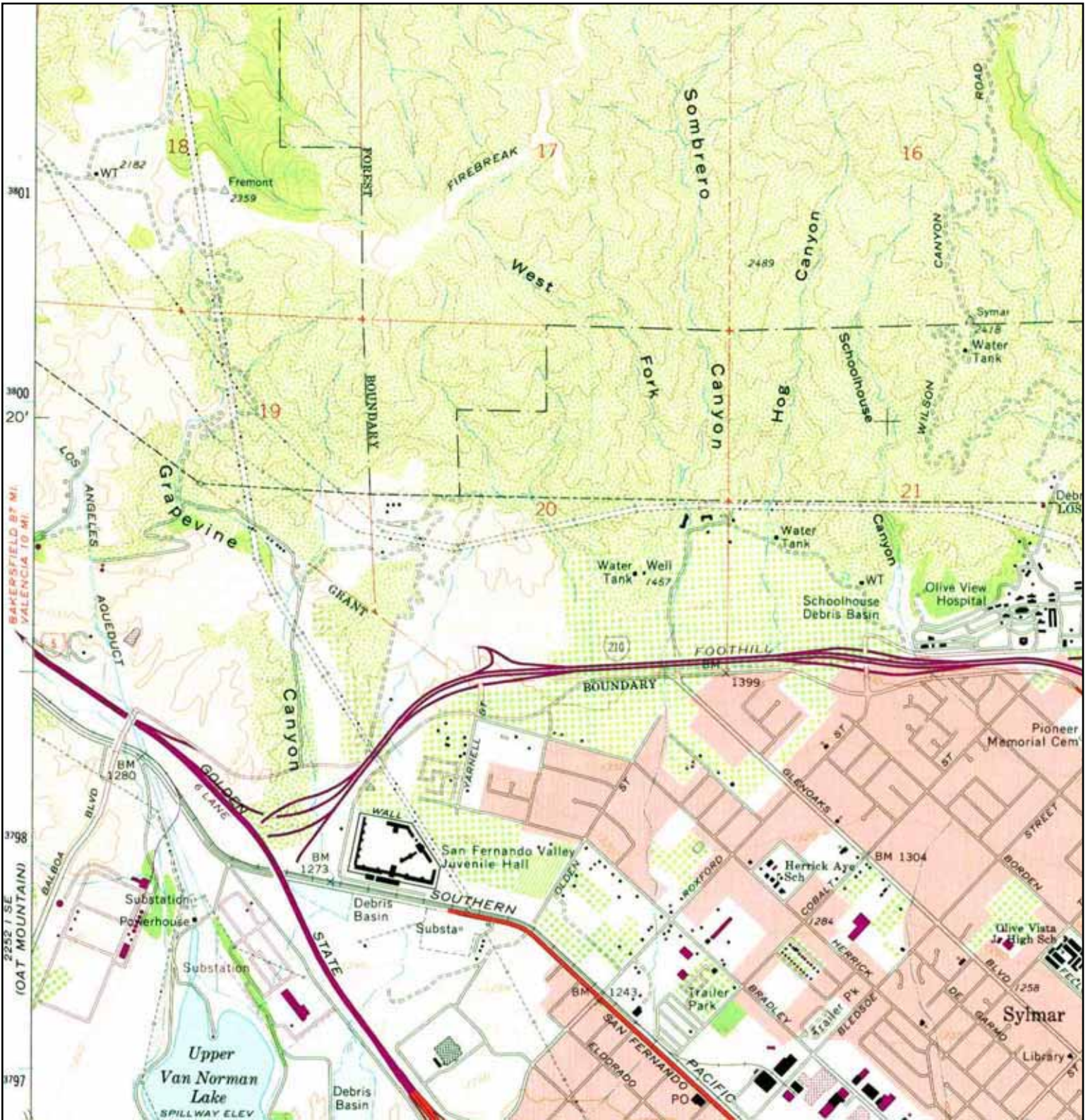
	<b>TARGET QUAD</b> NAME: SAN FERNANDO MAP YEAR: 1953	<b>SITE NAME:</b> Terminal Hill <b>ADDRESS:</b> 17011 Foothill Blvd Los Angeles, CA 91342 <b>LAT/LONG:</b> 34.3278 / 118.4986	<b>CLIENT:</b> Parsons Engineering Science <b>CONTACT:</b> Shudeish Mahadev <b>INQUIRY#:</b> 1789893.4 <b>RESEARCH DATE:</b> 11/06/2006
	SERIES: 7.5 SCALE: 1:24000		

# Historical Topographic Map



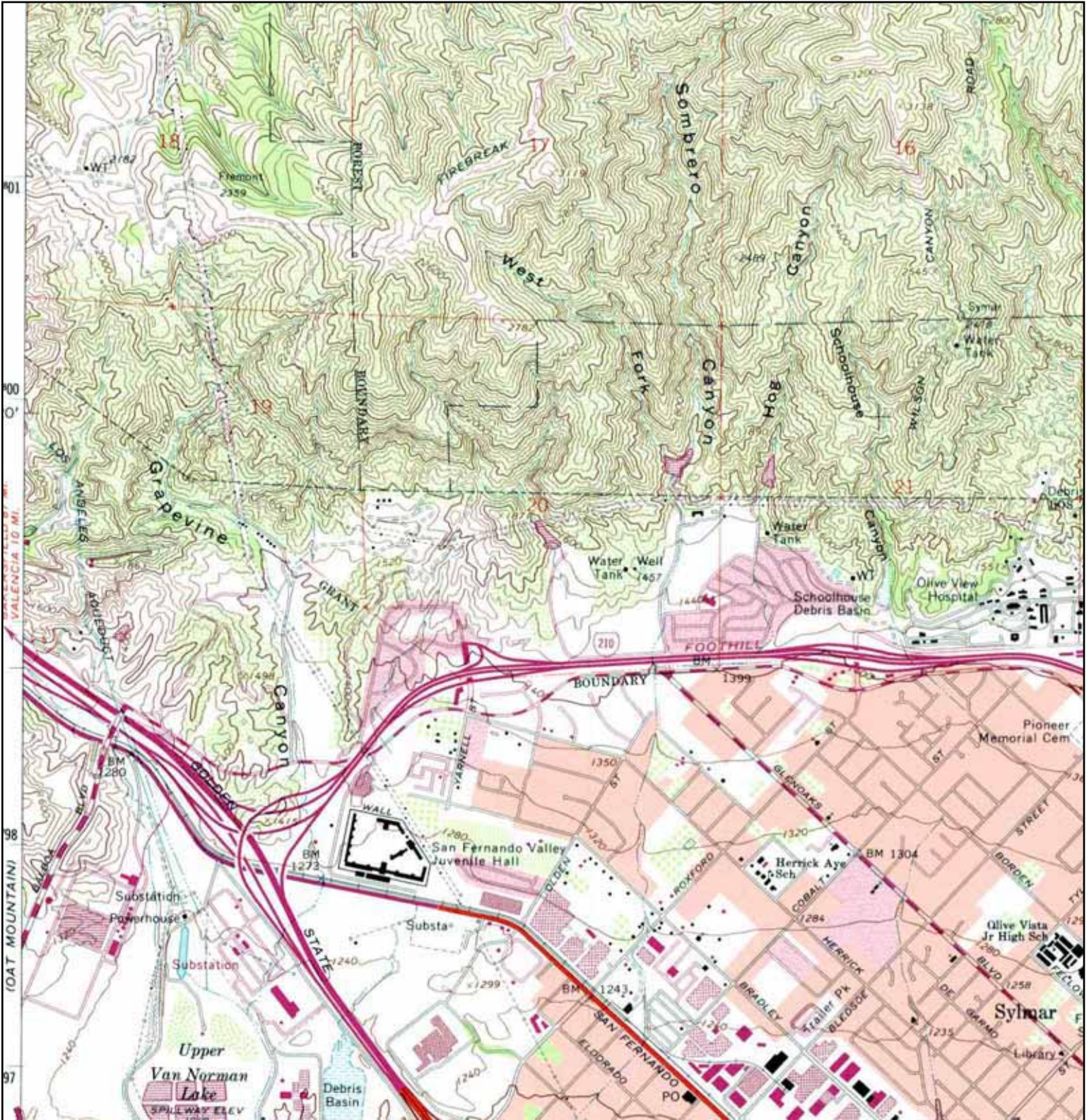
	TARGET QUAD NAME: SAN FERNANDO MAP YEAR: 1966	SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986	CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006
	SERIES: 7.5 SCALE: 1:24000		

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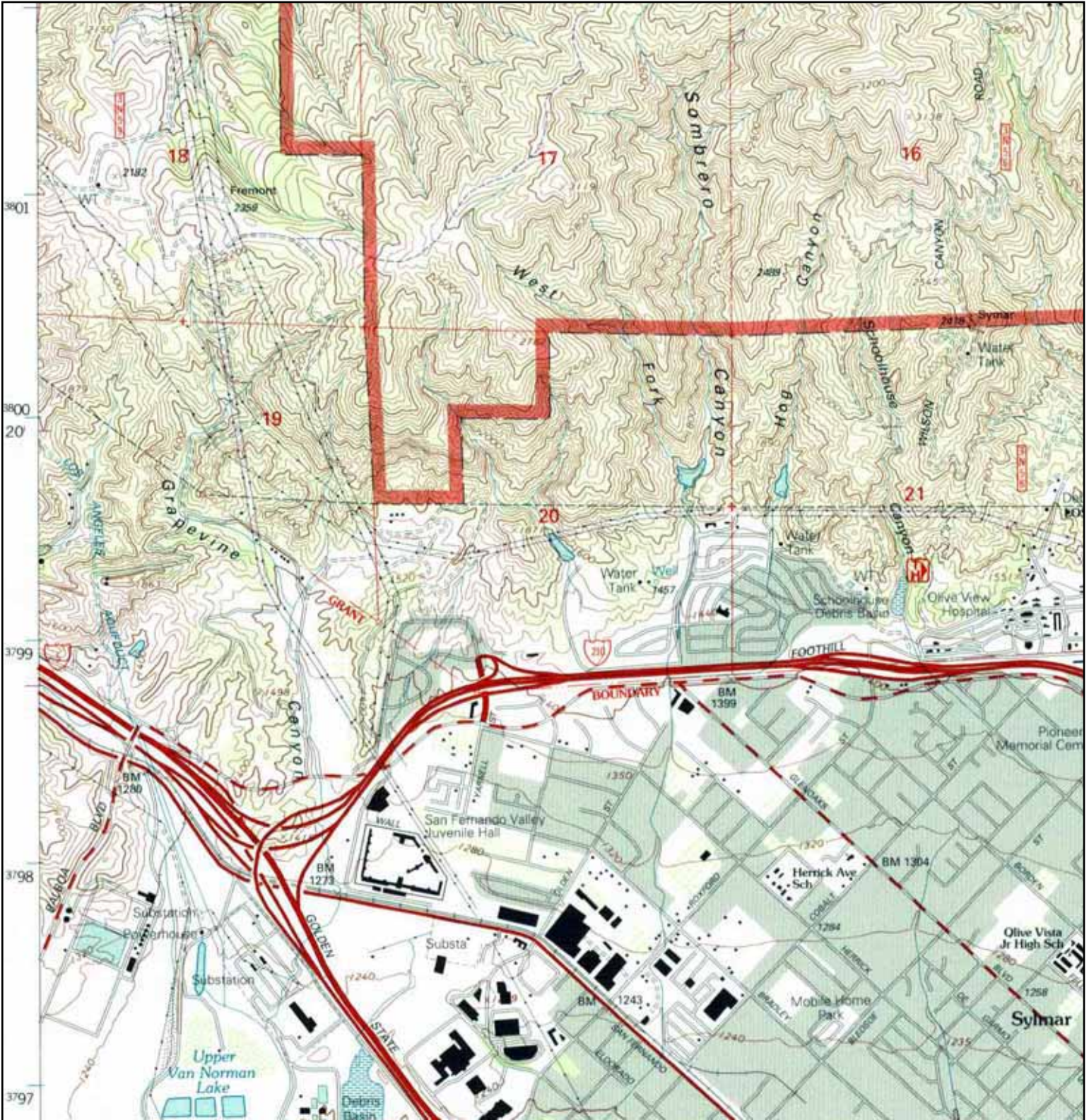
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	NAME: SAN FERNANDO	ADDRESS:	17011 Foothill Blvd	CONTACT:	Shudeish Mahadev
	MAP YEAR: 1972		Los Angeles, CA 91342	INQUIRY#:	1789893.4
	PHOTOREVISED FROM: 1966	LAT/LONG:	34.3278 / 118.4986	RESEARCH DATE:	11/06/2006
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	SCALE: 1:24000				

# Historical Topographic Map



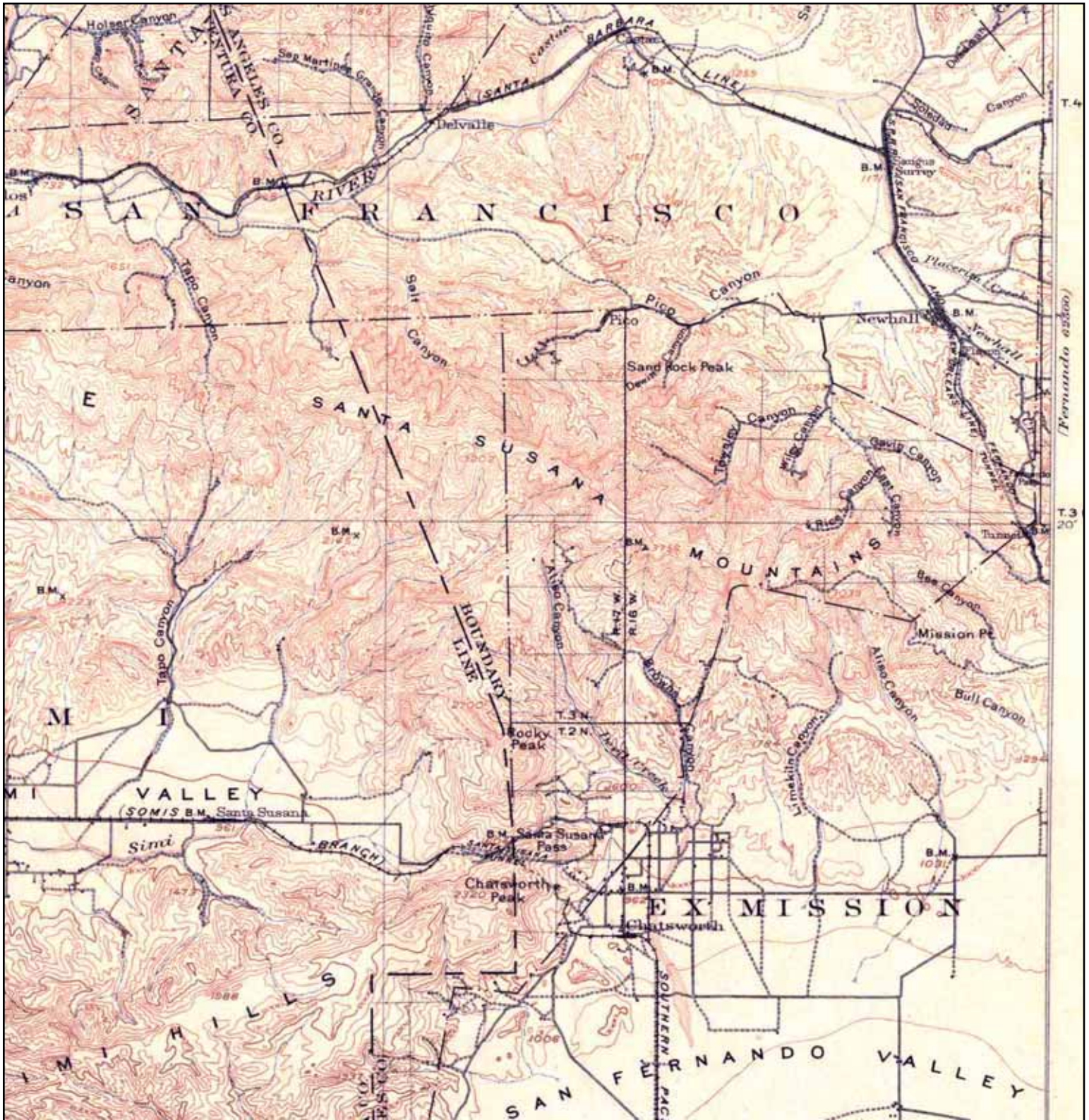
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	NAME: SAN FERNANDO	ADDRESS:	17011 Foothill Blvd	CONTACT:	Shudeish Mahadev
	MAP YEAR: 1988		Los Angeles, CA 91342	INQUIRY#:	1789893.4
	PHOTOREVISED FROM: 1966	LAT/LONG:	34.3278 / 118.4986	RESEARCH DATE:	11/06/2006
	SERIES: 7.5				
	SCALE: 1:24000				

# Historical Topographic Map



<p>N ↑</p>	<p>TARGET QUAD NAME: SAN FERNANDO MAP YEAR: 1995</p>	<p>SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342</p>	<p>CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4</p>
	<p>SERIES: 7.5 SCALE: 1:24000</p>	<p>LAT/LONG: 34.3278 / 118.4986</p>	<p>RESEARCH DATE: 11/06/2006</p>

# Historical Topographic Map



<p>N ↑</p>	<p>ADJOINING QUAD NAME: CAMULOS MAP YEAR: 1903</p>	<p>SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986</p>	<p>CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006</p>
	<p>SERIES: 30 SCALE: 1:125000</p>		

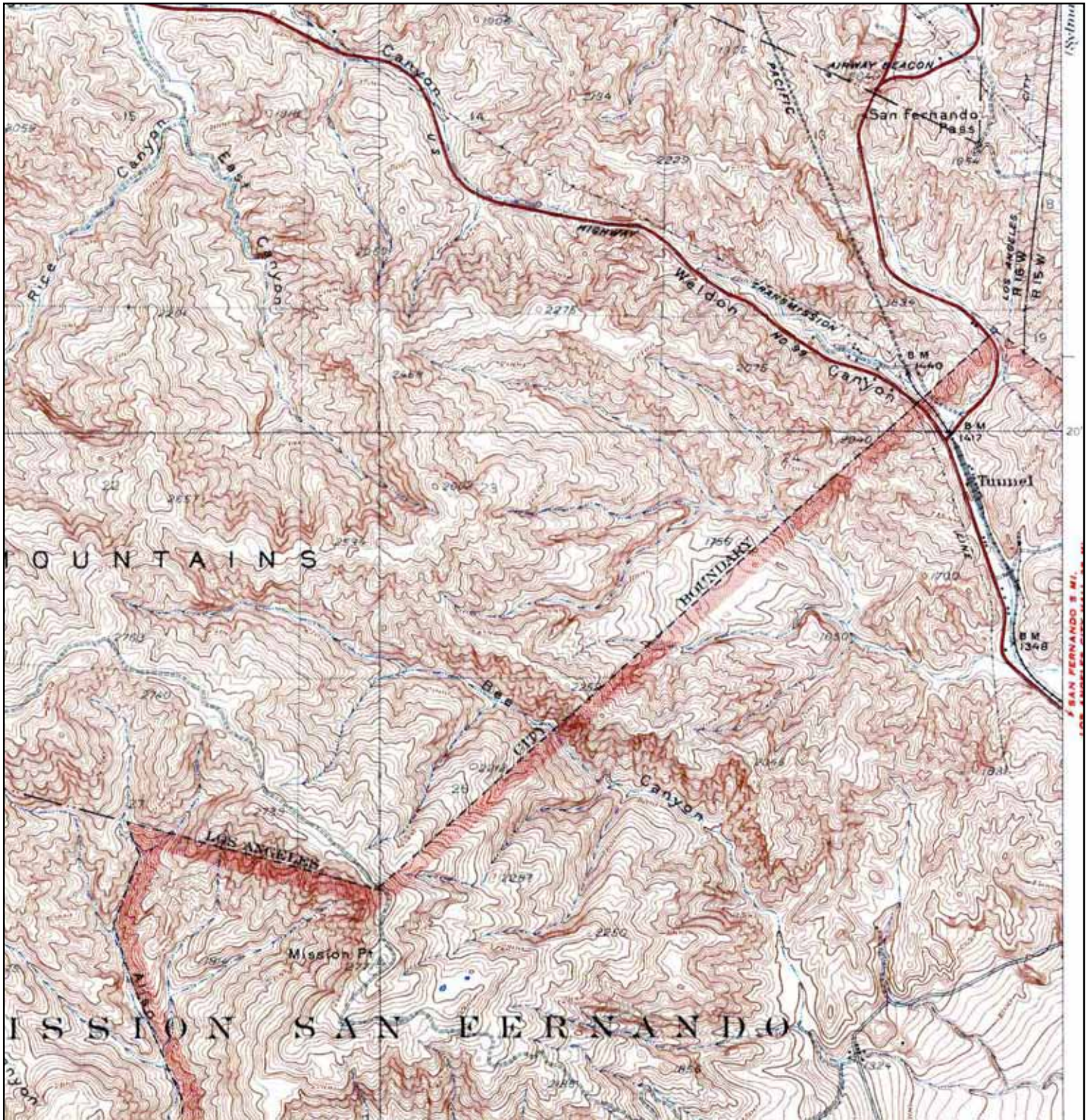


# Historical Topographic Map



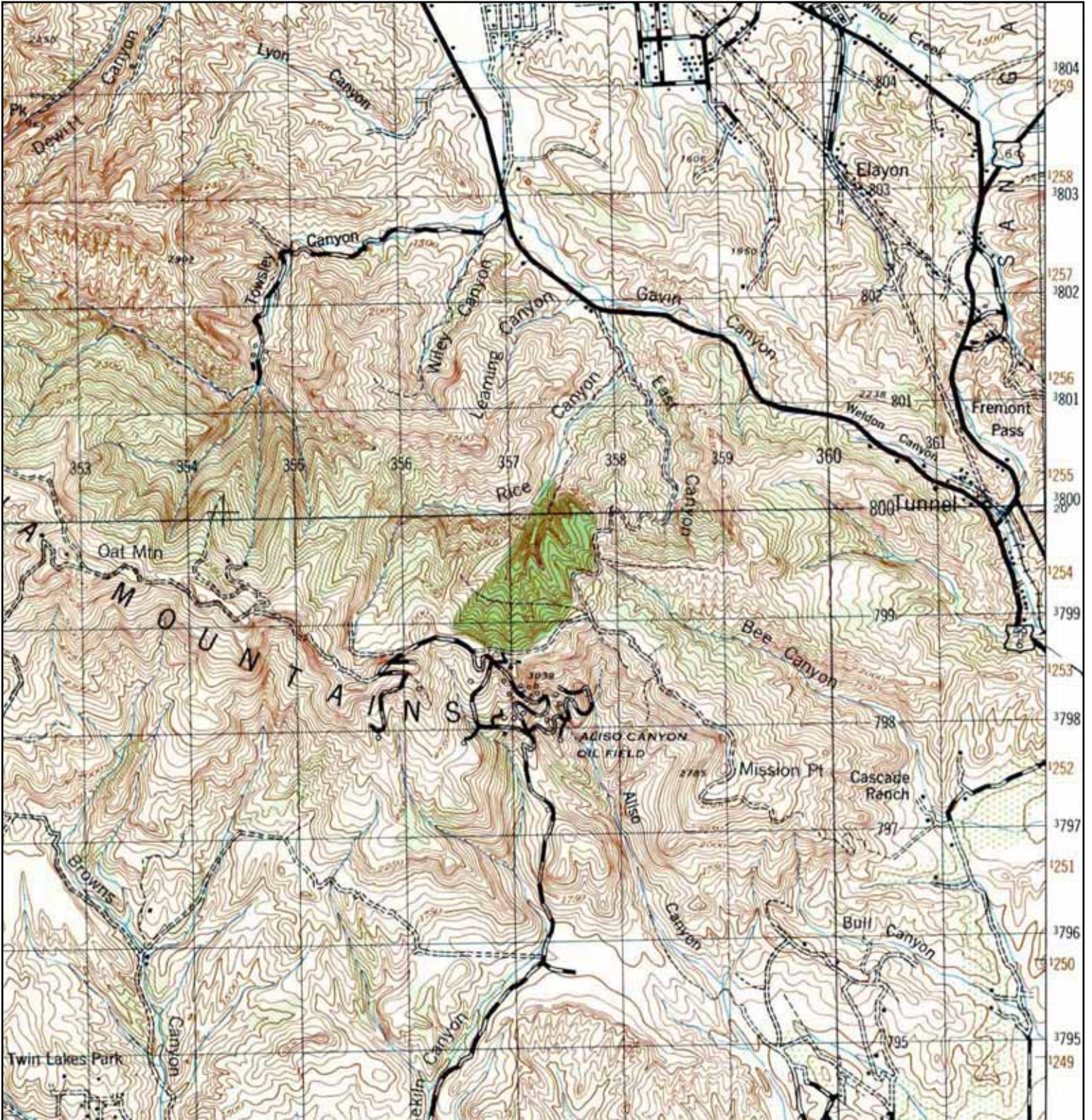
<p>N ↑</p>	<p>ADJOINING QUAD NAME: SANTA SUSANA MAP YEAR: 1916</p>	<p>SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986</p>	<p>CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006</p>
	<p>SERIES: 15 SCALE: 1:62500</p>		

# Historical Topographic Map



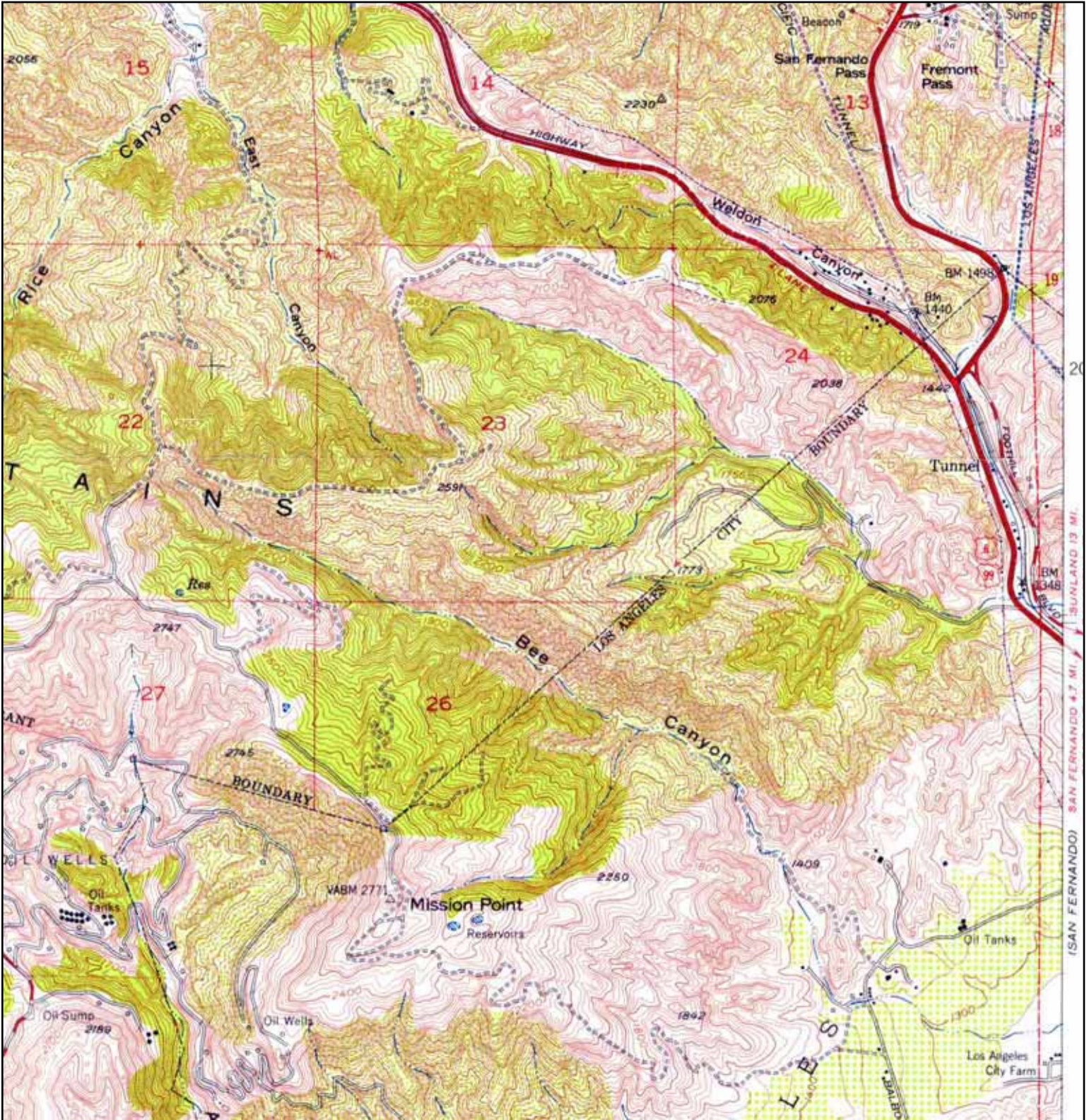
N ↑	ADJOINING QUAD NAME: NEWHALL MAP YEAR: 1933	SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986	CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006
	SERIES: 6 SCALE: 1:24000		

# Historical Topographic Map



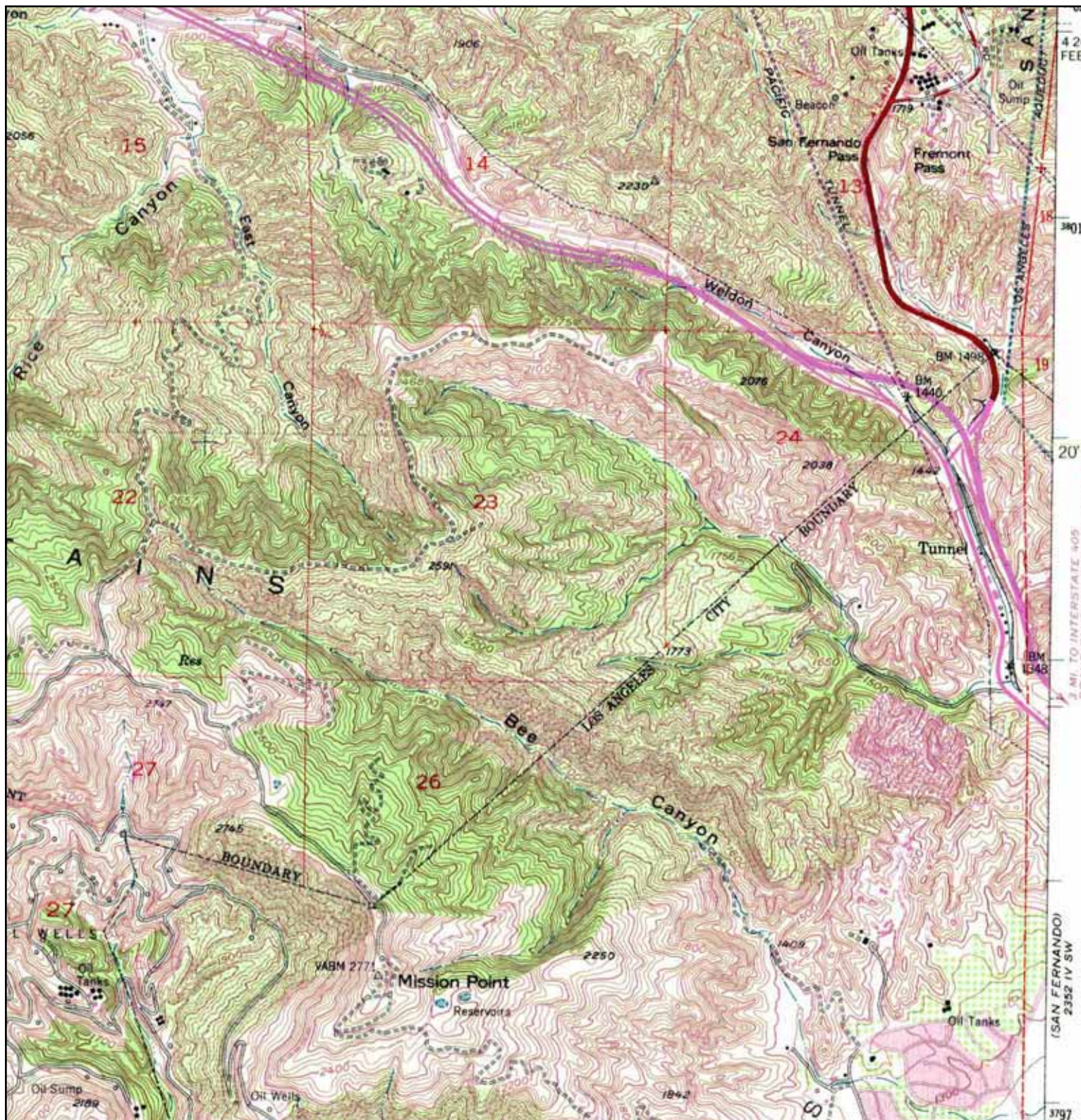
	ADJOINING QUAD NAME: SANTA SUSANA MAP YEAR: 1947	SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986	CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006
	SERIES: 15 SCALE: 1:50000		

# Historical Topographic Map



<p>N ↑</p>	<p>ADJOINING QUAD NAME: OAT MOUNTAIN MAP YEAR: 1952</p>	<p>SITE NAME: Terminal Hill ADDRESS: 17011 Foothill Blvd Los Angeles, CA 91342 LAT/LONG: 34.3278 / 118.4986</p>	<p>CLIENT: Parsons Engineering Science CONTACT: Shudeish Mahadev INQUIRY#: 1789893.4 RESEARCH DATE: 11/06/2006</p>
	<p>SERIES: 7.5 SCALE: 1:24000</p>		

# Historical Topographic Map



	ADJOINING QUAD	SITE NAME:	Terminal Hill	CLIENT:	Parsons Engineering Science
	NAME: OAT MOUNTAIN	ADDRESS:	17011 Foothill Blvd	CONTACT:	Shudeish Mahadev
	MAP YEAR: 1969		Los Angeles, CA 91342	INQUIRY#:	1789893.4
	PHOTOREVISED FROM: 1952	LAT/LONG:	34.3278 / 118.4986	RESEARCH DATE:	11/06/2006
	SERIES: 7.5				
	SCALE: 1:24000				

APPENDIX F

EDR SANBORN REPORT



"Linking Technology with Tradition"®

## Sanborn® Map Report

**Ship To:** Shudeish Mahadev  
Parsons Engineering  
100 West Walnut Street  
Pasadena, CA 91124

**Order Date:** 11/3/2006    **Completion Date:** 11/3/2006  
**Inquiry #:** 1789893.3  
**P.O. #:** NA  
**Site Name:** Terminal Hill

**Customer Project:** LADWP  
1071335PEP                      626-440-3114

**Address:** 17011 Foothill Blvd  
**City/State:** Los Angeles, CA 91342  
**Cross Streets:**

This document reports that the largest and most complete collection of Sanborn fire insurance maps has been reviewed based on client supplied information, and fire insurance maps depicting the target property at the specified address were not identified.

**NO COVERAGE**

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APPENDIX G

EDR CITY DIRECTORY





**EDR**® Environmental  
Data Resources Inc

**The EDR-City Directory**  
*Abstract*

**Terminal Hill**  
**17011 Foothill Blvd**  
**Sylmar, CA 91342**

**Inquiry Number: 1789893.6**

**Monday, November 06, 2006**

**The Standard in  
Environmental Risk  
Management Information**

440 Wheelers Farms Road  
Milford, Connecticut 06461

**Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)

# EDR City Directory Abstract

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening report 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.

***Thank you for your business.***

Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## **SUMMARY**

- ***City Directories:***

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1920 through 2006. (These years are not necessarily inclusive.) A summary of the information obtained is provided in the text of this report.

This report compiles information by geocoding the subject properties (that is, plotting the latitude and longitude for such subject properties and obtaining data concerning properties within 1/8th of a mile of the subject properties). There is no warranty or guarantee that geocoding will report or list all properties within the specified radius of the subject properties and any such warranty or guarantee is expressly disclaimed. Accordingly, some properties within the aforementioned radius and the information concerning those properties may not be referenced in this report.

**Date EDR Searched Historical Sources:** November 6, 2006

**Target Property:**

17011 Foothill Blvd  
Sylmar, CA 91342

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1920	Address Not Listed in Research Source	Los Angeles Directory Co.
1921	Address Not Listed in Research Source	Los Angeles Directory Co.
1923	Address Not Listed in Research Source	Los Angeles Directory Co.
1924	Address Not Listed in Research Source	Los Angeles Directory Co.
1925	Address Not Listed in Research Source	Los Angeles Directory Co.
1926	Address Not Listed in Research Source	Los Angeles Directory Co.
1927	Address Not Listed in Research Source	Kaasen Directory Company Publishers
1928	Address Not Listed in Research Source	Los Angeles Directory Co.
1929	Address Not Listed in Research Source	Los Angeles Directory Co.
1930	Address Not Listed in Research Source	Los Angeles Directory Co.
1931	Address Not Listed in Research Source	Los Angeles Directory Company Publishers
1932	Address Not Listed in Research Source	Los Angeles Directory Co.
1933	Address Not Listed in Research Source	Los Angeles Directory Co.
1934	Address Not Listed in Research Source	Los Angeles Directory Co.
1935	Address Not Listed in Research Source	Los Angeles Directory Co.
1936	Address Not Listed in Research Source	Los Angeles Directory Co.

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1937	Address Not Listed in Research Source	Los Angeles Directory Co.
1938	Address Not Listed in Research Source	Los Angeles Directory Company Publishers
1939	Address Not Listed in Research Source	Los Angeles Directory Co.
1940	Address Not Listed in Research Source	Los Angeles Directory Co.
1942	Address Not Listed in Research Source	Los Angeles Directory Co.
1944	Address Not Listed in Research Source	R. L. Polk & Co.
1945	Address Not Listed in Research Source	R. L. Polk & Co.
1946	Address Not Listed in Research Source	Los Angeles Directory Co.
1947	Address Not Listed in Research Source	Pacific Directory Co.
1948	Address Not Listed in Research Source	Los Angeles Directory Co.
1949	Address Not Listed in Research Source	Los Angeles Directory Co.
1950	Address Not Listed in Research Source	Pacific Telephone
1951	Address Not Listed in Research Source	Los Angeles Directory Co Publishers
1952	Address Not Listed in Research Source	Los Angeles Directory Co.
1954	Address Not Listed in Research Source	R. L. Polk & Co.
1955	Address Not Listed in Research Source	R. L. Polk & Co.
1956	Address Not Listed in Research Source	Pacific Telephone
1957	Address Not Listed in Research Source	Pacific Telephone
1958	Address Not Listed in Research Source	Pacific Telephone
1960	Address Not Listed in Research Source	Pacific Telephone

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1961	Address Not Listed in Research Source	Luskey Brothers & Co
1962	Address Not Listed in Research Source	Pacific Telephone
1963	Address Not Listed in Research Source	Pacific Telephone
1964	Address Not Listed in Research Source	Pacific Telephone
1965	Address Not Listed in Research Source	GTE
1966	Address Not Listed in Research Source	Pacific Telephone
1967	Address Not Listed in Research Source	R. L. Polk & Co.
1969	Address Not Listed in Research Source	Pacific Telephone
1970	Address Not Listed in Research Source	R. L. POLK & CO.
1971	Address Not Listed in Research Source	B&G Publications
1972	Address Not Listed in Research Source	R. L. Polk & Co.
1975	Address Not Listed in Research Source	Pacific Telephone
1976	Address Not Listed in Research Source	R.L. Polk & co Publishers
1980	Address Not Listed in Research Source	Pacific Telephone
1981	Address Not Listed in Research Source	Pacific Telephone
1985	Address Not Listed in Research Source	Pacific Bell
1986	Address Not Listed in Research Source	Pacific Bell
1990	Address Not Listed in Research Source	Pacific Bell
1991	Address Not Listed in Research Source	Pacific Bell
1995	Address Not Listed in Research Source	Pacific Bell Telephone

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1996	Address Not Listed in Research Source	GTE
1999	Address Not Listed in Research Source	Haines Company
2000	Address Not Listed in Research Source	Pacific Bell Telephone
2001	Address Not Listed in Research Source	Haines & Company, Inc.
2003	Address Not Listed in Research Source	Haines & Company
2004	Address Not Listed in Research Source	Haines Company
2006	Address Not Listed in Research Source	Haines Company

## Adjoining Properties

### SURROUNDING

Multiple Addresses  
Sylmar, CA 91342

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1920	Address Not Listed in Research Source	Los Angeles Directory Co.
1921	Address Not Listed in Research Source	Los Angeles Directory Co.
1923	Address Not Listed in Research Source	Los Angeles Directory Co.
1924	Address Not Listed in Research Source	Los Angeles Directory Co.
1925	Address Not Listed in Research Source	Los Angeles Directory Co.
1926	Address Not Listed in Research Source	Los Angeles Directory Co.
1927	Address Not Listed in Research Source	Kaasen Directory Company Publishers
1928	Address Not Listed in Research Source	Los Angeles Directory Co.
1929	Address Not Listed in Research Source	Los Angeles Directory Co.
1930	Address Not Listed in Research Source	Los Angeles Directory Co.

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1931	Address Not Listed in Research Source	Los Angeles Directory Company Publishers
1932	Address Not Listed in Research Source	Los Angeles Directory Co.
1933	Address Not Listed in Research Source	Los Angeles Directory Co.
1934	Address Not Listed in Research Source	Los Angeles Directory Co.
1935	Address Not Listed in Research Source	Los Angeles Directory Co.
1936	Address Not Listed in Research Source	Los Angeles Directory Co.
1937	Address Not Listed in Research Source	Los Angeles Directory Co.
1938	Address Not Listed in Research Source	Los Angeles Directory Company Publishers
1939	Address Not Listed in Research Source	Los Angeles Directory Co.
1940	Address Not Listed in Research Source	Los Angeles Directory Co.
1942	Address Not Listed in Research Source	Los Angeles Directory Co.
1944	Address Not Listed in Research Source	R. L. Polk & Co.
1945	Address Not Listed in Research Source	R. L. Polk & Co.
1946	Address Not Listed in Research Source	Los Angeles Directory Co.
1947	Address Not Listed in Research Source	Pacific Directory Co.
1948	Address Not Listed in Research Source	Los Angeles Directory Co.
1949	Address Not Listed in Research Source	Los Angeles Directory Co.
1950	Address Not Listed in Research Source	Pacific Telephone
1951	Address Not Listed in Research Source	Los Angeles Directory Co Publishers
1952	Address Not Listed in Research Source	Los Angeles Directory Co.



<u>Year</u>	<u>Uses</u>	<u>Source</u>
1954	Address Not Listed in Research Source	R. L. Polk & Co.
1955	Address Not Listed in Research Source	R. L. Polk & Co.
1956	Address Not Listed in Research Source	Pacific Telephone
1957	Address Not Listed in Research Source	Pacific Telephone
1958	Address Not Listed in Research Source	Pacific Telephone
1960	Address Not Listed in Research Source	Pacific Telephone
1961	Address Not Listed in Research Source	Luskey Brothers & Co
1962	<b>**FOOTHILL BLVD**</b> HAY JOHN C (17001)	Pacific Telephone
1963	Address Not Listed in Research Source	Pacific Telephone
1964	Address Not Listed in Research Source	Pacific Telephone
1965	Address Not Listed in Research Source	GTE
1966	Address Not Listed in Research Source	Pacific Telephone
1967	Address Not Listed in Research Source	R. L. Polk & Co.
1969	Address Not Listed in Research Source	Pacific Telephone
1970	Address Not Listed in Research Source	R. L. POLK & CO.
1971	Address Not Listed in Research Source	B&G Publications
1972	Address Not Listed in Research Source	R. L. Polk & Co.
1975	Address Not Listed in Research Source	Pacific Telephone
1976	Address Not Listed in Research Source	R.L. Polk & co Publishers
1980	Address Not Listed in Research Source	Pacific Telephone

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1981	<b><u>**SAN FERNANDO RD**</u></b> CALEX ENGINEERING SYLMER (14980)	Pacific Telephone
1985	<b><u>**SAN FERNANDO RD**</u></b> KOI ENGINEERING (14980) RAMOS G M (15022)	Pacific Bell
1986	<b><u>**SAN FERNANDO RD**</u></b> CALEX ENGINEERING CO SYLMAR (14980) KOI ENGINEERING SYLMAR (14980)	Pacific Bell
1990	Address Not Listed in Research Source	Pacific Bell
1991	<b><u>**SAN FERNANDO RD**</u></b> J A THOMAS INC (14980) PRIME EQUIPMENT RENTALS CORP (14980) PRODUCTION LOADER SERVICE (14980) SAKAIDA & SONS TRUCKING (14980)	Pacific Bell
1995	Address Not Listed in Research Source	Pacific Bell Telephone
1996	Address Not Listed in Research Source	GTE
1999	Address Not Listed in Research Source	Haines Company
2000	Address Not Listed in Research Source	Pacific Bell Telephone
2001	Address Not Listed in Research Source	Haines & Company, Inc.
2003	Address Not Listed in Research Source	Haines & Company
2004	<b><u>**SAN FERNANDO RD**</u></b> SAKAIDA&SONS (14980) TRUCKING (14980) <b><u>**FOOTHILL BLVD**</u></b> GREWALGARY (17001)	Haines Company
2006	Address Not Listed in Research Source	Haines Company

## APPENDIX H

### EDR ENVIRONMENTAL LIEN SEARCH REPORT



## **The EDR Environmental Lien Search Report**

**TERMINAL HILL  
17011 FOOTHILL BOULEVARD  
LOS ANGELES, CALIFORNIA**

**Saturday, November 18, 2006**

**Project Number: L06-8031**

## **The Standard In Environmental Risk Management Information**

**440 Wheelers Farm Road  
Milford, Connecticut 06460**

**Nationwide Customer Service**

**Telephone: 1-800-352-0050  
Fax: 1-800-231-6802**

# ENVIRONMENTAL LIEN REPORT

The EDR Environmental Lien Search Report is intended to assist in the search for environmental liens filed in land title records.

## TARGET PROPERTY INFORMATION

### ADDRESS

TERMINAL HILL  
17011 FOOTHILL BOULEVARD  
LOS ANGELES, CALIFORNIA

## DEED INFORMATION

Type of Deed: WD  QCD  Other  CORPORATION GRANT DEED

Title is vested in: De La Mare Engineering, Inc., a California Corporation

Title received from: Ireco, Incorporated

Deed Dated: 05-18-1993

Deed Recorded: 06-18-1993

Instrument: 93-1162078

## LEGAL DESCRIPTION

Description: All that certain piece or parcel of land being a portion of the Rancho Ex-Mission de San Fernando, lying and situate in the City of Los Angeles, County of Los Angeles, and State of California

Assessor's Parcel Number: 2603-003-005

## ENVIRONMENTAL LIEN

Environmental Lien: Found  Not Found

1<sup>st</sup> Party:

2<sup>nd</sup> Party:

Recorded:

Book:

Page:

## OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found  Not Found

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

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## **Traffic Impact Assessment Memorandum**







**DRAFT**

**MEMORANDUM**

**TO:** Marisa Grivas, EDAW, Inc.

**FROM:** Netai Basu and Jonathan Tio

**DATE:** August 19, 2008

**SUBJECT:** Traffic Impact Assessment of the LADWP Terminal Hill Tunnel and Shaft Project **Ref:** 2078

---

This memorandum summarizes the methods and results of a traffic analysis conducted by Fehr & Peers for the environmental documentation of the proposed construction by the Los Angeles Department of Water and Power (LADWP) of the Terminal Hill Tunnel and Shaft project in Sylmar, California at the southern end of the Second Los Angeles Aqueduct.

**PROJECT DESCRIPTION**

The project site is north of Interstate 5, (I-5 or Golden State Freeway), between its intersection with Interstate 210 (I-210 or Foothill Freeway) and State Route 14 (SR 14 or Antelope Valley Freeway) in the community of Sylmar in the northwestern portion of the City of Los Angeles. The site is bounded by Foothill Boulevard to the south and west, Magazine Canyon to the north, and the Cascades Golf Course to the east. The proposed project involves the relocation of the existing surface pipeline of the Second Los Angeles Aqueduct (SLAA) over Terminal Hill into a tunnel through the hill.

The proposed project would construct approximately 870 feet of 76-inch diameter pipeline through Terminal Hill. The horizontal portion of the tunnel would originate on the north side of Terminal Hill, approximately 40 feet west of the existing pipeline's crossing of the hill and run in a southerly direction approximately 580 feet into the hill. A vertical tunnel shaft would also be constructed, beginning near the existing tower at the top of Terminal Hill. If approved, construction of the proposed project is anticipated to commence in early 2009 and is expected to last approximately 18 months.

The project would require construction crews to work two 10-hour shifts per 24-hour period. Excavated material (muck) generated during construction would be stored at locations illustrated in Figure 2 on the northern and on the southern portions of the site. This

To: Ms. Marisa Grivas  
August 19, 2008  
Page 2

memorandum analyzes potential temporary construction-related project traffic impacts at one intersection and on three roadway segments. Because of the nature of the project, no analysis of the operational impact of the project was conducted.

## **PROJECT TRIP GENERATION ANALYSIS**

Analyses were performed to estimate the maximum trip generation estimates that would occur during construction. Off-site trips would be generated by employee commute trips, heavy vehicle trips to haul muck to the temporary stockpile location in the southern area of the project site, and by daily dump truck and concrete truck trips. This analysis is conservative in that it assumes employee commute, dump truck hauling and daily heavy vehicle trips occur simultaneously during the morning and evening peak commute hours. This analysis assumes that the a.m. peak period occurs between 7:00 and 9:00 a.m. and the p.m. peak period occurs between 4:00 and 6:00 p.m. Table 1 presents a list of anticipated types of equipment or vehicles with their operating locations and type of trips that would be made during the construction period. Table 2 presents the project trip generation estimates.

Because no information is available on the planned hours of construction and worker shift changes, these estimates conservatively assume that half of the estimated 30 construction employees would arrive during the a.m. peak hour for the morning shift. Since employee work shifts are anticipated to be 10 hours, the morning crew would depart during the evening peak hour as the evening crew is arriving for their shift. This analysis assumes an average vehicle ridership (AVR) of 1.2 for construction workers.

An estimated total of 6,500 cubic yards of muck would be generated by the tunnel excavations. Assuming a dump truck capacity of 12 cubic yards, it would take approximately 542 truckloads to haul all of the muck to the temporary stockpile locations.

In total, the construction project would involve the use of four dump trucks to haul muck from the excavation sites to the temporary stockpile locations. Excavated material from the portal at Magazine Canyon, illustrated in Figure 2, would be temporarily stored in several locations at the north end of the site. Truck trips from this location would occur entirely within the project site. Excavated material from the top of Terminal Hill would be temporarily stored at a location on the southeast end of the project area near the access gate on Balboa Boulevard. Trucks hauling muck to this stockpile location would be required to use the internal road from the top of Terminal Hill to Silver Oaks Drive. The dump trucks would then turn right on Balboa Boulevard and continuing on Balboa Boulevard until making a right into the access gate near the intersection of Foothill Boulevard. The haul routes are illustrated in Figure 2. This analysis assumes that approximately half of the truckloads would need to travel off-site to haul the muck to one of the temporary stockpile locations.

## **EXISTING AND PROJECTED INTERSECTION LEVEL OF SERVICE**

To evaluate the potential impact of construction activity on the surrounding street system, a.m. and p.m. manual turning movement counts were conducted on Wednesday, November 15,

To: Ms. Marisa Grivas  
August 19, 2008  
Page 3

2006 at Foothill Boulevard and Balboa Boulevard. Attachment A to this memo contains the detailed traffic count data. The analyzed intersection is illustrated in Figure 1.

Level of service (LOS) is a qualitative measure used to describe the traffic flow conditions, ranging from excellent (LOS A) to overloaded (LOS F) conditions. There are a variety of methodologies to analyze LOS. According to *Traffic Study Policies and Procedures* (LADOT, March 2002), this study is required to use the "Critical Movement Analysis – Planning" (Transportation Research Board, 1980) method of intersection capacity calculation to analyze signalized intersections. The Critical Movement Analysis (CMA) methodology determines the intersection volume-to-capacity (V/C) ratio. The ratio is then used to find the corresponding LOS based on the definitions in Table 3.

Table 4 summarizes the existing weekday a.m. and p.m. peak hour V/C ratio and corresponding LOS at the analyzed intersection. Attachment B contains the detailed LOS calculations. The results of this analysis indicate that the intersection of Foothill Boulevard & Balboa Boulevard is currently operating at LOS E during the morning peak period and LOS D during the afternoon peak period.

Future year (2010) cumulative traffic volumes were estimated by increasing the existing volumes by 2% per year (8% total) to reflect ambient traffic growth and by estimating future traffic generated by the adjacent residential and golf course project, KB Homes (Legends at Cascades). That project, now under construction, consists of 700 condominium units and an 18-hole golf course. As presented in Table 5, the adjacent project is estimated to generate 4,745 daily trips, including 348 in the a.m. peak hour and 413 in the p.m. peak hour. This estimated traffic was assigned to the surrounding street system. Under cumulative base (2010) conditions, this intersection is projected to operate at LOS F during the morning peak period and LOS E during the afternoon peak period.

## **CONSTRUCTION PERIOD IMPACT ANALYSIS**

The City of Los Angeles Department of Transportation (LADOT) considers construction-related traffic effects as adverse, but not significant, impacts because such effects, while sometimes inconvenient, are only temporary. Because of this, construction-related traffic effects are discussed but would not be considered significant. Additionally, LADOT requires implementation of Worksite Traffic Control Plans to ensure that any construction-related effects are minimized to the greatest extent possible.

As described in Table 2, during the most intense two months of the 18-month construction period, the project is estimated to generate a maximum of 142 trips per day. According to the most conservative assumptions, it is estimated that 37 trips would occur in the a.m. peak hour (33 inbound and four outbound) and 50 trips in the p.m. peak hour (17 inbound and 33 outbound). Estimated trips generated by the construction project were distributed according to the following geographic pattern and are illustrated in Figure 1:

- 15% to/from the north
- 50% to/from the south

To: Ms. Marisa Grivas  
 August 19, 2008  
 Page 4

- 15% to/from the east
- 20% to/from the west

LADOT has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection. According to the LADOT criteria, a project impact would be considered significant if the following conditions were met:

Intersection Condition With Project Traffic		Project-Related Increase in V/C Ratio
LOS	V/C Ratio	
C	0.71 - 0.80	Equal to or greater than 0.04
D	0.81 - 0.90	Equal to or greater than 0.02
E, F	> 0.91	Equal to or greater than 0.01

<u>Projected Average Daily Traffic with Project (Final ADT)</u>	<u>Project-Related Increase in ADT</u>
Less than 1,000	20 trips or more
1,000 or more	12 percent or more of final ADT
2,000 or more	10 percent or more of final ADT
3,000 or more	8 percent or more of final ADT

As shown in Table 4, the project could result in a 0.018 increase in the V/C ratio during the p.m. peak hour. Therefore, the temporary construction impacts of the project could result in an adverse impact at the analyzed intersection during the p.m. peak hour but not during the a.m. peak hour.

An analysis of the proposed project's potential temporary impacts on three adjacent street segments in the project vicinity was conducted as well. Existing weekday average daily traffic (ADT) volume data were collected at these locations on Wednesday, November 15, 2006. The daily traffic counts are provided in Attachment A.

New incremental daily project-generated trips were assigned to the street network using the same geographic distribution pattern illustrated in Figure 1. Existing and projected daily street segment traffic volumes are presented in Table 6.

An 8% ambient growth factor and cumulative project traffic were added to the existing base daily volumes to develop year 2010 cumulative base projections. Approximately 140 net new daily project trips were assigned to the street network based on the project trip distribution pattern previously discussed and were added to the cumulative base projections to obtain cumulative plus project projections.

Daily traffic volumes for both the existing and projected future conditions are summarized in Table 6. As shown, the proposed project would add 1% or less to the projected traffic volumes

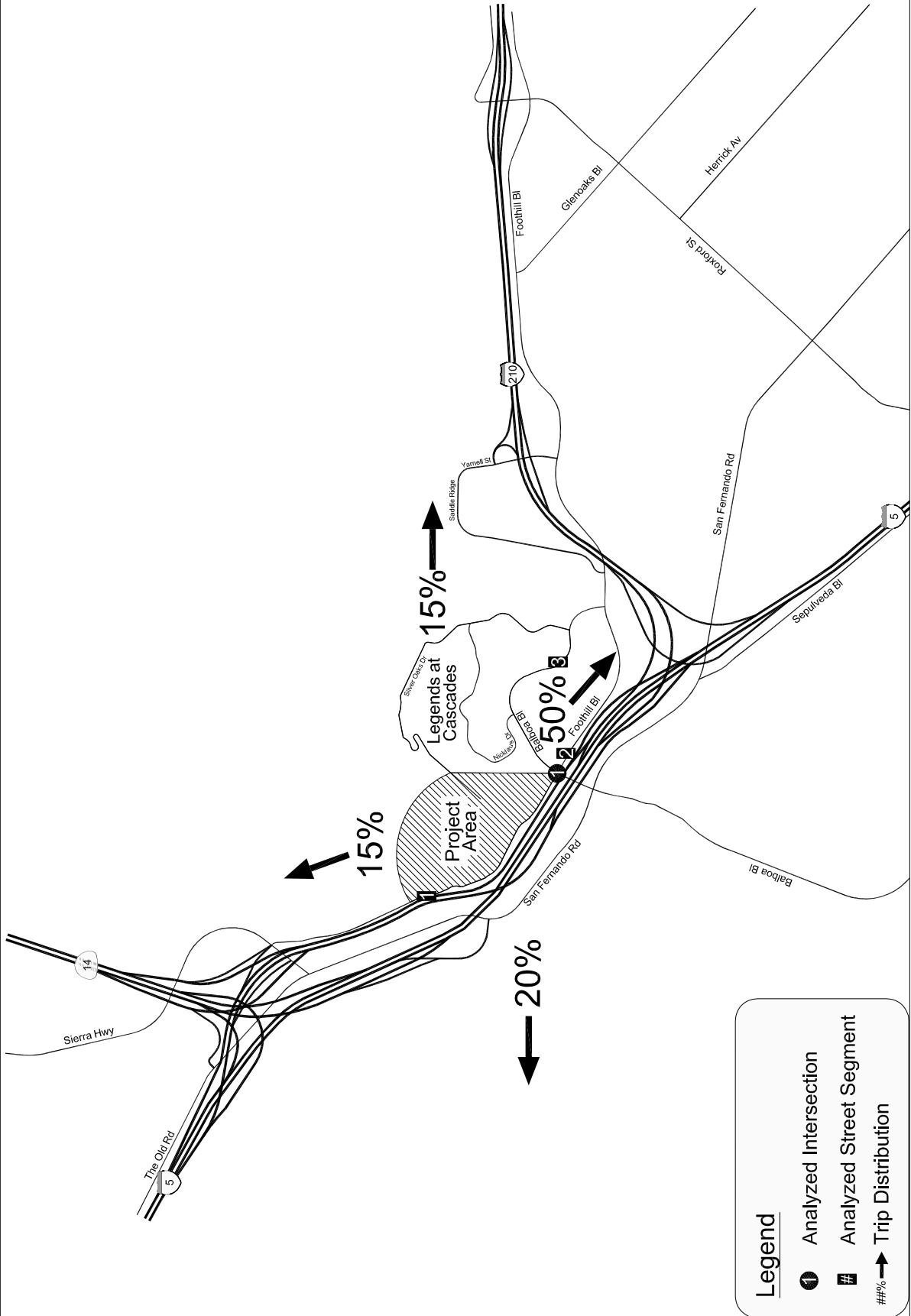
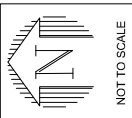
To: Ms. Marisa Grivas  
August 19, 2008  
Page 5

on the three analyzed street segments. This modest temporary increase could readily be accommodated and no adverse impact would occur.

## **RECOMMENDATIONS**

Under typical conditions, no significant or adverse traffic impacts would result from construction of the project as proposed for nearly the entire 18-month duration. Under peak conditions projected to occur over a two-month period, however, the proposed project may result in a temporary adverse traffic impact at the intersection of Balboa Boulevard & Foothill Boulevard during the p.m. peak hour. While this potentially adverse traffic impact would not be considered significant, the following measures are recommended to reduce the potential for adverse impacts:

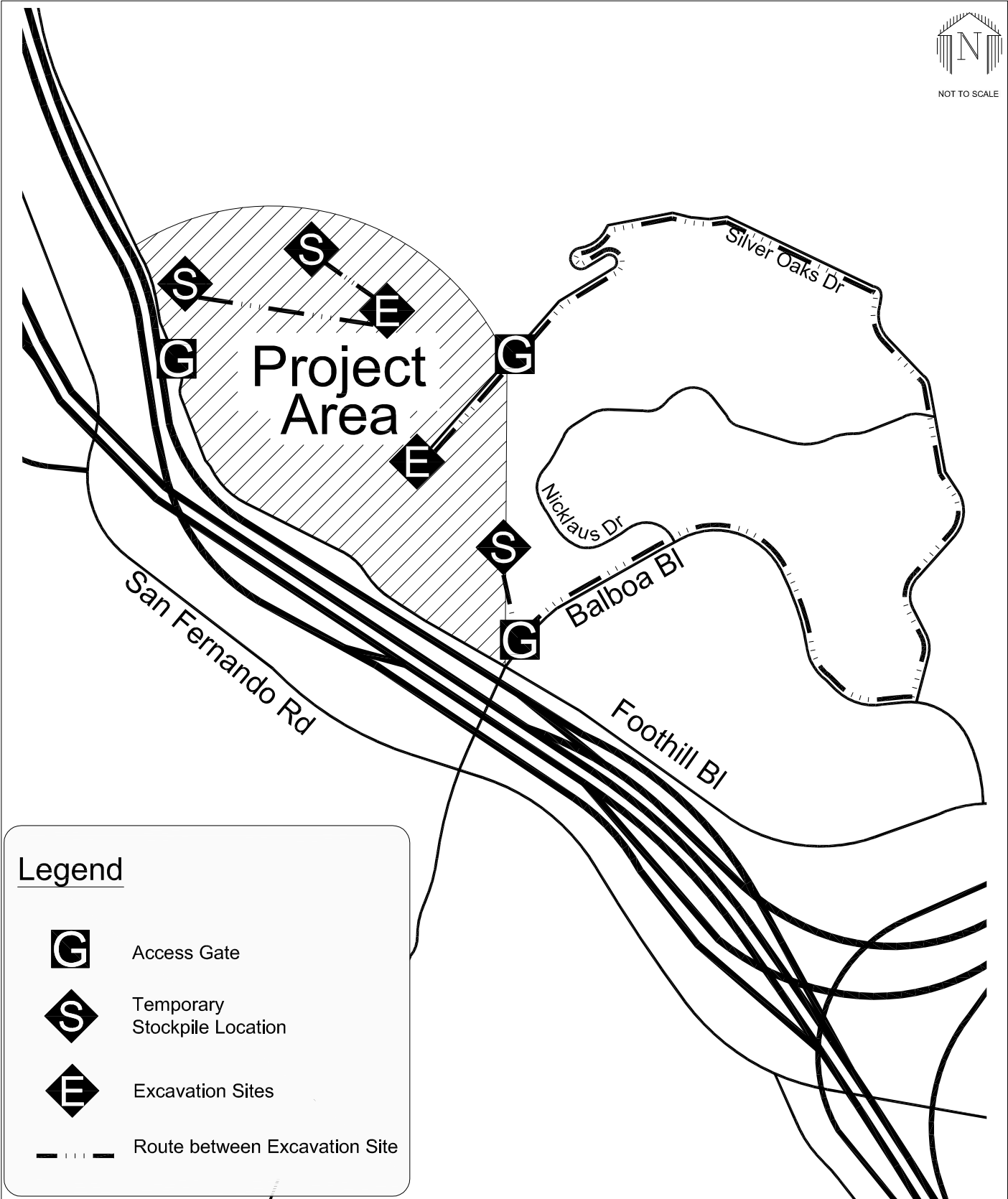
- Prepare a construction traffic management plan prior to the start of any construction work. This plan should include such elements as the designation of haul routes for heavy vehicles and the location of access to the construction site for both employees and construction vehicles.
- To the extent feasible, schedule work shifts and limit the movement of heavy trucks (concrete and dump trucks) to avoid the a.m. and p.m. peak periods.







**STUDY AREA, ANALYZED INTERSECTIONS AND TRIP DISTRIBUTION**  
**FIGURE 1**



NOT TO SCALE



**Legend**

-  Access Gate
-  Temporary Stockpile Location
-  Excavation Sites
-  Route between Excavation Site



**FEHR & PEERS**  
TRANSPORTATION CONSULTANTS

**TEMPORARY STOCKPILE LOCATIONS AND HAUL ROUTES**

**FIGURE 2**

**TABLE 1  
ESTIMATES OF CONSTRUCTION-PERIOD EQUIPMENT AND STAFF**

<b>Approx. Quantity</b>	<b>Type of Equipment/Vehicle</b>	<b>Location of On-Site Construction Activity</b>	<b>Generates Off-Site Trips</b>
2	Wheel Loaders (CAT 966)	Portal (Magazine Canyon/Portal)	
1	1200 cfm Compressor	Portal (Magazine Canyon/Portal)	
1	Ventilation Fan (100 hp)	Portal (Magazine Canyon/Portal)	
1	Bobcat	Portal (Magazine Canyon/Portal)	
2	Concrete Trucks	Portal (Magazine Canyon/Portal)	
1	Roadheader (Tunnel Excavation Machine)	Portal (Magazine Canyon/Portal)	
1	Conveyor System	Portal (Magazine Canyon/Portal)	
2	Dump Trucks/Trailers	Portal (Magazine Canyon/Portal)	Yes
1	Pipe Carrier	Portal (Magazine Canyon/Portal)	
1	Crawler Crane (American 9260)	Top of Terminal Hill	
1	Truck Mounted Crane for Man Cage (Grove RT525)	Top of Terminal Hill	
1	Ventilation Fan (100 hp)	Top of Terminal Hill	
1	Wheel Loader (CAT 966)	Top of Terminal Hill	
2	Dump Trucks/Trailers	Top of Terminal Hill	Yes
4	Concrete Trucks	Top of Terminal Hill	Yes
15	Construction Workers	Top of Terminal Hill	Yes
15	Construction Workers	Portal (Magazine Canyon/Portal)	Yes
		Top of Terminal Hill	Yes

Source: EDAW, Inc.



**TABLE 2  
PROJECT TRIP GENERATION ESTIMATES**

Project Component	AVR or PCE [a]	Daily Project Trips	Project Trips					
			A.M. Peak Hour		Total	P.M. Peak Hour		Total
			In	Out		In	Out	
Employee Commute Trips [b]	1.2	50	13	0	13	13	13	26
Dump Trucks - Hauling [c]	2.0	52	0	4	4	4	0	4
Dump Trucks -To and From Site [d]	2.0	16	8	0	8	0	8	8
Concrete Trucks [d]	2.0	24	12	0	12	0	12	12
<b>Total Trips</b>		<b>142</b>	<b>33</b>	<b>4</b>	<b>37</b>	<b>17</b>	<b>33</b>	<b>50</b>

[a] Employee vehicles assumed to have an Average Vehicle Ridership (AVR) of 1.2 passengers to account for carpooling. Heavy equipment vehicles assumed to have a Passenger Car Equivalent (PCE) of 2.0 passenger vehicles to account for the effects of larger vehicle traffic on the quality of traffic flow.

[b] Assumes a total of 30 workers over two ten hour shifts. The A.M. shift would begin between the morning peak period of 6 and 8 A.M. and end in the afternoon peak period between 4 and 6 P.M., at which time the P.M. shift would commence.

[c] Peak hour dump truck/trailer trip estimated based on the following formula:  

$$(542 \text{ truck loads} * 2 \text{ trips per load} * \text{PCE}) / (2 \text{ months} * 21 \text{ workdays})$$

The estimates were then split between dump trucks at the top of Terminal Hill and those located at the Magazine Canyon Portal as only dump trucks at the top of Terminal Hill will generate off-site trips.

Analysis also assumes that approximately two dump trucks (or 4.0 PCE) make off-site hauling trips during the peak hour in which other dump trucks arrive.

[d] Assumes that each equipment vehicle generates two trips per day, one to the site during the A.M. peak hour and one from the site during the P.M. peak hour.

**TABLE 3**  
**LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS**

Level of Service	Volume/ Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	>0.600 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat what restricted within groups of vehicles.
C	>0.700 - 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	>0.800 - 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	>0.900 - 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths

Source: Transportation Research Board, *Interim Materials on Highway Capacity*, Transportation Research Circular No. 212, January 1980.

**TABLE 4  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

<b>Foothill Boulevard and Balboa Boulevard</b>	<b>Peak Hour</b>	<b>V/C or Delay</b>	<b>LOS</b>	<b>Project Increase in V/C</b>	<b>Adverse Impact?</b>
Existing Conditions (2008)	a.m.	0.961	E		
	p.m.	0.841	D		
Cumulative Base Conditions (2010)	a.m.	1.047	F		
	p.m.	0.937	E		
Cumulative plus Project Conditions (2010)	a.m.	1.055	F	0.008	No
	p.m.	0.955	E	0.018	<b>Yes</b>

**TABLE 5  
RELATED PROJECT TRIP GENERATION ESTIMATES**

Land Use	Size	Trip Generation Rates [a]						Estimated Trip Generation														
		ITE Code	Daily Rate	A.M. Peak Hour		P.M. Peak Hour		Daily Trips	A.M. Peak Hour		P.M. Peak Hour											
				Rate	% In	% Out	Rate		% In	% Out	In	Out	In	Out	Total							
<b>Legends at Cascades [b]</b>																						
Condominiums/Townhouses	700 du	230	5.86	0.44	17%	83%	0.52	67%	33%	4,102	52	256	308	244	120	364						
Golf Course	18 holes	430	35.74	2.22	79%	21%	2.74	44%	56%	643	32	8	40	22	27	49						
		<b>Totals</b>								<b>4,745</b>	<b>84</b>	<b>264</b>	<b>348</b>	<b>266</b>	<b>147</b>	<b>413</b>						

Notes:

[a] Source: *Trip Generation, 7th Edition*, Institute of Transportation Engineers (ITE), 2003.

[b] Current estimates based on conversations with KB Homes Sales Associates

**TABLE 6  
ESTIMATED STREET IMPACT ANALYSIS**

Street Segment	Weekday Two-Way Daily Volume					
	Existing Base	Cumulative Base	Project Only	Cumulative plus Project	Project %	Adverse Impact?
Foothill Boulevard north of Balboa Boulevard	10,911	12,496	15	12,511	0%	No
Foothill Boulevard south of Balboa Boulevard	7,482	10,691	110	10,801	1%	No
Balboa Boulevard west of Silver Oaks Drive	1,471	3,487	16	3,503	0%	No

**ATTACHMENT A**  
**TRAFFIC COUNT DATA**

Groups Printed- Turning Movement

Start Time	FOOTHILL BLVD. Southbound				BALBOA BLVD. Westbound				FOOTHILL BLVD. Northbound				BALBOA BLVD. Eastbound				Int. Total
	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	248	106	12	366	2	7	2	11	1	2	46	49	41	13	18	72	498
07:15 AM	242	85	5	332	1	32	0	33	0	4	65	69	61	14	25	100	534
07:30 AM	197	96	10	303	3	59	0	62	2	7	67	76	89	8	27	124	565
07:45 AM	225	106	4	335	2	20	0	22	1	7	38	46	112	12	41	165	568
Total	912	393	31	1336	8	118	2	128	4	20	216	240	303	47	111	461	2165
08:00 AM	202	64	3	269	4	5	0	9	1	5	30	36	83	19	32	134	448
08:15 AM	176	66	6	248	4	4	1	9	0	7	32	39	76	6	26	108	404
08:30 AM	111	42	6	159	3	2	0	5	1	4	34	39	49	6	22	77	280
08:45 AM	67	35	1	103	1	2	3	6	0	7	18	25	44	6	20	70	204
Total	556	207	16	779	12	13	4	29	2	23	114	139	252	37	100	389	1336
09:00 AM	51	28	3	82	1	4	3	8	0	6	25	31	41	14	17	72	193
09:15 AM	42	25	1	68	6	7	5	18	0	6	24	30	32	8	22	62	178
09:30 AM	38	19	0	57	2	4	1	7	0	6	16	22	23	1	24	48	134
09:45 AM	20	14	1	35	1	6	5	12	0	5	17	22	26	12	33	71	140
Total	151	86	5	242	10	21	14	45	0	23	82	105	122	35	96	253	645

\*\*\* BREAK \*\*\*

03:00 PM	7	14	0	21	12	11	2	25	1	9	23	33	96	7	95	198	277
03:15 PM	9	8	1	18	12	11	2	25	4	19	21	44	62	6	108	176	263
03:30 PM	5	16	0	21	25	26	3	54	6	13	25	44	57	5	109	171	290
03:45 PM	8	21	2	31	19	15	3	37	6	13	28	47	52	8	161	221	336
Total	29	59	3	91	68	63	10	141	17	54	97	168	267	26	473	766	1166
04:00 PM	12	19	1	32	11	16	6	33	5	17	25	47	52	2	199	253	365
04:15 PM	4	8	1	13	11	15	2	28	4	22	26	52	63	9	220	292	385
04:30 PM	8	11	0	19	24	46	7	77	2	18	34	54	72	9	223	304	454
04:45 PM	10	11	0	21	14	25	2	41	10	18	25	53	63	2	227	292	407
Total	34	49	2	85	60	102	17	179	21	75	110	206	250	22	869	1141	1611
05:00 PM	5	16	0	21	17	26	4	47	4	27	29	60	73	2	241	316	444
05:15 PM	8	11	0	19	16	24	0	40	9	19	26	54	62	7	244	313	426
05:30 PM	5	12	1	18	14	18	3	35	0	18	18	36	79	8	257	344	433
05:45 PM	7	2	0	9	4	18	0	22	7	13	23	43	73	8	250	331	405
Total	25	41	1	67	51	86	7	144	20	77	96	193	287	25	992	1304	1708
Grand Total	1707	835	58	2600	209	403	54	666	64	272	715	1051	1481	192	2641	4314	8631
Apprch %	65.7	32.1	2.2		31.4	60.5	8.1		6.1	25.9	68.0		34.3	4.5	61.2		
Total %	19.8	9.7	0.7	30.1	2.4	4.7	0.6	7.7	0.7	3.2	8.3	12.2	17.2	2.2	30.6	50.0	

Start Time	FOOTHILL BLVD. Southbound				BALBOA BLVD. Westbound				FOOTHILL BLVD. Northbound				BALBOA BLVD. Eastbound				Int. Total
	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	

Peak Hour From 07:00 AM to 09:45 AM - Peak 1 of 1

Intersection	07:00 AM																
Volume	912	393	31	1336	8	118	2	128	4	20	216	240	303	47	111	461	2165
Percent	68.3	29.4	2.3		6.3	92.2	1.6		1.7	8.3	90.0		65.7	10.2	24.1		
07:45 Volume Peak Factor	225	106	4	335	2	20	0	22	1	7	38	46	112	12	41	165	568
High Int. Peak Factor	0.913				0.516				0.789				0.698				
	07:00 AM				07:30 AM				07:30 AM				07:45 AM				
Volume	248	106	12	366	3	59	0	62	2	7	67	76	112	12	41	165	

<< ACCUTEK >>  
 << 21114 TRIGGER LANE >>  
 << DIAMOND BAR, CA 91765 >>  
 << (909) 595-6199 FAX: (909) 595-6022 >

File Name : 360601  
 Site Code : 00360601  
 Start Date : 11/15/2006  
 Page No : 2

Start Time	FOOTHILL BLVD. Southbound				BALBOA BLVD. Westbound				FOOTHILL BLVD. Northbound				BALBOA BLVD. Eastbound				Int. Total
	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	Rig ht	Thru	Lef t	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	31	49	0	80	71	121	13	205	25	82	114	221	270	20	935	1225	1731
Percent	38.8	61.3	0.0		34.6	59.0	6.3		11.3	37.1	51.6		22.0	1.6	76.3		
04:30 Volume Peak Factor	8	11	0	19	24	46	7	77	2	18	34	54	72	9	223	304	454
	0.953																
High Int. Volume Peak Factor	04:45 PM				04:30 PM				05:00 PM				05:00 PM				
	10	11	0	21	24	46	7	77	4	27	29	60	73	2	241	316	
	0.952				0.666				0.921				0.969				



**ATTACHMENT B**  
**LEVEL OF SERVICE WORKSHEETS**



# CMACalc - Critical Movement Analysis Calculator



Bureau of Planning and Land Use Development

Intersection No. 1 North/South Street: <b>Foothill Blvd.</b> East/West Street: <b>Balboa Blvd.</b> Analysis Date: 08/14/2008 AM Peak: 7:00 AM	2006, EXISTING			2010, PROJECTED CUMULATIVE BASE			2010, WITH PROJECT			2010, WITH TRAFFIC MITIGATION								
	Volume	Lanes	Lane Volume	Ambient Growth from: 2006 to: 2010 at: 2.0%	+ Area Projects	+ Amb. Growth	Volume	Lanes	Lane Volume	Adjacent Trip Gen 1 AM PM Gen 2 AM PM	In	Out	Total	Adjusted Volume	Total Volume	Lanes	Lane Volume	
Left	216	0	236	18	0	234	0	0	0	0	234	1	263	0	234	0	263	
Lt-Thru	0	0	0	2	0	22	0	0	0	0	30	0	0	0	30	0	0	
Th-Rt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Right	4	1	4	0	40	44	1	44	8	8	52	1	52	0	52	1	52	
Shared	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Left	31	0	424	3	10	44	0	0	3	3	47	1	473	0	47	1	473	
Lt-Thru	0	0	0	32	0	425	0	0	1	1	426	0	0	0	426	0	0	
Th-Rt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Right	912	1	829	75	0	987	1	897	1	1	988	1	896	0	988	1	896	
Shared	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Left	111	1	111	9	0	120	1	120	3	3	123	1	123	0	123	1	123	
Lt-Thru	0	0	0	4	13	64	0	0	4	4	68	0	0	0	68	0	0	
Th-Rt	0	0	350	0	0	0	0	392	0	0	0	0	0	0	0	0	396	
Right	303	0	0	25	0	328	0	0	0	0	328	0	0	0	328	0	0	
Shared	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Left	2	1	2	0	30	32	1	32	0	0	32	1	32	0	32	1	32	
Lt-Thru	0	0	0	10	150	3	1	3	1	1	4	0	0	0	4	1	4	
Thru	118	1	118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Th-Rt	0	0	0	1	20	29	1	7	1	1	30	1	7	0	30	1	7	
Right	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Shared	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Critical Volumes:	North-South: 1065	East-West: 352	Total: 1417	North-South: 1153	East-West: 424	Total: 1577	North-South: 1160	East-West: 428	Total: 1588	North-South: 1160	East-West: 428	Total: 1588	North-South: 1160	East-West: 428	Total: 1588	North-South: 1160	East-West: 428	Total: 1588
Volume/capacity (v/c) ratio:	1.031	0.961		1.147	1.047		1.155	1.055		1.155	1.055		1.155	1.055		1.155	1.055	
v/c less ATSAC adjustment:																		
Level of Service (LOS):	<b>E</b>			<b>F</b>			<b>F</b>			<b>F</b>			<b>F</b>			<b>F</b>		<b>F</b>

Change in v/c due to project: **0.008** Δv/c after mitigation: **0.008**  
 Adversely impacted? **NO** Fully mitigated? **N/A**

PROJECT IMPACT  
 C:\Documents and Settings\basu\Local Settings\Temporary Internet Files\CLK\CMACalc-3.xls  
 Developed 2005-2007 by Ken Altichison



# CMACalc - Critical Movement Analysis Calculator



Bureau of Planning and Land Use Development

Intersection No. 1 North/South Street: <b>Foothill Blvd.</b> East/West Street: <b>Balboa Blvd.</b> Analysis Date: 08/14/2008 PM Peak: 4:30 PM	2006, EXISTING				2010, PROJECTED CUMULATIVE BASE				2010, WITH PROJECT				2010, WITH TRAFFIC MITIGATION																					
	Volume	Lanes	Lane Volume	Lane	Ambient Growth from: 2006 to: 2010 at: 2.0%	+ Area Projects	+ Total Volume	Lanes	Volume	Lane	Volume	Lanes	Volume	Lane	Volume	Lanes	Volume																	
Left	114	0	0	0	9	123	0	0	0	0	0	0	0	0	0	0	0																	
Lt-Thru	1	1	196	212	0	0	0	0	0	0	0	0	0	0	0	0	0																	
Thru	82	0	0	89	7	0	0	0	0	0	0	0	0	0	0	0	0																	
Th-Rt	25	1	25	160	2	133	0	0	0	0	0	0	0	0	0	0	0																	
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																	
Shared	0	1	49	73	0	20	0	0	0	0	0	0	0	0	0	0	0																	
Left	49	0	0	53	4	0	0	0	0	0	0	0	0	0	0	0	0																	
Lt-Thru	31	1	0	34	3	0	0	0	0	0	0	0	0	0	0	0	0																	
Th-Rt	935	1	935	1012	77	1012	1	1012	1	1014	0	0	0	0	0	0	0																	
Right	20	0	0	59	2	37	0	0	0	0	0	0	0	0	0	0	0																	
Shared	270	0	0	292	22	0	0	0	0	0	0	0	0	0	0	0	0																	
Left	13	1	13	44	1	30	1	44	1	47	0	0	0	0	0	0	0																	
Lt-Thru	121	1	121	181	10	50	1	181	1	193	0	0	0	0	0	0	0																	
Thru	71	1	71	87	6	10	1	87	1	90	0	0	0	0	0	0	0																	
Th-Rt	196	1	196	233	0	0	0	233	0	243	0	0	0	0	0	0	0																	
Right	1056	1	1056	1193	0	0	0	1193	0	1207	0	0	0	0	0	0	0																	
Shared	1252	0	0	1426	0	0	0	1426	0	1450	0	0	0	0	0	0	0																	
Critical Volumes:	0.911	0	0	1.037	0	0	0	1.037	0	1.055	0	0	0	0	0	0	0																	
Volume/capacity (v/c) ratio:	0.841	0	0	0.937	0	0	0	0.937	0	0.955	0	0	0	0	0	0	0																	
v/c less ATSAC adjustment:																																		
Level of Service (LOS):	<b>D</b>			<b>E</b>				<b>E</b>		<b>E</b>				<b>E</b>				<b>E</b>																
<table border="0" style="width:100%"> <tr> <td style="width:33%">North-South: 196</td> <td style="width:33%">North-South: 233</td> <td style="width:33%">North-South: 243</td> </tr> <tr> <td>East-West: 1056</td> <td>East-West: 1193</td> <td>East-West: 1207</td> </tr> <tr> <td>Total: 1252</td> <td>Total: 1426</td> <td>Total: 1450</td> </tr> <tr> <td>0.911</td> <td>1.037</td> <td>1.055</td> </tr> <tr> <td>0.841</td> <td>0.937</td> <td>0.955</td> </tr> </table>																	North-South: 196	North-South: 233	North-South: 243	East-West: 1056	East-West: 1193	East-West: 1207	Total: 1252	Total: 1426	Total: 1450	0.911	1.037	1.055	0.841	0.937	0.955			
North-South: 196	North-South: 233	North-South: 243																																
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Change in v/c due to project:	PROJECT IMPACT	IMPACT																																
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Filename: C:\Documents and Settings\basu\Local Settings\Temporary Internet Files\CLK\CMACalc-3.xls  
Developed 2005-2007 by Ken Altichison

