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## 5.5 CULTURAL/PALEONTOLOGICAL RESOURCES

### 5.5.1 Cultural Resources

#### 5.5.1.1 Environmental Setting

The general location of the Project areas are the residential section north of the Marina Del Rey Channel and the mixed use area south of the channel in Playa Del Rey.

#### MARINA DEL REY AND VENICE

**Marquesas Way and Via Marina** – contain high-density residential housing on the west side of the streets, a planted median, two traffic lanes running in each direction, and mixed use residential housing and commercial structures on the east side. Ground visibility is intermittent on the west side of the streets constrained by ivy, ornamentals and short sections of sidewalk and curvilinear paths. The median is densely planted with trees and various shrubs. The east side of Via Marina is primarily sidewalk with some grassy areas and open ground.

**Pacific Avenue** – is lined with residential units, including apartments, condominiums and single-family residences. The street is paved with asphalt with very few areas of open ground and hardscape planters.

**Dockweiler Beach** – is open beach with residential units, apartments, condominiums and single-family residences on the east side. Housing meets the sand in some areas with the beach extending some 900 feet west to the Pacific Ocean.

#### WESTCHESTER/PLAYA DEL REY

The combined alternatives south of Marina Del Rey Channel include residential units, park areas, parking areas, sand dunes, commercial structures and eroded bluffs near the southern terminus. The alignment follows Pacific Avenue, which turns northeast near Culver Boulevard and transitions to Vista Del Mar. The beach area alignment is sand, two cement curvilinear paths and sand dunes.

Archaeological records indicate that sedentary populations once occupied the Project area. Numerous artifacts and multiple burials were encountered in the general area. Excavation of a major burial ground (300 people) is ongoing in the area north Lincoln Boulevard, at the site of the Playa Vista housing development. These investigations serve to highlight the sensitivity of the Project areas for archaeological resources, which are described in the technical report provided in Appendix F to this EIR.

Historical records also identify the presence of oil well structures resulting from the Ohio Oil Companies wildcat drilling east of Venice's Grand Canal and throughout the Project area. Playa Del Rey was once the fourth largest oil field in California and home to over 50 oil wells. By the end of 1931, there were 325 active oil wells in the Ballona Lagoon area, highlighting the sensitivity of the Project areas expanding from Playa Del Rey and north of the Venice Project areas. Table 5.5-1 shows a summary of archaeological investigations in the VPP Project area.

Table 5.5-1 Archaeological Investigations Summary

Reference Number	Name of Project	Type of Investigation	Author/Date	Results
L-873	373-375 Fowling Street	Records search and survey	Singer, 1980c	No impact
L-1157	Job No. 1GOL0601	Records search and survey	Dillon, 1982	Negative
L-4868	Sempra Energy Gas	Record search	Shepard, Mason, Lander, 2000	CA-LAN-64, -65, -203, -204, -206
L-4910	LAX	Survey	Raschke, Stadum and Bissell, 1995	19-000202, 19-000214, 19-000691, 19-001118; NR#9200095, 74000522, 86001666
L-5556	Vista Del Mar, Culver Boulevard to Napoleon Street	Historic survey	Tillman, 1977	Nothing historic, mentions an archaeological site
L-5559	AT&T Wireless Services Facility Number R319	Records search and survey	Lapin, 2000a	19-001716, 19-000066
L-5561	Pacific Bell Wireless Facility	Records search and phase I survey	Lapin, 2000b	Negative
L-5563	Request for Determination of Effect, 07-LA-187, P.M. 2.0/3.5	Road construction	U.S. Department of the Interior, National Park Service	19-167308, 19-167310
L-5761	Facility No. Sm 018-01 (appears to be a duplicate)	Records search	Duke, 2001	Negative

Source:

*Historical maps consulted:*

*U.S. Geological Survey Redondo Beach 15' Quadrangle, 1986, no structures.*

*U.S. Geological Survey Redondo Beach 15' Quadrangle, 1944, 3 structures north of Ballona Creek; many structures south of Ballona Creek.*

### 5.5.1.2 Thresholds of Significance

A significant impact on archaeological resources would occur if an activity would permanently destroy, misplace or alter the integrity of the physical site and or the physical findings of the site and area of findings. A significant impact to a historical or prehistoric resource would occur if a project causes a substantial adverse change in the qualities that contribute to the significance of the resource.

### 5.5.1.3 Environmental Impacts

Direct impacts are those that may result from the immediate disturbance of resources, whether from removal of vegetation, demolition of structures, earth-moving activities or excavation. Since the Project will entail surface and subsurface disturbance of the ground, the proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources.

One archaeological site is recorded in the vicinity of the Vista Del Mar alignment area, as shown in the above table. The area has been repeatedly impacted by development. It is possible that if the location retains any integrity, remnants may be present under the pavement of the Vista Del Mar alignment area; however, it is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, no impact is expected.

### 5.5.1.4 Mitigation Measures

The following mitigation measures will reduce impact on cultural resources to a level below significance:

**CR-1** Avoid areas where cultural resources are known to exist.

**CR-2** When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented.

**CR-3** If previously unknown cultural resources are encountered during site clearance and preparation, or during project construction, and they can not be avoided, then contingency measures must be in place to react promptly to protect the resources and ameliorate the impacts to a level of not significant.

**CR-4** Monitor all construction in the vicinity of the CA-LAN-66 site located in Vista Del Mar by an Archaeologist qualified to recognize and assess both prehistoric and historical resources.

**CR-5** A contingency plan should be developed by the City before project construction activities; the plan shall address unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings.

**CR-6** If significant cultural resources are found during Project construction activities, they shall be recovered from the Project site, curated by an archaeologist recommended by the City and offered to an area museum whose collection is available for reviewing by the public.

#### **5.5.1.5 Unavoidable Adverse Impacts**

There are no unavoidable impacts to the cultural resources resulting from this Project with appropriate mitigation in place.

#### **5.5.1.6 Cumulative and Secondary Impacts**

There are no cumulative and/or secondary impacts to the cultural resources resulting from this Project with appropriate mitigation in place.

### **5.5.2 Paleontological Analysis**

#### **5.5.2.1 Environmental Setting**

Paleontologic resources of the Project site include sedimentary or stratigraphic rock units that immediately underlie the surface and have a potential for yielding particular types of fossil remains because they have yielded similar fossil remains at previously recorded fossil sites near the Project site. Fossils, the remains or indications of once-living organisms, are a very important scientific resource because of their use in 1) Documenting the evolution of particular groups of organisms, 2) Reconstructing the environments in which they lived, and 3) Determining the ages of the strata in which they occur and of the geologic events that resulted in the deposition of the sediments constituting these strata.

The Project site lies on the western shelf of the Cenozoic Los Angeles Basin (Wright, 1991), which, in turn, is situated at the northwestern corner of the Peninsular Ranges Province, where major linear geographic features (i.e., mountains, valleys) and the underlying geologic structures (i.e., faults, folds) trend in a northwesterly direction (Jahns, 1954). The western shelf is composed of sedimentary or stratigraphic rock units consisting of late Cenozoic marine and stratigraphically overlying nonmarine strata reflecting the final filling of the basin and its accompanying emergence above sea level.

Regional surficial geologic mapping of the Project site and vicinity is provided by Jennings (1962) at a scale of 1:250,000. Larger-scale (1:31,680) geologic mapping of the area by Poland and others (1959) indicates that the project site is underlain by three Quaternary rock units. In ascending stratigraphic order, these rock units include the Pleistocene marine Palos Verdes Sand and Holocene dune sand, which form the lower portion of the bluff at the southeastern corner of the Project site; and by Holocene coastal deposits, which underlie the remaining flat-lying portion of the Project site.

### 5.5.2.2 Thresholds of Significance

The paleontologic importance (high, moderate, low, none, undetermined) of a rock unit present at the Project site is the measure most amenable to assessing the scientific importance of the paleontologic resources of the Project site because the areal distribution of a rock unit can be delineated on a topographic map. The paleontologic importance of a rock unit reflects 1) its potential paleontologic productivity and 2) the scientific importance of the fossils it has produced locally.

The potential paleontologic productivity (high, moderate, low, none, undetermined) of a rock unit present at the project site is based on the abundance/densities of fossil specimens and/or unrecorded/previously recorded fossil sites in exposures of the unit at and near the Project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities similar to those previously recorded from the unit at and near the Project site, or to contain fossil sites at similar densities. The criteria for establishing the potential paleontologic productivity of a rock unit present at the Project site are described below.

1. High potential: rock unit contains comparatively high density of unrecorded/previously recorded fossil sites and has produced numerous fossil remains at and/or near the Project site, and is very likely to yield additional similar remains at the Project site.
2. Moderate potential: rock unit contains relatively moderate density of unrecorded/previously recorded fossil sites and has produced some fossil remains at and/or near the Project site, and is somewhat likely to yield additional similar remains at the Project site.
3. Low potential: rock unit contains no or comparatively low density of previously recorded fossil sites and has yielded very few or no fossil remains near the Project site, and is not likely to yield any remains at Project site.
4. Undetermined potential: rock unit has limited or no exposure at and/or near the Project site, is poorly studied, contains no previously recorded fossil site, and has produced no fossil remains near the Project site. However, in the Project site region, same or correlative and/or lithologically similar rock unit contains sufficient recorded fossil sites to suggest rock unit at the Project site has at least a moderate potential for containing unrecorded fossil sites (note: elsewhere in California, exposures of rock units with few or no previously recorded fossil sites have recently proven abundantly fossiliferous during surveying, monitoring, or processing of fossiliferous rock samples as part of mitigation programs for other earth-moving projects).
5. No potential: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units with no potential for containing any unrecorded fossil site or yielding any fossil remains.

A fossil specimen is considered scientifically highly important if it is 1) Identifiable, 2) Complete, 3) Well preserved, 4) Age diagnostic, 5) Useful in environmental reconstruction, 6) A type or topotypic specimen,

7) A member of a rare species, 8) A species that is part of a diverse assemblage, and/or 9) A skeletal element different from, or a specimen more complete than those now available for its respective species. Identifiable fossil land mammal remains, for example, are considered scientifically highly important because of their potential use in providing very accurate age determinations and environmental reconstructions for the rock units in which they occur. The geologic age of some fossil mollusk and land mammal and plant remains can be determined by carbon-14 dating analysis. Moreover, land mammal and plant remains are comparatively rare in the fossil record.

Using the definitions presented above, the paleontologic or scientific importance of a rock unit present at the Project site would be assessed using the following criteria.

1. High importance: rock unit has comparatively high potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at the Project site similar to those previously recorded from rock unit at and/or near the Project site.
2. Moderate importance: rock unit has relatively moderate potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at the Project site similar to those previously recorded from rock unit near the Project site.
3. Low importance: rock unit has comparatively low potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at the Project site.
4. Undetermined importance: rock unit for which too few data are available from the Project site and vicinity to allow an accurate assessment of its potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at the Project site.
5. No importance: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units having no potential for containing any unrecorded fossil site or for yielding any fossil remains.

Note, however, that any fossil site containing identifiable fossil remains and the fossil-bearing strata are considered highly important paleontologically, regardless of the paleontologic or scientific importance of the rock unit in which the site and strata occur.

The following tasks were conducted in compliance with SVP (1995) guidelines for assessing the significance of construction-related adverse environmental impacts on paleontologic resources, or the paleontologic sensitivity of a particular rock unit to adverse impacts.

### 5.5.2.3 Environmental Impacts

An inventory of the paleontologic resources of the rock units present at the project site is listed below. The scientific importance of these resources is assessed in the Appendices. Although neither the literature review, the archival search nor the field survey conducted for this inventory documented any previously recorded fossil site as occurring at the project site, a number of previously recorded fossil sites were documented as occurring in areas mapped as being underlain by these rock units near the project site. The fossil remains from some of these fossil sites were uncovered as a result of earth-moving activities associated with other major construction projects.

The occurrence of several previously recorded fossil sites near the Project site suggests that there probably is a high potential for additional similar, scientifically highly important fossil remains at the Project site being encountered by earth-moving activities at unrecorded fossil sites in the Palos Verdes

Sand. Identifiable fossil remains recovered from this rock unit at the Project site would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. Moreover, the recovery of remains representing environmentally sensitive species would be critical in paleo-environmental and habitat reconstruction. The remains would contribute to a more comprehensive documentation of the diversity of animal life that existed at and near the Project site during the Pleistocene Epoch (Figure 5.5-1).

#### **VISTA DEL REY**

**LAX Launch Shaft Location** – Although no previously recorded fossil site is reported as occurring in the dune sand at the Project site, fossilized remains representing an extinct species of elephant might have been recovered from this rock unit at LACM fossil site 3264, which was encountered at a depth of 25 feet below previous grade approximately 2.4 miles east-southeast of the Project site at LAX. However, the fossil site also might have been in the stratigraphically underlying terrace cover, which is mapped with the Palos Verdes Sand and has yielded the fossilized bones and teeth of extinct species of land mammals, including mastodon, mammoth, horse, bison, and rabbit, near the airport at LACM fossil sites 1180, 3789, 4942, and 7332 (Jefferson, 1991b; Miller, 1971). These sites were encountered at depths 13.5 to 16 feet below previous grade. The occurrence of fossilized remains representing an extinct species of Pleistocene bison (*Bison*), which defines the beginning of the Rancholabrean North American Land Mammal Age (Savage, 1951), indicates that the terrace cover is Rancholabrean in age.

**Playa Vista** – Although no previously recorded fossil site is reported as occurring in the coastal deposits at the Project site, fossilized shells of marine mollusks were encountered below the water table at depths of 2 to 31 feet below previous grade in 28 borings from Playa Vista, immediately east of the Project site, and fossilized wood was encountered in one of the borings at a depth nearly 70 feet below previous grade (Converse Consultants, Inc., 1981; Lander, 1990, 2003; LeRoy Crandall and Associates, 1988).

Direct impacts would result mostly from earth-moving activities (primarily trenching and boring for pipeline) in previously undisturbed strata. Although earth-moving activities would be comparatively short term, the possible accompanying loss of some fossil remains, unrecorded fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata is a potentially significant long-term adverse environmental impact.

The Palos Verdes Sand has yielded abundant fossil remains at several previously recorded fossil sites near the Project area. For this reason, adverse environmental impacts on the paleontologic resources of the Palos Verdes Sand that would result from earth-moving activities at the Project site would be considered to be of high paleontologic significance because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.



**EXPLANATION**

<b>Qal</b>	coastal deposits (Holocene at/near surface, Pleistocene at depth; marine)	low sensitivity at/near surface, high sensitivity at depth
<b>Qs</b>	dune sand (Holocene at/near surface, Pleistocene at depth; continental)	low sensitivity at/near surface, undetermined sensitivity at depth
<b>Qpu</b>	Palos Verdes Sand (Pleistocene, marine)	high sensitivity
<b>Qsp</b>	San Pedro Formation (Pleistocene, marine)	(not present at project site)
—	geologic contact	

**PALEONTOLOGICAL RESOURCE SENSITIVITY MAP**

**DOCKWEILER BEACH**

**Dune Sand** – The dune sand possibly has yielded fossil remains at only one previously recorded fossil site near the Project site. For this reason and because this fossil site was encountered at tunnel boring depth, adverse environmental impacts on the paleontologic resources of the dune sand that would result from earth-moving activities at the Project site would be considered to be of undetermined (but probably no more than moderate) paleontologic significance at depth because the potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities is undetermined.

On the other hand, any adverse environmental impact on the paleontologic resources of the dune sand that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the dune sand probably is too young at and near the surface to contain remains old enough to be considered fossilized.

**Coastal Deposits** – The coastal deposits have yielded fossil remains at numerous previously recorded fossil sites near the Project site. For this reason and because these fossil sites were encountered at ??” above depth, adverse environmental impacts on the paleontologic resources of the coastal deposits that would result from earth-moving activities at the Project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

Any adverse environmental impact on the paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

**5.5.24 Operational Impacts**

There would be no impact on paleontologic resources during the operational phase of the Project if there were no earth-moving activity.

**5.5.25 Mitigation Measures**

The following measures comprise a paleontologic resource impact mitigation program that would reduce, to an insignificant level, the direct, indirect, and cumulative adverse environmental impacts on paleontologic resources that might accompany earth-moving activities (primarily trenching and boring for pipeline) associated with Project construction in the selected alignment. The program would allow for the recovery of some scientifically highly important fossil remains, should any be encountered by these activities, as well as associated specimen data and corresponding geologic and geographic site data; their preservation in a recognized museum repository; and their availability for future study by qualified scientific investigators. These specimens and data otherwise might have been lost to the earth-moving activities and unauthorized fossil collecting. Specimen recovery would be allowed under CEQA Appendix G (5.c).

Monitoring would not be required in an area underlain by artificial fill or a rock unit of no paleontologic importance (unless a rock unit of higher importance would be encountered at depth), or one in which a

rock unit would be buried, but not otherwise disturbed. No rock sample would be processed if the rock were too coarse grained or resistant to breaking down in water.

The discovery and subsequent recovery of fossil remains as part of the mitigation program might result in a slight delay of some earth-moving activities. However, the mitigation measures presented below have been designed to eliminate or reduce any delay to the greatest extent possible by 1) Ensuring that a paleontologic construction monitor would be present when and where fossil remains were most likely to be uncovered by earth-moving activities; 2) Allowing for the rapid recovery of fossil remains, should any be encountered by these activities, and associated specimen and site data; and 3) If necessary, diverting the activities temporarily around a newly discovered fossil site until the remains had been removed by the monitor and the activities allowed to proceed through the site. Similar paleontologic resource impact mitigation programs usually have resulted in no delay of earth-moving activities.

All mitigation measures presented below should be directed by a vertebrate paleontologist approved by the City of Los Angeles and LACMVP. The paleontologist should have substantial experience designing and conducting paleontologic resource impact mitigation programs in areas underlain by fossil-bearing strata. The paleontologic monitor and other paleontologic staff working under the direction of the paleontologist should have experience monitoring earth-moving activities, recovering large vertebrate fossil specimens, and recovering and processing large samples of fossiliferous rock or sediment.

The mitigation measures described below would be in compliance with any City of Los Angeles environmental guideline and with SVP (1995, 1996) standard guidelines for mitigating adverse construction-related impacts on paleontologic resources. The paleontologist would ensure implementation of these measures and verify the effectiveness of the measures. The results of the program would be summarized in a final technical report of results and findings submitted to the City of Los Angeles.

**PAL-1** Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program, including monitoring, during earth-moving activities at the project site.

**PAL-2** The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.

**PAL-3** The qualified monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.

**PAL-4** Earth-moving activities will be monitored by the qualified monitor only in those areas of the Project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.

Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to proceed through the site immediately. The location and proper geologic context of any fossil occurrence will be documented, as appropriate. Any recovered rock sample will be processed to allow for the recovery of smaller fossil remains.

Rock samples will be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor. No more than 6,000 pounds (12,000 pounds total) of rock will be processed from either the Palos Verdes Sand or coastal deposits.

**PAL-5** All fossil specimens recovered from the Project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.

**PAL-6** The monitor will maintain daily monitoring logs that include the particular tasks accomplished, the earth-moving activity monitored, the location where monitoring was conducted, the rock unit encountered, fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings will be prepared by the paleontologist in accordance with any City of Los Angeles requirement.

#### **5.5.26 Unavoidable Adverse Impacts**

Development of the Project could lead to the permanent loss of fossil-bearing strata in rock units. The loss of any paleontologic resources could pose potentially significant long-term adverse environmental impacts, however, the Project would not impose adverse environmental impacts with proper mitigation monitoring in areas where excavation and or boring is to occur.

**5.5.27 Cumulative Impacts**

Development of the Project, in combination with other projects in the region where a project site is underlain by the Palos Verdes Sand might lead to the progressive loss of fossil-bearing strata in these rock units that could be prospected for fossil remains and unrecorded fossil sites. The loss of these additional paleontologic resources is another potentially significant long-term adverse environmental impact.