Appendix E
Paleontological Resources Assessment Report

ESA

11111 JEFFERSON BOULEVARD MIXED-USE PROJECT, CULVER CITY, CALIFORNIA

Paleontological Resources Assessment Report

Prepared for
Jefferson Park LLC
151 North Franklin, Suite 300
Chicago, IL 60606

October 2020

ESA

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Paleontological Resources Assessment Report

October 2020

Prepared for:
Jefferson Park LLC
151 North Franklin, Suite 300
Chicago, IL 60606

Prepared by:
ESA
2121 Alton Parkway, Suite 100
Irvine, CA 92606
949-753-7001

Principal Investigator:
Joe D. Stewart, Ph.D.

Project Director:
Monica Strauss, M.A., RPA

Project Manager:
Kyle Garcia, M.A., RPA

Project Location:
Venice (CA) USGS 7.5-minute Topographic Quad
Township 2 South, Range 15 West, Un-sectioned

Acreage: 3.43 acres

Assessor Parcel Numbers: 4215-001-010, 4215-001-013, 4215-001-016, and 4215-001-020

2121 Alton Parkway
Suite 100
Irvine, CA 92606
949.753.7001
www.esassoc.com

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EXECUTIVE SUMMARY

Environmental Science Associates (ESA) has been retained by Jefferson Park LLC (Applicant) to prepare a paleontological resources assessment for the proposed 11111 Jefferson Boulevard Mixed-Use Project (Project) in support of an Environmental Impact Report (EIR). The Project would develop a mixed-use residential and commercial uses on an approximately 3.43-acre triangular shaped site (Project Site) located in the City of Culver City (City). The Project Site is currently developed with three single story commercial buildings, surface parking, and landscaping, all of which would be removed to support development of the Project. The City is the Lead Agency pursuant to the California Environmental Quality Act (CEQA).

The scope of work for this assessment included geologic map and literature review, geotechnical report review, a paleontological records search through the Natural History Museum of Los Angeles County (LACM), an assessment of potential impacts, and the recommendation of mitigation measures to reduce impacts to paleontological resources to a less-than-significant level. Because the Project Site is entirely developed and lacks any visible native ground surface or potential for surface exposure of resources, a paleontological field survey was not undertaken.

The surficial geology of the Project Site consists of Holocene-aged (i.e., 11,700 years ago to present day) Quaternary Alluvium. The results of the paleontological resource records search indicate that while no fossil localities are known from the Project Site, fossil vertebrate remains can be found within older Quaternary Alluvium deposits, which is present in the subsurface in the general area of the Project Site. In particular, there are three fossil localities in these sediments known to the LACM (LACM 3368, 4250, and 4232) and they were found between 2 to 3 miles from the Project Site and produced fossil specimens of horse, mammoth, and human at depths from 12 to 13 feet below the surface. Additional fossil localities (LACM 1159, 3366, 3367, 3369, and 3370) were encountered during excavations for the Outfall Sewer in the 1920s between 2.15 and 3.75 miles from the Project Site that yielded specimens of fossil camel, mastodon, and sabertooth cat at unspecified depths; a fossil human at a depth of 19 to 23 feet below ground surface; and a fossil horse at a depth of 6 feet below ground surface. Moreover, a recently discovered fossil locality less than two miles of the Project Site produced Pleistocene vertebrate (bison), plant, and invertebrate fossils (marine mollusk remains). A review of geologic mapping and the scientific literature indicates that the surficial Holocene-aged Alluvium is too young to preserve fossil resources at the surface; however, the age of the sediments increase with depth, such that deeper layers may preserve fossil resources. Therefore, the sediments in the Project Site have low-to-high paleontological sensitivity, increasing with depth. Moreover, since it is anticipated that excavations at the Project Site will exceed 10 feet in depth and would extend to a maximum of 25 feet below the surface (bgs), mitigation measures for paleontological construction monitoring are recommended at the end of this report to reduce potentially significant impacts to previously unknown paleontological resources that may be inadvertently discovered during Project implementation to a less-than-significant level.

11111 JEFFERSON BOULEVARD MIXED-USE PROJECT

Paleontological Resources Assessment Report

Introduction

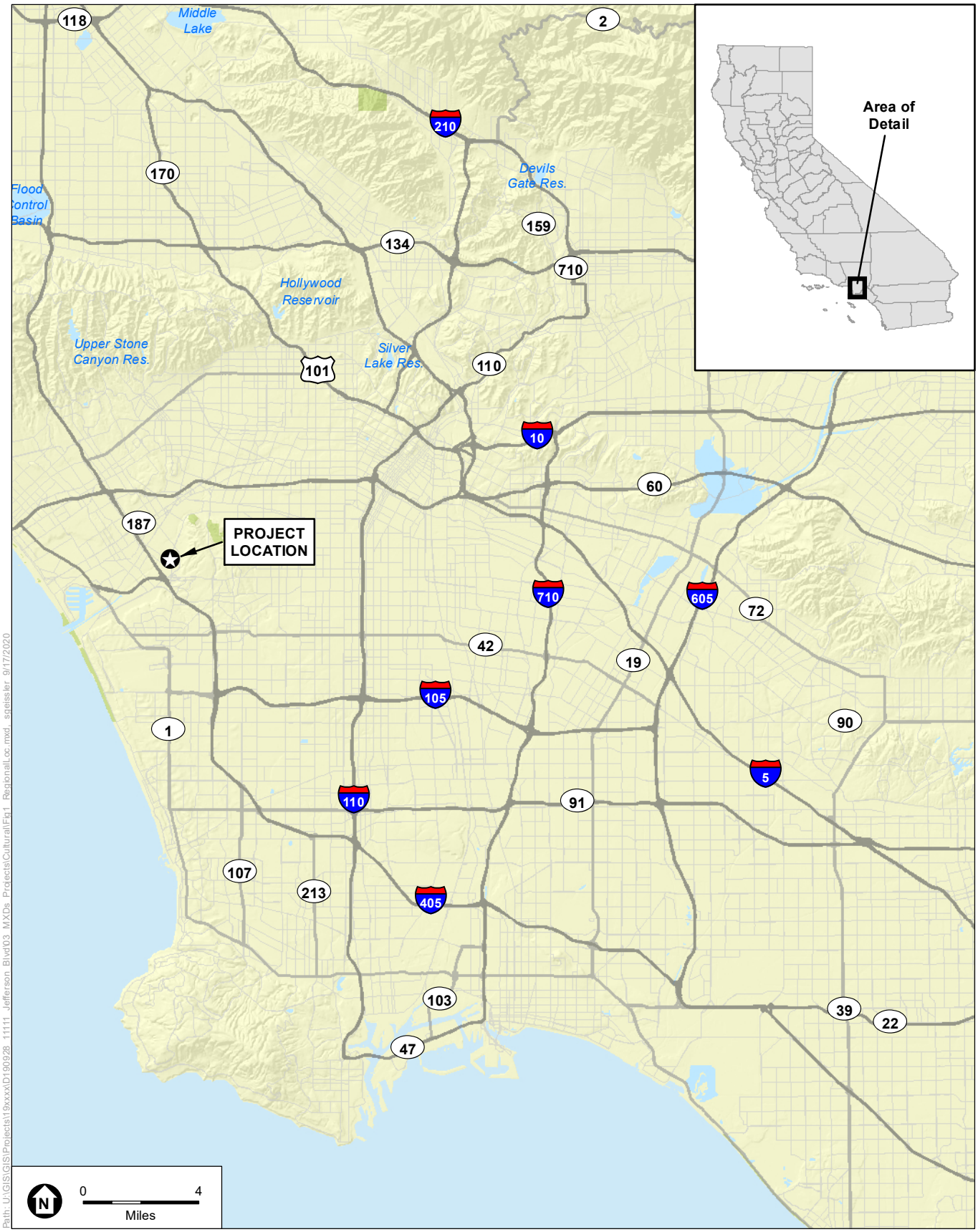
Environmental Science Associates (ESA) has been retained by Jefferson Park LLC (Applicant) to prepare a paleontological resources assessment for the proposed 11111 Jefferson Boulevard Mixed-Use Project (Project) in support of an Environmental Impact Report (EIR) being prepared by the City of Culver City (City), the Lead Agency for the Project under the California Environmental Quality Act (CEQA).

This paleontological resources assessment report includes a description of the Project, a regulatory framework, methods and results, an evaluation of potential impacts on paleontological resources, and recommended mitigation measures. As shown in Figure 2, the Project Site is entirely developed and lacks any visible native ground surface or potential for surface exposure of resources; therefore, a paleontological field survey was not undertaken.

ESA personnel involved in the preparation of this report are as follows: Monica Strauss, M.A., project director; Kyle Garcia, M.A., project manager; Joe D. Stewart, Ph.D., principal investigator and report co-author; Fatima Clark, B.A., report co-author, and Stephan Geissler, GIS specialist. Resumes of key personnel are included in **Appendix A**.

Project Location

The 3.43-acre Project Site is located in the Studio Village neighborhood in the southern part of the City (**Figure 1**). The Project Site is triangular in shape and consists of four Assessor Parcel Numbers (APNs) 4215-001-013; 4215-001-010; 4215-001-016; and 4215-001-020. The Project Site is bounded by Jefferson Boulevard to the east, Machado Road to the north and Sepulveda Boulevard to the south and west (**Figure 2**). It is also situated within an un-sectioned area of Township 2 South, Range 15 West on the Venice, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (**Figure 3**).



SOURCE: ESRI

11111 Jefferson Boulevard Mixed-Use Project

Figure 1
Regional Location

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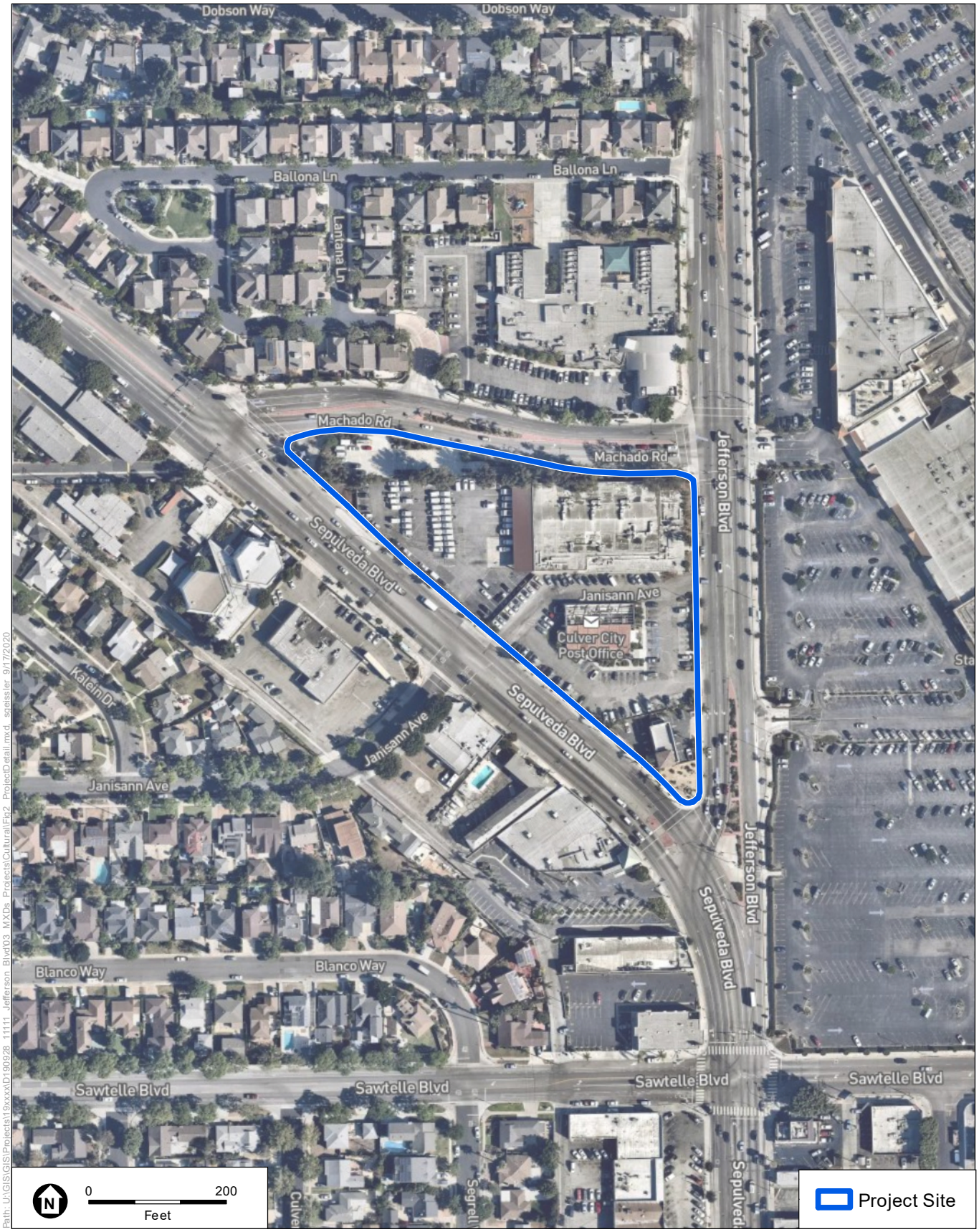

SOURCE: Digitial Globe, 2017.

11111 Jefferson Boulevard Mixed-Use Project

Figure 2
Project Detail

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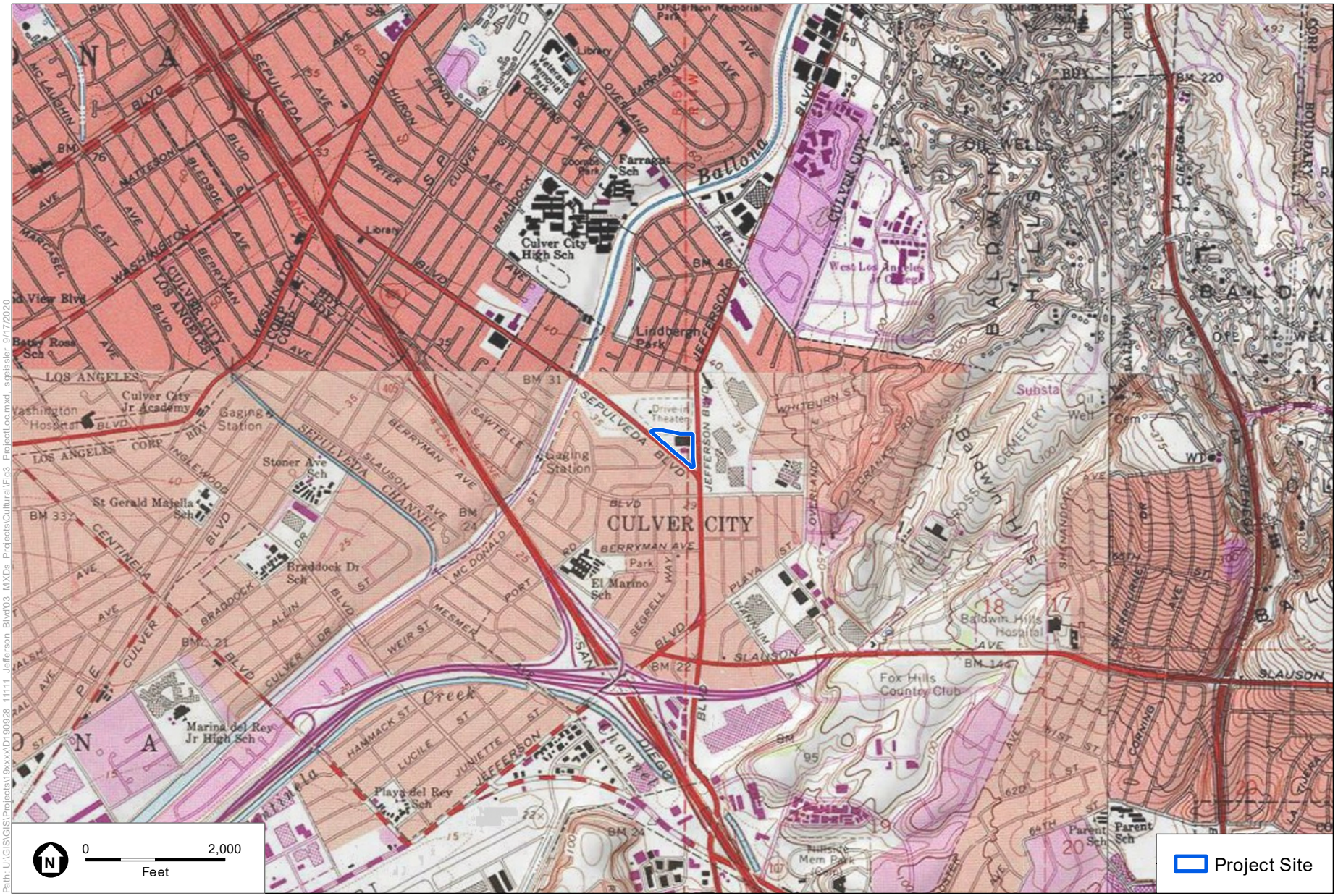

SOURCE: USGS 7.5' Topo Quad Venice 1978, 1982; Beverly Hills 1978, 1981.

11111 Jefferson Boulevard Mixed-Use Project

Figure 3

Project Location

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Project Description

The Project would involve demolition of the existing buildings on the Project Site to support the new mixed-use development. The Project would consist of five stories of development over one subterranean level for vehicular parking and building infrastructure. The maximum depth of ground disturbance is expected to reach depths of up to 25 feet below ground surface (bgs). The proposed five-story building would be 67 feet tall (71.5 feet including the parapet) with a total building area of 555,221 square feet (sf), including all parking areas (subterranean, ground level, and above-ground) and usable building area of 311,109 sf.[1] The Project includes 244,609 sf of residential uses (including the residential lobby and amenity room) with 230 residential apartment units (including 19 affordable to very low income units); 66,500 sf of commercial uses, including a market, retail/restaurant uses and office uses; three levels of vehicular parking (653 spaces); and, public and private open space areas.

Regulatory Framework

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value that are afforded protection under state laws and regulations. The following section summarizes the applicable federal and State laws and regulations, as well as professional standards and guidelines provided by the Society of Vertebrate Paleontology (SVP).

State Regulations

California Environmental Quality Act

The CEQA Guidelines (Title 14, Chapter 3 of the California Code of Regulations, Section 15000 *et seq*.), define the procedures, types of activities, individuals, and public agencies required to comply with CEQA. As part of CEQA's Initial Study process, one of the questions that must be answered by the lead agency relates to paleontological resources: "Would the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (CEQA Guidelines Section 15023, Appendix G, Section XIV, Part a).

The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts to paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (significant impact). At the project-specific level, direct impacts can be mitigated to a less-than-significant level through the implementation of paleontological mitigation.

The CEQA threshold of significance for a significant impact to paleontological resources is reached when it is determined that a project would "directly or indirectly destroy a significant paleontological resource or unique geologic feature." In general, for project sites that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For project sites that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also affected.

Public Resources Code Section 5097.5 and Section 30244

Other State requirements for paleontological resource management are included in PRC Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts to paleontological resources from developments on public (State, county, city, district) lands.

Local Regulations

City of Culver City General Plan

The City's General Plan does not include policies, goals, and objectives for paleontological resources; however, the City is currently preparing a General Plan update that will consider paleontological resources.

Professional Standards and Guidelines

Society for Vertebrate Paleontology

The SVP has established standard guidelines (SVP, 1995, 2010) that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological resource-specific Laws, Ordinances, Regulations, and Standards accept and use the professional standards set forth by the SVP.

As defined by the SVP (2010:11), significant nonrenewable paleontological resources are:

> fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i. e., older than about 5,000 radiocarbon years).

As defined by the SVP (1995:26), significant fossiliferous deposits are:

> A rock unit or formation which contains significant nonrenewable paleontologic resources, here defined as comprising one or more identifiable vertebrate fossils, large or small, and any associated invertebrate and plant fossils, traces, and other data that provide taphonomic, taxonomic, phylogenetic, ecologic, and stratigraphic information (ichnites and trace fossils generated by vertebrate animals, e.g., trackways, or nests and middens which provide datable material and climatic information). Paleontologic resources are considered to be older than recorded history and/or older than 5,000 years BP [before present].

Based on the significance definitions of the SVP (1995, 2010), all identifiable vertebrate fossils are considered to have significant scientific value. This position is adhered to because vertebrate fossils are relatively uncommon, and only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment, and/or its distribution. In most instances, all geologic units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

A geologic unit known to contain significant fossils is considered to be "sensitive" to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either directly or indirectly disturb or destroy fossil remains. Paleontological sites indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case (SVP, 1995).

Fossils are contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or human-caused exposure. As a result, even in the absence of surface fossils, it is necessary to assess the sensitivity of rock units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside of the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken in order to prevent adverse impacts to these resources.

Paleontological Sensitivity

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its "Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources," the SVP (2010:1-2) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

- **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.).

- **Low Potential.** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.

- **Undetermined Potential.** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

- **No Potential.** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

In accordance with guidelines from the SVP, full-time monitoring of geologic units with high potential is generally recommended during any project-related ground disturbance. For geologic units with low potential, protection or salvage efforts will not generally be required. For geologic units with undetermined potential, field surveys by a qualified vertebrate paleontologist should be conducted to specifically determine the paleontologic potential of the rock units present within the study area.

Paleontological Resources Significance Criteria

Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;

2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important (Scott and Springer 2003).

Methods and Results

Archival Research

The Project Site was the subject of thorough background research and analysis. The research included geologic map and literature review, geotechnical report review, and a paleontological records search through the LACM.

Geologic Setting

The Project Site is located in the Los Angeles Basin, a structural depression approximately 50 miles long and 20 miles wide in the northernmost Peninsular Ranges Geomorphic Province (Ingersoll and Rumelhart, 1999). The Los Angeles Basin developed as a result of tectonic forces and the San Andreas fault zone, with subsidence occurring 18 – 3 million years ago (Ma) (Critelli et al., 1995). While sediments dating back to the Cretaceous (upwards of 66 Ma) are preserved in the basin, continuous sedimentation began in the middle Miocene (around 13 million years ago) (Yerkes et al., 1965). Since that time, sediments have been eroded into the basin from the surrounding highlands, resulting in thousands of feet of accumulation (Yerkes et al., 1965). Most of these sediments are marine, until sea level dropped in the Pleistocene and deposition of the alluvial sediments that compose the uppermost units in the Los Angeles Basin began.

The Los Angeles Basin is subdivided into four structural blocks, with the Project Site occurring in the Central Block, where sediments range from 32,000 to 35,000 feet thick (Yerkes et al., 1965). The Central Block is wedge-shaped, extending from the Santa Monica Mountains in the northwest, where it is about 10 miles wide, to the San Joaquin Hills to the southeast, where it widens to around 20 miles across (Yerkes et al., 1965).

Geologic Map and Literature Review

Review of geologic mapping by Dibblee and Minch (2007) indicates that Holocene-aged younger alluvial sediments occur at the surface across the Project Site (mapped as Qa in **Figure 4**).

Younger alluvial sediments consist of silt, clay, and sand eroded from the nearby Baldwin Hills and other uplands (Dibblee and Minch, 2007). Due to the young age of these deposits, they are unlikely to preserve fossil resources at the surface and have low paleontological sensitivity; however, these sediments increase in age with depth, such that the deeper layers of this unit are of an age to preserve fossil resources (i.e., over 5,000 years old, as per the SVP [2010]).

Alluvial sediments that date to the middle Holocene or beyond have a rich fossil history in southern California and particularly the Los Angeles Basin (Hudson and Brattstrom, 1977; Jefferson 1991a and b; McDonald and Jefferson, 2008; L. Miller 1941; W. E. Miller 1971; Roth, 1984; Scott, 2010). The most common fossils include the bones of mammoth, bison, deer, and small mammals, but other taxa, including horse, lion, cheetah, wolf, camel, antelope, peccary, mastodon, capybara, and giant ground sloth, have been reported (Graham and Lundelius, 1994), as well as reptiles such as frogs, salamanders, and snakes (Hudson and Brattstrom, 1977). In addition to illuminating the striking differences between southern California in the past and today, this abundant fossil record has been vital in studies of extinction (e.g. Sandom, et al., 2014; Barnosky et al., 2004), ecology (e.g. Connin et al., 1998), and climate change (e.g. Roy et al., 1996).

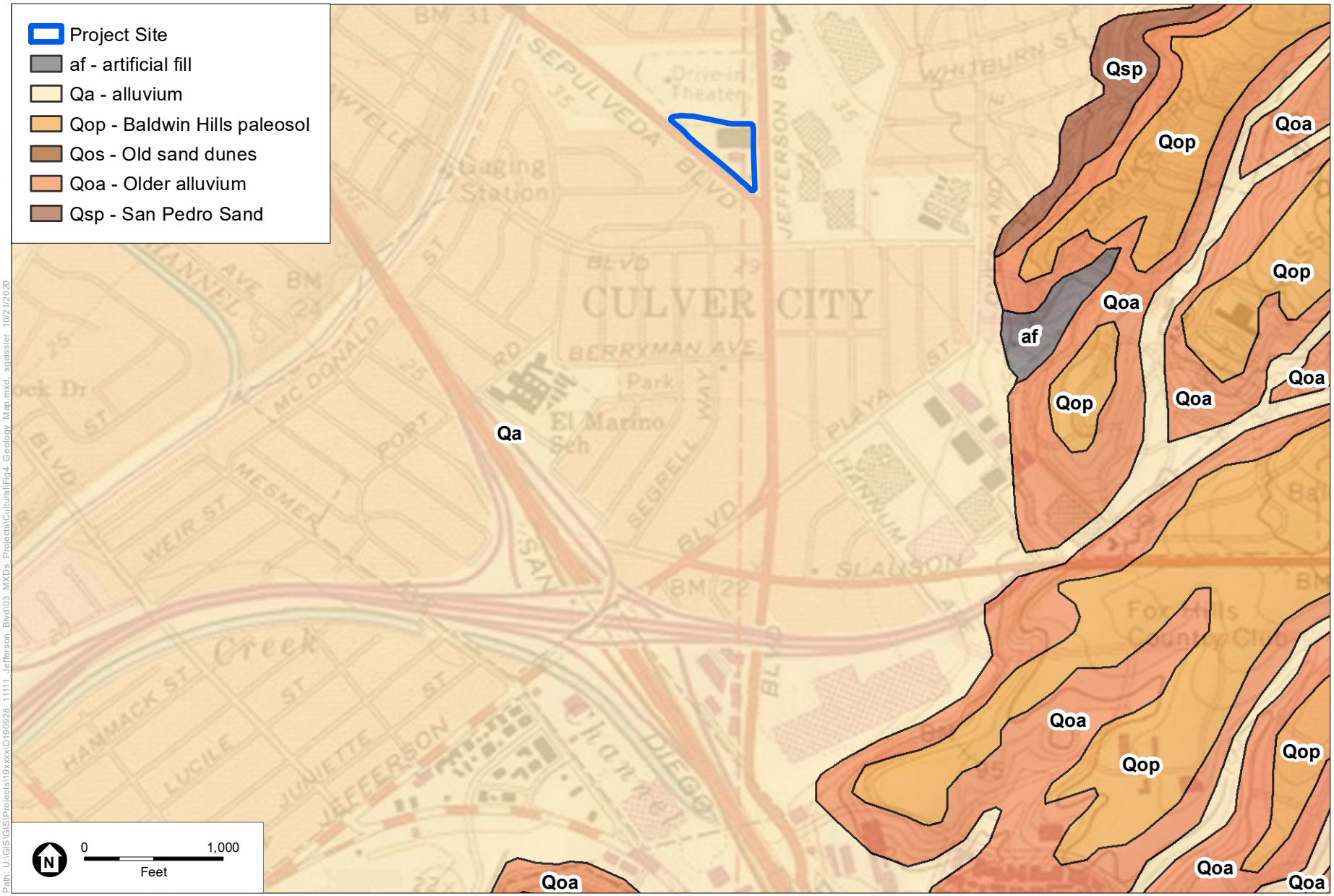
Geotechnical Report Review

Review of the *Report of Geotechnical Engineering Services* (Geotechnical Report) (GeoDesign Inc., 2019) indicates that subsurface explorations were conducted at the Project Site by drilling four borings (B-1 through B4) to depths between 51.3 and 71.5 feet bgs and advancing three Cone Penetrometer Test (CPT) probes (CPT-1 through CPT-3) to practical refusal at depths between 29. 9 and 53.6 feet bgs. In summary, the surface conditions at the Project Site consist of asphalt concrete and aggregate base (2.5 to 7.5 inches bgs), followed by 12 to 16 feet "of stiff clay with variable sand content underlain by alternating layers and/or lenses of medium dense to very dense sand with variable fines content and medium stiff to very stiff clay with variable sand content. The sand generally becomes dense to very dense and there are fewer and thinner clay layers/lenses with increasing depth" (GeoDesign Inc., 2019). At 36 to 43 feet, all borings encountered gray silt, sand, and clay that continued to the bottom of each boring. The geotechnical analysis did not assess the likely ages of the sediments or assign them to a particular geologic unit. While the exact depth to the high sensitivity sediments is unknown in the Project Site, it should be noted that Pleistocene-aged sediments are present at the surface approximately 0.30 and 0.40 miles east of the Project Site, including San Pedro Sand, Qsp; Baldwin Hills paleosol, Qop; Old sand dunes, Qos; and Older alluvium, Qoa (Dibblee and Minch, 2007). This indicates that similar sediments may be present at relatively shallow depths in the Project Site. Of more direct applicability is a newly documented fossil locality less than two miles north of the Project Site where Pleistocene vertebrate (bison), plant, and invertebrate fossils (marine mollusk remains) were found in similar blue gray silts, sands, and clay during construction monitoring of a mixed-use development (Environmental Science Associates, *in prep*). Thus, the sediments at the Project Site below 36 feet are certainly of Pleistocene age. The fossiliferous blue gray

sediment at the mixed-use development located less than two miles north of the Project Site was encountered at 17.5 to 33 feet bgs (GeoConcepts, Inc, 2016).

LACM Records Search

A paleontological resources records search was conducted by the LACM on March 27, 2020 (McLeod, 2020) (**Confidential Appendix B**). The records search results indicate that no vertebrate fossil localities have been documented within the Project Site, but that localities do occur nearby in sedimentary deposits similar to those found within the Project Site.



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SOURCE: Dibblee and Minch, 2007; NGMDB; USGS 7.5' Topo Quad Venice 1978, 1982; Beverly Hills 1978, 1981

11111 Jefferson Boulevard Mixed-Use Project

Figure 4
Geology Map

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The closest fossil localities from older alluvial sediments are LACM 4232, 3368, and 4250 that were recovered within several miles of the Project Site. LACM 4232 (also known as P-19-000172, or Los Angeles Man) yielded the remains of a fossil human at a depth of 12 to 13 feet bgs, LACM 3368 produced a fossil horse at an unknown depth, and LACM 4250 yielded remains of a fossil mammoth at an unknown depth (McLeod, 2020).

Additional fossil localities (LACM 1159, 3366, 3367, 3369, and 3370) are located along the Southern Pacific Railway near Ballona Creek and are approximately 2.15 to 3.75 miles from the Project Site. These fossil localities were collected during excavations for the Outfall Sewer area in the 1920s. Most of these fossil localities, such as LACM 3366 (fossil camel), 3367 (fossil mastodon), and 3370 (sabretooth cat), did not record the depth at which the specimens were recovered. LACM 1159 yielded a fossil human at a depth of 19 to 23 feet bgs, while LACM 3369 yielded a fossil horse at a depth of 6 feet bgs (McLeod, 2020).

Paleontological Sensitivity Analysis

The review of the scientific literature and geologic mapping, as well as the records search from the LACM, was used to assign paleontological sensitivities following the guidelines of the SVP (1995, 2010) to the geologic units that are present at the Project Site and will be impacted by ground-disturbing activities associated with the project:

- **Younger Quaternary Alluvium (Qa) –** Surficial sediments; **low-to-high sensitivity**, increasing with depth. While the shallow layers of this unit are too young to preserve fossil resources (i.e., <5,000 years old), these sediments increase in age with depth and may preserve fossils in deeper layers. These potential fossils include a wide variety of Ice Age animals, as reviewed above. While the exact depth to the high sensitivity sediments is not known at the Project Site, the discovery of fossils at depths of 12 feet bgs within three miles from the Project Site (McLeod, 2020) indicates a depth of 10 feet bgs is a reasonable estimate.

Assessment of Impacts and Recommended Mitigation Measures

The surficial sediments of the Project Site identified as younger Quaternary alluvium are assigned low-to-high paleontological sensitivity, increasing with depth. Based upon the depth at which fossils have been found within three miles of the Project Site (as shallow as 12 feet bgs; McLeod, 2020), it is estimated that the transition from low to high sensitivity sediments occurs at around 10 feet bgs. Since it is anticipated that excavations at the Project Site would exceed 10 feet in depth (and would reach depths of up to 25 feet bgs), Project excavations have the potential to impact older alluvium determined as having a high sensitivity for retaining paleontological resources. As a result, impacts to unknown paleontological resources that may be inadvertently discovered during Project excavation are considered potentially significant. **Mitigation Measures MM-PALEO-1** through **MM-PALEO-4** are recommended below to reduce potential impacts to buried paleontological resources to a less-than-significant level.

Mitigation Measure PALEO-1: Prior to issuance of demolition permit, the Applicant shall retain a qualified Paleontologist to develop and implement a paleontological monitoring program for construction excavations that would encounter older alluvial sediments. A qualified Paleontologist is defined as a paleontologist meeting the criteria established by the Society for Vertebrate Paleontology (2010). The qualified Paleontologist shall supervise a paleontological monitor who shall be present at such times as required by the Paleontologist during construction excavations into older alluvial sediments. Paleontological resources monitoring shall be conducted for all ground disturbing activities that exceed 10 feet in depth in previously undisturbed sediments, and are therefore likely to impact high sensitivity older alluvial sediments. Work in the upper 10 feet of the Project Site does not warrant monitoring. Monitoring shall consist of visually inspecting fresh exposures of rock for larger fossil remains and, where appropriate, collecting wet or dry screened sediment samples of promising horizons for smaller fossil remains. The frequency of monitoring inspections shall be determined by the Paleontologist and shall be based on the rate of excavation and grading activities, proximity to known paleontological resources or fossiliferous geologic formations (i.e., older alluvium deposits), the materials being excavated (i.e., native sediments versus artificial fill), and the depth of excavation, and if found, the abundance and type of fossils encountered. Full-time monitoring can be reduced to part-time inspections, or ceased entirely, if determined adequate by the Paleontologist.

Mitigation Measure PALEO-2: Prior to commencement of demolition or excavation activities, the Paleontologist shall attend a pre-grade/construction meeting to conduct construction worker paleontological resources sensitivity training for construction personnel. The training session, shall be carried out by the Paleontologist and shall focus on how to identify paleontological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event. In the event construction crews are phased, additional trainings shall be conducted for new construction personnel. Documentation shall be retained demonstrating that construction personnel attended the training.

Mitigation Measure PALEO-3: If a potential fossil is found, the paleontological monitor shall be allowed to temporarily divert or redirect grading and excavation activities in the area of the exposed fossil to facilitate evaluation of the discovery. The Paleontologists shall establish an appropriate buffer around the find where construction activities shall not be allowed to continue. Work shall be allowed to continue outside of the buffer area. At the Paleontologist's discretion, and to reduce any construction delay, the grading and excavation contractor shall assist in removing rock/sediment samples for initial processing and evaluation. If the fossil is determined to be significant, the qualified Paleontologist shall implement a paleontological salvage program to remove the resources from their location, following the guidelines of the SVP (2010). Any fossils encountered and recovered shall be prepared to the point of identification and catalogued before they are submitted to their final repository. Any fossils collected shall be curated at a public, non-profit institution with a research interest in the material and with retrievable storage, such as the Natural History Museum of Los Angeles County, if such an institution agrees to accept the fossils. If no institution accepts the fossil collection, they shall be donated to a local school in the area for educational purposes. Accompanying notes, maps, and photographs shall also be filed at the repository and/or school.

If construction personnel discover any potential fossils during construction while the paleontological monitor is not present, regardless of the depth of work or location, work at the discovery location shall cease in a 50-foot radius of the discovery until the Paleontologist has assessed the discovery and recommended and implemented appropriate treatment as described earlier in this measure.

Mitigation Measure PALEO-4: Prior to the release of the grading bond, the qualified Paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted by the Applicant to the City, the Natural History Museum of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures.

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Appendix A
Personnel Qualifications

Joe (J.D.) Stewart, PhD

Senior Paleontologist

EDUCATION

Ph.D., Systematics & Ecology, University of Kansas

M.A., Systematics and Ecology, University of Kansas

B.A. Degree, Biology, University of Kansas,

40 YEARS EXPERIENCE

PROFESSIONAL AFFILIATIONS

Society of Vertebrate Paleontology

Research Associate, Natural History Museum of Los Angeles County

J. D. Stewart has more than 40 years of experience in the field of paleontology, with 30 years of experience in California. He has authored or co-authored 40 peer-reviewed articles for scientific journals and books. Within these, he has authored or co-authored descriptions of three new genera and three new species.

He is a recognized authority on fossil fishes of Cretaceous rocks of North America and Cenozoic rocks of the western coast of North America. As a result, Dr. Stewart is often called upon to identify paleontological and archaeological specimens. He has served as expert witness for the U.S. Department of Justice.

Relevant Experience

Dr. Stewart has extensive experience finding and excavating fossils for county, state, and provincial institutions. His field work includes projects in cooperation with the U.S. Bureau of Land Management, National Parks Service, U.S. Army Corps of Engineers, U.S. Navy, U. S. Department of Energy, Federal Aviation Administration, California Energy Commission, Caltrans, and California State Parks. The Bureau of Land Management's national website features one of his excavations from 2004. He has supervised monitoring of construction activity in numerous California counties and municipalities. In addition to fieldwork, he has experience in the supervision of preparators, surveyors, curatorial assistants, and excavators. He also has extensive experience preparing fossils, and has processed, recovered, and identified thousands of microvertebrate fossils.

Path 15 500 kV Power Transmission Line Between Los Banos and Gates substations, Merced and Fresno Counties, CA. Dr. Stewart supervised paleontological monitoring during construction of an 80-mile, high-voltage transmission line in the San Joaquin Valley. Dr. Stewart's team located an extensive bonebed in Middle Miocene sediments, dating back approximately 15 million years. Dr. Stewart and his team excavated and prepared over 1,200 vertebrate fossils, deposited them at the University of California Museum of Paleontology, and preserved the site for future research. They also discovered a smaller bonebed of late Miocene age (ca. 7 million years). As a result of his diligent analysis, the project schedule was maintained and there were no delays in construction.

Heritage Fields/Great Park Paleontological Review, Orange County, CA. Dr. Stewart conducted Phase I and II paleontological assessments at the Heritage Fields / Great Park in Orange County, California where he and his team discovered significant portions of a Miocene-aged (15 million years ago) whale fossil, and a Pleistocene microvertebrate fauna dating to before 28,000 years ago.

Calnev Pipeline Project, San Bernardino County, CA, and Clark County, NV. Directed paleontological survey of 234-mile long project area in San Bernardino County, California and Clark County, Nevada and wrote the paleontological assessment.

Starwood-Midway Peaking Power Plant Project, Fresno County, CA Dr .Stewart wrote the paleontological resources section of the Application for Certification, wrote the mitigation plan for paleontological resources, supervised monitoring for paleontological resources, and wrote the paleontological resources final report.

BrightSource Rio Mesa Solar Electric Generation Facility Project, Riverside County, CA. Dr. Stewart supervised a survey of 1,850 acres for paleontological resources, supervised excavations, documented tortoise eggshells ranging in age from 14,000 to 44,000 years, identified the fossils, and wrote the final report.

Marsh Landing Generating Station, Contra Costa County, CA. Dr. Stewart wrote the paleontological resources section of the Application for Certification, wrote the mitigation plan for paleontological resources, supervised monitoring for paleontological resources, and wrote the paleontological resources final report.

SR-91 Corridor Improvement Project, Riverside County, CA. Dr. Stewart **w**rote the Paleontological Mitigation Plan, supervised paleontological monitoring and mitigation of construction activities, supervised preparation of the fossils, and wrote the final report.

Downs Project, Kern and San Bernardino Counties, CA. Dr Stewart supervised the monitoring for paleontological resources during this pole replacement and substation upgrade project. He also wrote the final report. Pleistocene vertebrate fossils were recovered on the west side of Searles Lake and they date to around 15,000 years ago.

Newport Bay Mesa at East Bluff Drainage Repair Project, Newport Beach, CA. Dr. Stewart wrote the paleontological resource monitoring and mitigation plan, supervised the monitoring for paleontological resources, supervised the processing of more than 6,000 pounds of sediment, identified the fossils, and wrote the final report.

North Shore Solar Facility Project, City of Mecca, Riverside County, CA. Dr. Stewart supervised the monitoring of construction activities for paleontological resources. He also identified the recovered fossils and wrote the final report.

Monica Strauss, RPA

Director, Southern California Cultural Resources Group

EDUCATION

M.A., Archaeology, California State University, Northridge

B.A., Anthropology, California State University, Northridge

AA, Humanities, Los Angeles Pierce College

19 YEARS EXPERIENCE

SPECIALIZED EXPERIENCE

Treatment of Historic and Prehistoric Human Remains

Archaeological Monitoring

Complex Shell Midden Sites

Groundstone Analysis

PROFESSIONAL AFFILIATIONS

Register of Professional Archaeologists (RPA), #12805

Society for California Archaeology (SCA)

Society for American Archaeology (SAA)

QUALIFICATIONS

Exceeds Secretary of Interior Standards

CA State BLM Permitted

Monica has successfully completed dozens of cultural resources projects throughout California and the greater southwest, where she assists clients in navigating cultural resources compliance issues in the context of CEQA, NEPA, and Section 106. Monica has extensive experience with archaeological resources, historic buildings and infrastructure, landscapes, and Tribal resources, including Traditional Cultural Properties. Monica manages a staff of cultural resources specialists throughout the region who conduct Phase 1 archaeological/ paleontological and historic architectural surveys, construction monitoring, Native American consultation, archaeological testing and treatment, historic resource significance evaluations, and large-scale data recovery programs. She maintains excellent relationships with agency staff and Tribal representatives. Additionally, Monica manages a general compliance monitoring team who support clients and agencies in ensuring the daily in-field compliance of overall project mitigation measures.

Relevant Experience

County of Los Angeles, Department of Public Works, Rancho Los Amigos South Campus EIR, Downey. CA. *Project Manager.* The County of Los Angeles (County) proposes redevelopment of a portion of the Rancho Los Amigos (RLA) South Campus which is located in the City of Downey. The 74-acre RLA South Campus was the home of the "Los Angeles County Poor Farm" that was established in 1880s to provide room and board to indigent citizens in exchange for agricultural labor, then served as an infirmary and later evolved into a hospital facility in 1932. The RLA South Campus functioned as a major hospital complex from 1956 to the 1990s, when it was abandoned. The RLA South Campus is currently unoccupied and has been designated as the RLA Historic District in the National Register of Historic Places. The County is proposing redevelopment of a 21-acre portion of the RLA South Campus with County uses, including a Sheriff's Station Crime Laboratory, Internal Services Department Headquarters, and Probation Department Headquarters. The project will include supporting parking and installation of utilities and other features on a site that has been abandoned for nearly 30 years. Building demolition and/or repurposing or relocation of existing buildings will be required. ESA is leading the CEQA process on behalf of the County, including preparation of all technical studies in support of a full-scope EIR for the RLA South Campus Project. This includes a Historic District Evaluation, archaeological surveys, traffic, water supply, arborist services, and all other CEQA-required topics. ESA is also serving in an Executive Consultant role to the County, to advise on other potential future projects at the RLA Campus.

County of Los Angeles, Department of Public Works, Arroyo Seco Bike Path Phase I Cultural Resources Evaluation, Los Angeles, CA. *Project Director.* Working for the County of Los Angeles, Department of Public Works in connection with a project to make improvements to the Arroyo Seco Channel, Monica

managed all aspects of Section 106 review in accordance with Caltrans Cultural Resources Environmental guidelines. Monica and her team evaluated the Arroyo Seco Channel, identified character-defining features, informed the design of channel improvements to retain such features, and addressed the channels' potential for eligibility as part of a larger Los Angeles Country water management district. She developed the research strategy, directed the field teams, and prepared cultural resources assessment documentation for approval by Caltrans and FHWA, as well as the cultural resources section for a Mitigated Negative Declaration.

Los Angeles Department of Water and Power La Kretz Innovation Campus, Los Angeles County, CA. *Project Director.* The project involved the rehabilitation of the 61,000-square-foot building located at 518-524 Colyton Street, demolition of the building located at 537-551 Hewitt Street, and construction of an open space public plaza and surface parking lot, and involved compliance with Section 106 of the National Historic Preservation Act and consultation with the California State Historic Preservation Officer. ESA is providing archaeological monitoring and data recovery services and is assisting LADWP with meeting their requirements for Section 106 of the National Historic Preservation Act. Monica is providing oversight to archaeological monitors and crew conducting resource data recovery and laboratory analysis, and is providing guidance to LADWP on meeting Section 106 requirements.

Los Angeles Unified School District (LAUSD) Florence Nightingale Middle School Historic Architectural Review, Los Angeles County, CA. *Cultural Resources Project Director.* Monica managed the historical analysis of the LAUSD Florence Nightingale Middle School. The analysis included a cultural resources survey that photo-documented buildings that would be affected by the project. The project includes HVAC replacement to a 1967 Classroom Buildings, kitchen upgrades within the 1937 Domestic Science/Cafeteria Building, and improvements to the 1965 chiller yard. Florence Nightingale Middle School was previously recommended eligible for listing in the California Register.

Viewpoint School, Tennis Courts and Park, Calabasas, CA. *Cultural Resources Project Director.* ESA is working with the City of Calabasas to prepare an IS/MND to support the development of the proposed Viewpoint School Tennis Courts and Parking Lots project, which includes the development of three sites (Peters, Brown, and Castle Oak) that would become part of the school campus property. Improvements entail installation of six tennis courts (including an accessory building), additional campus parking in three areas, and the renovation of two existing residential structures, one to accommodate offices for school administration and the second to provide a primary residence to the school principal. The project would remove the Peter's property building and appurtenant structures, redevelop the interior of the Castle Oaks property to accommodate the administrative offices, and update the Brown residence to accommodate the principal's primary residence. ESA is preparing three technical studies to support the IS/MND, including air quality, cultural resources, greenhouse gas emissions, and noise. ESA peer reviewed the biological resource reports and traffic study that were prepared to support the document. Monica provided technical and compliance oversight to the cultural resources staff.

Kyle Garcia, M.A., RPA

Principal Archaeologist

EDUCATION

M.A., Anthropology (Archaeology Option), California State University Los Angeles,

B.A., Anthropology, (Physical/ Biological Emphasis), University of California, Santa Barbara

17 YEARS EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Register of Professional Archaeologists

Riverside County Registered Archaeologist and Paleontologist

Orange County-Certified Archaeologist and Paleontologist

40-Hour HAZWOPER Training – Update, 2019

PROFESSIONAL AFFILIATIONS

Society for American Archaeology

Society for California Archaeology

Pacific Coast Archaeological Society

Kyle Garcia has 17 years of experience in the archaeology and prehistory of southern California, with a specialization in faunal analysis. During his career, he has authored or contributed to more than 600 projects subject to the requirements of the California Environmental Quality Act, the National Environmental Policy Act (NEPA), and regulations implementing Section 106 of the National Historic Preservation Act (Section 106 of the NHPA). He is well-versed in the archaeological resources of California's coastal, interior, and island settings. He is skilled in evaluation historic and prehistoric archaeological resources; agency and Native American consultation; pedestrian surveys, testing and evaluation excavations as well as archaeological and paleontological construction monitoring, and laboratory processing. During his tenure, he has authored or contributed to more than 500 technical reports and sections to support all levels of CEQA and NEPA documents. Kyle's portfolio of projects includes energy, water, and transportation infrastructure as well as residential, commercial, mixed-use, institutional, and urban redevelopment serving public and private sector clients. Kyle has conducted archaeological work throughout California and is a certified archaeologist and paleontologist in Riverside and Orange counties.

Representative Experience

Archaeological/Paleontological Monitoring. Kyle has managed more than 80 archaeological and/or paleontological construction monitoring projects in Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. His recent monitoring experience in Culver City for mixed-use development projects include Ivy Station, Culver Studios (9336 Washington Blvd), 8888 Washington Blvd, and 8777 Washington Bvld projects. His recent monitoring experience in the City of Los Angeles for mixed-use development projects include the Park Fifth Apartments (437 Hill St), Essex Hollywood (6250 Sunset Blvd), 6th and Virgil Project, 1500 Figueroa, 1340 Figueroa, and 10000 Santa Monica Blvd.

Paleontology. In addition to his archaeological work, Kyle has been cross-trained in paleontological mitigation monitoring and assisted in the excavations of a Miocene whale fossil near Irvine and a new species of extinct tuna in Laguna Niguel, California. Kyle has also managed or conducted more than 200 paleontological assessments and 40 paleontological monitoring projects throughout southern California. He has assisted ESA's paleontologists with the preparation of paleontological reports in compliance with CEQA and local paleontological guidelines, including guidelines for the Society for Vertebrate Paleontology.

Large-Scale Development Projects. Kyle directed the 1,400-acre field survey and the successful site recordation of over 150 prehistoric and historic archaeological resources per the Section 106 Process for a confidential project in

Riverside County; served as the Deputy Project Manager for the 240-acre Archaeological Treatment & Restoration Plan for The Cove project that was subject to Section 106, responsible for the field survey, Native American consultation, final report, and supervised the thorough recordation and documentation of over 350 significant artifacts. In Arizona, he led crews on a pedestrian survey and site recordation of more than 200 historic and prehistoric archaeological resources during a Class III Inventory on an 11,000-acre portion of the La Osa Ranch Project site in Pinal County.

Water Infrastructure. Kyle has performed the archaeological and paleontological resources surveys and assessments for a number of regional water infrastructure projects including the Reservoir No. 1 Reconstruction Project MND for Burbank; the Pasadena Groundwater Storage Program; and recycled water facilities projects for San Clemente, Pasadena, the Town of Rosamond, and Palmdale.

Transportation Infrastructure. Kyle is often sought after to conduct Peer Review services of controversial projects across southern California including the Needles Highway Safety Realignment Project for the County of San Bernardino, various infrastructure projects for Caltrans/San Bernardino Associated Governments, and the I-710 Corridor Project Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) for the City of Commerce.

In addition to road projects, Kyle has provided archaeological and paleontological services—cultural resources assessments and monitoring—on and around the Los Angeles International Airport (LAX). Among these include the cultural resources assessment of the proposed concrete pad/apron area and staging area within the southwest portion of LAX, known as the Southwest Remain Overnight Apron Project/West Aircraft Maintenance Area Project. He was also the ESA PCR cultural resources task manager for the EIR and Archaeological/Paleontological Monitoring for the LAX Central Utility Plant Replacement Project. Finally, Kyle was the PCR project manager for the archaeological and paleontological monitoring services during earthmoving operations associated with the development of the Crossfield Taxiway project. Monitoring was in compliance with the mitigation measures outlined in the Master Plan EIS/EIR pursuant to CEQA, NEPA, and Section 106.

Energy Projects. Kyle is well-versed in the potential effects of energy production projects on Southern California Archaeology through his service as an on-call consultant to Southern California Edison (SCE), where he has served as the Project Director and Manager for over 100 SCE projects and managed SCE purchase order contracts in excess of $1.5 million. These projects were subject to requirements of CEQA, Section 106 of the NHPA, and other local ordinances. These projects included deteriorated pole replacements, conduit and vault installations, and distribution circuit installations (aboveground and underground) located throughout SCE's service area in Central and Southern California. Kyle not only managed the budgets and supervised the work for these projects but also conducted most of the record searches, surveys, report writing, site recordation, and client/agency coordination for these projects. In addition to his SCE work, Kyle was the project manager for a 150-acre ground-mounted solar

power project in San Bernardino County and assisted with a 245-acre confidential petroleum exploration project on California's Central Coast.

Education Facilities. Kyle's academic experience includes conducting cultural and paleontological records searches in support of an Initial Study/MND for the proposed John Thomas Dye School Improvement project in the Bel Air Community of the city of Los Angeles; the Long Beach Unified School District's District-Wide Cultural Resources Assessment; and the University High School Beautification project. In addition, Kyle has supervised ESA PCR staff paleontologists during paleontological monitoring services for the Stephen S. Wise Middle School Relocation project in the city of Los Angeles; he also supervised the subsequent fossil identification/analysis and final report preparation services for this project. These services have been conducted pursuant to a Mitigation Monitoring and Reporting Program that was established to implement the mitigation measures identified in the EIR for the project.

Cultural Resources Sensitivity Training. He is well-versed in conducting Cultural Resources Sensitivity Training Sessions to government staff, applicants, contractors, engineers, and construction personnel with regard to the procedures to implement in the event that archaeological or paleontological resources are encountered during construction.

Geographic Information Systems. Kyle has also gained valuable experience with recording historic and prehistoric archaeological sites with Garmin, Magellan, and sub-meter Trimble GeoXT Global Positioning System (GPS) units. He has worked with GIS software such as ArcPad, ArcGIS, and ArcView and developed methods for using these products to accurately and efficiently record archaeological sites.

Presentations. Kyle presented a paper at the 72nd Annual Meeting for the Society of American Archaeology Conference in Austin, Texas in 2007. The paper focused on prehistoric 'yoni' features encountered on a project site proposed to be developed in western Riverside County, California. The project was subject to requirements of CEQA and Section 106 of the NHPA. Kyle has also presented a poster at the Society of California Archaeology Conference in Fish Camp, California in 2016 titled *Urban Archaeology Strikes Again! - 250 Years of Los Angeles History and Archaeology Uncovered in One Downtown City Block*. Kyle also presented a paper on historic archaeology and CEQA at a 2015 workshop for the California Preservation Foundation in Los Angeles.

Appendix B

CONFIDENTIAL APPENDIX (Not for Public Dissemination) - LACM Paleontological Resources Record Search Results