Appendix F

Paleontological Resource Evaluation

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Rincon Project No: 16-02547

Kevin Ferrier
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Culver City, California 90232
Via email: kferrier@webtaha.com

Subject: **Paleontological Resource Assessment for the Segments 1 and 2 of the Los Angeles Bikeway and Greenway Project, City and County of Los Angeles, California**

Dear Mr. Ferrier:

Rincon Consultants, Inc. (Rincon) was retained by Terry A. Hayes & Associates (TAHA) to conduct a paleontological resource assessment for Segments 1 and 2 of the Los Angeles Bikeway and Greenway Project (project). The goal of the assessment is to identify the geologic units that may be impacted by development of the project, determine the paleontological sensitivity of geologic units within the project site, assess the potential for impacts to paleontological resources from development of the project, and recommend mitigation measures to reduce impacts to scientifically significant paleontological resources, as necessary.

This study has been prepared to assist the project in meeting the requirements of the National Environmental Policy Act (NEPA) and the Paleontological Resources Preservation Act (PRPA) and has been prepared in accordance with Society of Vertebrate Paleontology (SVP) guidelines. The federal lead agency for the project is the United States Army Corps of Engineers (USACE). Figures are included in Attachment A.

Project Location and Description

The linear project site extends approximately three miles along the Los Angeles River between Vanalden Avenue to Balboa Boulevard, in the neighborhoods of Reseda, Tarzana, and Encino in the San Fernando Valley, City of Los Angeles, California (Appendix A, Figure 1). The project encompasses portions of Township 1 North, Range 15 West, Section 7, and Township 1 North, Range 15 West, Sections 10 on the United States Geological Survey (USGS) Canoga Park, CA 7.5-minute topographic quadrangle.

The project includes the improvement of Segments 1 and 2 of a larger bicycle path that will eventually extend approximately 30 linear miles along the Los Angeles River. The proposed bicycle path extensions for Segment 1 (Vanalden Avenue to White Oak Avenue) and Segment 2 (White Oak Avenue to Balboa Boulevard) include approximately three miles of bicycle trails along the Los Angeles River. Most of the project site is comprised of urban development including the artificial structure associated with the Los Angeles River bed and bank, ruderal and paved roads and trails, adjacent residential development and associated landscaped areas. Based on the current project design, project activities will not directly

disturb the channel of the Los Angeles River. Most ground disturbance, including a 10-foot excavation depth for a retaining wall, will occur at grade or will occur at shallow to moderate depths and will not exceed existing sediments previously disturbed by development to the Los Angeles River channel. Pile driving for the retaining wall will reach approximately 80 feet below ground surface (bgs).

Regulatory Setting

Fossils are remains of ancient, commonly extinct organisms, and as such are nonrenewable resources. The fossil record is a document of the evolutionary history of life on earth, and fossils can be used to understand evolutionary pattern and process, rates of evolutionary change, past environmental conditions, and the relationships among modern species (i.e., systematics). The fossil record is a valuable scientific and educational resource, and individual fossils are afforded protection under state and federal environmental laws. Federal, state and local regulations applicable to potential paleontological resources in the project site are summarized below. This project encompasses lands administered by the USACE; therefore, federal laws will apply.

Federal Laws and Regulations

A variety of federal statutes specifically address paleontological resources. They generally become applicable to specific projects if the project involves: 1) a federal agency license, permit, approval, or funding, and/or 2) crosses federal lands.

Paleontological Resources Preservation Act of 2009

The PRPA is part of the Omnibus Public Land Management Act of 2009 (PL 111-011 Subtitle D). This act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land, and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. It prohibits the removal of paleontological resources from federal land without a permit issued under this act, establishes penalties for violation of this act, and establishes a program to increase public awareness about such resources. The act requires that collected paleontological resources remain federal property and must be preserved for the public in an approved repository, to be made available for scientific research and public education. The act also requires the location of paleontological resources on public lands remain confidential as a means of protection from theft and vandalism.

Section 6301 of the PRPA and Departmental Proposed Rule at 43 Code of Federal Regulations (CFR) Part 49 define a paleontological resource as:

> Any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth, except that the term does not include— (A) any materials associated with an archaeological resource… (B) any cultural item… (3) Resources determined in writing by the authorized officer to lack paleontological interest or not provide information about the history of life on earth, based on scientific and other management considerations.

Consistent with the definition of a paleontological resource under the PRPA, those paleontological resources that lack scientific interest (e.g., ubiquitous, or do not provide information about the history of life on earth, etc.) are scientifically non-significant fossils.

Archaeological and Paleontological Salvage (23 United States Code [USC] 305)

Statute 23 USC 305 amends the Antiquities Act of 1906. Specifically, it states:

> Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the preservation of American Antiquities," approved June 8, 1906 (Public Law [PL] 59-209; 16 USC 431-433), and State laws where applicable.

This statute allows funding for mitigation of fossils recovered pursuant to federal aid highway projects, provided that "excavated objects and information are to be used for public purposes without private gain to any individual or organization" (Federal Register [FR] 46(19): 9570).

National Historic Preservation Act of 1966 (NHPA; 16 USC 470)

The NHPA only applies to paleontological resources that are found in culturally related contexts and are then thus considered cultural resources.

Federal Land Policy and Management Act of 1976

The Federal Land Policy and Management Act (FLPMA, 43 USC 1701-1782) authorizes inventories of paleontological resources on federal land managed by the BLM, which issues a permit for collecting paleontological resources.

U.S. Army Corps of Engineers Rules and Regulations (36 CFR Part 327)

Protection of paleontological resources is addressed under 36 CFR Part 327, Chapter 111: U.S. Army Corps of Engineers Rules and Regulations Governing Public Use of Water Resources Development Projects, which states:

> § 327.14 Public property. (a) Destruction, injury, defacement, removal or any alteration of public property including, but not limited to, developed facilities, natural formations, mineral deposits, historical and archaeological features, paleontological resources, boundary monumentation or markers and vegetative growth, is prohibited except when in accordance with written permission of the District Commander [65 FR 6901, Feb. 11, 2000].

Methods

Rincon evaluated the paleontological sensitivity of the geologic units that underlie the project area using the results of the paleontological locality search and review of existing information in the scientific literature concerning known fossils within those geologic units. Rincon submitted a request to the Natural History Museum of Los Angeles County (LACM) for a list of known fossil localities from the project area and immediate vicinity (i.e., localities recorded on the USGS Canoga Park, CA 7.5-minute topographic quadrangle), and reviewed geologic maps and scientific literature.

Rincon assigned a paleontological sensitivity to the geologic units within the project area. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The SVP (2010) has defined paleontological sensitivity and developed a system for assessing paleontological sensitivity, as discussed below.

Paleontological Resource Potential

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important and, therefore, considered significant.

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing nonrenewable paleontological resources. This criterion is based on rock units in which significant fossils have been determined by previous studies to be present or likely to be present. These guidelines are provided below:

I. **High Potential (Sensitivity).** Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered have a high potential for containing significant non-renewable fossiliferous resources. These units include, but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. **Low Potential (Sensitivity).** Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway, it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

III. **Undetermined Potential (Sensitivity).** Specific areas underlain by sedimentary rock units for which little information is available have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

IV. **No Potential.** Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources [SVP 2010, 1-2].

Existing Conditions

Regional Geologic Setting

The project site is in the San Fernando Valley, a lowland alluvial plain within the Transverse Ranges province, one of eleven major geomorphic provinces in California (California Geological Survey 2002; Yerkes and Campbell 2005). The San Fernando Valley encompasses the area north of the Santa Monica Mountains, west of the San Gabriel Mountains, and south of the Santa Susana Mountains (Yerkes et al. 1965). The San Fernando Valley is underlain by a structural depression that contains a thick accumulation of more than 20,000 feet of Cenozoic alluvial, shallow marine, and deep shelf sedimentary deposits (McCulloh and Beyer 2004). The San Fernando Valley is structurally complex and is transected by several faults, including the San Fernando fault, Sylmar fault zone, Verdugo fault, and Mission Hills fault (Dibblee and Ehrenspeck 1991, 1992).

The geology of the project site is mapped by Yerkes and Campbell (2005) and includes one geologic unit exposed at the surface: Holocene alluvial fan deposits (Qf) (Appendix A, Figure 2). The Holocene alluvium is composed of unconsolidated gravel, sand, and silt. The alluvium was deposited on recently active alluvial fans and along the natural unlined channel of the Los Angeles River prior to concrete channelization in the early twentieth century (County of Los Angeles 2018). The depth of the Holocene alluvium above older Pleistocene bedrock varies throughout the San Fernando Valley but is at least 14 feet or more in the vicinity of the project, based on previously identified Pleistocene fossil localities below that depth (McLeod 2018).

A search of the paleontological locality records at the LACM resulted in no previously recorded fossil localities from Holocene alluvium within the project site or nearby (McLeod 2018). The closest vertebrate fossil localities were recorded in older Quaternary alluvium. Three Pleistocene vertebrate localities LACM 3822, LACM 6208, and LACM 3263 were identified east of Sepulveda Dam, approximately three miles east of the project site along Kester Avenue, between Oxnard Street and the Ventura Freeway (Highway 101). The localities produced fossil specimens of extinct peccary, (*Platygonus*), camel (*Camelops*), bison (*Bison*), and extinct horse (*Equus*) from 14 feet to 100 feet below the surface within Pleistocene alluvial deposits similar to those that may occur at depth in the proposed project site.

Paleontological Resource Potential of the Project

Based on the literature review and museum records search results, the paleontological sensitivity of the project site was determined in accordance with the SVP (2010) guidelines. Holocene sedimentary deposits, particularly those younger than 5,000 years old, are generally too young to contain fossilized material. Therefore, the Holocene alluvial fan deposits mapped in the project site have been assigned a low paleontological sensitivity. Older, potentially fossiliferous Pleistocene sediments may underlie the Holocene alluvium at depths as shallow as 14 feet bbgs in the vicinity of the project site (McLeod 2018).

Impact Analysis

The Holocene alluvial deposits mapped at the surface of the project site have a low paleontological sensitivity. The potential for encountering fossil resources during project-related ground disturbance is low above 14 feet bgs because ground disturbance will not extend deep enough into the subsurface to reach potentially fossiliferous Pleistocene deposits. In addition, due to the small diameter of the piles (less than 5 feet), the small volume of sediment disturbed in the subsurface during pile driving, and the

minor amount of sediment recovered during pile driving, if any, impacts to fossils due to the pile driving are considered negligible. As a result, impacts to paleontological resources are not anticipated as a result of the project. Further paleontological resource management is not recommended unless paleontologically-sensitive strata are unexpectedly encountered during ground disturbance resulting in the discovery of unanticipated resources during the course of the project.

Recommendations

Rincon does not recommend any further paleontological resources work at this time; however, the following measures are recommended in the case of unanticipated fossil discoveries. This measure would apply to all phases of project construction and would ensure that any unanticipated fossils present on site are preserved.

> In the event an unanticipated fossil discovery is made during the course of the project development, then in accordance with SVP (2010) guidelines, a qualified professional paleontologist should be retained in order to examine the find and to determine if further paleontological resources mitigation is warranted.

If you have any questions regarding this Paleontological Resource Assessment, please contact us.

Sincerely,

Rincon Consultants, Inc.

Heather Clifford, M.S.
Associate Paleontologist

Jessica DeBusk, B.S., M.B.A.
Principal Investigator/Program Manager

Shannon Carmack
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Attachments

Attachment A Figures

References

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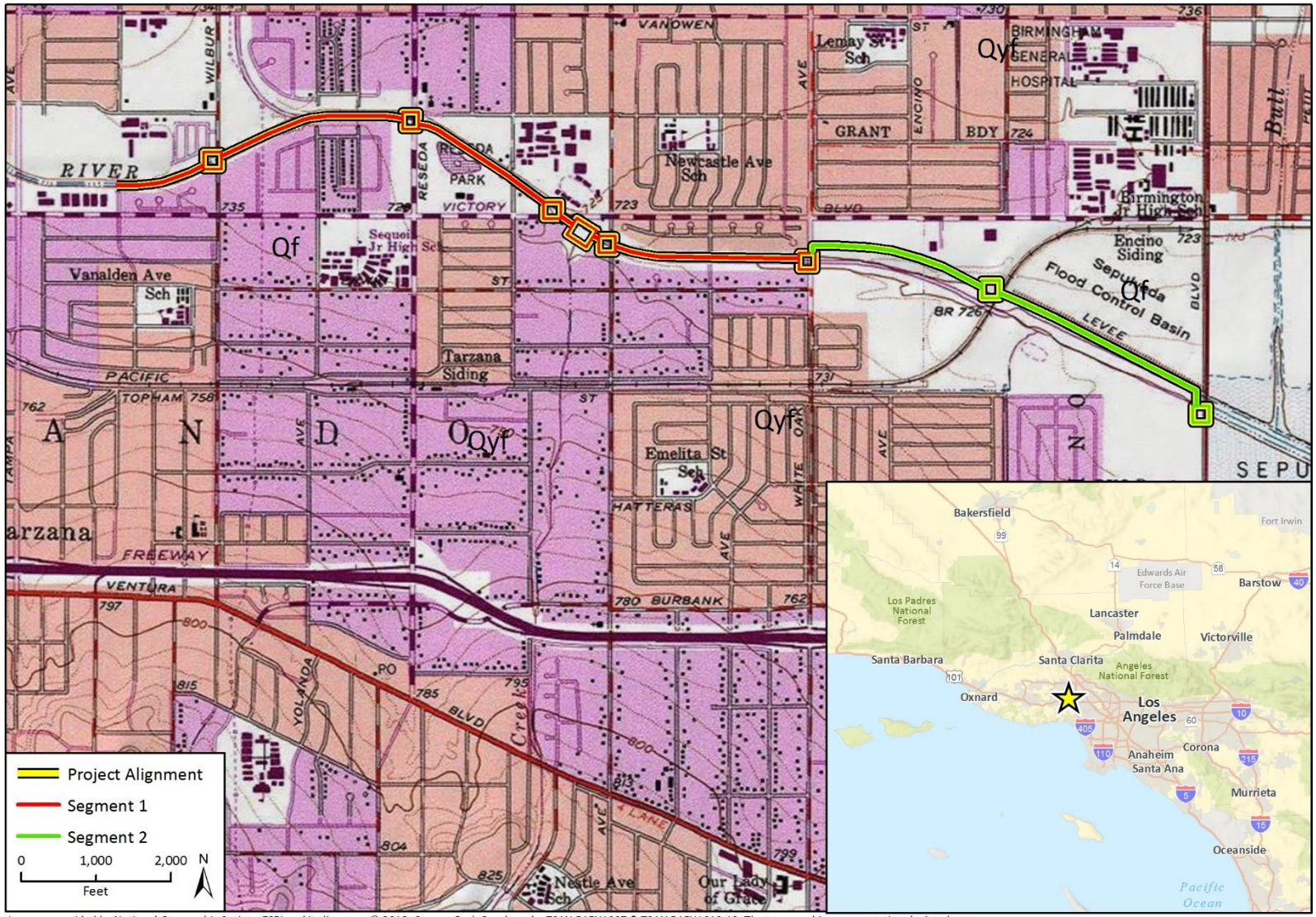
Attachment A

Figures

Figure 1 Project Vicinity Map



Imagery provided by National Geographic Society, ESRI and its licensors © 2018. Canoga Park Quadrangle. T01N R15W S07 & T01N R15W S10-12. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

PaleoFig 1 Project Vicinity

Figure 2 Geologic Units and Paleontological Sensitivity of the Project

Imagery provided by Yerkes and Campbell, 2005.

CRFig 2 Geologic Units and Paleo Sensitivity