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MEMORANDUM

DATE: March 19, 2020

TO: Dan Darnell, Asset Manager, Carson Companies

FROM: Sarah Rieboldt, Ph.D. Associate/Senior Paleontologist

SUBJECT: Paleontological Technical Memorandum for the Agua Mansa Road Development Project, Jurupa Valley, California

INTRODUCTION

This memorandum was prepared to ensure that the Agua Mansa Road Development Project (project) in Jurupa Valley, Riverside County, California, is in compliance with all applicable State and local regulations and requirements regarding paleontological resources, as well as guidelines of the Society of Vertebrate Paleontology (SVP, 2010). The applicable regulations, requirements, and policies include the California Environmental Quality Act (CEQA), Public Resources Code (PRC) Division 13, Chapter 2.6; the State *CEQA Guidelines*, California Code of Regulations, Title 14, Chapter 3, Appendix G; PRC 5097.5, and the City of Jurupa Valley (City) General Plan (City of Jurupa Valley, 2017). This memorandum addresses the potential for the project to impact paleontological resources and includes mitigation measures to minimize these impacts. The City is the Lead Agency under CEQA.

PROJECT DESCRIPTION AND LOCATION

According to the most recent site plan, the project proposes the construction of two industrial buildings within an approximately 23-acre, triangular-shaped parcel. Building A would be 140,198 square-feet (sf), of which approximately 3,000 sf would be for office use and the remaining 137,198 sf for warehouse space. Building B would be 194,804 sf, of which 6,000 sf would be for office use and 188,804 sf would be warehouse space (RGA, 2018). The project also includes space for trailer parking, 147 parking stalls, a water quality basin, and landscaping. According to the most recent concept grading plan, development of the project would involve 14,700 cubic yards of cut for Building A, 112,500 cubic yards of cut for Building B, and 10,300 cubic yards of cut for the adjacent water quality basin (Plotnik and Associates, 2018). Depths of excavation for the project are expected to be approximately 5 feet (ft) for the pads, 4–14 ft for the storm drain, 7–10 ft for the sewer lines, and 5 ft for the fire lines (personal communication, Carson Companies, October 2018).

The project site is at 12340 Agua Mansa Road and is bounded by Agua Mansa Road to the southeast, El Rivino Road to the north, and Hall Avenue to the west and southwest. The project site is shown on the United States Geological Survey (USGS) *Fontana, California* and *San Bernardino, California* 7.5-minute topographic quadrangle maps in unsectioned land of the Jurupa (Stearns) Land Grant (USGS 1980a, 1980b; refer to Figure 1, Attachment B).

METHODS

LSA examined geologic maps of the project site and reviewed relevant geological and paleontological literature to determine which geologic units are present in the project site and whether fossils have been recovered from those or similar geologic units elsewhere in the region. A search for known fossil localities was also conducted through the Natural History Museum of Los Angeles County (LACM) to determine the status and extent of previously recorded paleontological resources within and surrounding the project site. A field survey was completed by LSA field technician Carlton Bennett on October 26, 2018, to note the sediments and to identify any unrecorded paleontological resources exposed on the surface of the project site.

RESULTS

Literature Review

The project is at the northern end of the Peninsular Ranges Geomorphic Province, a 900-mile (mi) long northwest-southeast-trending structural block that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin (California Geological Survey, 2002; Norris and Webb, 1976). This province is characterized by mountains and valleys that trend in a northwest-southeast direction, roughly parallel to the San Andreas Fault. The total width of the province is approximately 225 mi, extending from the Colorado Desert in the east, across the continental shelf, to the southern Channel Islands (i.e., Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) (Sharp, 1976). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rock covered by limited exposures of Cenozoic (less than 66 Ma) sedimentary deposits (Norris and Webb, 1976). Within this province, the project is on the Perris Block, a fault-bounded structural block that extends from the southern foot of the San Gabriel and San Bernardino Mountains southeast to the vicinity of Bachelor Mountain and Polly Butte (Morton and Miller, 2006; Kenney, 1999). It is bounded on the northeast by the San Jacinto Fault and on the southwest by the Elsinore Fault Zone (Morton and Miller, 2006).

Geologic mapping by Morton and Miller, (2006) indicates that the project site contains Old Eolian Deposits. The geotechnical report prepared for this project also noted Artificial Fill in the project site (NorCal Engineering, 2020). These geologic units and their relative paleontological sensitivities are described in more detail below. Dates for the geologic epochs referenced herein are derived from the *International Chronostratigraphic Chart* prepared by the International Commission on Stratigraphy (Cohen et al., 2019).

Artificial Fill

Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition is dependent on the source and purpose. Artificial Fill will sometimes contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material. According to the geotechnical report prepared for this project, Artificial Fill is present at the surface to a depth of approximately 1 ft across the majority of the project site (NorCal Engineering, 2020). There are three small, localized exceptions to this generality where deeper pockets of Artificial Fill are present. Artificial Fill was noted in one trench to

a depth of 9 ft in a small pocket in the west-central part of the project site, in another trench to a depth of 5 ft in a small pocket in the southeastern corner, and in two borings to a depth of 2 ft at the northeastern edge (NorCal Engineering, 2020).

While Artificial Fill may contain fossils, these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study. As such, Artificial Fill has no paleontological sensitivity.

Old Eolian Deposits

The Old Eolian Deposits are late to middle Pleistocene in age (11,700 to 781,000 years ago) and consist of slightly to moderately consolidated, fine-to-medium grained, well to poorly sorted dune sand with small amounts of silty and gravely sand (Morton and Miller, 2006). Color can vary from yellowish brown to very pale brown. The depositional structures vary from massive to finely laminated (Morton and Miller, 2006). According to the geotechnical report prepared for this project, native deposits (i.e., Old Eolian Deposits) are present below Artificial Fill at a depth of approximately 1 ft across the majority of the project site (NorCal Engineering, 2020). In the northwest corner of the project site, native deposits are present directly at the surface, although weathered and with organic content as a result of soil development on these deposits (NorCal Negineering, 2020). Native deposits are also present below the deeper pockets of Artificial Fill noted at a depth of 9 ft in the west-central part of the project site, at a depth of 5 ft in the southeastern corner, and at a depth of 2 ft in the northeastern edge (NorCal Engineering, 2020).

These deposits span the latest two North American Land Mammal Ages: the Rancholabrean (11,000–240,000 years ago) and the Irvingtonian (240,000–1.8 Ma) (Sanders et al., 2009; Bell et al., 2004). Fossils are known in similar Rancholabrean and Irvingtonian deposits from excavations for roads, housing developments, and quarries, as well as scientific investigations within the Southern California area (Jefferson, 1991a, 1991b; Miller, 1971; Pajak et al., 1996; Reynolds and Reynolds, 1991; Springer et al., 2009). These fossils include mammoths, mastodons, horses, bison, camels, saber-toothed cats, coyotes, deer, and sloths, as well as smaller animals such as rodents, rabbits, birds, reptiles, and fish. As such, these deposits are considered to have high paleontological sensitivity.

Fossil Locality Search

According to the locality search conducted by the LACM, there are no known fossil localities within the boundaries of the project. The LACM reports that the project site consists of younger Quaternary drift sand deposits that overlie older Quaternary deposits (i.e. Old Eolian Deposits; Morton and Miller, 2006).

The museum has two vertebrate fossil localities recorded from these older Quaternary deposits near the proposed project site. The closest vertebrate fossil locality is LACM 7811, approximately 12 mi west-southwest of the proposed project site, west of Mira Loma along Sumner Avenue, north of Cloverdale Road (now called Limonite Avenue). This locality produced a specimen of whipsnake (*Masticophis*), at a depth of 9 to 11 feet below the surface. The next closest locality is LACM 1207, approximately 13 mi south-southwest of the proposed project site, between Corona and Norco.

That locality yielded a fossil specimen of deer (*Odocoileus*). Attachment C provides a copy of the letter describing the locality search results from the LACM.

Field Survey

During the survey, Mr. Bennett noted that the project site was plowed and disturbed. Although some grass and low-lying weeds were present over much of the surface, the vegetation was sparse enough to allow for 75 to 100 percent visibility. The eastern side of the project site contained a large round metal basin with a lid (cistern) and multiple concrete and metal pipes sticking out of the ground. Artificial Fill was noted over most of the surface of the project site and consisted of light brown silty sand mixed with and covered by gravel, chunks of concrete, and modern debris (e.g., broken pieces of wood, glass, metal, plastic). Undisturbed native sediment in the northwest corner was noted to be sand to silty sand and light brown in color with some organic material, consistent with soil developing on the exposed surface of the Old Eolian Deposits mapped by Morton and Miller (2006). No paleontological resources were identified during the survey.

CONCLUSIONS AND RECOMMENDATIONS

The majority of the project site contains Artificial Fill at the surface to a depth of approximately 1 ft, with a few exceptions of deeper pockets extending to depths of 2 to 9 ft. Artificial Fill has no paleontological sensitivity; however, throughout the project site, these sediments overlie Old Eolian Deposits, which have high paleontological sensitivity. Given the extent and amount of cut involved in this project, excavation is expected to extend into the high sensitivity Old Eolian Deposits and has the potential to impact paleontological resources. Therefore, LSA recommends the following mitigation measure:

PALEO-1 A paleontologist shall be hired to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a final report at the conclusion of grading.

Excavation and grading activities in deposits with high paleontological sensitivity (the Old Eolian Deposits) shall be monitored by a paleontological monitor following a PRIMP. No paleontological monitoring is required for ground disturbing activities that remain solely in Artificial Fill.

If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect work away from the area of the find in order to assess its significance.

In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and a paleontologist shall be contacted to assess the find for significance and adjust the level of monitoring if needed.

Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collection of a scientific institution.

At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

Implementation of this mitigation measure will ensure that project impacts to scientifically significant paleontological resources will be mitigated to a level that is less than significant.

Attachments: A – References
B – Figure 1: Project Location
C – Paleontological Locality Search Results from the Natural History Museum of Los Angeles County

ATTACHMENT A

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ATTACHMENT B

FIGURE 1: PROJECT LOCATION

Figure 1: Project Location

ATTACHMENT C

PALEONTOLOGICAL LOCALITY SEARCH RESULTS FROM THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY