

# SAN DIEGO NATURAL HISTORY MUSEUM

6 February 2023

Shawna Johnson  
Dudek  
605 Third Street  
Encinitas, CA 92024

RE: Paleontological Records Search – Pacifica Elementary School

Dear Ms. Johnson:

This letter presents the results of a paleontological records search conducted for the Pacifica Elementary School project (Project), located in the North Valley neighborhood in the northwestern portion of the City of Oceanside, San Diego County, California. The Project site is bordered to the north by residential development and Macario Drive; to the east by Monica Circle, Roja Drive, and residential development; and to the south and west by residential development.

## Methods

A review of published geological maps covering the Project site and surrounding area was conducted to determine the specific geologic units underlying the Project site. Each geologic unit was subsequently assigned a paleontological resource sensitivity (Deméré and Walsh, 1993). In addition, a search of the paleontological collection records housed at the San Diego Natural History Museum (SDNHM) was conducted in order to determine if any documented fossil collection localities occur at the Project site or within the immediate surrounding area.

## Results

Published geological reports (e.g., Kennedy and Tan, 2007) covering the Project area indicate that the proposed Project has the potential to impact late Pleistocene- to Holocene-age young alluvial flood plain deposits, middle to late Pleistocene-age old alluvial flood plain deposits, and the middle Eocene-age Santiago Formation. These geologic units and their paleontological sensitivity are summarized below.

The SDNHM does not have any recorded fossil localities within a one mile radius of the Project site (SDNHM, unpublished paleontological collections data; Figure 1).

**Young alluvial flood plain deposits** – Late Pleistocene- to Holocene-age (less than approximately 129,000 years old) young alluvial flood plain deposits underlie the central portion of the Project site at the surface. These deposits generally consist of unconsolidated sandy, silty, or clay-bearing alluvium deposited by the action of recently active streams. These deposits are assigned a low paleontological sensitivity based on their relatively young geologic age and lack of recorded fossil collection localities (Deméré and Walsh, 1993). However, they are likely underlain in the relatively shallow subsurface by a geologic unit with high paleontological sensitivity (i.e., the Santiago Formation, see below).

**Old alluvial flood plain deposits** – Middle to late Pleistocene-age (approximately 774,000 to 11,700 years old) old alluvial flood plain deposits underlie the southern portion of the Project site. These deposits consist of sediments derived from the surrounding uplands and deposited by the action of local streams. Elsewhere in northern San Diego County, similar deposits exposed in Pala Mesa, Bonsall, Vista, Carlsbad, and Oceanside have produced fossils of terrestrial plants, freshwater and terrestrial invertebrates (e.g., clams and snails), and terrestrial mammals (e.g., rodents, horse, tapir, camel, llama, deer, bison, mastodon, mammoth, and giant ground sloth) (Deméré and Walsh, 1993). Due to the scattered nature of fossil-bearing deposits within this geologic unit, old alluvial flood plain deposits are assigned a moderate paleontological sensitivity.

**Santiago Formation** – Strata of the middle Eocene-age (approximately 49 to 40 million years old) Santiago Formation underlie the northern portion of the Project site. Elsewhere in northwestern San Diego County, the Santiago Formation has produced significant assemblages of terrestrial fossil vertebrates, along with assemblages of marine and estuarine mollusks, and is considered to have a high paleontological sensitivity (Deméré and Walsh, 1993).

## Summary and Recommendations

The high paleontological sensitivity of the Santiago Formation and the moderate paleontological sensitivity of old alluvial flood plain deposits in San Diego County (Deméré and Walsh, 1993) suggests the potential for construction of the proposed Project to result in impacts to paleontological resources. Any proposed excavation activities that extend deep enough to encounter previously undisturbed deposits of these geologic units (i.e., below the depth of any previously imported artificial fill or disturbed sediments present within the Project site) have the potential to impact the paleontological resources preserved therein. If such excavation is required for Project construction, implementation of a complete paleontological resource mitigation program during ground-disturbing activities is recommended. The mitigation program must include, at a minimum, measures for construction monitoring, fossil salvage and data recovery, laboratory preparation and curation of the fossils at an appropriate regional repository, and production of a final paleontological mitigation report.

If you have any questions concerning these findings please feel free to contact me at [kmueller@sdnhm.org](mailto:kmueller@sdnhm.org).

Sincerely,



Kirstin Mueller  
Assistant Report Writer  
San Diego Natural History Museum

Enc: *Figure 1: Project map*

## Literature Cited

- Deméré, T.A., and S.L. Walsh. 1993. Paleontological Resources, County of San Diego. Unpublished technical report prepared for the San Diego County Department of Public Works: 1–68.
- Kennedy, M.P., and Tan, S.S. 2007. Geologic Map of the Oceanside 30' x 60' Quadrangle, California. California Geological Survey, Regional Geologic Map Series 1:100,000 scale, map no. 2.
- SDNHM, unpublished paleontological collections data.

