CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

April 2, 2020

Annie Baek
InSite Property Group
811 N. Catalina Avenue, Suite 1306
Redondo Beach, CA 90277

Subject: Paleontological Resources Technical Letter Report for the Self-Storage/RV Parking at 3701 Pacific Place Project, Long Beach, Los Angeles County, California (LSA Project No. ISP2003)

Dear Ms. Baek:

LSA conducted a Paleontological Resources Assessment for the Self-Storage/RV Parking at 3701 Pacific Place Project (project) in Long Beach, Los Angeles County, California. The purpose of the assessment was to determine whether paleontological resources may be present within the proposed project area, whether they might be impacted by development of the project, and to make recommendations to mitigate any potential impacts to paleontological resources.

## PROJECT LOCATION AND DESCRIPTION

The project area is located north of Interstate 405, east of Interstate 710 and the Los Angeles River, and west of the Los Angeles Metropolitan Transportation A Line light rail tracks. Figure 1 (Attachment B) depicts the project area on the *Long Beach, California* 7.5-minute United States Geological Survey (USGS) topographic map in Township 3 South, Range 8 West, in unsectioned lands of the Cerritos Land Grant, San Bernardino Baseline and Meridian (USGS, 1978).

The project proposes the construction of a three-story building of approximately 145,764 square feet with 1,100 self-storage units, associated parking, and 580 RV parking spaces. The project also includes a car wash, dump station, retaining walls, landscaping, lighting, and signage, with installation of new wet and dry utilities.

Excavation associated with the parking area is expected to reach a maximum depth of approximately 18 feet (ft) (personal communication, InSite Property Group, March 2020). Excavation for dry utilities and water lines will reach depths of 3–4 ft (personal communication, InSite Property Group, March 2020). Excavation for the storm drain will range from approximately 2–6 ft below existing grade and ultimately connecting to the County line 20 ft below existing grade (personal communication, InSite Property Group, March 2020). Excavation for the sewer line will extend approximately from existing grade to 32 ft below existing grade (personal communication, InSite Property Group, March 2020).

## REGULATORY ENVIRONMENT

### State of California

Under State law, paleontological resources are protected by the California Environmental Quality Act (CEQA) and Public Resources Code Section 5097.5.

### *California Environmental Quality Act (Public Resources Code 21000 et seq.)*

CEQA's purpose is to provide a statewide policy of environmental protection. As part of this protection, State and local agencies are required to analyze, disclose, and, when feasible, mitigate the environmental impacts of, or find alternatives to, proposed projects. The State *CEQA Guidelines* (California Code of Regulations 15000 et seq.) provide regulations for the implementation of CEQA and include more-specific direction on the process of documenting, analyzing, disclosing, and mitigating environmental impacts of a project. To assist in this process, Appendix G of the State *CEQA Guidelines* provides a sample checklist form that may be used to identify and explain the degree of impact a project will have on a variety of environmental aspects, including paleontological resources (Section VII[f]). As stated in Section 15002(b)(1-3) of the State *CEQA Guidelines*, CEQA applies to governmental action, including activities that are undertaken by, financed by, or require approval from a governmental agency.

### *California Public Resources Code, Section 5097.5*

This law protects historic, archaeological, and paleontological resources on public lands within California and establishes criminal and civil penalties for violations. Specifically, Public Resources Code Section 5097.5 states that "No person shall knowingly or willfully excavate upon, remove, destroy, injure, or deface any … paleontological or historical feature, situated on public lands" and that public lands includes lands "… under the jurisdiction of the state, or any city, county, district, authority, or public corporation, or any agency thereof."

### City of Long Beach

The Land Use Element of the City of Long Beach's (City) General Plan (City of Long Beach, 2019) establishes the City's priorities as they relate to natural, historical, and paleontological resources and outlines the means for their preservation by implementing the following goals and policies to protect these resources:

> **LU Policy 20-12, CR-2:** Minimize any potential impacts to unknown paleontological resources by ensuring appropriate treatment and documentation of the discovery in accordance with federal, State, and local guidelines.

## METHODS

LSA examined geologic maps of the project area and reviewed relevant geological and paleontological literature to determine which geologic units are present within the project area and whether fossils have been recovered within the project area or from those or similar geologic units elsewhere in the region. A fossil locality search request was conducted on March 12, 2020 through the Natural History Museum of Los Angeles County (LACM) in order to determine the status and extent of previously recorded paleontological resources within and surrounding the project area. On February 28, 2020, LSA paleontologist Paul Alms, M.Sc., conducted a pedestrian field survey of the project area. This survey involved walking parallel transects over the project area to document and collect any paleontological resources that may have been present, as well as to note the sediments at the surface.

# RESULTS

## Literature Review

The project area is in the northern Peninsular Ranges Geomorphic Province, a 900 mile 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). The total width of this province is 225 mi, extending from the Colorado Desert in the east, across the continental shelf, to the Southern Channel Islands (Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) in the west (Sharp, 1976). This province is characterized by a series of mountain ranges and valleys that trend in a northwest-southeast direction roughly parallel to the San Andreas Fault Zone (Norris and Webb, 1976; Sharp, 1976). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rocks covered by a veneer of Cenozoic (66 Ma to Present) sedimentary deposits (Norris and Webb, 1976).

Within this larger region, the project is located in the Los Angeles Basin, a broad alluvial lowland bounded to the north and east by the San Gabriel and Santa Ana Mountains, respectively, and by the Pacific Ocean to the southwest (Yerkes et al., 1965). The basin is underlain by a structural depression that has discontinuously accumulated thousands of feet of marine and terrestrial deposits since the late Cretaceous (approximately 100.5 Ma) (Yerkes et al., 1965). Over millions of years, the basin has experienced episodes of subsidence, deposition, uplift, erosion, and faulting, all of which have resulted in very complex geology (Yerkes et al., 1965). The surface of the basin slopes gently southwestward toward the ocean, interrupted in various places by low hills and traversed by several large rivers (Sharp, 1976; Yerkes et al., 1965), including the Los Angeles River, the Rio Hondo, the San Gabriel River, and the Santa Ana River.

Geologic mapping by Saucedo et al. (2016) shows that the project area is underlain by Holocene to late Pleistocene Young Alluvium, Unit 2, and the late to middle Pleistocene Old Shallow Marine Deposits on Wave-Cut Surface (Figure 2). Although not mapped by Saucedo et al. (2016), the project area contains Artificial Fill, which was noted during the field survey and in the geotechnical report prepared for this project (Carl Kim Geotechnical, Inc., 2019). The geotechnical report also noted layers of sand, silt, clay, and sump material with varying amounts of hydrocarbon content below the surface, material which was likely placed during the previous use of the project area as an oil field disposal site (Carl Kim Geotechnical, Inc., 2019). For the purposes of this report, all the non-native deposits (e.g., the surficial fill and layers of sand, silt, clay, and sump material) described in the geotechnical report prepared for this project (Carl Kim Geotechnical, Inc., 2019) are considered to be Artificial Fill. These geologic units and the respective paleontological sensitivities are discussed in more detail below. Dates for the geologic intervals referenced in this report are derived from the *International Chronostratigraphic Chart* published 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.

According to the geotechnical report prepared for this project, material imported to the project area consists of poorly graded, fine sand and silty sand overlying layers of variably mixed sand, silt, and clay that often has an oily residue, a mild to strong petroleum odor, and contains variable amounts of hydrocarbons. These imported materials, herein grouped as Artificial Fill, are present throughout the project area (Carl Kim Geotechnical, Inc., 2019). In the southeastern corner, one boring drilled for the geotechnical report did not encounter any Artificial Fill, while another encountered Artificial Fill only to a depth of approximately 6.5 ft (Carl Kim Geotechnical, Inc., 2019). However, the remaining borings across the project area encountered Artificial Fill from the surface to depths of approximately 12.5–27 ft (Carl Kim Geotechnical, Inc., 2019).

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, and Artificial Fill has no paleontological sensitivity.

### *Young Alluvium, Unit 2*

The Young Alluvium, Unit 2, is Holocene to late Pleistocene in age (less than 126,000 years ago) and consists predominantly of poorly sorted and poorly consolidated clay and silt, and loose to moderately dense sand and silty sand (Saucedo et al., 2016). These deposits are generally found adjacent to stream and river channels and represent deposition by streams and rivers during flood events. In the project area, these deposits represent flooding events of the Los Angeles River (Saucedo et al., 2016).

Although Holocene (less than 11,700 years ago) deposits can contain remains of plants and animals, only those from the middle to early Holocene (4,200 to 11,700 years ago; Cohen et al., 2019) are considered scientifically important (SVP, 2010), and fossils from this time interval are not very common. These Holocene deposits overlie older, Pleistocene deposits, which have produced scientifically important fossils elsewhere in the region (Jefferson, 1991a, 1991b; Miller, 1971; Reynolds and Reynolds, 1991; Springer et al., 2009). These older, Pleistocene deposits span the end of the Rancholabrean North American Land Mammal Age (NALMA), which dates from 11,000 to 240,000 years ago (Sanders et al., 2009) and was named for the Rancho La Brea fossil site in central Los Angeles. The presence of *Bison* defines the beginning of the Rancholabrean NALMA (Bell et al., 2004), but fossils from this time also include other large and small mammals, reptiles, fish, invertebrates, and plants (Jefferson, 1991a, 1991b; Miller, 1971; Reynolds and Reynolds, 1991; Springer et al., 2009). There is a potential to find these types of fossils in older sediments of this geologic unit, which may be encountered below a depth of approximately 10 ft. Therefore, these deposits are assigned a low paleontological sensitivity above a depth of 10 ft and a high sensitivity below that mark.

### *Old Shallow Marine Deposits on Wave-Cut Surface*

The Old Shallow Marine Deposits on Wave-Cut Surface are late to middle Pleistocene in age (11,700–781,000 years ago) and consist of poorly sorted, somewhat permeable siltstone, sandstone, and conglomerate that are reddish-brown in color (Saucedo et al., 2016). These deposits accumulated in strandline, beach, and estuarine environments and rest on platforms that have been carved by wave action and pushed up from below the water by regional uplift (Saucedo et al., 2016). These and other late Pleistocene marine deposits with a veneer of terrestrial deposits from Los

Angeles and Orange Counties have also been referred to as the Palos Verdes Sand (Long, 1993; Woodring et al., 1946).

Because these deposits accumulated in nearshore environments during the late to middle Pleistocene, they have the potential to preserve both marine and terrestrial animals and plants from the Rancholabrean and Irvingtonian NALMAs (Bell et al., 2004; Sanders et al., 2009). Fossils recovered from these NALMAs around Southern California include large and small mammals, reptiles, fish, invertebrates, and plants (Bell et al., 2004; Jefferson, 1991a, 1991b; Miller, 1971; Reynolds and Reynolds, 1991; Springer, 2009). From deposits referred to as the Palos Verdes Sand in San Pedro, Miller (1971) described a mix of marine and terrestrial vertebrates he referred to as the "San Pedro fauna," which includes specimens of bony fish, frog, snake, duck, giant ground sloth, rabbit, ground squirrel, meadow mouse, pocket gopher, woodrat, whale, dire wolf, sea otter, saber-toothed cat, American lion, mountain lion, horse, camel, deer, antelope, and bison. Also from localities in marine and terrestrial deposits of the Palos Verdes Sand in the San Pedro area and Palos Verdes Peninsula, Woodring et al. (1946) described an extremely abundant and diverse collection of marine and terrestrial fossils, including specimens of echinoids, gastropods, bivalves, chitons, birds, seal, sea lion, rodents, mammoth, ground sloths, horse, cats, dogs, camels, deer, and bison. Late Pleistocene marine and terrestrial deposits of the Palos Verdes Sand from Costa Mesa in central Orange County produced a variety of fossils of reptiles, birds, mammals, sharks, rays, and bony fish (Long, 1993). Because there is a potential to encounter these types of fossils in the Old Shallow Marine Deposits on Wave-Cut Surface, these deposits are considered to have high paleontological sensitivity.

## Fossil Locality Search

According to the locality search LACM conducted, there are no known fossil localities within the boundaries of the project, nor does the museum have records of fossil localities from what is calls younger Quaternary alluvium (i.e., the Holocene-age deposits of the Young Alluvium, Unit 2, as mapped by Saucedo et al. [2016]). However, the LACM has fossil localities near the project area from what it calls older Quaternary deposits (i.e., the Pleistocene-age deposits of the Young Alluvium, Unit 2 and the Old Shallow Marine Deposits on Wave-Cut Surface as mapped by Saucedo et al. [2016]). The closest vertebrate localities from the older Quaternary deposits are LACM 1165, 3319, and 4129, located just west of the project area along both sides of Alameda Street from Carson Street on the north to Sepulveda Boulevard on the south. These localities produced a mammoth (*Mammuthus*) 30 ft below the surface, a camel (Camelidae) 24 ft below the surface, and a bison (*Bison*) from an unknown depth. Slightly farther west, west of Wilmington Avenue and south of 223rd Street, LACM 1919 produced a mammoth (*Mammuthus*) at a depth of 10 ft below the surface. Southeast of the project area, near the intersection of Spring Street and Orange Avenue, LACM 1022 produced specimens of birds (Aves). A copy of the letter describing the locality search results from the LACM is provided in Attachment C.

## Field Survey

Visibility in the project area was fair, at approximately 30 percent in the southeastern section and 50 percent in the central and northern sections, due to pavement and vegetation cover. Where visible, sediments in the southeastern section consisted of reddish-brown clay to sandy clay with sparse

pebbles. Loose, fine to coarse quartz sand was noted along the parking lot and entry road, presumably imported into the project area from previous golf course activities. In the northern and central sections, visible sediments consisted of light brown, pebbly, sandy silt. Also noted in various places across the project area were concrete aggregate, golf balls, netting, and modern debris, all evidence of Artificial Fill placed during previous uses of the parcel. No paleontological resources were noted or collected during the field survey.

## RECOMMENDATIONS

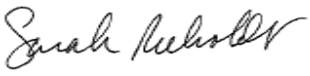
The majority of the project area contains Artificial Fill, which has no paleontological sensitivity, to depths ranging from 6.5–27 ft. Below the Artificial Fill and in a small area at the surface, there is; Young Alluvium, Unit 2, which has low paleontological sensitivity from the surface to a depth of 10 ft and high paleontological sensitivity below 10 ft. Below the Artificial Fill and/or the Young Alluvium, Unit 2, there are Old Shallow Marine Deposits on Wave-Cut Surface, which have high paleontological sensitivity. Based on project plans and the geotechnical report prepared for this project (Carl Kim Geotechnical, Inc., 2019), LSA understands that the majority of excavation will occur at the northern end of the project area in order to create fill for the southern end to level the project area. The deeper excavations for sewer and storm drain would occur in trenches, partly along existing lines, and only partly to depths that would reach paleontologically sensitive deposits. Excavation in the southeastern corner would likely reach native deposits, but only to depths at which the deposits are considered to have low paleontological sensitivity. Also noted in the geotechnical report (Carl Kim Geotechnical, Inc., 2019), the foundation for the building is recommended to be placed on driven piles extending through the Artificial Fill to reach native deposits. Although the driven piles would reach native deposits with high paleontological sensitivity, the individual piles would not have a large impact area, and this construction methods does not produce spoils that may be inspected for fossils.

Considering the paleontological sensitivities of the geologic units in the project area, the construction methods involved, and the excavation depths, the potential for the project to impact scientifically significant fossils during project development is extremely low. Therefore, LSA recommends that no mitigation is required for paleontological resources. If for any reason, the project plans change to involve different construction methods or deeper excavation, a qualified paleontologist should be retained to revisit this recommendation and determine whether it remains appropriate or should be modified.

Considering the

Sincerely,

**LSA Associates, Inc.**



Sarah Rieboldt, Ph.D.
Associate/Senior Paleontologist

Attachments: A – References

B – Figure 1: Project Location and Vicinity
Figure 2: Geology
C – Fossil Locality Search Results from the Natural History Museum of Los Angeles County

# ATTACHMENT A

# REFERENCES

Bell, Christopher J., Ernest L. Lundelius, Jr., Anthony D. Barnosky, Russell W. Graham, Everett H. Lindsay, Dennis R. Ruez, Jr., Holmes A. Semken, Jr., S. David Webb, and Richard J. Zakrzewski
2004 The Blancan, Irvingtonian, and Rancholabrean Land Mammal Ages. In M.O. Woodburne, ed., Late Cretaceous and Cenozoic Mammals of North America. pp. 232–314.

California Geological Survey
2002 California Geomorphic Provinces. California Geologic Survey Note 36. California Department of Conservation.

Carl Kim Geotechnical, Inc.
2019 Geotechnical Exploration, Proposed Self-Storage Facility, 3701 North Pacific Place, Long Beach, California. Prepared for InSite Property Group, November 14, 2019. Project No. PWAS_20190823b.

City of Long Beach
2019 Land use Element, City of Long Beach General Plan. Adopted December 3, 2019.

Cohen, K.M., Finney, S.C., Gibbard, P.L., and Fan, J.-X.
2019 The ICS International Chronostratigraphic Chart. Episodes 36: 199 – 204.

Jefferson, George T.
1991a A Catalogue of Late Quaternary Vertebrates from California: Part One: Non-marine Lower Vertebrate and Avian Taxa. Natural History Museum of Los Angeles County Technical Reports Number 5. Los Angeles.

1991b A Catalogue of Late Quaternary Vertebrates from California: Part Two: Mammals. Natural History Museum of Los Angeles County Technical Reports Number 7, Los Angeles.

Long, Douglas J.
1993 Preliminary List of the Marine Fishes and Other Vertebrate Remains from the Late Pleistocene Palos Verdes Sand Formation at Costa Mesa, Orange County, California. PaleoBios 15(1):9-13.

Miller, Wade E.
1971 Pleistocene Vertebrates of the Los Angeles Basin and Vicinity (Exclusive of Rancho La Brea). Los Angeles County Museum of Natural History Bulletin, Science No. 10.

Norris, R.M., and R.W. Webb
1976 Geology of California. John Wiley and Sons, Inc., New York. 379 pp.

Reynolds, R.E., and R.L. Reynolds
1991 The Pleistocene Beneath our Feet: Near-surface Pleistocene Fossils in Inland Southern California Basins. In M.O. Woodburne, R.E. Reynolds, and D.P. Whistler, eds., Inland Southern California: The Last 70 Million Years. San Bernardino County Museum Special Publication 38(3 and 4):41–43. Redlands, California.

Sanders, A.E., R.E. Weems, and L.B. Albright
2009 Formalization of the Middle Pleistocene "Ten Mile Beds" in South Carolina with Evidence for Placement of the Irvingtonian-Rancholabrean Boundary. Museum of Northern Arizona Bulletin 64:369-375.

Saucedo, George J., Gary Greene, Michael P. Kennedy, and Stephen P. Bezore
2016 Geologic Map of the Long Beach 30' x 60' Quadrangles, California. Version 2.0. California Geological Society. Map Scale 1:100,000.

Sharp, R.P.
1976 Geology: Field Guide to Southern California. Second Edition. Kendall/Hunt Publishing Company. 181 pp.

Society of Vertebrate Paleontology (SVP)
2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology. Impact Mitigation Guidelines Revision Committee. 11 pp.

Springer, Kathleen, Eric Scott, J. Christopher Sagebiel, and Lyndon K. Murray
2009 The Diamond Valley Lake Local Fauna: Late Pleistocene Vertebrates from Inland Southern California. In L.B. Albright, III, ed. Papers in Geology, Vertebrate Paleontology, and Biostratigraphy in Honor of Michael O. Woodburne. Museum of Northern Arizona Bulletin 65, pp. 217–236.

United States Geological Survey (USGS)
1978 Long Beach, California 7.5-minute topographic quadrangle. Published 1964, photorevised 1978. United States Geological Survey, Denver, Colorado.

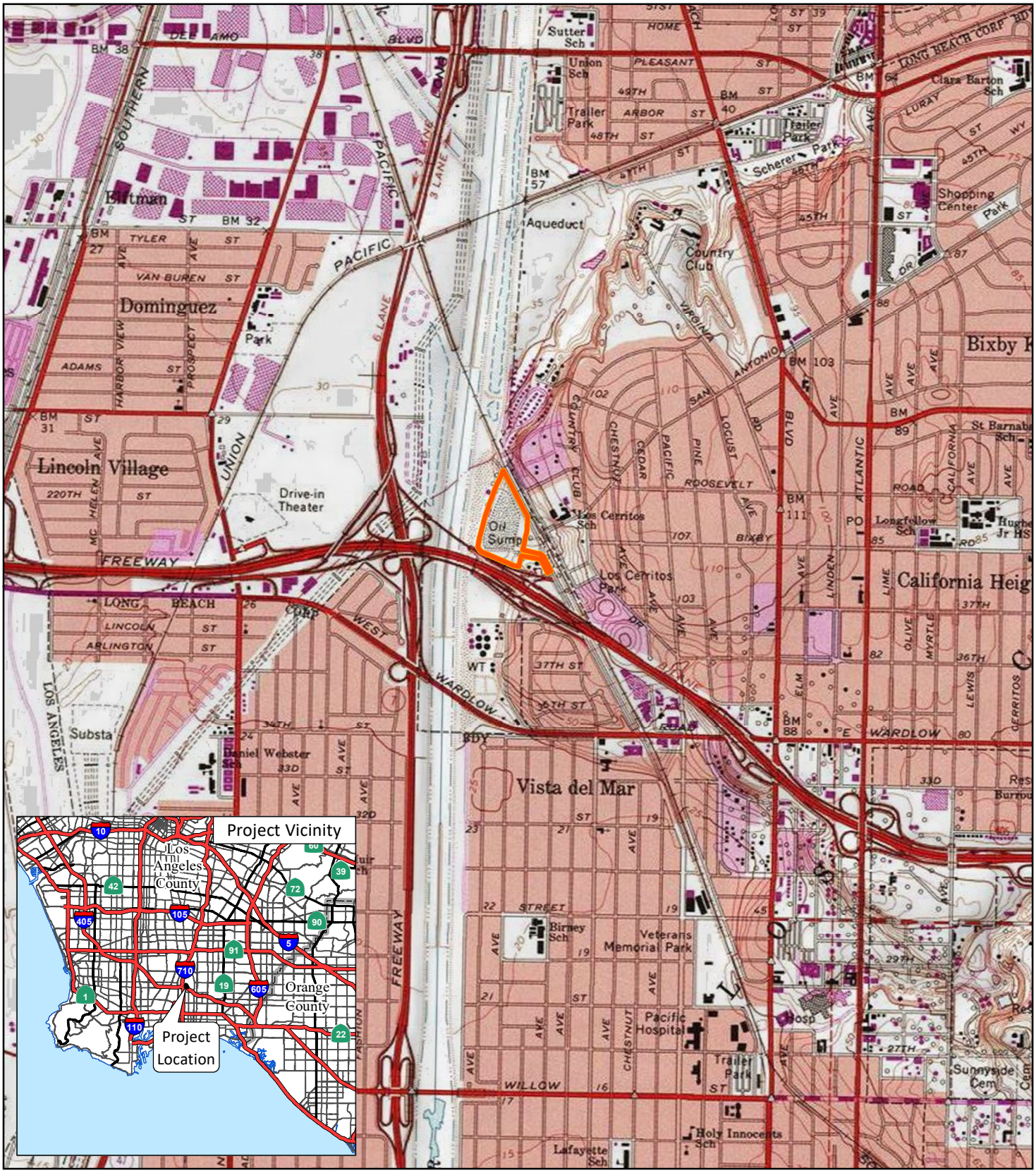
Woodring, W.P., M.N. Bramlette, and W.S.W. Kew
1946 Geology and Paleontology of Palos Verdes Hills, California. United States Geological Survey Professional Paper 207. 145 pp.

Yerkes R.F., T.H. McCulloh, J.E. Schoellhamer, and J.G. Vedder
1965 Geology of the Los Angeles Basin, California– An Introduction. United States Geological Survey Professional Paper 420-A. 57 pp.

# ATTACHMENT B

## FIGURE 1: PROJECT LOCATION AND VICINITY

## FIGURE 2: GEOLOGY




LSA

LEGEND

Project Location

FIGURE 1

N

0 1000 2000

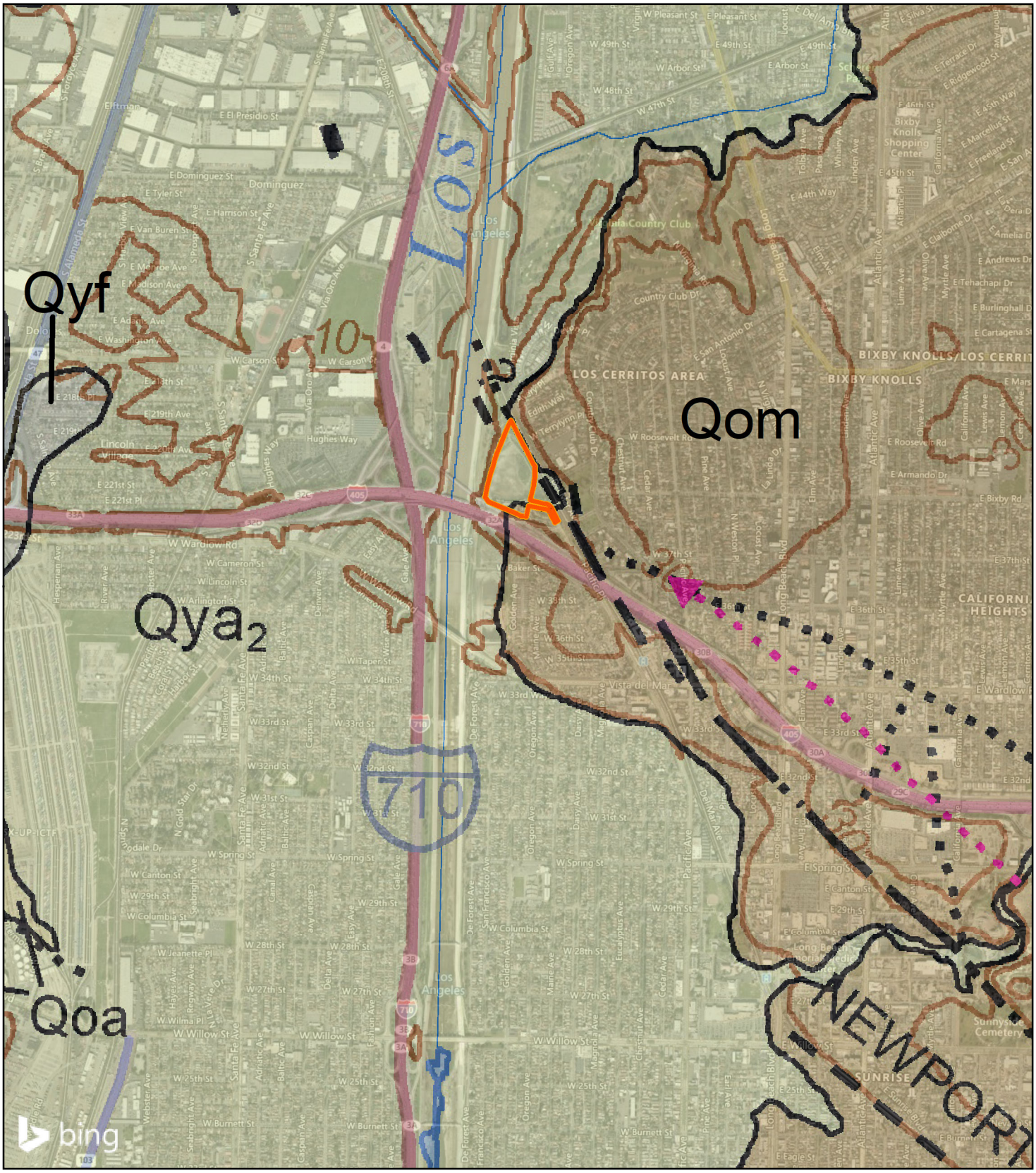
FEET

*Self-Storage/RV Parking at 3701 Pacific Place Project*

Project Location and Vicinity

SOURCE: USGS 7.5' Quad - Long Beach (1978), CA

I:\ISP2003\GIS\MXD\ProjectLocation.mxd (3/16/2020)




LEGEND

Geology

- $Qya_2$ - Young Alluvium, Unit 2
- Qyf - Young Alluvial Fan Deposits, Undivided
- Qoa - Old Alluvium, Undivided
- Qom - Old Shallow Marine Deposits on Wave-Cut Surface

FIGURE 2

N

0 1000 2000

FEET

*Self-Storage/RV Parking at 3701 Pacific Place Project*

Geology

SOURCE: Bing (2018); Saucedo et al. (2016)

I:\ISP2003\GIS\MXD\Paleo\Geology_rev 1.mxd (3/16/2020)

# ATTACHMENT C

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

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

NATURAL HISTORY MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

12 March 2020

LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, California 92614

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

re: Paleontological Resources Records Check for the proposed Self-storage / RV Parking at 3701 Pacific Place Project, LSA Project # ISP2003, in the City of Long Beach, Los Angeles County, project area

Dear Sarah:

I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Self-storage / RV Parking at 3701 Pacific Place Project, LSA Project # ISP2003, in the City of Long Beach, Los Angeles County, project area as outlined on the portion of the Long Beach USGS topographic quadrangle map that you sent to me via e-mail on 27 February 2020. We do not have any vertebrate fossil localities that lie directly within the proposed project area, but we do have vertebrate fossil localities nearby from sedimentary deposits similar to those that may occur at depth in the proposed project area.

Surficial deposits in the entire proposed project area consist of younger Quaternary Alluvium, derived as alluvial fan deposits from the Los Angeles River that currently flows in a concrete channel adjacent to the west. These deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but older Quaternary deposits such as occur immediately to the east are present throughout the area, and these latter deposits have produced numerous vertebrate fossil localities.

Our closest older Quaternary localities, LACM 1165, 3319 and 4129, occur just west of the proposed project area, along both sides of Alameda Street from Carson Street on the north to

Sepulveda Boulevard on the south. From these localities fossil mammoth, *Mammuthus*, was recovered 30 feet below the surface, fossil camel, Camelidae, was found 24 feet down a bore hole and fossil bison, *Bison*, was discovered at unknown depth. Slightly farther west, just west of Wilmington Avenue south of 223rd Street, our older Quaternary locality LACM 1919 produced a specimen of fossil mammoth, *Mammuthus*, from about 10 feet below the surface.

Southeast of the proposed project area, south of the San Diego Freeway (I-405) on Spring Street near the intersection with Orange Avenue, our older Quaternary locality LACM 1022 produced fossil specimens of undetermined birds, Aves. Further east along Spring Street, near the intersection with Cherry Avenue, our older Quaternary locality LACM 1021 produced fossil specimens of bird, Aves, and mammoth, *Mammuthus*, at unknown depth. Just north of locality LACM 1021, on the south side of the San Diego Freeway (I-405) where it crosses Cherry Avenue, our San Pedro Sand locality LACM 3245 produced a rich suite of fossil invertebrates and fish at a depth of 37 feet below the surface. The fossil fish fauna from locality LACM 3245, mostly represented by skull otoliths (ear bones) obtained from screen washing sediment samples, was described by J.E. Fitch and R.D. Reimer in 1967 (Bulletin of the Southern California Academy of Sciences, 66(2):77-91). Fitch and Reimer cited George Kanakoff (personal communication) as stating that the invertebrates indicated a Pliocene age for the invertebrates in the fauna, but subsequent research shows that the deposit is probably the marine Quaternary San Pedro Sand. Fitch and Reimer figured fossil specimens in the LACM collections from locality LACM 3245 for the fish sanddabs, *Citharichthys stigmaeus* and *Citharichthys sordidus,* halibut*, Paralichthys californicus,* sole, *Parophrys vetulus* and *Lyopsetta exilis*, lanterfish, *Electrona rissoi*, and goby, *Lepidogobius lepidus*.

Shallow excavations in the younger Quaternary Alluvium deposits exposed throughout the proposed project area probably will not uncover significant fossil vertebrate remains. Deeper excavations in the proposed project area that extend down into older Quaternary deposits, however, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area below the uppermost layers, therefore, should be closely monitored to quickly and professionally collect any specimens without impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice