

# APPENDIX D2

## PALEONTOLOGICAL RESOURCE ASSESSMENT



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Mr. Chris Sanford  
Development Director  
Hillwood Investment Properties  
901 Via Piemonte, Suite 175  
Ontario, CA 91764  
Transmitted via email to [Chris.Sanford@hillwood.com](mailto:Chris.Sanford@hillwood.com)

***RE: Paleontological Resource Assessment for the Proposed Alliance California Gateway South Building 4 Project, City of San Bernardino, San Bernardino County, California***

Dear Mr. Sanford:

At the request of Hillwood Investment Properties, Applied EarthWorks, Inc. (Æ) performed a paleontological resource assessment for the Alliance California Gateway South Building 4 Project (Project) in the City of San Bernardino (City), San Bernardino County, California. The scope of work included a museum records search, a literature and geologic map review, and preparation of this technical memorandum (memo). This memo, which serves as a summary of our findings, was written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP) (2010) and will satisfy the requirements of the California Environmental Quality Act (CEQA).

### **Project Description and Background**

The Project is located within the City of San Bernardino in the southwestern portion of San Bernardino County, California. The 65.8-acre Project area is approximately 0.5 miles north of the Christopher Columbus Transcontinental Highway / Interstate 10 (I-10) and 0.5 miles east of the San Bernardino Freeway / Interstate 215 (I-215). The majority of the Project area is situated on the existing San Bernardino Golf Club at the physical address of 1494 S. Waterman Avenue. The Project area is situated south of Orange Show Road, west of S. Waterman Avenue, north of the Santa Ana River, and east of the San Bernardino Flood Control Channel. The Project area is mapped within an unsectioned area of the San Bernardino Landgrant, San Bernardino Baseline and Meridian on the San Bernardino South CA, 7.5-minute United States Geological Survey quadrangle (Attachment 1).

The Project proposes to redevelop the approximately 62.3-acre site through the construction and operation of one high cube logistics warehouse building. The building is proposed to contain 1,063,852 square feet of building area, 188 truck trailer dock doors, and 1,171 auto and trailer parking stalls, as well as drive aisles, utility infrastructure, landscaping, detention basin, transmission line easement, and other associated improvements.

The Project also includes off-site roadway improvements between the northern Project site boundary and Orange Show Road to the north. An interim off-site road (1.6 acres) is proposed to run due north from



the Project site just east of the San Bernardino Flood Control Channel to a point 160 ft south of Orange Show Road, at which point the interim roadway would turn east to intersect with South Washington Avenue. Because the City of San Bernardino may require that the interim off-site roadway be replaced in the future with a permanent roadway in a different alignment, the proposed Project also includes two possible future permanent alignments. Option 1 (1.8 acres) would consist of widening South Washington Avenue on its west side between Orange Show Road and East Dumas Street to a right-of-way width of between 57 feet and 60 feet to accommodate 40 feet of pavement plus shoulders; Washington Avenue would be extended as a 60-foot right-of-way south of East Dumas Street to the planned parking area at the northern portion of the Project site. Option 2 (0.9 acres) would consist of widening Washington Avenue on its west side between Orange Show Road and approximately 80 feet north of existing East Dumas Street to a right-of-way width of between 57 feet and 60 feet to accommodate 40 feet of pavement plus shoulders. At the southerly extent of the Washington Avenue improvements (approximately 80 feet north of East Dumas Street, a 60-foot wide private street access easement containing 40 feet of pavement plus shoulders would be provided between Washington Avenue and the Project's proposed interim off-site access roadway. At this point, access to the Project site under Option 2 would make use of the interim access roadway alignment, which would narrow to a 30-foot wide roadway and extend to the planned parking area at the northern portion of the Project site. In total, the off-site roadway improvements total 3.5 acres in area.

Other Project elements include the construction of a second driveway with access from Waterman Avenue near the northeast corner of the Project site. The Project also includes the relocation of the existing water wells. This technical memorandum was prepared in order to satisfy the environmental reporting requirements of the formal planning permit application submittal to the City.

### **Regulatory Context**

Paleontological resources cannot be replaced once they are destroyed. Therefore, paleontological resources are considered nonrenewable scientific resources and are protected under the CEQA. Specifically, in Section V(c) of Appendix G of the CEQA Guidelines, the "Environmental Checklist Form," the question is posed: "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

In order to determine the uniqueness of a given paleontological resource, it must first be identified or recovered (i.e., salvaged). Therefore, mitigation of adverse impacts to paleontological resources is mandated by CEQA. In addition, although the City of San Bernardino General Plan (2005) does not set forth specific mitigation requirements for paleontological resources, they are addressed under the Conservation Element of the County of San Bernardino General Plan (2007). The following policies are included under GOAL CO 3 in the Cultural/Paleontological Resources Section (V-C2), which stipulates that San Bernardino County will preserve and promote its historic and prehistoric cultural heritage:

1. In areas of potential but unknown sensitivity, field surveys prior to grading will be required to establish the need for paleontologic monitoring.
2. Projects requiring grading plans that are located in areas of known fossil occurrences, or demonstrated in a field survey to have fossils present, will have all rough grading (cuts



greater than 3 feet) monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Fossils include large and small vertebrate fossils, the latter recovered by screen washing of bulk samples.

3. A report of findings with an itemized accession inventory will be prepared as evidence that monitoring has been successfully completed. A preliminary report will be submitted and approved prior to granting of building permits, and a final report will be submitted and approved prior to granting of occupancy permits. The adequacy of paleontologic reports will be determined in consultation with the Curator of Earth Science, San Bernardino County Museum [V-18–V-19].

### **Paleontological Resource Potential**

Absent specific agency guidelines, most professional paleontologists in California adhere to the guidelines set forth by the SVP (2010) to determine the course of paleontological mitigation for a given project. These guidelines establish protocols for the assessment of the paleontological resource potential of underlying geologic units and outline measures to mitigate adverse impacts that could result from project development. Using baseline information gathered during a paleontological resource assessment, the paleontological resource potential of the geologic unit(s) (or members thereof) underlying a Project area can be assigned to one of four categories defined by the SVP (2010). These categories include high, undetermined, low, and no paleontological resource potential.

### **Methodology**

In order to assess whether a particular project area has the potential to contain significant fossil resources at the subsurface, it is necessary to review published geologic mapping to determine the geology and stratigraphy of the area. Geologic units are considered to be “sensitive” for paleontological resources if they are known to contain significant fossils anywhere in their extent. Therefore, a search of pertinent local and regional museum repositories for paleontological localities within and nearby the project area is necessary to determine whether fossil localities have been previously discovered within a particular rock unit. For this Project, a museum records search was conducted at the Los Angeles County Museum of Natural History (LACM) on October 20, 2016. The records search was supplemented by a review of the University of California Museum of Paleontology’s (UCMP’s) online database, which contains paleontological records for San Bernardino County.

### **Resource Context**

The Project area is located in the alluvial plain of the Santa Ana River within the geologically complex Peninsular Ranges geomorphic province (Morton and Miller, 2006). A geomorphic province is a region of unique topography and geology that is distinguished from other regions based on its landforms and diastrophic history. The Peninsular Ranges are a northwest-southeast oriented complex of blocks that extend 125 miles from the Transverse Ranges and Los Angeles Basin to the tip of Baja California. The Peninsular Ranges are bounded to the east by the Colorado Desert and range in width from 30 to 100 miles (Norris and Webb, 1976). The Project area is situated within the Perris Block, a relatively stable rectangular structural unit positioned between the Santa Ana Mountains of the Peninsular Ranges and



the San Jacinto fault zone. The Project area is located immediately east of the northwest-trending right-lateral strike-slip San Bernardino Valley section of the San Jacinto fault zone, which extends from the Cajon Pass in the north to the San Jacinto Valley in the south (Treiman and Lundberg, 1999). The geology in the vicinity of the Project area is dominated by Cretaceous plutonic rocks of the Peninsular Ranges Batholith, local Mesozoic metasedimentary rocks, and widespread Pleistocene-age alluvial fan and valley deposits (Morton and Miller, 2006).

According to Morton and Miller (2006), the Project area is directly underlain by Quaternary alluvial channel (Q<sub>ya5</sub>) and recent wash deposits (Q<sub>w1</sub>) of Holocene age. The Quaternary alluvium was deposited along the channel and banks of the Santa Ana River and consists of slightly- to moderately-consolidated, very fine- to very coarse-grained sand, silt, and gravel. The Quaternary alluvium coarsens upstream to pebbly sand and cobble conglomerate, with local beds that contain common boulders. The Quaternary alluvial channel deposits form a succession of fluvial terraces, which are capped poor- to moderately-developed pale-brown soil in stable areas where erosion is limited or absent. The thickness of the Quaternary alluvial channel deposits in the Project area likely varies due to the local differences caused by fluvial aggradation versus erosion; however, the deposits are probably less than 20 feet thick (Morton and Miller, 2006). The alluvial wash (Q<sub>w1</sub>) unit was deposited recently within active ephemeral stream channels and generally consists of unconsolidated angular sand and subrounded gravel derived from nearby pre-Cenozoic granitic and metamorphic bedrock. The alluvial wash unit displays active channel-and-bar morphology and flood scours, with little to no soil development.

Although Holocene-age alluvial deposits are typically too young to contain fossils, they may be shallowly underlain by older, sensitive Pleistocene deposits, which have proven to yield scientifically significant paleontological resources throughout southern California from the coastal areas to the inland valleys (Springer et al., 2009). Several vertebrate localities are known north and south of the Santa Ana River valley, in the vicinity of the Project area. Approximately fifteen miles southeast of San Bernardino near Moreno Valley, a fossil specimen of extinct horse was recovered from Quaternary older deposits, depth of recovery unreported. Approximately fifteen miles southeast of Colton near Eastvale, a fossil specimen of coachwhip was recovered from Quaternary older deposits at a depth of 9 to 11 feet below the surface (McLeod, 2016). Farther south near Corona, *Ustatochoerus* cf. *californicus* (ground dwelling herbivore) and fossilized camel remains were recovered within Pliocene fluvial and alluvial deposits at Lake Matthews (Woodford et al., 1971). To the south, near Lakeview, a diverse assemblage of fossil resources has been recovered, including *Mammuthus* sp. (mammoth), *Smilodon* sp. (sabre-toothed cat), *Equus* sp. (extinct horse), *Bison* sp. cf. *B. antiquus* (bison), and numerous small mammals, reptiles, invertebrates, and plant remains (Springer et al., 2009).

## Records Search Results

The LACM reports that there are no previously recorded vertebrate fossil localities in the Project area or in the immediate vicinity from within Quaternary alluvial deposits. However, LACM museum collections identify two vertebrate localities that were recorded nearby from within older fine-grained Pleistocene-age sedimentary deposits. According to McLeod (2016), these Pleistocene sedimentary deposits are likely similar to older deposits that underlie the younger Quaternary alluvial channel and wash deposits at an unknown depth within the Project area. The localities were identified approximately fifteen miles west and south of the Project area and yielded vertebrate fossil specimens of horse and



whipsnake (Table 1). A supplemental review of online museum collections records maintained by the UCMP identified no previously recorded vertebrate localities from similar Pleistocene-age deposits in the vicinity of the Project area. The results of the museum records search are presented in Table 1.

**Table 1**  
**Vertebrate Localities Reported from within Pleistocene Alluvial Deposits**  
**in the Vicinity of the Project Area**

Locality No.	Geologic Unit	Age	Taxa
LACM 7811	Quaternary older sedimentary deposits (present at unknown depth in the Project area)	Pleistocene	<i>Masticophis</i> (whipsnake)
LACM 4540	Quaternary older sedimentary deposits (present at unknown depth in the Project area)	Pleistocene	<i>Equus</i> (horse)

Source: McLeod (2016)

## Findings and Recommendations

Based on the literature review and museum records search results, the paleontological sensitivity was determined in accordance with the SVP's (2010) sensitivity scale. The Quaternary alluvium deposits are determined to have a low paleontological resource potential because they are likely too young to contain fossilized material. Therefore, impacts to paleontological resources are not anticipated and further paleontological resource management is not recommended. However, should the Project-related ground-disturbing activities extend into sensitive Pleistocene age alluvial deposits that are buried at unknown depth within the Project boundary and exposed at the ground surface nearby, then further paleontological resource consultation may be required. In the event an unanticipated fossil discovery is made during the course of Project development, 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.

It has been a pleasure assisting you with this Project. If you have any questions, please do not hesitate to contact me at [hclifford@appliedearthworks.com](mailto:hclifford@appliedearthworks.com) or (626) 578-0119.

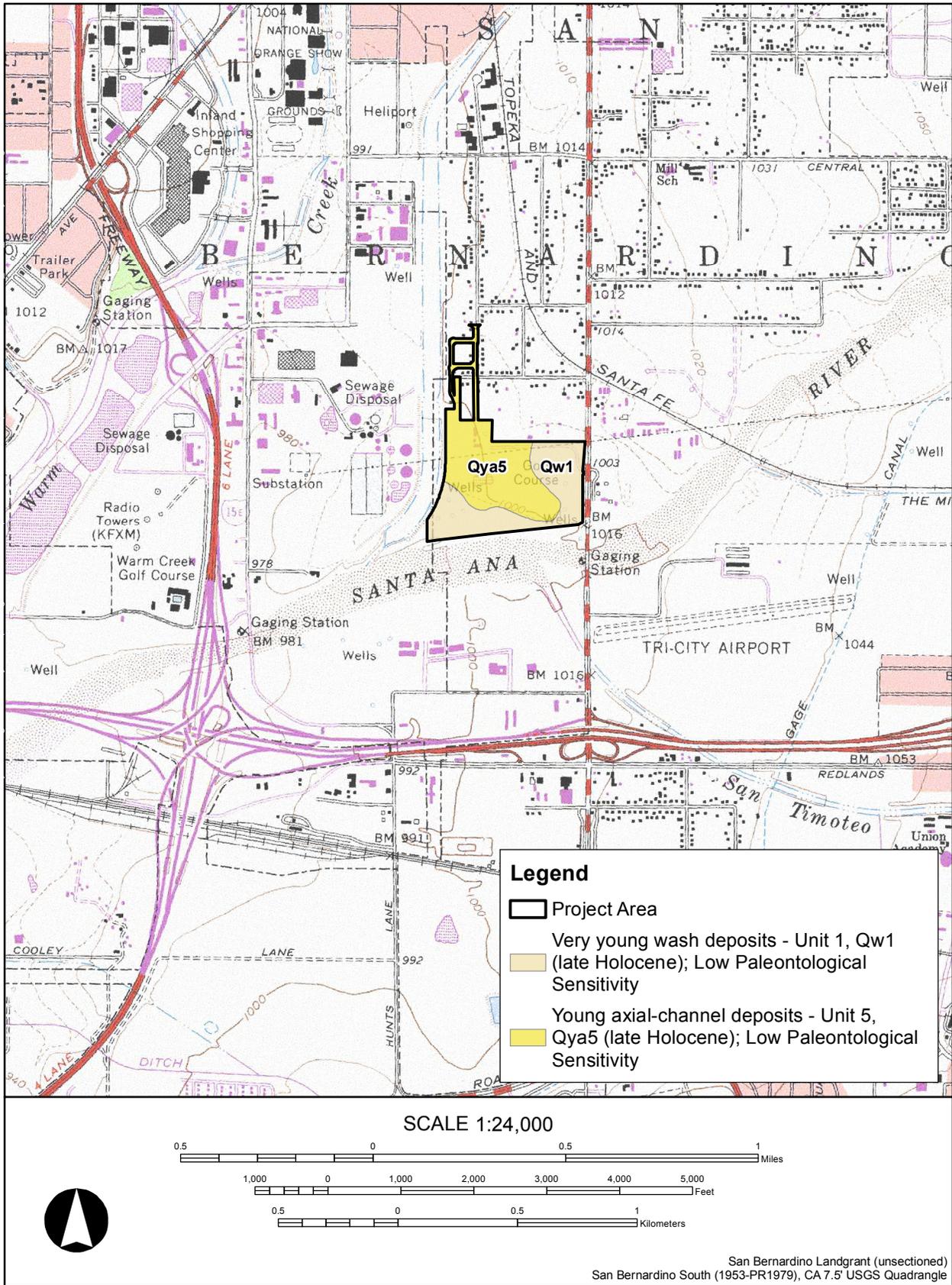
Sincerely,

Heather Clifford  
Associate Paleontologist  
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## References

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**Attachment 1 Geologic Units in the Hillwood- Gateway South Building 4 Project area.**