SAN BERNARDINO COUNTY MUSEUM
COUNTY OF SAN BERNARDINO
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Leonard Hernandez
Interim Director

29 July 2014

E|P|D Solutions, Inc.
attn: Rafik Albert
2030 Main Street, Suite #1525
Irvine, CA 92614

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, VICTORVILLE PROPERTY, CITY OF VICTORVILLE, SAN BERNARDINO COUNTY, CALIFORNIA**

Dear Mr. Albert,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-referenced development in the City of Victorville, San Bernardino County, California. The proposed project property is located in the southwestern quadrant of section 23, Township 6 North, Range 4 West, San Bernardino Base and Meridian, as seen on the Victorville, California 7.5' United States Geological Survey topographic quadrangle map (1956 edition, photorevised 1981).

Previous geologic mapping of the region (Bortugno and Spittler, 1986; Cox and others, 2003) indicates that the proposed project is situated upon Pleistocene older alluvium (= unit **Qo**). This alluvium has high potential to contain significant nonrenewable paleontologic resources, depending upon its lithology, and so is assigned high paleontologic sensitivity. The following is a composite list of taxa recovered from Pleistocene older alluvial sediments in Victorville (Jefferson, 1989; Reynolds, 1989; Scott and Cox, 2008):

Sorex sp.	shrew
Paramylodon harlani	extinct giant ground sloth
Lepus sp.	jack rabbit
Sylvilagus sp.	cotton tail
cf. *Ammospermophilus leucurus*	possible antelope ground squirrel
Spermophilus townsendi	ground squirrel
Thomomys sp.	pocket gopher
Perognathus sp.	pocket mouse
Dipodomys sp.	kangaroo rat
Neotoma sp. cf. *N. lepida*	possible desert wood rat
Sigmodon medius or *minor*	extinct cotton rat
Microtus sp.	meadow vole

Arctodus sp. cf. *A. simus*	extinct short-faced bear
Mammuthus meridionalis	extinct southern mammoth
Equus sp. cf. *E. scotti*	possible Scott's horse
cf. *Titanotylopus* sp.	extinct long-limbed giant camel
Hemiauchenia sp.	extinct llama
Camelops sp.	extinct camel

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no previously known paleontologic resource localities are recorded by the SBCM from within the boundaries of the proposed project property, or from within at least one mile in any direction.

Recommendations

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation into undisturbed Pleistocene sediments has high potential to impact paleontologic resources. Such excavation will require a qualified vertebrate paleontologist to develop a program to mitigate impacts to significant nonrenewable paleontologic resources, including curation of recovered resources (Scott and others, 2004). Such a mitigation program must be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations currently implemented by the County of San Bernardino.

The County of San Bernardino (Development Code §82.20.040) defines a qualified vertebrate paleontologist as meeting the following criteria:

Education: An advanced degree (Masters or higher) in geology, paleontology, biology or related disciplines (exclusive of archaeology).

Professional experience: At least five years professional experience with paleontologic (not including cultural) resources, including the collection, identification and curation of the resources.

The County of San Bernardino (Development Code §82.20.030) requires that paleontologic mitigation programs include, but not be limited to:

(a) Field survey before grading. In areas of potential but unknown sensitivity, field surveys before grading shall be required to establish the need for paleontologic monitoring.

(b) Monitoring during grading. A project that requires grading plans and is located in an area of known fossil occurrence, or that has been demonstrated to have fossils present in a field survey, shall have all grading monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Paleontologic monitors shall be equipped to salvage fossils as they are unearthed, to avoid construction delays, and

to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring is not necessary if the potentially-fossiliferous units described for the property in question are not present, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.

(c) Recovered specimens. Qualified paleontologic personnel shall prepare recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils is essential in order to fully mitigate adverse impacts to the resources.

(d) Identification and curation of specimens. Qualified paleontologic personnel shall identify and curate specimens into the collections of the Division of Geological Sciences, San Bernardino County Museum, an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in effective paleontologic mitigation and CEQA compliance. The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not considered complete until curation into an established museum repository has been fully completed and documented.

(e) Report of findings. Qualified paleontologic personnel shall prepare a report of findings with an appended itemized of specimens. A preliminary report shall be submitted and approved before granting of building permits, and a final report shall be submitted and approved before granting of occupancy permits. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into the collections of the San Bernardino County Museum, will signify completion of the program to mitigate impacts to paleontologic resources.

References

Bortugno, E.J. and T. E. Spittler, 1986. Geologic map of California, San Bernardino sheet, scale 1:250,000. California Division of Mines and Geology Regional Geologic Map Series, Map 3A.

Cox, B.F., J.W. Hillhouse and L.A. Owen, 2003. Pliocene and Pleistocene evolution of the Mojave River, and associated tectonic development of the Traverse Ranges and Mojave Desert, based on borehole stratigraphy studies and mapping of landforms and sediments near Victorville, California. *In* Y. Enzel, S.G. Wells and N. Lancaster (eds.), Paleoenvironments and paleohydrology of the Mojave and southern Great Basin Deserts. Boulder, Colorado: Geological Society of America Special Paper #368, p. 1-42.

Jefferson, G.T., 1989. Late Pleistocene and earliest Holocene fossil localities and vertebrate taxa from the western Mojave Desert. *In* J. Reynolds (ed.), The west-central Mojave Desert: Quaternary studies between Kramer and Afton Canyon. Redlands, SBCM Association Special Publication, p. 27-40.

Reynolds, S.F.B., 1989. Mid-Pleistocene faunas of the west-central Mojave Desert. *In* J. Reynolds (ed.), The west-central Mojave Desert: Quaternary studies between Kramer and Afton Canyon. Redlands, SBCM Association Special Publication, p. 44-50.

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Please do not hesitate to contact us with any further questions you may have.

Sincerely,

Eric Scott, Curator of Paleontology
Division of Geological Sciences
San Bernardino County Museum