30 April 2007

P&D Consultants
attn: Nathan Counts
999 Town & Country Rd., 4th Floor
Orange, CA 92868

re: **PALEONTOLOGY REVIEW, YUCAIPA FREEWAY CORRIDOR SPECIFIC PLAN, CALIMESA AND YUCAIPA, SAN BERNARDINO COUNTY, CALIFORNIA**

Dear Mr. Counts,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named property in the Cities of Calimesa and Yucaipa, San Bernardino County, California. The proposed property is located in portions of sections 3 (projected), 4 (projected), 8 (projected), 9 (projected), 10 (projected) and 11, Township 2 South, Range 2 West, San Bernardino Base and Meridian, as shown on the Yucaipa, California 7.5' United States Geological Survey topographic quadrangle map (1971 edition).

Previous geologic mapping (Matti and others, 2003; Morton, 2004) indicates that the proposed project property lies upon surface exposures of Holocene active wash sediments (= unit **Qvyw**), Holocene axial-valley deposits (= **Qya**), Pleistocene older axial-valley deposits (= **Qoa_1**), and Pliocene/ Pleistocene sediments of the San Timoteo Formation (= **Qtstu**). Holocene axial-valley and wash sediments generally occur in the bottoms of arroyos and canyons which incise the older sediments of the San Timoteo Formation and overlying Pleistocene axial-valley deposits, which form the familiar badlands topography of this region. Holocene sediments are too young to contain remains of significant vertebrate fossils and therefore have low paleontologic sensitivity. However, Holocene axial-valley and wash sediments likely overlie older sediments of the San Timoteo Formation at an undetermined depth within the badlands arroyos and canyons. Subsurface and surface exposures of the San Timoteo Formation and the Pleistocene older axial-valley deposits have high potential to contain significant nonrenewable paleontologic resources, and so are assigned high paleontologic sensitivity.

The San Timoteo Formation is extremely fossiliferous and has a high potential to contain significant nonrenewable paleontologic resources subject to adverse impacts by excavation during development, as determined by numerous previous geologic and paleontologic investigations in the area including those by Frick (1921, 1933), May and Repenning (1982), Axelrod (1937, 1950, 1966) Reynolds and Reeder (1986, 1991), Morton and Matti (1993) Albright and Woodburne (1993) and Albright (1997,

2000). Fossil mammals recovered from the San Timoteo Formation include mastodon, horse, camel, antelope, dog, bear, rodent and rabbit. These vertebrate fossils are Pliocene or early Pleistocene Epoch in age, and are referable to the Blancan North American Land Mammal Age (Savage and Russell, 1983) and the early Irvingtonian NALMA (Savage and Russell, 1983; Reynolds and Reeder, 1986, 1991; Repenning, 1987; Albright and Woodburne, 1993; Albright, 1997, 2000). These fossils may have been deposited between 1.3 million years ago (mya) and 4.0 mya.

Pleistocene older alluvium throughout the inland valleys of San Bernardino and Riverside Counties and the Inland Empire have been repeatedly demonstrated to be highly fossiliferous (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999; Anderson and others, 2002). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, sabre-toothed cats, large and small horses, large and small camels, and bison, as well as plant macro- and microfossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999; Anderson and others, 2002). If not previously disturbed by development, and depending upon the lithology exhibited, these sediments have high potential to contain significant nonrenewable paleontologic resources.

As noted, arroyos and canyons within the proposed project area are mapped (Matti and others, 2003; Morton, 2004) as Quaternary younger alluvium and recent wash sediments. These lithologic units have low potential to contain significant nonrenewable paleontologic resources subject to adverse impact by development-related excavation, and are therefore assigned low paleontologic sensitivity. However, these sediments may overlie subsurface sediments of the San Timoteo Formation and/or older Pleistocene alluvium. Should such older sediments be present at depth within study area, they would have high potential to contain significant nonrenewable paleontologic resources.

For this review, Craig R. Manker of the Division of Geological Sciences, SBCM conducted a search of the Regional Paleontologic Locality Inventory (RPLI). 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 Yucaipa Freeway Corridor Specific Plan project. However, paleontologic resource locality, SBCM 5.3.113, is situated within approximately ½ mile south of the proposed project property along Calimesa Boulevard. Fossils from this locality include remains of extinct horse (*Equus* sp.). Additionally, several dozen paleontologic resource localities are recorded from within just a few miles to the south of the southernmost extent of the study area, all recorded from the San Timoteo Formation. The proximity of these numerous localities to the study area demonstrates the very high paleontologic sensitivity of the exposures of the San Timoteo Formation in this region.

Recommendations

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation in Pleistocene older alluvial sediments has high potential to adversely impact significant nonrenewable paleontologic resources. Additionally, sediments of the San Timoteo Formation

present in the study area also have high potential for significant fossils. These lithologic units, if not previously disturbed by development, therefore have high paleontologic sensitivity; excavation in these units will require development and implementation of a program to mitigate excavation impacts to paleontologic resources (see below). Quaternary younger alluvium and recent wash sediments present within the study area in arroyos and washes have low potential to adversely impact significant nonrenewable paleontologic resources. These sediments have low paleontologic sensitivity. However, these sediments may overlie older Pleistocene deposits and/or the San Timoteo Formation – all units with high potential to contain significant nonrenewable paleontologic resources.

For excavation in the San Timoteo Formation and/or in Pleistocene older alluvium, a qualified professional vertebrate paleontologist will need to develop a plan to mitigate adverse impacts to paleontologic resources present in these geologic units. This mitigation program would need to be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations implemented by the Counties of Riverside and San Bernardino and with the proposed guidelines of the Society of Vertebrate Paleontology. This plan should include, but not be limited to:

1. Monitoring of all excavation activities in any and all areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. Based upon the results of this review, areas of concern within the boundaries of this project include any sediments of the San Timoteo Formation and Pleistocene alluvial deposits. Paleontologic monitors must 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 must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced if the potentially-fossiliferous units described herein are not present in the subsurface, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.

2. Preparation of all 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 are essential in order to fully mitigate adverse impacts to the resources (Scott and others, 2004).

3. Identification and full curation of all specimens into an established, accredited museum repository with permanent retrievable paleontologic storage (e.g., SBCM). These procedures are also essential steps in effective paleontologic mitigation (Scott and others, 2004) and CEQA compliance (Scott and Springer, 2003). 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 such curation into an established museum repository has been fully completed and documented.

4. Preparation of a report of findings with an appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into an established, accredited museum repository, will signify completion of the program to mitigate impacts to paleontologic resources.

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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