

Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

23 August 2018; *Revised* 7 February 2019

Mr. Steve Hollis IDI Ramona, LLC 8 Corporate Park, Suite 300 Irvine, California 92606

Subject: Paleontological Resource and Mitigation Monitoring Assessment, IDI Indian Avenue and Ramona Expressway project, city of Perris, Riverside County, California (APNs 302-060-002, -005, -006, and -038, 302-050-034 and -036)

Dear Mr. Hollis:

Introduction and Location: A paleontological resource and mitigation monitoring assessment has been completed for the IDI Indian Avenue and Ramona Expressway project (hereafter as IDI project) in the city of Perris, west of the Perris Reservoir, in Riverside County, California (Attachments 1 and 2). The approximately 24.2-acre project (Assessor's Parcel Numbers [APNs] 302-060-005, -006, and -038, 302-050-034 and -036) and 2.64-acres of off-site driveway improvements (APN 302-060-002) are located northwest of the intersection of Indian Avenue and Ramona Expressway. The property and off-site driveway improvement area are currently vacant, but have been used for agricultural purposes in the past. The proposed project consists of an approximately 428,730-square-foot warehouse building, parking, pavement, landscape, and associated improvements; the off-site improvements include driveway access that connects to the Indian Avenue and Perry Street intersection. On the U. S. Geological Survey 7.5-minute Perris, California topographic quadrangle map, the project is located in the southwest quarter of the southeast quarter of Section 6, Township 4 South, Range 3 West, San Bernardino Base and Meridian (Attachments 1 and 2).

Geology: The geology of the project, off-site driveway improvement area, and immediate area are shown on Attachment 3 (after D. M. Morton, 2003, Preliminary geologic map of the Perris 7.5' quadrangle, Riverside County, California: U. S. Geological Survey Open-File Report 03-270, scale 1:24,000). The map of the area shows that the project and off-site improvement area are underlain by lower Pleistocene (approximately 1.8 million to perhaps 200,000 to 300,000 year old) very old alluvial fan deposits (Qvof_a, shown in brown on Attachment 3). Geomorphically, there is little relief in this area of the Perris Valley.

Paleontological Sensitivity: A paleontological sensitivity map generated by the Riverside County Land Information System in May of 2018 (Attachment 4) ranks the entire project area and off-site improvement area as having a High Potential/Sensitivity (High B), which is "based on [the presence of] geologic formations or mappable rock units that contain fossilized body elements, and trace fossils such as tracks, nests and eggs. These fossils occur on or below the surface." The category "High B" indicates that fossils are likely to be encountered at or below a depth of four feet, and may be impacted by excavation work during construction-related activities. Very old alluvial fan sediments with a High Potential/Sensitivity (High B) to yield nonrenewable paleontological resources (*i.e.*, fossils) are shown in amber tint on Attachment 4. Exhibit CN-7 on page 27 of the Conservation Element of the City of Perris General Plan, adopted by the City Council on February 18, 2008, also assigns a High Paleontological Sensitivity to this area of the city, corresponding to the areas of Pleistocene older fan deposits.

Results: A paleontological literature review and collections and records search report of an adjacent area (Stratford Ranch) less than half a mile to the east of the IDI project and off-site driveway improvement area (on the east side of Perris Boulevard and the north side of Ramona Expressway) was previously prepared by the Geological Sciences Division of the San Bernardino County Museum (SBCM) in Redlands, California (E. G. Scott, 2005, attached) and is used in this evaluation. The records search area of the Stratford Ranch report overlaps that of the current IDI project. The report did not record any previously located fossil localities within the project area, nor within a one-mile radius in any direction. The records search report regarded the older Pleistocene alluvial fan deposits (Qvof_a on Attachment 3) as having a high potential to contain significant nonrenewable paleontological resources (*i.e.*, fossils), and the project area was assigned a "high paleontological resource sensitivity" (Scott, 2005). Similar older Pleistocene sediments throughout the lowland (valley) areas of Riverside County and the Inland Empire have been reported to yield significant fossils of extinct terrestrial mammals from the last Ice Age (see references in Scott, 2005), such as mammoths, mastodons, giant ground sloths, dire wolves, short-faced bears, saber-toothed cats, large and small horses, camels, and bison. The closest recorded terrestrial vertebrate fossil localities are located about five miles distant to the east, southwest of Lakeview Hot Springs on the southeast side of the Perris Reservoir (E. G. Scott, 2013, attached; SBCM localities 5.3.151 and 5.3.153). Fossil vertebrates collected from these localities included mammoths, extinct horses, and extinct bison. In another report, Reynolds (2004) reported fossil *Bison* from a location approximately six miles northeast of the current project from a depth of 17 feet below the ground surface, suggesting that they were from Pleistocene older alluvial or older alluvial fan sediments.

Furthermore, a pedestrian survey was conducted on May 23, 2018 by BFSA paleontologists. Additionally, a pedestrian survey of the off-site driveway improvement area was conducted on January 25, 2019 by BFSA paleontologists. Ground visibility was generally good, but was hindered at times by tall, non-native weeds and grasses. At the time of the survey, the project and off-site area were characterized as flat, previously disked, and disturbed. A loose gravel/asphalt road crosses through the middle of the property and a concrete slab and modern standpipe were noted within the eastern half of the property. Other disturbances include dirt utility roads along the northern and western perimeters, a concrete "U"-ditch along the southern boundary, storm drain culverts situated just outside of the southeastern and southwestern corners of the property, and piles of dumped dirt, concrete, and construction debris within the northern half of the property. During the surveys, careful attention was paid to areas with exposed ground surfaces; however, no paleontological resources were identified.

Recommendations: Because of the High Paleontological Sensitivity (High B) assigned to the older alluvial fan deposits (Qvof_a on Attachment 3) across the project and off-site driveway improvement area, full-time paleontological monitoring of mass grading and excavation, regardless of depth (utility trenching, etc.) activities in areas so mapped should be required in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (*i.e.*, fossils). The mitigation program should be consistent with the provisions of the California Environmental Quality Act (CEQA), regulations currently implemented by the County of Riverside and the City of Perris, and the proposed guidelines of the Society of Vertebrate Paleontology (see following page).

Thank you for the opportunity to have provided paleontological services on this project. If you have any questions, please feel free to contact us at our Poway facility.

Sincerely,

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George L. Kennedy, Ph.D. Senior Paleontologist

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Todd A. Wirths, M.S., P.G. California Professional Geologist No. 7588

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Attachments: Index maps, geologic map, paleontological sensitivity map, SBCM records search reports (Scott, 2005, 2013)

References:

- Morton, D. M. 2003. Preliminary geologic map of the Perris 7.5' quadrangle, Riverside County, California: U. S. Geological Survey, Open-File Report 03-270: 1 map sheet with text, scale 1:24,000.
- Reynolds, R. E. 2004. Paleontological resource investigation, Moreno Highlands fault investigation. *In* unpublished geologic report prepared by Leighton & Associates, 2004, Preliminary fault investigation, Tentative Tract Map No. 32501, Moreno Highlands, City of Moreno Valley, Project No. 111061-1031.
- Scott, E. G. 2005. Paleontology literature and records review, Stratford Ranch project (BFSA # 04-175), Perris region, Riverside County, California. Unpublished report prepared for Brian F. Smith and Associates, Poway, by the Division of Geological Sciences, San Bernardino County Museum, Redlands.
- Scott, E. G. 2013. Paleontology literature and records review, Ecos Nuevo project, Lakeview Hot Springs region, Riverside County, California. Unpublished report prepared for Brian F. Smith and Associates, Inc., Poway, by the Division of Geological Sciences, San Bernardino County Museum, Redlands.

Paleontological Mitigation Monitoring and Reporting Program (MMRP) IDI Indian Avenue and Ramona Expressway Project (APNs 302-060-002, -005, -006, and -038, 302-050-034 and -036)

1. Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Full-time monitoring will be conducted in areas of grading, excavation, or utility trenching in undisturbed, very old alluvial fan sediments (Qvof_a on Attachment 3). Paleontological monitors will 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. The monitor must be empowered to temporarily halt or divert equipment to allow for the removal of abundant or large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

2. Preparation of recovered specimens to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.

3. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, the Western Science Center Museum, 2345 Searl Parkway, Hemet, California 92543). The paleontological program should include a written repository agreement prior to the initiation of mitigation activities.

4. Preparation of a final monitoring and mitigation report of findings and significance, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location. The report, when submitted to the appropriate lead agency (City of Perris), will signify satisfactory completion of the project program to mitigate impacts to any paleontological resources.



DeLorme World Base Map Service (1:250,000 series)







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COUNTY OF SAN BERNARDINO

ECONOMIC DEVELOPMENT

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Brian F. Smith & Associates attn: George L. Kennedy, Ph.D. 14010 Poway Road, Suite "A" Poway, CA 92064

PALEONTOLOGY LITERATURE AND RECORDS REVIEW, STRATFORD re: RANCH PROJECT (BFSA # 04-175), PERRIS REGION, RIVERSIDE COUNTY, **CALIFORNIA**

Dear Dr. Kennedy,

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 north of the City of Perris, Riverside County, California. The study area is located in the western portion of section 5, Township 4 South, Range 3 West, San Bernardino Base and Meridian, as seen on the Perris, California 7.5' United States Geological Survey topographic quadrangle map (1967 edition, photorevised 1973).

Previous geologic mapping (Rogers, 1965; Morton, 2004) indicates that the proposed study area is located primarily upon surface and subsurface early to middle Pleistocene alluvial fan deposits (= unit Qvof_a), overlain in the eastern portion of the property by a thin veneer of Holocene alluvial valley deposits (= Qyv_{sa}). The Holocene alluvium is too recently deposited to have potential to contain fossil resources, and so is assigned low paleontologic sensitivity. However, the older Pleistocene alluvial deposits have high potential to contain significant nonrenewable paleontologic resources, and so are assigned high paleontologic sensitivity. Similar older Pleistocene sediments throughout Riverside County and the Inland Empire have been reported to yield significant fossils of plants and extinct animals from the Ice Age (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, short-faced bears, sabre-toothed cats, large and small horses, large and small camels, and bison (Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999; Anderson and others, 2002).

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 study area, nor from within at least one mile

in any direction. MARK H. UFFER County Administrative Officer

NORMAN A. KANOLD Assistant County Administrator Economic Development and

Public Services Group

EDUARD DE	20pervisors	
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Literature / records review, Paleontology, Brian F. Smith: Stratford Ranch, Perris

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Recommendations

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation in conjunction with development may have high potential to adversely impact significant nonrenewable paleontologic resources present within the boundaries of the proposed Stratford Ranch development. A qualified vertebrate paleontologist must be retained to develop a program to mitigate impacts to such resources. This mitigation program should 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 Riverside and the proposed guidelines of the Society of Vertebrate Paleontology. This program should include, but not be limited to:

- 1. Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. Based upon the results of this review, areas of concern include all previously-undisturbed sediments of fossiliferous Pleistocene older alluvium present within the boundaries of the property. Paleontologic monitors should 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, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.
- 2. Preparation of recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.
- 3. Identification and curation of specimens into an established, accredited museum repository with permanent retrievable paleontologic storage (e.g., SBCM). 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 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.

References

Anderson, R.S., M.J. Power, S.J. Smith, K.B. Springer and E. Scott, 2002. Paleoecology of a Middle Wisconsin deposit from southern California. Quaternary Research 58(3): 310-317.

- Jefferson, G.T., 1991. A catalogue of late Quaternary vertebrates from California: Part Two, mammals. Natural History Museum of Los Angeles County Technical Reports, No. 7.
- Morton, D.M., 2004. Preliminary digital geologic map of the Santa Ana 30' x 60' quadrangle, southern California, version 2.0. United States Geological Survey Open-File Report 99-172. Digital preparation by K.R. Bovard and R.M. Alvarez. Prepared by the Southern California Areal Mapping Project (SCAMP), in cooperation with the California Geological Survey
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 County Museum Special Publication 38(3&4), p. 41-43.

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

Sincere

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



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ROBERT L. McKERNAN Director

2 April 2013

Brian F. Smith and Associates attn: George L. Kennedy, Ph.D., Senior Paleontologist 14010 Poway Road, Suite A Poway, CA 92064

re: PALEONTOLOGY LITERATURE AND RECORDS REVIEW, ECOS NUEVO PROJECT, LAKEVIEW HOT SPRINGS REGION, RIVERSIDE COUNTY, CALIFORNIA

Dear Dr. Kennedy,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named project in the Lakeview Hot Springs region of Riverside County, California. The proposed project property is located in the southeastern quadrant of section 12, Township 4 South, Range 3 West, San Bernardino Base and Meridian, as seen on the Perris, California 7.5' United States Geological Survey topographic quadrangle map (1967 edition).

Previous geologic mapping (Rogers, 1965; Morton, 2003) indicates that the proposed project property is situated entirely upon active valley deposits of recent age (= unit Qv_{se}) associated with the present-day San Jacinto River. These sediments have low potential to contain significant nonrenewable paleontologic resources in a reliable stratigraphic context, and so are assigned low paleontologic sensitivity. However, these sediments overlie older Pleistocene alluvium (= $Qvof_n$) that has high paleontologic sensitivity. Similar older Pleistocene sediments throughout Riverside and San Bernardino Counties and the Inland Empire have been previously reported to yield significant fossils of plants and extinct animals from the Ice Age (Jefferson, 1991; Reynolds and Reynolds, 1991; Anderson and others, 2002; Springer and others, 2009, 2010; Scott, 2010). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, short-faced bears, sabre-toothed cats, large and small horses, large and small camels, and bison (Jefferson, 1991; Reynolds and Reynolds, 1991; Springer and others, 2009, 2010; Scott, 2010).

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that two previously-known paleontologic resource localities are recorded by the SBCM within $\frac{1}{4}$ to $\frac{1}{2}$ mile of portions of the proposed study area. These localities, SBCM 5.3.151 and 5.3.153, yielded fossils of late Pleistocene vertebrates including

GREGORY C, DEVEREAUX Chief Executive Officer

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mammoths, horses, and bison from Pleistocene older alluvium. The proximity of these localities to the proposed project demonstrates the high paleontologic sensitivity of Pleistocene older alluvium at the surface and in the subsurface in this region.

Recommendations

The results of the literature review and the search of the RPLI at the SBCM demonstrate that the above named study area is located on subsurface Pleistocene alluvial sediments with high potential to contain paleontologic resources. A qualified vertebrate paleontologist must develop a program to mitigate impacts to nonrenewable paleontologic resources. This mitigation program must be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations implemented by the County of Riverside. This program should include, but not be limited to:

- 1. Monitoring of excavation into rock units having high potential to contain significant nonrenewable paleontologic resources. Based upon the results of this review, all Pleistocene older alluvial sediments present within the area of potential effect are considered to have high potential to contain such resources. Paleontologic monitors should 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.
- 2. Preparation of 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 curation of specimens into an established, accredited museum repository with permanent retrievable paleontologic storage. 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 complete until such curation into an established, accredited 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.

References

- Anderson, R.S., M.J. Power, S.J. Smith, K.B. Springer and E. Scott, 2002. Paleoecology of a Middle Wisconsin deposit from southern California. Quaternary Research 58(3): 310-317.
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Literature / records review, Paleontology, BFSA: Ecos Nuevo Project

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

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

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