



April 3, 2025

Ryan Birdseye
Birdseye Planning Group
P.O. Box 1956
Vista, California 92085
Transmitted via email to ryan@birdseyeplanninggroup.com

RE: Paleontological Resource Assessment for the Viscar Terrace Project, City of Murrieta, Riverside County, California

Dear Ryan Birdseye,

At the request of the Birdseye Planning Group, Chronicle Heritage conducted a paleontological resource assessment for the Viscar Terrace Project (Project) in the city of Murrieta, Riverside County, California. The goal of the assessment was to summarize the results of the museum record search, characterize the paleontological sensitivity of the geologic units present within the Project site, assess the potential for adverse effects to scientifically significant paleontological resources under California Environmental Quality Act (CEQA) guidelines, and provide management recommendations for avoiding or reducing adverse effects to paleontological resources from Project development, as necessary.

This paleontological resource assessment included a fossil locality records search conducted by the Western Science Center (WSC) in Hemet, California. The records search was supplemented by a review of existing geologic maps and primary literature regarding fossiliferous geologic units within the proposed Project vicinity and region. This technical memorandum, which was written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP, 2010), has been prepared to support environmental review under CEQA.

Project Location and Description

The Project applicant, Viscar Terrace LP, is proposing to construct and operate the Viscar Terrace Apartments, a new 172-unit affordable housing community with related infrastructure improvements on a disturbed 5.74 gross acre (250,034 square feet [ft²]) (5.61 net acre) site at 40475 Vista Murrieta Road and 40600 Myers Lane in Murrieta, California (APN 949-180-022, -023, and -025). The site is along the north side of Vista Murrieta Road, south of Los Alamos Road, east of Interstate 15, and west of Interstate 215. The Project site abuts two rights-of-way: Vista Murrieta Road and Myers Lane. The site comprises two single-family residences, related outbuildings, and landscaping improvements. The Project area is zoned Office (O) and is within a Transit Oriented Development (TOD) Overlay District. The General Plan land use designation is Office and Research Park with a 0.6-2.5 Floor Area Ratio. This proposed residential Project is a permitted use in the TOD Overlay District and subject to standards stipulated in Section 16.16.040 of the Murrieta Municipal Code. The minimum density is 30 units per acre or 169 units. The applicant is proposing 172 units, which would equal approximately 30.56 units per acre.



The Project would provide a total of 172 apartment units and amenities in four three-story buildings and one four-story building. The four-story building includes up to 4,241 ft² of common area with clubhouse, multipurpose room, fitness center, resident services space, and outdoor recreational amenities including a barbeque/picnic area and playground/dog run area. An outdoor fitness course and half basketball court would also be provided on-site. The Project would provide 78 one-bedroom units (616–663 ft²), 48 two-bedroom units (866 ft²), 38 three-bedroom units (1,175–1,199 ft²), and 8 four-bedroom units (1,300 ft²). Up to 40 percent of the units (68 units) are reserved for very low-income tenants. The remaining 60 percent (102 units) would be reserved for low- to moderate-income tenants. Of the total, two units would be reserved for on-site managers. A total of 228 parking spaces would be provided. All spaces would be surface parking. The parking ratio would be 1.33 spaces per unit.

Primary access would be via a new driveway on the south side of the Project area via Vista Murrieta Road. A secondary emergency vehicle access would be provided at the northwest corner of the site via Myers Lane which will also allow residents to exit the property in case of emergency. A new water line would be provided along Vista Murrieta Road to the southeast as well as along Sky Park Lane from the north to create a looped system. The proposed water pipeline would attach to the bridge/box culvert that crosses the unnamed drainage to Murrieta Creek north of the site.

The Project site was divided into three drainage management areas. In the proposed post-developed condition, the majority of the onsite runoff flowing north will be collected by proposed drop inlets/curb opening catch basins and conveyed to proposed Continuous Deflection Separation (CDS) units for pretreatment via 18" storm drain pipes prior to infiltration/detention trench system for Low Impact Development (LID) treatment. Overflow will discharge via PVC overflow pipes connected to parkway drains onto the curb and gutter along Myers Lane. The majority of the onsite runoff flowing south will be collected by proposed drop inlets and conveyed to proposed CDS units for pretreatment via 15-inch storm drainpipes prior to discharging into the proposed infiltration/detention trench system for infiltration/LID treatment. Overflow will discharge via PVC overflow pipes. New landscaping would be installed per Title 16.28 (Landscaping Standards) and Title 16.34.070.H (Development Standards for Off-Street Parking, Landscaping) of the Murrieta Municipal Code, and the City's current policies.

The proposed Project would install a new 12-inch water line in Vista Murrieta Road extending southwest of the site. The water line would connect to a new water line located at the intersection of Sparkman Court and Vista Murrieta Road. A second line will be installed within Vista Murrieta Road east of the site and connect to an existing water line located at the southwest corner of Vista Murrieta Road and Skypark Lane. This segment would cross under an unnamed drainage to Murrieta Creek using jack and bore. Vista Murrieta Road crosses the creek using an existing box culvert. The line would be installed under the existing box culvert within the Vista Murrieta Road corridor. This connection would complete a looped system for the project. The project would connect to an existing sewer line at the northwest corner of the site at the southern terminus of Myers Lane. All water and sewer infrastructure would be installed in trenches during grading and improvements to Vista Murrieta Road (Figure 1 and Figure 2).

Paleontological Resource Assessment for the
Viscar Terrace Project , City of Murrieta, Riverside County, California

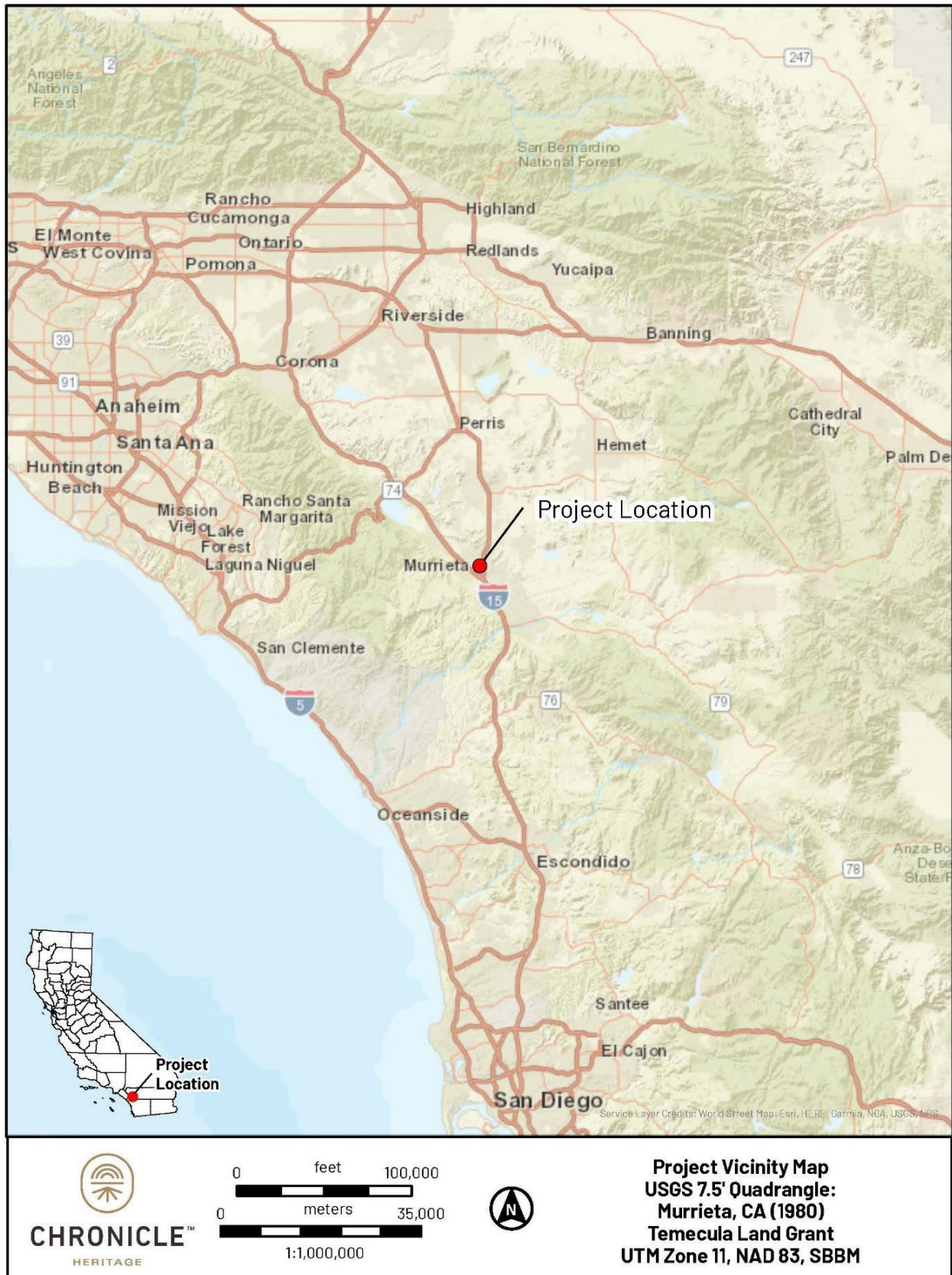


Figure 1. Project vicinity map.

Paleontological Resource Assessment for the
Viscar Terrace Project, City of Murrieta, Riverside County, California

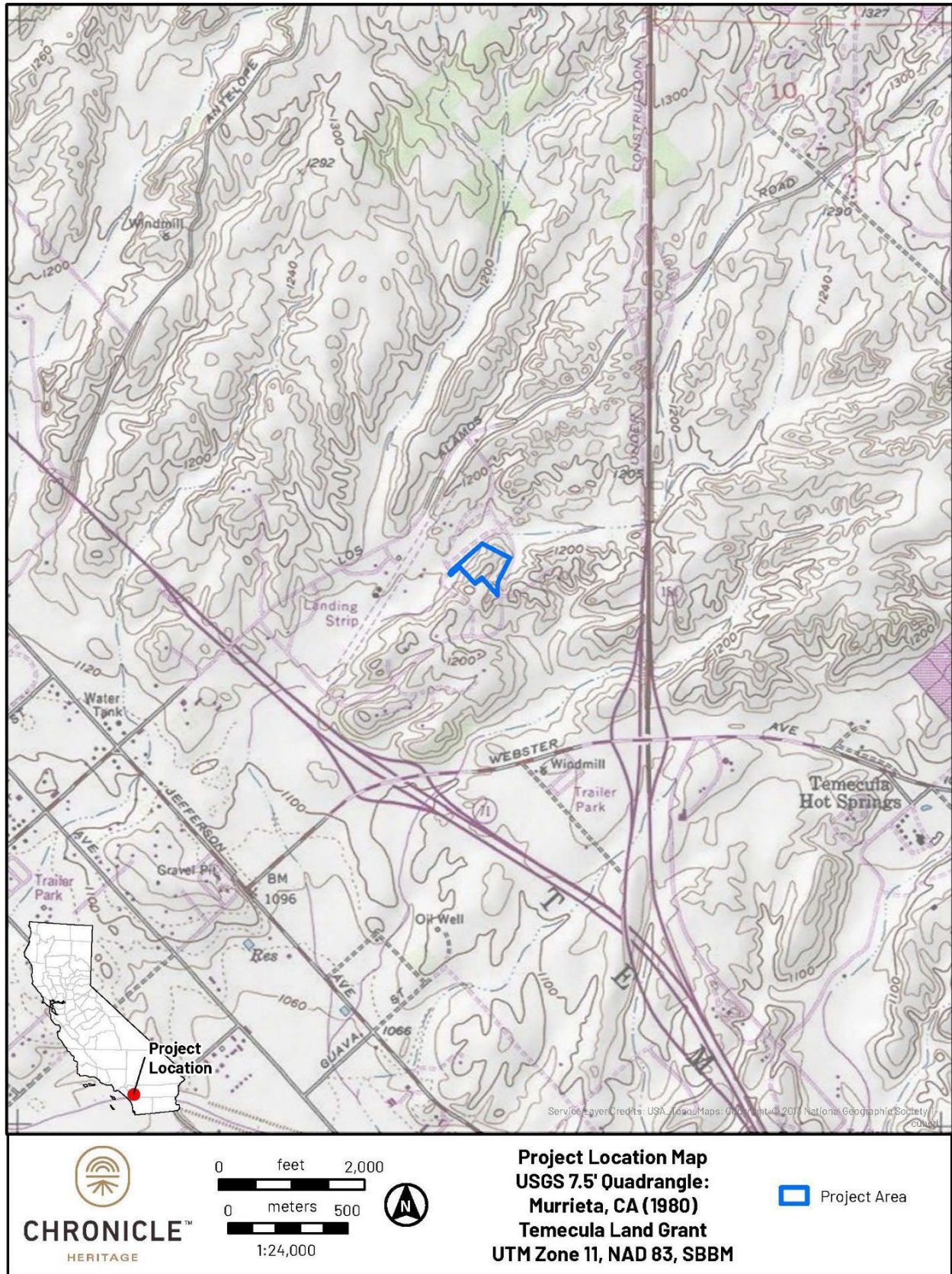


Figure 2. Project location map.

Electrical (Southern California Edison) and telecommunication (Frontier and Spectrum) service would initially connect to the existing overhead electrical infrastructure located along the north side of Vista Murrieta Road. All electrical lines located on-site would be undergrounded during grading. A total of four 1,600 ampere and one 3,000 ampere transformers would be installed on-site. The project would eventually underground all electrical and telecommunication service along the project frontage east of Carrigan Road and install a new electrical service line northeast of the site within the jack and bore trench required for the new water line as described above.

Construction is expected to begin in mid-2026 and be completed by mid-2027. Demolition would require removal of approximately 20,000 ft² of buildings (i.e., single-family residences, detached structures and outbuildings). The concrete driveway would be removed as would all existing underground utility lines (i.e., water, irrigation and wastewater drain lines), the septic tanks and leach fields. Grading would require 8,164 cubic yards of fill export. Construction activities are expected to occur five days per week, 8 hours per day, between 8:00 am and 5:00 pm.

Regulatory Context

Paleontological resources (i.e., fossils) are considered nonrenewable scientific resources because, once destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under various federal, state, and local laws and regulations. Laws pertinent to this Project are discussed below.

State Laws and Regulations

California Environmental Quality Act

CEQA requires that public agencies and private interests identify the potential environmental consequences of their projects on any object or site of significance to the scientific annals of California (Division I, California Public Resources Code [PRC] Section 5020.1[j]). Appendix G in Section 15023 provides an Environmental Checklist of questions (Section 15023, Appendix G, Section XIV, Part A) that includes the following: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?".

California Public Resources Code

Section 5097.5 of the PRC states:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this PRC section, 'public lands' means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof.

Consequently, public agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

Local

The Project is required to comply with the regulations set forth in the Murrieta General Plan 2035 (2020), Chapter 8, Conservation Element, establishes the following goals and policies for paleontological resources.

Goal CV-7: Paleontological resources are conserved as a record of the region's natural history.

- **Policy CSV-7.1:** Continue development review procedures that protect paleontological resources.
- **Policy CSV-7.2:** Encourage local display and educational use of paleontological resources.

Paleontological Resources

Paleontological Resource Definition

SVP has provided guidance designed to support state and federal environmental review. The SVP broadly defines significant paleontological resources as follows:

Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years). (SVP, 2010)

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important; or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes; or that could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well-represented lineages can be equally important for studying evolutionary patterns and processes, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important and, therefore, considered significant.

This definition is used for all projects that are subject to CEQA since CEQA does not define "a unique paleontological resource or site."

Paleontological Resource Potential

Absent specific agency guidelines, most professional paleontologists in California adhere to the guidelines set forth by 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 units (or members thereof) underlying a project area can be assigned to one of four categories defined

by the SVP (2010). Although these standards were written specifically to protect vertebrate paleontological resources, all fields of paleontology have adopted the following guidelines.

High Potential (Sensitivity)

Rock units from which significant vertebrate fossils, invertebrate fossils, or suites of plant fossils have been recovered have a high potential for containing significant nonrenewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations that contain significant nonrenewable paleontological resources anywhere within their geographical extent and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical, and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas that contain potentially datable organic remains older than recent, including deposits associated with nests or middens, and areas that may contain new vertebrate deposits, traces, or trackways are also classified as significant.

Low Potential (Sensitivity)

Sedimentary rock units that are potentially fossiliferous but have not yielded fossils in the past or contain common or widespread invertebrate fossils of well-documented and understood taphonomic, phylogenetic species and habitat ecology have a low potential for containing significant nonrenewable fossiliferous resources. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow a determination that some areas or units have a low potential for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction begins, it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from low to high potential and, thus, require monitoring and mitigation if the resources are found to be significant.

Undetermined Potential (Sensitivity)

Specific areas underlain by sedimentary rock units for which little information is available have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

No Potential

Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

Methods

To assess whether a particular 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 "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 formal museum records search was conducted at the WSC. Informal records searches were also conducted of the online University of California Museum of Paleontology (UCMP) collections and San Diego Natural History Museum (SDNHM) collections, as well as the online Paleobiology Database (PBDB), Integrated Digitized Biocollections, and other published and unpublished geological and paleontological literature of the area.

Resource Context

Geologic Setting

The Project area is in the central portion of the geologically complex Peninsular Ranges geomorphic province (Morton and Miller, 2006). The Peninsular Ranges are a northwest–southeast oriented complex of blocks, approximately 30–100 miles (mi) wide, that extend 125 mi from the Transverse Ranges and Los Angeles Basin in the north, to the tip of Baja California in the south, and to the Colorado Desert in the east (Norris and Webb, 1976). The Project is on the Perris Block, a relatively stable rectangular structural unit between the Elsinore and San Jacinto fault zones (Morton et al., 2003). The associated faults have resulted in tectonic movement of the metamorphic and igneous rocks that compose the Perris Block, and subsequent erosion of the block in the Cenozoic Period (66 million years ago [Ma] to present) has deposited thick, complex layers of sediment in low-lying areas (Kennedy, 1977). The Project is on deposits of this Cenozoic sediment (Kennedy and Morton, 2003).

Site Specific Geology and Paleontology

According to published geologic mapping by Kennedy and Morton (2003), the Project area is underlain by two geologic units. These geologic units, and their paleontological sensitivity, are discussed below and shown in Figure 3.

Sandstone and Conglomerate of Wildomar Area (QTsw)

Sandstone and conglomerate of Wildomar area (QTsw) was deposited in the Blancan North American Land Mammal Age (NALMA)(3–2 Ma) and Irvingtonian NALMA (850,000–250,000 years ago) during the Pliocene Epoch (5.3–2.58 Ma) to Pleistocene Epoch (2.58 Ma to 11,700 years ago), and unconformably underlies the Pleistocene Pauba Formation (Kennedy and Morton, 2003).

Locally, this unit is represented by friable, pale yellowish-green, medium-grained, caliche-rich sandstone (Kennedy and Morton, 2003). Pliocene and Pleistocene deposits in Riverside County have both produced a diverse fossil fauna. Pliocene deposits have produced remains of horse (*Equus* sp., *Plesippus* sp., and *Pliohippus* sp.), camelid (*Pliauchenia* sp.), porcupine (*Erethizon* sp.), rabbit (*Sylvilagus* sp. and *Hypolagus* sp.), shrew (*Sorex* sp.), rodent, turtle, bivalve, gastropod, anthozoan, scaphopod, and plant (UCMP, 2025), and Pleistocene deposits have produced remains of Columbian mammoth (*Mammuthus columbi*), horse, camelid (*Camelops* sp.), bison (*Bison* sp.), Harlan's ground sloth (*Glossotherium harlani*), ground sloth (*Megalonyx* sp.), lamine camel (*Hemiauchenia* sp.), rodent, bird, amphibian, reptile, and invertebrate (Jefferson, 1991a; Reynolds and Reynolds, 1991; Springer et al., 2009). As a result, this unit has a high paleontological sensitivity.

Paleontological Resource Assessment for the
Viscar Terrace Project , City of Murrieta, Riverside County, California

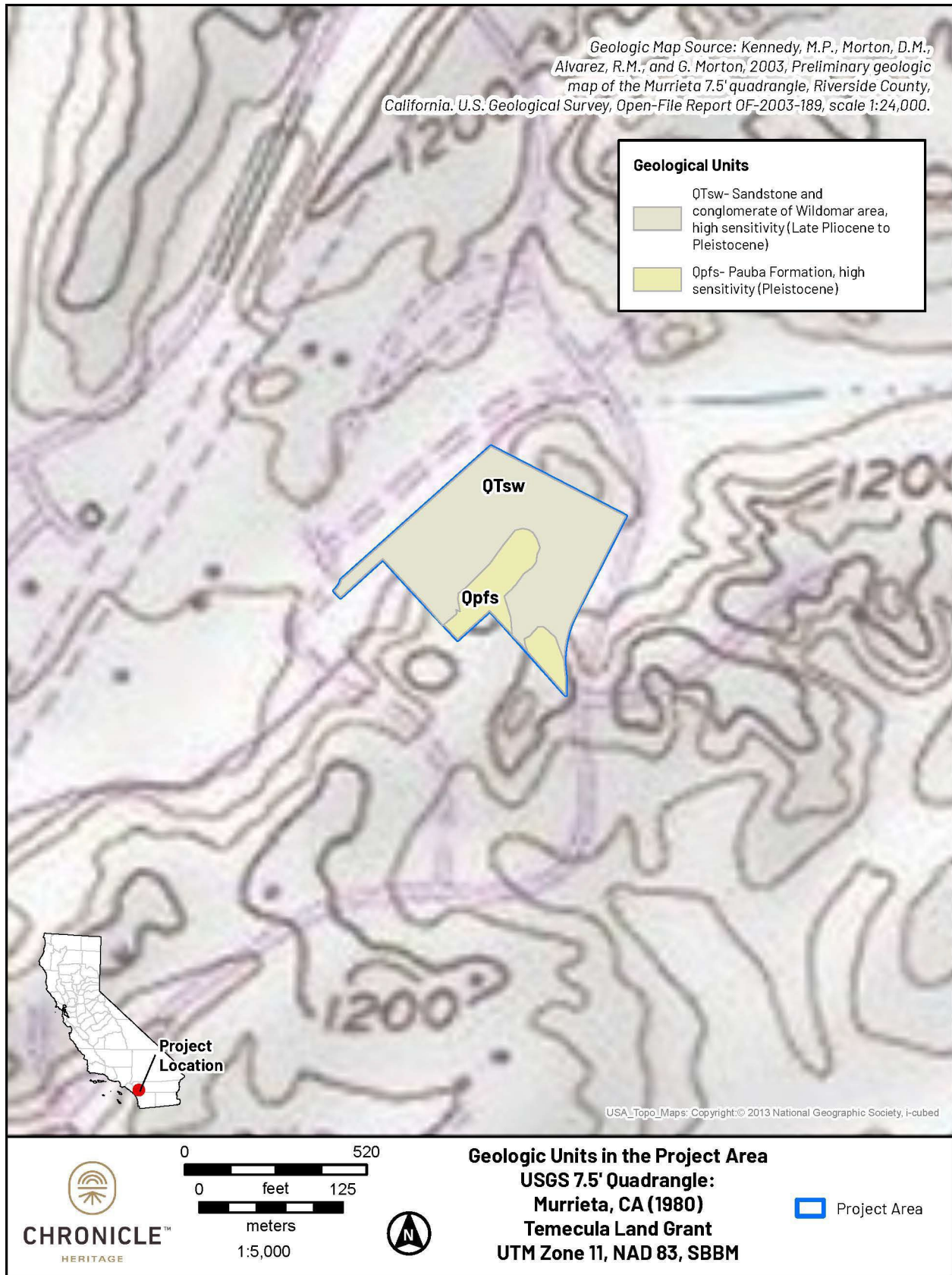


Figure 3. Geologic map of the Project area.

Pauba Formation (Qpfs)

The Pauba Formation (Qpfs) is composed of siltstone, sandstone, and conglomerate deposited in the Irvingtonian NALMA and Rancholabrean NALMA (240,000–11,000 years ago) in the Pleistocene Epoch (Kennedy and Morton, 2003). Locally, the Pauba Formation is represented by brown, moderately well-indurated, cross-bedded sandstone with sparse cobble- to boulder-conglomerate beds (Kennedy and Morton, 2003). The Pauba Formation has a high paleontological sensitivity because of the presence of Pleistocene fauna in Riverside County as described above for Sandstone and conglomerate of Wildomar Area (QTsw).

Records Search Results

The WSC records search produced multiple fossil localities within 2.5 mi of the Project area from the nearby Principe Project (Stoneburg, 2024) (Attachment A). Searches of online databases and other literature produced nine additional fossil localities within 3 mi (Miller, 1971; Jefferson, 1991a, 1991b; iDigBio, 2025; San Diego Natural History Museum [SDNHM], 2025; University of California Museum of Paleontology [UCMP], 2025) (Table 1).

Table 1. Vertebrate Localities Documented in Vicinity of the Project

Locality No.	Geologic Unit	Age	Taxa	Depth	Distance
Principe Project ¹	Not specified	Pleistocene	Camelid (<i>Camelops</i> sp.), horse (<i>Equus</i> sp.)	Not specified	0.5–2.5 mi northwest and southeast
Copper Creek #1 ²	Pauba Formation	Rancholabrean	Mammoth (<i>Mammuthus</i> sp.)	Not specified	2.75 mi west
Copper Creek #2 ²	Pauba Formation	Rancholabrean	Camelid	Not specified	2.75 mi west
Meadowlane ²	Pauba Formation	Irvingtonian	Horse	Not specified	1.5 mi southwest
SBCM 05.006.399 ³	Sandstone underlying Pauba Formation	Blancan	Teratorn (<i>Aiolornis incredibilis</i>)	0.5 feet (ft)	1 mile northwest
California Oaks ⁴	Unnamed sandstone	Irvingtonian	Mammoth, mastodon (<i>Mammut</i> sp.), elephantid (Proboscidea), camelid, lamine camel, deer (<i>Odocoileus</i> sp.), dwarf pronghorn (<i>Antilocapra</i> sp.), horse, canid (<i>Canis</i> sp.), rabbit, badger (<i>Taxidae</i> sp.), shrew, snake (Colubridae), tree frog	Not specified	<1 mi, surrounds the Project area

Paleontological Resource Assessment for the
Viscar Terrace Project , City of Murrieta, Riverside County, California

Locality No.	Geologic Unit	Age	Taxa	Depth	Distance
			(<i>Hyla</i> sp.), viperfish (<i>Chauliodus eximius</i>)		
Pauba Formation ⁴	Pauba Formation	Irvingtonian	Southern mammoth (<i>Mammuthus meridionalis</i>), American mastodon (<i>Mammuth americanum</i>), horse (<i>Equus bautistensis</i>), California tapir (<i>Tapirus californicus</i>), peccary (Tayassuidae), camelid, deer, dwarf pronghorn, Saber-toothed cat (<i>Smilodon fatalis</i>), Harlan's ground sloth, coyote (<i>Canis latrans</i>), rabbit, weasel (<i>Mustela</i> sp.), rodent, mole (Talpidae), shrew, bat (Chiroptera)	Not specified	1.5 mi southeast
USGS M14765	Unnamed sandstone	Irvingtonian	Pacific mastodon (<i>Mammuth pacificus</i>), rodent	Not specified	1 mi northwest
Murrieta	Unnamed sandstone and conglomerate	Pleistocene	Horse	Not specified	Not specified, likely within 2.5 mi

¹ Stoneburg (2024).

² SDNHM (2024).

³ Campbell et al. (1999).

⁴ Pajak et al. (1996).

⁵ Repenning (1987).

⁶ Scott (1992).

Field Survey Results

A pedestrian survey of the Project area was performed by Associate Paleontologist Cecilio Garcia on January 4, 2024. The purpose of the survey was to observe the surface exposures of units depicted in published geologic maps and inspect the ground surface for evidence of

paleontological resources. Tablets equipped with topographic maps, geologic maps, and paleontological sensitivity GIS data were used. Notes were taken on the lithology observed at the ground surface, and photographs were taken to document the survey.

The terrain in the Project area showed signs of extensive disturbance, as the entire area has been landscaped as a private residence, including multiple buildings, paved roads and a path, retaining walls, and terracing (Figure 4). Visibility was close to 100 percent because of the lack of vegetation from landscaping. When present, surficial sediment was a light to medium brown, very poorly sorted, silty, subrounded to subangular, fine- to very coarse-grained sand (Figure 5). No paleontological resources were observed during the survey. Although no significant fossils were found on the surface, it is possible that fossil-bearing sediment is present in deeper, undisturbed deposits and may be encountered at depth in the Project area.



Figure 4. View of Project area from southern corner, looking north, showing signs of landscaping and development.



Figure 5. Typical surficial sediment in Project area.

Findings

This memorandum uses the SVP system (2010) to assess paleontological sensitivity and the level of effort required to manage potential impacts to significant fossil resources. Using this system, the sensitivity of geologic units was determined by the relative abundance and risk of adverse impacts to vertebrate fossils and significant invertebrates and plants. The sandstone and conglomerate of Wildomar area (QTsw) and Pauba Formation (Qpfs) mapped in the Project area both have a high paleontological sensitivity at the surface because of the presence of multiple fossil localities from similar deposits within 3 mi of the Project (Table 2). This sensitivity is consistent with the Riverside County General Plan (Riverside County, 2015), which assigns a high sensitivity at the surface (Ha) to the entire Project area. Because of the presence of nearby fossil localities, Project-related ground disturbance has the potential to impact paleontological resources throughout the Project area.

Table 2. Geologic Units and their Paleontological Sensitivity

Geologic Unit¹	Age	Fossils Previously Identified in the Geological Unit or Similar Depositional Units²	Paleo. Sensitivity	Recommended Mitigation
Pauba Formation (Qpfs)	Pleistocene	Southern mammoth, American mastodon, horse, California tapir, peccary, camelid, deer, dwarf pronghorn, Saber-toothed cat, Harlan's ground sloth, coyote, rabbit, weasel, rodent, mole, shrew, bat	High sensitivity	Full-time monitoring from surface
Sandstone and conglomerate of Wildomar Area (QTsw)	Late Pliocene to Pleistocene	Mammoth, Pacific mastodon, elephantid, camelid, lamine camel, deer, dwarf pronghorn, horse, canid, rabbit, badger, shrew, snake, tree frog, viperfish	High sensitivity	Full-time monitoring from surface

¹ Kennedy and Morton (2003).

² Stoneburg (2024), SDNHM (2025), Campbell et al. (1999), Pajak et al. (1996), Repenning (1987), Scott (1992).

Recommendations

In general, the potential for a given project to result in impacts on paleontological resources is directly proportional to the amount of ground disturbance associated with the project; thus, the higher the intensity of ground disturbances within geological deposits with a known paleontological sensitivity, the greater the potential for impacts to paleontological resources. Since this Project entails the development of a housing community, significant ground disturbances are anticipated. The presence of the Pliocene–Pleistocene sandstone and conglomerate of the Wildomar area (QTsw) and Pleistocene Pauba Formation (Qpfs) at the surface suggests that ground disturbance may result in significant impacts under CEQA to paleontological resources such as destruction, damage, or loss of scientifically important paleontological resources. Therefore, a qualified paleontologist should be retained to develop and implement the measures recommended below. These measures have been developed in accordance with SVP guidelines; if implemented, these measures will satisfy the requirements of CEQA.

Worker's Environmental Awareness Program (WEAP)

Prior to the start of the proposed Project activities, all field personnel should receive a worker's environmental awareness training on paleontological resources. The training should provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the Project area, the role of the paleontological monitor, an outline of steps to follow if a fossil discovery is made, and contact information for the project paleontologist. The training should be developed by the Project paleontologist and can be delivered concurrently with other training, including cultural, biological, safety, and others.

Paleontological Mitigation Monitoring

Prior to the commencement of ground-disturbing activities, a professional paleontologist should be retained to prepare and implement a paleontological mitigation plan for the Project. The plan should describe the monitoring required during ground-disturbing activities starting at the surface. Full-time monitoring is recommended for both the sandstone and conglomerate of Wildomar area (QTsw) and the Pauba Formation (Qpfs) underlying the Project. Monitoring should entail the visual inspection of excavated or graded areas and trench sidewalls. If the Project paleontologist determines full-time monitoring is no longer warranted based on the geologic conditions at depth, they may recommend that monitoring be reduced or cease entirely.

Fossil Discoveries

If a paleontological resource is discovered, the monitor should have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the project paleontologist should complete the following:

- **Salvage of Fossils.** If fossils are discovered, all work in the immediate vicinity should be halted to allow the paleontological monitor and project paleontologist to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the project paleontologist (or paleontological monitor) should recover them following standard field procedures for collecting paleontological resources as outlined in the paleontological mitigation plan for the Project. Typically, fossils can be safely salvaged quickly by a single paleontologist and

not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case, the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossils can be removed in a safe and timely manner.

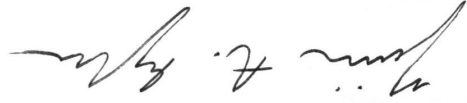
- **Fossil Preparation and Curation.** The paleontological mitigation plan for the Project should identify the museum that has agreed to accept fossils that may be discovered during Project-related excavations. Upon completion of fieldwork, all significant fossils collected should be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and the stabilization or repair of specimens. During preparation and inventory, the fossils specimens should be identified to the lowest taxonomic level practical prior to curation at an accredited museum. The fossil specimens must be delivered to the accredited museum or repository no later than 30 days after all laboratory work is completed. The cost of curation will be assessed by the repository and will be the responsibility of the client.

Final Paleontological Mitigation Report

Upon completion of ground-disturbing activity (and curation of fossils, if necessary), the Project paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include a discussion of the location, duration, and methods of the monitoring, stratigraphic sections, any recovered fossils, the scientific significance of those fossils, and where the fossils were curated.

Thank you for contacting Chronicle Heritage for this Project. If you have any questions, please do not hesitate to contact us.

Sincerely,



Benjamin Scherzer, M.S. | Senior Paleontologist
Chronicle Heritage

This page intentionally left blank.

References

- Campbell, K.E., Jr., Scott, E., and Springer, K.B., 1999, A new genus for the incredible teratorn (Aves: Teratornithidae): *Smithsonian Contributions to Paleobiology*, v. 89, p. 169–175.
- City of Murrieta, 2020, Murrieta General Plan 2035: Development Services Department of the City of Murrieta, <https://www.murrietaca.gov/303/General-Plan-2035> (accessed January 2024).
- iDigBio, 2025, iDigBio: Integrated Digitized Biocollections: iDigBio Specimen Portal, <http://portal.idigbio.org/portal> (accessed January 2025).
- Jefferson, G.T., 1991a, A Catalogue of Late Quaternary Vertebrates from California: Part One, Nonmarine Lower Vertebrate and Avian Taxa: Los Angeles, California, Natural History Museum of Los Angeles County, Technical Report No. 5, 135 p., http://ibecproject.com/PREDEIR_0000133.pdf.
- Jefferson, G.T., 1991b, A Catalogue of Late Quaternary Vertebrates from California: Part Two, Mammals: Los Angeles, California, Natural History Museum of Los Angeles County, Technical Report No. 7, 135 p., http://ibecproject.com/PREDEIR_0000133.pdf.
- Kennedy, M.P., 1977, Recency and character of faulting along the Elsinore fault zone in southern Riverside County, California: California Division of Mines and Geology Special Report 131, 12 p.
- Kennedy, M.P., and Morton, D.M., 2003, Preliminary Geologic Map of the Murrieta 7.5' Quadrangle, Riverside County, California: U.S. Geological Survey USGS Open-File Report 03-189, scale 1:24,000, <https://pubs.usgs.gov/of/2003/0189/> (accessed February 2024).
- Miller, W.E., 1971, Pleistocene Vertebrates of the Los Angeles Basin and Vicinity: (exclusive of Rancho La Brea): Los Angeles, Los Angeles County Museum of Natural History, Bulletin of the Los Angeles County Museum of Natural History, Science No. 10, 136 p.
- Morton, D.M., Kennedy, M.P., Bovard, K.R., and Burns, D., 2003, Geologic map and digital database of the Bachelor Mountain 7.5' quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 2003-103, doi:10.3133/ofr03103.
- Morton, D.M., and Miller, F.K., 2006, Geologic Map of the San Bernardino and Santa Ana 30' × 60' quadrangles, California: U.S. Geological Survey Open-File Report 2006-1217, Version 1, <https://pubs.usgs.gov/of/2006/1217/> (accessed July 2023).
- Norris, R., and Webb, R.W., 1976, *Geology of California*: New York, John Wiley and Sons.

- Pajak, A.F., III, Scott, E., and Bell, C.J., 1996, A review of the biostratigraphy of Pliocene and Pleistocene sediments in the Elsinore Fault Zone, Riverside County, California: *PaleoBios*, v. 17, p. 28–49, https://d1wqtxts1xzle7.cloudfront.net/69346012/A_review_of_the_biostratigraphy_of_Plioc20210910-25423-3lhn5q.pdf?1631304534=&response-content-disposition=inline%3B+filename%3DA_review_of_the_biostratigraphy_of_Plioc.pdf&Expires=1707429013&Signature=SvkAHAHftpSc69MQSsASc14gP2~NMgdZ4lzulzboZ4yHZyRtI0Mrdbt3impCeLtljrqbqixtizBmLCLW1qxdEqY5GEhZTPps1zbH5Kg4lPwyuqKEDGW-ba250CaHeS70iGr2rwgmoqhExkPdx0EV4ALQxuKlnUsbYZzJBARs6rs6YKVx36fEc8~bK~2FtZyS-QXBzgAmNwshhHtjPhr6u2AiiA06HGj-Nn~NG9KY32-WEBp6zizz92OQ2ja-xlXkj9J1irCTjpJD3j91Kd0soi5UbPNg7ZjQ4-BC2~1YKpxk5N9zC7IH0gbsnYpzuPs2fz8hyzfTUgi3cl9LcChaQ___&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA.
- Repenning, C.A., 1987, Biochronology of the microtine rodents of the United States, in Woodburne, M.O. ed., *Cenozoic Mammals of North America: Geochronology and Biostratigraphy*, Berkeley, University of California Press, p. 236–268.
- Reynolds, R.E., and Reynolds, R.L., 1991, The Pleistocene beneath our feet; near-surface Pleistocene fossils in inland Southern California basins: *San Bernardino County Museum Association Quarterly*, v. 38, p. 41–43, <https://eurekamag.com/research/020/266/020266753.php> (accessed January 2024).
- Riverside County, 2015, *Riverside County General Plan: Planning Department*, <https://planning.rctlma.org/general-plan-and-zoning/riverside-county-general-plan> (accessed March 2024).
- San Diego Natural History Museum [SDNHM], 2025, *Collection Database: Searchable Collection*, <https://www.sdnhm.org/science/paleontology/resources/collection-database> (accessed July 2023).
- Scott, E., 1992, New specimens of Pleistocene *Equus* (Mammalia, Perissodactyla, Equidae), from Riverside County, California: *Journal of Vertebrate Paleontology*, Abstract of Papers, v. 12, p. 51A, doi:10.1080/02724634.1992.10011483.
- 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*, https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf (accessed December 2023).
- Springer, K.B., Scott, E., Sagebiel, J.C., and Murray, L.K., 2009, The Diamond Valley Lake Local Fauna: Late Pleistocene Vertebrates from Inland Southern California, in Albright, L.B. ed., *Papers on Geology, Vertebrate Paleontology and Biostratigraphy in Honor of Michael O. Woodburne*, Flagstaff, Arizona, Museum of Northern Arizona, Bulletin 65, p. 681.
- Stoneburg, B.E., 2024, *Unpublished museum collections records for the 40475 Vista Murrieta Road Project: Hemet, California, Western Science Center*.
- University of California Museum of Paleontology [UCMP], 2025, *UCMP Specimen Search: University of California Museum of Paleontology*, <https://ucmpdb.berkeley.edu/> (accessed January 2025).

**Attachment A.
WSC Record Search Results**



February 2nd, 2024

Chronicle Heritage
Michaela Adler
55 East Huntington Drive
Suite 238
Arcadia, CA 91006

Dear Ms. Adler,

This letter presents the results of a record search conducted for 40475 Vista Murrieta Road Project in the City of Murrieta, Riverside County, CA. The project is located between Vista Murrieta Road and Skypark Lane on Township 7 South, Range 3 West, Section 00 of the *Murrieta, CA* U.S. Geological Survey 7.5' quadrangle.

The geologic units underlying this project are mapped as a mix of alluvial and sandstone units from the Holocene, Pleistocene, and Pliocene epochs (Kennedy, Morton, Alvarez, and Morton 2003). Pleistocene and Pliocene units are considered to be highly paleontologically sensitive. The Western Science Center does not have localities within the project area, but does have localities within a 1 mile radius from the Principe Project. The Principe Project resulted in identifiable vertebrate fossils such as *Camelops sp.*, *Equus sp.*, and others.

Any fossil specimen from the 40475 Vista Murrieta Road Project would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Pleistocene alluvial units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the study area.

If you have any questions, or would like further information about the Principe Project, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,

A handwritten signature in black ink, appearing to read 'Brittney Stoneburg', written in a cursive style.

Brittney Elizabeth Stoneburg, MSc
Collections Manager