Paleontological Resources Assessment Report for the 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Lake Elsinore, Riverside County, California

April 2021

Conditional Use Permit No. 200043

Lake Elsinore, California USGS 7.5' Quad, Township 5 South, Range 4 West, Section 29

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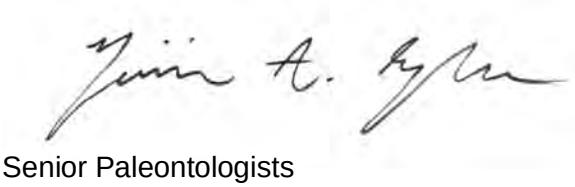

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MANAGEMENT SUMMARY

This report provides the results of a paleontological resources assessment completed by Red Tail Environmental (Red Tail) for the proposed 28771 Highway 74 Project (Project) in Lake Elsinore, Riverside County, California. The purpose of this report is to summarize identified paleontological resources occurring within the vicinity of the Project location, identify any Project activity that may negatively impact paleontological resources, and provide recommendations to mitigate impacts to less than significant levels.

The proposed Project includes developing two parcels to construct a gas station with a convenience market, a fueling canopy with six multi-product dispensers, and two underground storage tanks. Specific details on planned earthwork activity for this project are currently undefined, however over-excavation and recompaction earthwork over the entire Project area is anticipated.

Published geologic maps for the Project indicates the Project area is underlain by Mesozoic quartz-rich deposits, or phyllite (Morton, 2003; Morton and Miller, 2006; Morton and Weber, 2002)

Following paleontological guidelines are outlined in City of Lake Elsinore General Plan and supported by the occurrence of known fossils near the Project area and in other parts of western Riverside County, the geologic units underlying the Project have been assigned a low paleontological sensitivity. No recorded fossil collection localities are known from within a 1-mile radius of the Project site.

When existing information indicates that the proposed Project site is located completely within a zone with low paleontological sensitivity, no direct mitigation is required unless a fossil is encountered during site development. Therefore, in the case that a fossil is encountered during Project development, the Riverside County Geologist must be notified and a paleontologist must be retained by the Project proponent. The paleontologist will document the extent and potential significance of the paleontological resources discovered at the Project site and will establish appropriate mitigation measures for further site development.

1. INTRODUCTION

PURPOSE OF STUDY

This report provides the results of a paleontological resources assessment completed by Red Tail Environmental (Red Tail) for the proposed 28771 Highway 74 Project (Project) in Lake Elsinore, Riverside County, California, on the northwest side of State Route 74 between Rosetta Canyon Drive and Ardenwood Way (Figures 1 and 2). The Project area straddles Assessor Parcel Numbers (APN) 347-130-028 on the east and 347-130-029 on the west. The proposed Project includes developing two parcels to construct a gas station with a convenience market, a fueling canopy with six multi-product dispensers, and two underground storage tanks. Specific details on planned earthwork activity for this project are not currently defined, however over-excavation and recompaction earthwork over the entire Project area is anticipated.

A paleontological resources assessment was conducted in order to evaluated whether the proposed Project has the potential to negatively impact paleontological resources. This assessment report summarizes existing data of paleontological resource at the Project site, discusses the significance of these resources, evaluates possible Project-related impacts to paleontological resources, and provides recommendations to mitigate any impacts to these resources. This report was prepared by Jennifer DiCenzo and Spencer Bietz.

DEFINITION OF PALEONTOLOGICAL RESOURCES

Paleontological resources, or fossils, are the buried remains and traces of once-living organisms preserved in the geological formations within which they were originally buried. These include bones, teeth, shells, wood, leaf impressions, footprints, burrows and microscopic remains. Fossils are typically older than 10,000 years but remains of early Holocene age can also be considered to represent fossils because they represent a record of life in the past. Additionally, the localities of the fossil collections and the geological formations containing those localities are also considered paleontological resources.

Fossils are considered non-renewable resources because typically the organisms they represent no longer exist, and once destroyed can never be replaced. Fossils are important scientifically and educationally because they are evidence of prehistoric life on Earth. Paleontologists use fossils remains to better understand aspects of paleoenvironments and paleoclimates, to study patterns and processes of evolution and extinction, and to determine relationships between extinct and extant organisms. Fossil resources vary widely in their relative abundance and distribution and not all are regarded as significant. Preserved vertebrate fossils remains or track ways are classed as significant by most state and federal agencies and professional groups (and are specifically protected under the California Public Resources Code). In some cases, fossils of plants or invertebrate animals are also considered significant and can provide important information about ancient local environments.

A significant paleontological resource is considered to be of scientific interest if it is a rare or previously unknown species, it is of high quality and well preserved, it preserves a previously unknown anatomical or other characteristic, provides new information about the history of life on earth, or has an identified educational or recreational value. Paleontological resources that may be considered not to have scientific significance include those that lack provenience or context, lack physical integrity due to decay or natural erosion, or that are overly redundant or are otherwise not useful for research. The full significance of fossil specimens or fossil assemblages

cannot be accurately predicted before they are collected, and in many cases, before they are prepared in the laboratory and compared with previously collected fossils. Pre-construction assessment of significance associated with an area or formation must be made based on previous finds, characteristics of the sediments, and other methods that can be used to determine depositional conditions.

REGULATORY FRAMEWORK

Paleontological resources are considered scientifically and educationally significant nonrenewable resources protected under federal, state, and local laws, regulations, and ordinances including: The Antiquities Act of 1906; National Environmental Policy Act of 1969; Federal Land Policy Management Act of 1976; Paleontological Resources Preservation Act of 2009; California Environmental Quality Act; and Public Resources Code. The Project site is located within the County of Riverside (County), and the paleontological guidelines from the General Plan are summarized below.

2. METHODS

PALEONTOLOGICAL RECORDS SEARCH AND LITERATURE REVIEW

A fossil locality records search was performed at the Western Science Center (WSC), Department of Paleontology. The records search included examination of the WSC paleontological database to identify if any previously recorded fossil localities were recorded within or near the Project area. The locality records search was also conducted in order to identify if other fossil localities were present within similar geologic contexts and to identify the locations of sensitive geologic formations that are conducive to fossil preservations. Additional review of relevant published geologic maps (Morton, 2003; Morton and Miller, 2006; Morton and Weber, 2002) was conducted in order to understand where fossil may be found by directly correlating paleontological resource potential with the geologic rock units underlying the Project site.

PALEONTOLOGICAL RESOURCE ASSESSMENT CRITERIA

The County uses specific criteria consistent with guidelines published by the Society of Vertebrate Paleontology (SVP, 2010) to assess the paleontological potential of geologic units to contain fossils. The geologic units underlying the County have been assigned paleontological sensitivity ratings based on the following scale: High Potential (High A and High B subgroups), Low Potential, and Undetermined Potential. The following is a summary of the criteria for determining paleontological sensitivity.

High Sensitivity

Geologic units are assigned a high sensitivity rating when they are known to contain paleontological localities with rare, well-preserved fossil material, have critical fossil material available for stratigraphic or paleoenvironmental interpretation, and fossils with important data about the paleobiology and phylogeny of plant and animal groups, or if the rock unit is considered to have the potential to produce these kinds of remains.

Additionally, the County further divides rock units assigned a high paleontological sensitivity ratings into two subgroups: High Paleontological Potential A and High Paleontological Potential B. Rock units are assigned to group A if they are present immediately at the surface, and are assigned to group B if the rock unit is found at a depth of four or more feet below the existing surface.

Low Sensitivity

Geologic units are assigned a low sensitivity based on their relatively “young” age or high-energy depositional history. Rock units are considered to have a low sensitivity when they are unlikely to produce significant fossil remains, if they produce a low abundance of fossil remains, are igneous in origin and therefore have no potential for containing fossil remains, or if they are artificial fill materials.

Undetermined Sensitivity

Geologic Units assigned an undetermined sensitivity rating are those which display geologic features and preservational conditions conducive to producing fossils but little information may be known about the geology or paleontological resources because little data from the formation exists.

PALEONTOLOGICAL IMPACT ANALYSIS

Impacts to paleontological resources occur when construction activity such as grading, trenching and drilling physically destroy fossil remains. Ground-disturbing activities which destroy or modify units that have the potential to produce fossils have the potential to significantly impact fossil resources. Paleontological mitigation during construction is usually recommended to reduce these impacts to a less than significant level.

The purpose of this report is to determine if any of the proposed Project-related ground-disturbing activities may impact potentially fossiliferous geologic units, and to examine where and at what depth this may occur. The paleontological impact analysis involved examining available Project documents and other geological and paleontological data gathered during the records search and literature review.

3. EXISTING GEOLOGICAL SETTING

The Project site is located in the Elsinore Trough within the Perris Block of the Peninsular Ranges Geomorphic Province (English, 1926; Norris and Webb, 1990). At the surface, this structural block is a relatively low relief, weathered basin characterized by hills and small mountains, bordered by the Santa Ana Mountains to the west and south, the San Jacinto Mountains to the east, and the San Gabriel and San Bernardino Mountains to the north. The Elsinore Trough is a fault-controlled, complex geologic structure formed by extensional faulting along the Elsinore Fault Zone, the mechanism responsible for the uplift of those surrounding mountain ranges and the sinking of the Perris Block. Subsequently, the uplifted ranges are actively eroding sediment into nearby lower-lying basins and depositing sediment as alluvial fans and stream deposits.

4. RESULTS

RESULTS OF THE RECORDS SEARCH AND LITERATURE REVIEW

The results of the paleontological assessment are summarized below.

Project Paleontology

A records search of paleontological collections data was requested from the WSC. The results of the records search were negative, there were zero records of localities within the Project area or within a one-mile radius of the Project area (WSC, 2021; Appendix A). The results indicate that the Mesozoic quartz and phyllite deposits underlying the project (described below) are considered to be of low paleontological sensitivity and are not known to produce fossil material within the region. The WSC suggests that given the geologic makeup of the sediments underlying the project, it is unlikely that fossil material will be present.

A records search of paleontological collections data was completed by Red Tail using the University of California Museum of Paleontology (UCMP) database, which also returned negative results, there are zero records of localities within similar rock units in the County.

Project Geology

Published geologic maps (Morton, 2003; Morton and Miller, 2006; Morton and Weber, 2002) indicate the Project area is underlain by Mesozoic quartz-rich deposits and phyllite (depicted in Figure 3). Quartz-rich rocks of contain quartzite and quartz-rich metasandstone. The fissile black phyllite in this area commonly has sheen produced by very fine-grained white mica on the surface and locally contains small elongate prisms of fine-grained white mica, which may be pseudomorphs after chiastolite. Within the project area, the phyllite appears a rusty reddish brown on the surface (Figure 4).

A geotechnical report for the Project site was prepared by Geotechnical and Environmental Engineering Consultants, Inc. Their field study included three exploratory borings drilled to a maximum of 50 feet below the existing surface and soils encountered were logged by the field technician. Samples of undisturbed soils were retained in brass rings and tested at a laboratory. The geotechnical report describes the geology as consisting of a moist moderately dense brown-orange sandy silt “top native soil” containing sand and gravel, or alluvium, that continued to the maximum depth of 50 feet at all three boring locations.

RESULTS OF THE PALEONTOLOGICAL SENSITIVITY ANALYSIS

The rock units underlying the Project area have been assigned a low paleontological sensitivity based on the aforementioned criteria set by the County, and the occurrence of known fossils elsewhere in western Riverside County. Sensitivity assignment for rock units located within the County are graphically represented in Figure 5.

RESULTS OF THE PALEONTOLOGICAL IMPACT ANALYSIS

Details regarding exact amounts of excavation are not clearly defined at this time, however preliminary Project plans indicate several thousand cubic yards of sediment would need to be excavated or graded to complete proposed Project construction. Additionally, the geotechnical report recommends the “proposed building areas should be overexcavated to a depth of 4.0 feet below the existing soil grad, or 2.0 feet below the proposed footing bottoms, whichever is greater” and “where possible, the limits of overexcavation for building areas shall extend at least 5.0 feet beyond the proposed building limits or to the property line, whichever is less”. Given the proposed ground disturbance and the geotechnical recommendations for overexcavation to complete the Project, it is likely mass grading and excavation will directly impact the Mesozoic deposits (low paleontological sensitivity) underlying the Project Area.

RESULTS OF THE FIELD SURVEY

The project area bisects a low-rolling alluvial terrace that is aligned northeast-southwest and is bordered by a small seasonal drainage to the north and by Central Avenue to the south and east. The parcel immediately west of the Project area has been previously graded but now appears to lie fallow, displaying evidence of on-going opportunistic dumping activities. The south and eastern edges of the project area border an improved storm drain system that appears to be associated with the development along Central Avenue. The western parcel, APN 347-130-029, had been previously graded and was mostly devoid of vegetation but covered in gravel (Figure 6). The eastern parcel, APN 347-130-028, did not appear to have been previously graded or disturbed except for the southern edge which had been benched, presumably for slope retention (Figure 7). The southern border of the east parcel also contained a low-lying concrete retaining wall/curb which appeared to be modern in construction style (Figure 8). The north and northeastern portions of the Project area contained a small east/west-trending (Figure 9). Ground visibility within the north and northeastern portions of the Project Area were moderate (approximately 25 to 50 percent) to low (less than 25 percent) due to vegetation. Visibility within the central and southern portions of the east parcel and the entirety of the west parcel were moderate to good (75 percent and higher).

The pedestrian survey consisted of inspection of the Project area in transects spaced at 10-m intervals and the area was photographed. The survey transects were aligned in cardinal directions in order to survey the maximum amount of visible area. Special attention was given to outcrops, visible sediment in areas devoid of vegetation, and visibly bioturbated sediment.

5. RECOMMENDATIONS AND CONCLUSIONS

Geologists with the County apply general conditions when issuing grading permits for proposed projects. When existing information indicates that a proposed Project site is located completely within a zone with low paleontological sensitivity, no direct mitigation is required unless a fossil is encountered during site development. Therefore, in the case that a fossil is encountered during Project development, the Riverside County Geologist must be notified and a paleontologist must be retained by the Project proponent. The paleontologist will document the extent and potential significance of the paleontological resources discovered at the Project site and will establish appropriate mitigation measures for further site development. The following is an outline of mitigation measures related to paleontological resources encountered during Project construction

MITIGATION MEASURES

In the case that a paleontological resource is discovered during Project construction, the following conditions must be met:

a. All site earthmoving shall be ceased in the area of where the fossil remains are encountered, but earthmoving activities may be diverted to other areas of the site;
b. The owner of the property shall be immediately notified of the fossil discover and in turn shall immediately notify the County geologist of the discovery;
c. The applicant shall retain a qualified paleontologist approved by the County;
d. The paleontologist shall determine the significance of the encountered fossil remains;
e. Paleontological monitoring of ground-disturbing activities will continue thereafter on an as-needed basis by the paleontologist during all such activity that may expose sensitive strata. Ground-disturbing activities in areas of the Project site where previously undisturbed strata will be buried, but not otherwise disturbed, does not need to be monitored. The supervising paleontologist will have the authority to reduce monitoring if it is determined that the probability of encountering any additional fossils has dropped below an acceptable level;
f. If fossil remains are encountered by ground-disturbing activities when the paleontologist is not on site, these activities will be diverted around the fossil site and the paleontologist shall be called to the site immediately to recover the remains;
g. Any recovered fossil remains will be prepared to the point of identification and identified to the lowest taxonomic level possible by knowledgeable paleontologists. The remains then will be curated, catalogued, and the corresponding geologic and geographic site data will be archived at the appropriate museum or repository. The remains will then be accessioned into the museum or repository fossil collection where they will be permanently stored, maintained, and made available for future study by qualified scientific investigators. The County must be consulted on the repository or museum to receive the fossil material prior to being curated.

6. REFERENCES

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2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology, p. 1-11.

Figures

RED TAIL ENVIRONMENTAL

Figure 1. Project Vicinity Map

Figure 2. Proposed Project Area.

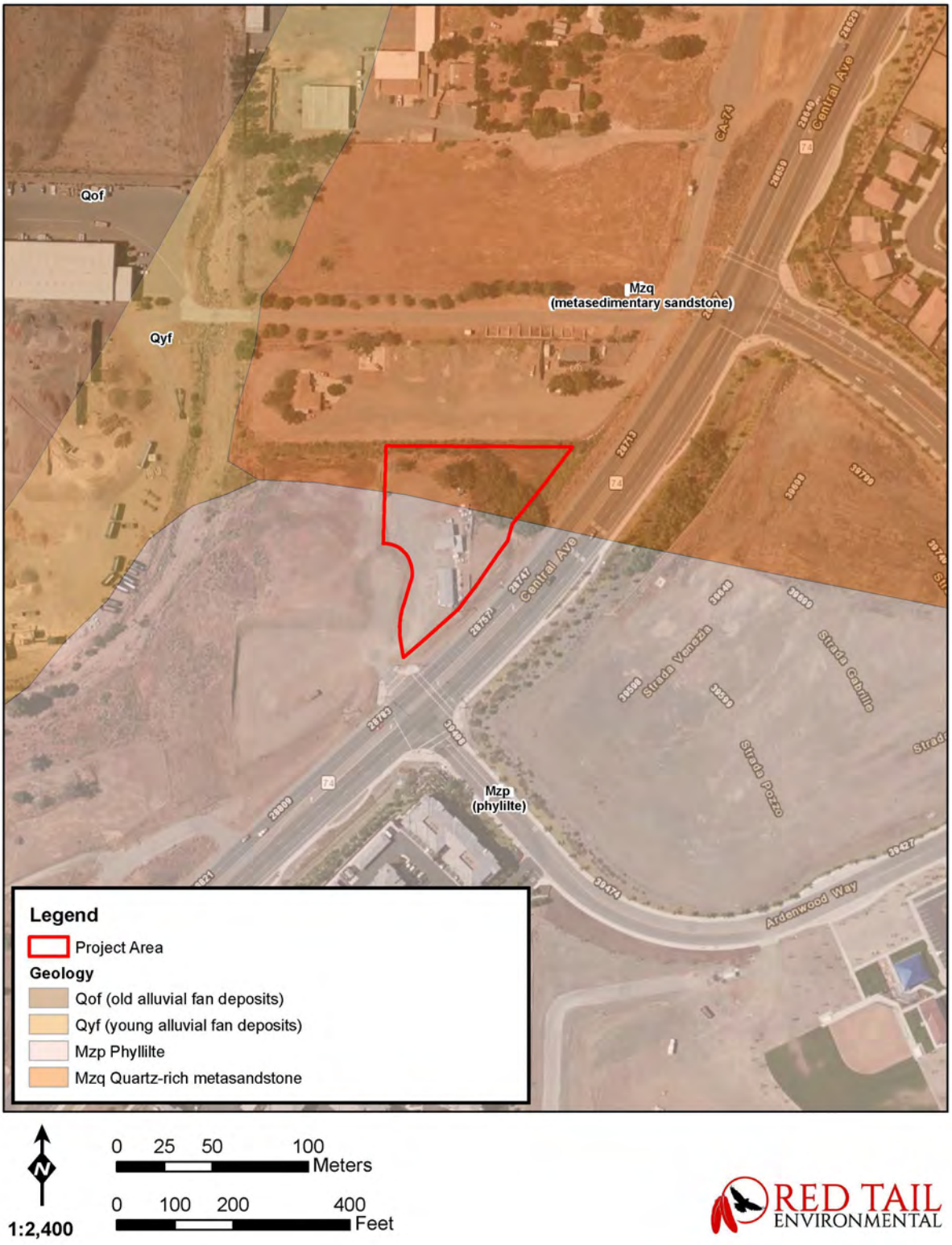

Figure 3. Site Geology

Figure 4. Surface Geology, plan view.

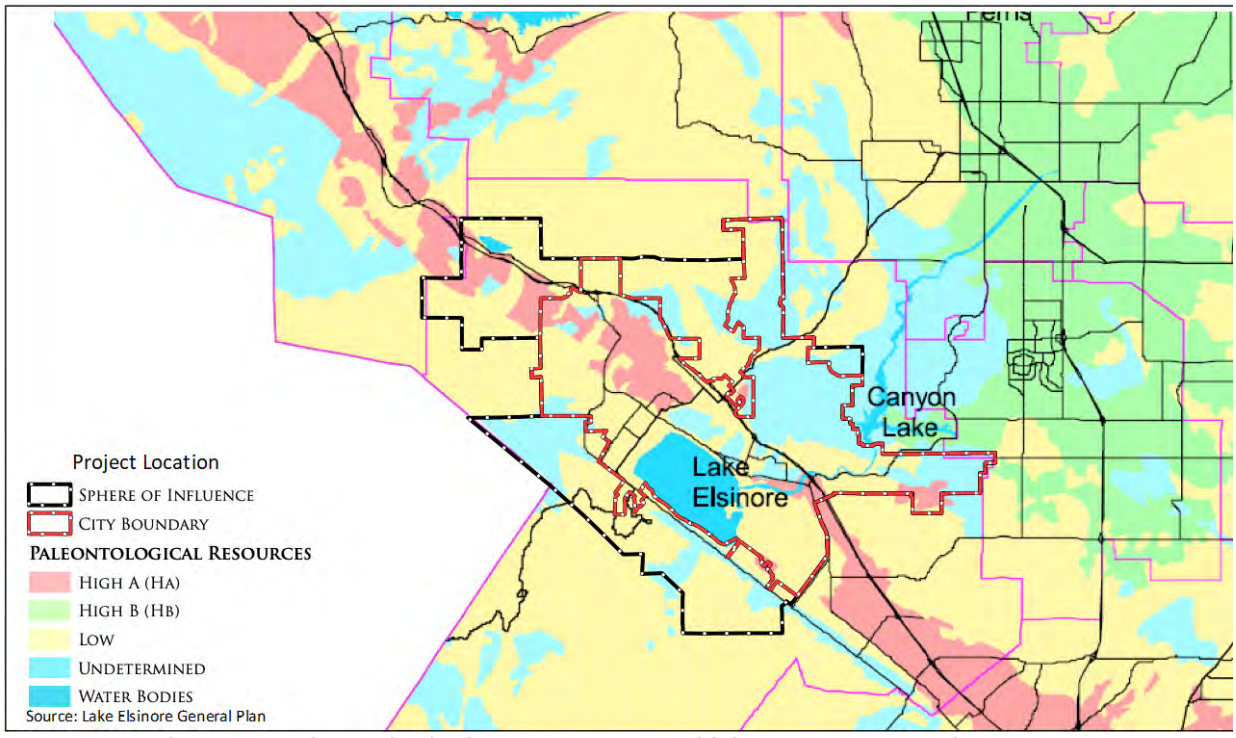

Figure 5. Paleontological Resources Sensitivity Map Near Project Area

Figure 6. Overview of west parcel APN 347-130-029, facing north.

Figure 7. Overview of east parcel APN 347-130-028, facing west.

Figure 8. Overview of modern disturbance at southeast border of Project area, facing northeast.

Figure 9. Overview of drainage at northeast corner of Project Area, facing west.

APPENDIX A

WSC PALEONTOLOGICAL RECORDS SEARCH RESULTS

WESTERN SCIENCE CENTER

Chambers Group
Spencer Bietz
328 State Place
San Diego, CA 92029

February 8, 2021

Dear Mr. Bietz,

This letter presents the results of a record search conducted for the 28771 Highway 74/76 Gas Station Project in the city of Lake Elsinore, Riverside County, California. The project site is located east of Highway 74 between Ardenwood Way and Rosetta Canyon Drive in Township 5 South, Range 4 West in Section 29 on the Lake Elsinore CA USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped as Mesozoic quartz rich deposits or phyllite (Morton and Webber, 1998). A map showing geologic mapping for the area has been included for your reference. Mesozoic quartz and phyllite deposits are considered to be of low paleontological sensitivity and are not know to produce fossil material within the region. The Western Science Center does not have localities within the project area or within a one mile radius.

Given the geologic makeup of sediments underlying the project area, it is unlikely that fossil material will be present. If you have any questions or would like further information, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager

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