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Project Title:	Potentia-Viridi Battery Energy Storage System
TN #:	258067
Document Title:	Paleontological Resources Review
Description:	This memo summarizes the results of a paleontological records search, paleontological survey, and geological map and paleontological literature review to consider the potential for project implementation to result in impacts to paleontological resources
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Submitter Role:	Applicant Representative
Submission Date:	7/26/2024 11:34:39 AM
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Appendix 3.8A
Paleontological Resources Review

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MEMORANDUM

To:	Lauren McLeod – Levy Alameda, LLC
From:	Sarah Siren, MSc and Michael Williams, PhD
Subject:	Paleontological Resources Review – Potentia-Viridi Battery Energy Storage System
Date:	February 16, 2024
cc:	Ronelle Candia, Dudek
Attachment(s):	Confidential Attachment A. Paleontological Records Search Results Letter; Attachment B. Field Survey Photograph

Dudek has received and reviewed the results of a paleontological resources records search for the Potentia-Viridi Battery Energy Storage System Project (Project) and is providing this memo to Levy Alameda, LLC to summarize the results of a paleontological records search, paleontological survey, and geological map and paleontological literature review to consider the potential for project implementation to result in impacts to paleontological resources. The California Energy Commission (CEC) is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA) for this Project. A paleontological resources records search was conducted by the Natural History Museum of Los Angeles County (NHMLA) and Dudek conducted a digital search of the University of California, Berkeley Museum of Paleontology (UCMP) online database. Dudek also conducted a review of published geological maps and paleontological literature. This paleontological resources study was completed in accordance with CEQA and guidelines from the Society of Vertebrate Paleontology ([SVP] 2010).

Project Location and Description

The Project proponent, Levy Alameda, LLC is proposing to construct and operate the 400 MW/3,200 MWh Project in Alameda County. The proposed Project would include the construction, operations and maintenance, and decommissioning of a battery energy storage system (BESS) facility, including a Project substation, operations and maintenance building, and 500-kV overhead generation intertie transmission (gen-tie) line. The Project would interconnect to the PG&E Tesla Substation owned and operated by Pacific Gas and Electric (PG&E), located approximately 570 feet east of the Project's eastern boundary. Improvements to the PG&E Tesla Substation would be required as part of the Project.

The Project is located near the eastern boundary of Alameda County, approximately 2.5 miles west of the City of Tracy, and 2 miles south of the interchange of Interstates 580 and 205. The Project site is mapped within Sections 31 and 32 of Township 2 South, Range 4 East as depicted on the U.S. Geological Survey (USGS) Midway, CA 7.5-minute Topographic Quadrangle map (Figure 1). The approximately 70-acre Project site is located within a larger 232-acre parcel which is surrounded by vacant, open space, rural roads, and the PG&E Tesla Substation (Figure 2).

Regulatory Framework

California Environmental Quality Act

Paleontological resources, which are limited, nonrenewable resources of scientific, cultural, and educational value, are recognized as part of the environment under the State CEQA Guidelines. This study satisfies project requirements in accordance with CEQA (13 PRC, 2100 et seq.) and Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792). This analysis also complies with guidelines and significance criteria specified by the Society of Vertebrate Paleontology (SVP 2010).

Paleontological resources are explicitly afforded protection by CEQA, specifically in Section VII(f) of CEQA Guidelines Appendix G, the "Environmental Checklist Form," which addresses the potential for adverse impacts to "unique paleontological resource[s] or site[s] or … unique geological feature[s]." This provision covers fossils of signal importance – remains of species or genera new to science, for example, or fossils exhibiting features not previously recognized for a given animal group – as well as localities that yield fossils significant in their abundance, diversity, preservation, and so forth. Further, CEQA provides that a resource shall be considered "historically significant" if it has yielded or may be likely to yield information important in prehistory (PRC 15064.5 [a][3][D]). Paleontological resources would fall within this category. The PRC, Chapter 1.7, sections 5097.5 and 30244 also regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.

California PRC Section 5097.5

California PRC Section 5097.5 provides protection for paleontological resources on public lands, where Section 5097.5(a) states, in part, that:

> *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, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.*

Geological and Paleontological Setting

The Project site is relatively undeveloped and underlain by the following geological units (listed youngest to oldest in Table 1):

Table 1. Geological Units

Name	Series/Epoch	Map Unit	Time Span
younger Quaternary alluvium	Holocene	Qa	less than ~11,700 years ago
older Quaternary alluvium*	late Pleistocene	Qoa	~11,700 to 129,000 to years ago
Neroly Formation	late Miocene	Tn	~5.3 to 11.6 Ma

Sources: Dibblee and Minch, 2006; Cohen et al., 2023
*Anticipated at depth beneath younger Quaternary alluvium

According to the Project-specific geotechnical report (Terracon, 2023), bedrock could be as shallow as 1 foot below the ground surface (bgs). A field survey of the Project site was conducted on October 11, 2023 by Gregory Wada of Dudek, who is dual qualified in archaeology and paleontology, and Victoria Martin, archaeologist. In addition to examining the Project site for paleontological resources, Mr. Wada searched for outcrops to field check mapped geological units (Attachment B). No paleontological resources were observed during the pedestrian survey.

Paleontological Records Search

Dudek requested a paleontological records search from the NHMLA on December 27, 2023, and the results were received on January 14, 2024. The NHMLA did not report any fossil localities from within the Project site, but they do have nearby localities from deposits similar to those underlying the site on the surface and at depth (Confidential Attachment A).

The late Miocene age Neroly Formation has yielded invertebrate fossil specimens, including echinoderms, approximately 1.5 miles southeast of Burton Station, between Tice Valley and Grizzly Creek (Los Angeles County Museum (LACM) Invertebrate Paleontology (IP) localities 15355 and 15369) (Confidential Attachment A). Additional invertebrate fossil specimens from the Neroly Formation, including *Astrodapis whitneyi* (Whitney's sand dollar) have been recovered from the Cuyama Valley in Santa Barbara County (LACM IP 2975), as well as invertebrate shell beds with *Pecten crassicardo* (scallop) and other invertebrates from Mount Diablo Scenic Highway in Contra Costa County (LACM IP 7963-7968) (Confidential Attachment A). This formation has been described as a gray to blue, friable sandstone with pebbly clay (Dibblee and Minch, 2006). The Neroly Formation has been assigned a high paleontological resource sensitivity. A check of the UCMP online database also indicated plant fossil localities within the Neroly Formation as well as Pleistocene age invertebrate and vertebrate fossil localities from Alameda County (UCMP, 2024).

While older Quaternary alluvium is not mapped at the surface within the Project site, Jefferson (1991) reported a number of Rancholabrean North American Land Mammal Age (~11,700 to 250,000 years ago; Bell et al., 2004) localities from Alameda County that yielded Ice Age fossil megafaunal remains (e.g., sloth, mastodon, mammoth, bear, camel, and bison) (Bell et al., 2004; Cohen et al., 2023). These Pleistocene age deposits are considered to have high paleontological resource sensitivity.

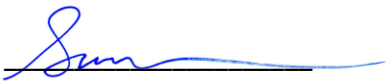
Findings and Recommendations

No paleontological resources were identified within the Project site as a result of the institutional records searches and desktop geological and paleontological review. The NHMLA recommended a full paleontological assessment of the Project site which this study satisfies. Given the presence of the Neroly Formation mapped within the Project site and the invertebrate fossils recovered from this geological unit within Alameda County, and the potential for older Quaternary alluvium at depth, intact paleontological resources may be encountered below a surficial layer of topsoil or younger Quaternary alluvium during Project excavations. In the event that intact paleontological resources are located on the Project site, ground-disturbing activities associated with construction of the Project, such as grading during site preparation, large diameter (two-feet or greater) augering, and trenching for utilities, have the potential to destroy a unique paleontological resource or site that has not been previously recorded. Upon compliance with the proposed mitigation measure, resources would be protected to the extent feasible if discovered, and significant adverse impacts would not occur.

MM PALEO-1: Paleontological Resources Impact Mitigation Program and Paleontological Monitoring. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (2010) guidelines. The qualified paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the project that shall be consistent with the SVP (2010) guidelines and outline requirements for preconstruction meeting attendance and worker environmental awareness training; where paleontological monitoring is required in areas of high sensitivity within the project site based on construction plans and/or geotechnical reports; procedures for adequate paleontological monitoring and discoveries treatment; and paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management. A qualified paleontological monitor shall be on site during initial rough grading and other significant ground-disturbing activities (including augering) below a depth of five feet below the ground surface in areas underlain by younger Quaternary alluvium (Holocene age) to determine if deposits at depth are old enough (Pleistocene age) to preserve scientifically significant paleontological resources. No paleontological monitoring is necessary during ground disturbance within artificial fill or sediments determined by the qualified paleontologist to be too young to preserve fossils (e.g. younger Quaternary alluvium). In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will allow grading to recommence in the area of the find. Fossil lab and curation costs are the responsibility of the project applicant or proponent.

If you have any questions regarding this memo, please feel free to contact me (760.479.4165 or ssiren@dudek.com).

Sincerely,



Sarah A. Siren, MSc
Paleontologist

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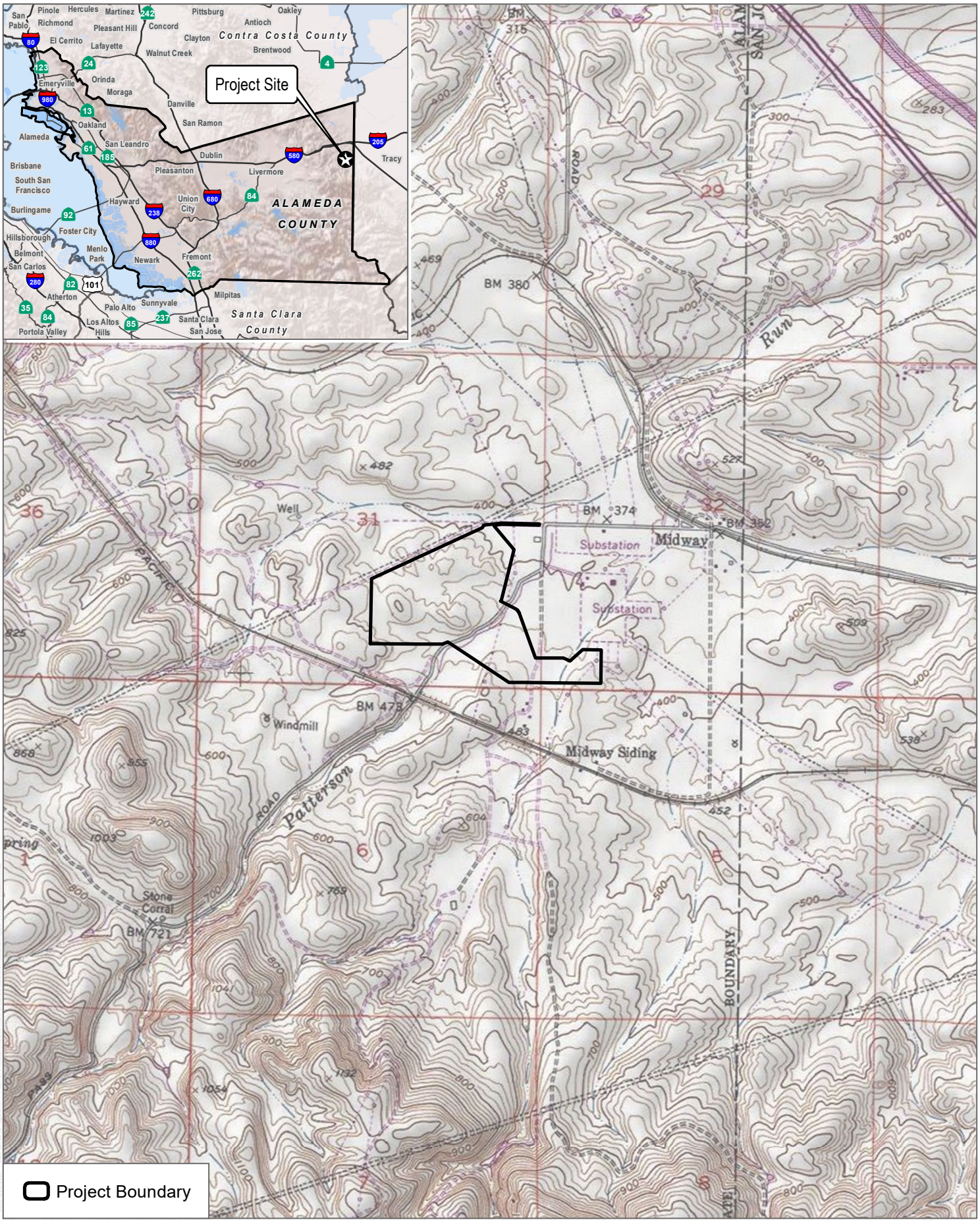

SOURCE: USGS 7.5 min Midway Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Potentia-Viridi BESS Project

SOURCE: Bing Maps (accessed 2023); Open Streets Map 2019

DUDEK

0 200 400 Feet

FIGURE 2

Project Area

Potentia-Viridi BESS Project

Confidential Attachment A

Paleontological Records Search Results Letter

Attachment B
Field Survey Photograph

Photograph 1: Project overview. View looking southwest. Photograph taken by V. Martin across grass covered landscape on the north side of Patterson Pass Road (left side of photograph), generally within the central portion of the Project site.