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4.15 PALEONTOLOGICAL RESOURCES

Paleontological resources, often referred to as fossils, are the remains or traces of prehistoric animals and plants. The term also encompasses mineralized impressions of those organisms. Paleontological resources document the presence and evolutionary history of extinct species and can be used to reconstruct prehistoric environments. Additionally, they are used to determine the relative ages of the strata in which they occur and to determine the geologic events that resulted in the deposition of those strata.

This section assesses the potential impacts that may occur as a result of earth-moving activities associated with construction of the proposed Project. The analysis presented in this section meets all requirements of the CEC (2008) and incorporates the Society of Vertebrate Paleontology (SVP1991, 1995, 1996) standard measures for mitigating adverse environmental impacts on significant paleontological resources. With the mitigation measures discussed in Section 4.15.3, the Project will have no significant paleontological impacts and will comply with LORS.

4.15.1 Affected Environment

The majority of the existing conditions discussion for paleontological resources is based upon data used in the EIR completed for the Sycamore Landfill Expansion Project (BRG 2008). The paleontological study area focuses on the formations and geomorphic provinces that underlie the proposed Project area and extends to include those formations throughout San Diego County..

4.15.1.1 Geologic Setting

The geologic setting of the Project is discussed in detail in Section 4.16, Geological Hazards and Resources, of this AFC. The details pertinent to the paleontological resources analysis are discussed here.

The proposed Project site is within the western edge of the Peninsular Range geomorphic province where paleontological occurrences are considered rare (DPLU 2009). Therefore, when a paleontological resource does occur, it is typically considered significant. The California Geological Survey's (CGS) interactive 2010 geologic map of California depicts the general geology of the Project site as consisting of a series of non-marine Eocene sedimentary formations, including moderately to well-consolidated sandstone, shale, and conglomerate (CGS 2011). Further, the CGS's 30x60-minute San Diego quadrangle (Kennedy and Tan 2008) depicts the Project site as underlain primarily by Stadium Conglomerate (Tst, Middle Eocene), which is typically associated with the Coastal Plain region (DPLU 2009). The Friars Formation (Tf, Middle Eocene), also typically associated with the Coastal Plain region (DPLU 2009), is depicted in the area of the lower elevations of the ridgelines and young alluvial flood-plain surficial deposits (Qya, Holocene and late Pleistocene) and is shown in the canyon bottoms and mouths. Several localities of Holocene landslides are also depicted at the southern toe of the eastern ridge forming Little Sycamore Canyon (Kennedy and Tan 2008). The CGS's 30x60-minute San Diego quadrangle by Kennedy and Tan (2008) is also used by the City of San Diego's Development Services Department (DSD) to determine underlying geology and associated paleontological sensitivity (DSD 2011). Geologic maps of the 1:24,000 scale La Mesa and Poway quadrangles have not yet been created by CGS. Alluvium and

slopewash/landslides are not consolidated and do not contain important paleontological resources.

4.15.1.2 Paleontological Sensitivity

Sensitivity refers to the likelihood of finding significant fossils within a geologic unit. In California, fossils of land-dwelling vertebrates are typically considered significant. The Friars Formation and Poway Conglomerate Group, which includes the Stadium Conglomerate, are known to include such resources. The City of San Diego's General Plan (City of San Diego 2007) relies on sensitivity classifications defined in Deméré and Walsh (1993).

- **High:** Geologic formations known to contain paleontological localities with rare, well-preserved, critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleoclimatic, paleobiological and/or evolutionary history potential are considered to have the highest potential to produce unique invertebrate fossil assemblages or unique vertebrate fossil remains and are, therefore, highly sensitive.
- **Moderate:** Geologic formations known to contain paleontological localities. These geologic formations are judged to have a strong, but often unproven, potential for producing unique fossil remains.
- **Low:** Geologic formations that, based on their relatively young age and/or high-energy depositional history, are judged unlikely to produce unique fossil remains. Low resource potential formations rarely produce fossil remains of scientific significance and are considered to have low sensitivity. However, when fossils are found in these formations, they are often very significant additions to our geologic understanding of the area.
- **Marginal:** Geologic formations that are composed either of volcanoclastic (derived from volcanic sources) or metasedimentary rocks, but that nevertheless have a limited probability for producing fossils from certain formations at localized outcrops. Volcanoclastic rock can contain organisms that were fossilized by being covered by ash, dust, mud, or other debris from volcanoes. Sedimentary rocks that have been metamorphosed by heat and/or pressure caused by volcanoes or plutons are called metasedimentary. If the sedimentary rocks had paleontological resources within them, those resources may have survived the metamorphism and still be identifiable within the metasedimentary rock, but since the probability of this occurring is so limited, these formations are considered marginally sensitive.
- **No Potential:** No resource potential is assigned to geologic formations that are composed entirely of volcanic or plutonic igneous rock, such as basalt or granite, and therefore do not have any potential for producing fossil remains. These formations have no paleontological resource potential.

Both formations are identified by the City's General Plan as highly sensitive for paleontological resources (City of San Diego 2007:Table 3.11-1).

Stadium Conglomerate – High Paleontological Sensitivity

The Stadium Conglomerate is the lowermost formation of the Poway Group, a late Eocene grouping that also includes the Mission Valley Formation and Pomerado Conglomerate (SDSU 2011). This formation is visible in the majority of cut slopes as well as on the surface through the majority of the Project area. The formation occurs in Mission Valley and Murphy Canyon,

Tierrasanta, Rancho Peñasquitos, and Rancho Bernardo Areas and overall is considered to have a high level of sensitivity for paleontological resources (City of San Diego 2007). It consists of three members: the upper member, the Cypress Canyon member, and the lower member. The upper member is largely non-marine in the eastern part of its outcrop area. Collecting sites in Murphy Canyon west of the Project area have yielded sparse, but well-preserved remains of opossums, insectivores, primates, rodents, carnivores, rhinoceros, and artiodactyls. The upper member is considered to have moderate likelihood of containing paleontological resources. The Cypress Canyon member has yielded abundant and diverse assemblages represented by well-preserved remains of opossums, insectivores, bats, primates, rodents, carnivores, tapirs, brontotheres, protoreodonts, and other artiodactyls. The Cypress Canyon member is considered to have high likelihood of containing paleontological resources. The lower member of the Stadium Conglomerate has yielded abundant and diverse marine and non-marine assemblages. Some of the primary non-marine well-preserved remains of land mammals include opossums, insectivores, primates, rodents, carnivores, and artiodactyls. The lower member is also considered to have high likelihood of containing paleontological resources (Deméré and Walsh 1993).

Friars Formation – High Paleontological Sensitivity

The Friars Formation is the upper formation within the LaJolla Group, an early to mid-Eocene grouping. The La Jolla Group also includes the Mount Soledad Formation, the Delmar Formation, the Torrey Sandstone, the Ardath Shale, and the Scripps Formation (SDSU 2011). The Friars Formation consists primarily of sandstones, siltstone, mudstones, and cobble conglomerate. The formation is considered to have an overall high level of sensitivity for paleontological resources. It crops out from Mission Valley north to Rancho Bernardo in the east and Rancho Santa Fe in the west. In the southern parts of San Diego, the formation extends from Tecolote Canyon east to Santee and Lakeside (City of San Diego 2007). It is rich in vertebrate fossils especially terrestrial mammals such as opossums, insectivores, primates, rodents, artiodactyls, and perissodactyls. Remains of fossil leaves have also been recovered from the Friars Formation. The Friars Formation is considered to have high likelihood of containing paleontological resources (Deméré and Walsh 1993).

4.15.1.3 Research Methods

Published and unpublished geological and paleontological literature and mapping were reviewed in order to develop a baseline paleontological resource inventory of the Project site and surrounding area. Additionally, publicly available paleontologic inventories of the University of California Museum of Paleontology (UCMP) were reviewed. An overall paleontological review that focuses on the identified formations and geomorphic provinces known to occur in San Diego County was used as the basis of this analysis.

No subsurface exploration or paleontological field survey were conducted for this assessment. Geologic maps and reports covering the bedrock and surficial geology of the Project vicinity were reviewed to determine the exposed and subsurface rock units, to assess the potential paleontological productivity of each rock unit, and to delineate their respective areal distribution within the Project site. A search of the UCMP Specimen Search (UCMP 2011) was conducted to determine the presence or absence of paleontological localities within the Stadium Conglomerate/Poway Group and Friars Formation in the Project vicinity. In addition, aerial photographs and observations of the cultural resources survey team (see Section 4.1, Cultural

Resources) were used to aid in determining the areal distribution of distinctive sediment and soil types. Exposed sediments of the Stadium Conglomerate up to approximately 100 feet deep (about 30.5 meters) were observed by the cultural resources survey crew in the vicinity of the proposed Project, specifically in the excavated upper reaches of Little Sycamore Canyon and in eroded areas along the western face of the ridgeline upon which the gentle corridor is proposed (Figure 2.2-1).

4.15.1.4 Findings

As stated above, geologic maps show that the proposed Project site is underlain by Stadium Conglomerate of the Poway Group and the Friars Formation of the La Jolla Group. Both are considered to be highly sensitive for paleontological resources as demonstrated in paleontology publications and local agency documents (City of San Diego 2007, Deméré and Walsh 1993, SDSU 2011). The Stadium Conglomerate is exposed in the vicinity of the Project and was observed to be near to or exposed in the current ground surface.

The UCMP database (UCMP 2011) indicates that 1,745 paleontological localities are documented in the museum's collection from San Diego County. Of those, 48 localities have been identified within the Friars Formation and another eight have been identified in the Poway Group. Another seven have been identified as generally within Eocene formations of undetermined formations and four others have not been assigned any formation or chronological provenience. A review of locality names suggest that although none are within immediate proximity to the Project site, several have been recorded in adjacent major canyons to the west and south and along the route of the San Diego River.

4.15.2 Environmental Consequences

Potential direct impacts to paleontological resources can occur via ground disturbing that affects the subsurface geologic formation. Such impacts are typically associated with mass grading, where large amounts of sediments and bedrock are removed and/or transported. Lesser impacts can also occur as a result of tunneling, boring, or trenching. Indirect impacts are not specifically caused by a project, but are reasonably foreseeable. Typical indirect impacts on paleontological resources are disturbance or destruction of surface resources as a result of increased erosion or the collection of resources for non-scientific purposes. With the implementation of the mitigation measures identified in Section 4.15.3, impacts will be reduced to less than significant.

4.15.2.1 Significance Criteria

Potential impacts are based upon the paleontological sensitivity of geologic formations underlying the Project and as discussed above. Paleontological sensitivity is an estimate of the likelihood that fossils would be discovered during excavations in a given area. However, this estimate does not measure the significance of individual fossils that may be present or discovered in an area. In its standard guidelines for assessment and mitigation of adverse impacts to paleontological resources, the SVP (1995) notes that an individual fossil specimen is considered scientifically important and significant if it is (1) identifiable, (2) complete, (3) well-preserved, (4) age diagnostic, (5) useful in paleoenvironmental reconstruction, (6) a type or topotypic specimen, (7) a member of a rare species, (8) a species that is part of a diverse

assemblage, and/or (9) a skeletal element different from, or a specimen more complete than, those now available for that species.

The CEC environmental review process under the Warren-Alquist Act is considered functionally equivalent to that of CEQA (Public Resources Code Sections 15000 et seq.) with respect to paleontological resources. The CEQA Guidelines provide guidance for determining significance criteria with respect to paleontological resources (Public Resources Code Sections 21000 et seq.). Appendix G of the CEQA Guidelines, Environmental Checklist Form, indicates an impact could be significant if the project would “directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.”

The City of San Diego’s CEQA Significance Determination Thresholds (DSD 2011) also defines significant impacts on paleontological resources and identifies when paleontological monitoring is required. Under the City’s thresholds a significant impact would occur if a project would either (1) Require over 1,000 cubic yards of excavation in an area considered to have high paleontological sensitivity; or (2) require over 2,000 cubic yards of excavation in an area considered to have moderate paleontological sensitivity. Paleontological monitoring is required under both of these conditions and when excavation will extend 10 feet or more in depth. No monitoring is required in areas with no or low paleontological sensitivity.

Project impacts on paleontological resources would therefore be considered significant if a unique geologic features or geologic features of unusual scientific value (including significant fossils) for study or interpretation would be disturbed or otherwise adversely affected by the proposed construction of the plant site and related facilities including the, gas lateral, transmission line, and/or the offsite SDG&E switchyard. The Project would also have potential significant impacts on paleontological resources should it require more than 1,000 cubic yards of excavation, given the high paleontological sensitivity of the Project area.

4.15.2.2 Construction Impacts

Given the high paleontological sensitivity of the Stadium Conglomerate and Friars Formation underlying the proposed Project as well as the large amount of excavation required for construction of the Project (125,000 to 150,000 cubic yards), significant direct and indirect impacts on paleontological resources could occur. In California, vertebrate fossils, such as those found in these geologic units, are typically considered significant. It is therefore possible that earth-moving and excavation activities associated with the proposed Project would encounter paleontological resources and/or unique geological formations. Disturbance or destruction of those resources would be considered a significant impact.

Given the proximity of the Stadium Conglomerate to the surface, it is assumed that any ground disturbing activities, including shallow ones, associated with the proposed Project would have the potential to encounter this paleontologically sensitive unit. Activities disturbing paleontologically sensitive sediment include those amenable to monitoring, such as large and small scale excavations where back dirt as well as cut walls can be observed. Other activities such as pile-driving would be less amenable to monitoring because sediments impacted cannot be observed and, in some cases, no back dirt is produced.

Significant impacts would have the potential to result from trenching, augering for concrete pilings and the foundations for electrical towers or poles, and any other earth-moving activity that would disturb previously undisturbed sediments consisting of either Eocene Stadium Conglomerate or Friars Formation. Uncontrolled exhumation and/or mechanical destruction of fossils jeopardizes their scientific value. Although earth-moving associated with construction of the proposed Project would be a comparatively short-term activity, the potential loss of fossil remains, unrecorded fossil sites, associated specimen data, and corresponding site data would be a permanent, significant, and direct environmental impact. Implementation of the mitigation measures identified in Section 4.15.3 will minimize construction related impacts and will ensure effective recovery of the scientific value of significant fossils discovered during construction. Thereby reducing impacts on paleontological resources to less than significant.

Indirect impacts may also have the potential to occur as a result of the proposed Project. The primary concern would be unauthorized collection of fossils from the exposed sensitive geologic units by persons who are not paleontologists. Additionally, the increased run-off of water from the paved surfaces of the plant site could increase erosion in downslope areas where the Friars Formation exists. Erosion would have the potential to impact near-surface fossils within that formation. However, with the implementation of engineering design features and BMPs, as described in Section 4.13, Water Resources, and Section 4.14, Agriculture and Soils, and mitigation measures described below, these potential impacts would be reduced to less than significant levels.

4.15.2.3 Operations and Maintenance Impacts

Since no earth-moving activities are anticipated to occur during operation and maintenance of the proposed Project, no impacts on paleontological resources would occur.

4.15.2.4 Cumulative Impacts

Potential cumulative paleontological resource impacts include the loss of unique geologic features or paleontological resources. The mid- to late-Eocene deposits within the proposed Project area speak to the evolution of the Peninsular Range and the flora and fauna that have existed within it. The Stadium Conglomerate and Friars Formation are particularly sensitive for terrestrial mammals, a category of fossils considered scientifically significant. Development within the topographically variable region has been constricted, compared to the more level San Diego coastline. The reasonably foreseeable cumulative project in the immediate vicinity of the proposed Project is the Sycamore Landfill Expansion Project, for which an EIR is being prepared. The Sycamore Landfill Expansion Project will have to comply with federal, state, and/or local requirements during construction.

As compared to the expansion of the landfill, construction of the proposed Project would have the potential to contribute only a negligible increase to cumulative paleontological resources impacts in the formations that occur onsite. Mitigation measures that would minimize construction-related impacts caused by the proposed Project would also minimize the cumulative effects of these impacts. Full implementation of these measures would effectively recover the scientific value of significant fossils discovered during project construction. Thus, the proposed Project would not cause or contribute substantively to cumulative impacts on paleontological resources.

4.15.3 Mitigation Measures

The following measures would reduce or mitigate potential Project-related significant impacts on significant paleontological resources or unique geological formations, should any such resources be discovered during construction.

PALEO-1: Review of Construction Plans by Paleontologist—A qualified paleontologist shall review the Project and provide an opinion of which geologic units are considered paleontologically sensitive for the Project site. The findings of the paleontologist will be used to organize paleontological resources monitoring in locally sensitive units as well as to identify potential areas of avoidance for any new access road construction and construction laydown areas.

PALEO-2: Paleontological Resources Mitigation Plan—The Paleontological Resources Mitigation Plan will be drafted by a qualified paleontologist and provided to the CEC for review and comment prior to construction. It will include the preparation of a mitigation and monitoring plan for construction monitoring; emergency discovery procedures; sampling and data recovery, if needed; museum storage coordination for any specimen and data recovered; preconstruction coordination; and reporting. The SVP guidelines for monitoring, sampling, and salvaging fossils shall be followed. The results of the paleontological resources monitoring shall be presented in a confidential paleontological report. A copy of the confidential report and all paleontological finds from the Project shall be donated to a curating museum such as the San Diego Natural History Museum.

PALEO-3: Paleontological Resources Monitoring—Prior to construction, the Applicant will retain a qualified paleontologist to design and implement a monitoring program during Project-related earth-moving activities for deep excavation at the Project site and construction of the linear facilities. The paleontologist(s) will monitor earth-moving construction activities where this activity will disturb previously undisturbed sediment. Monitoring will not take place in areas where the ground has been previously disturbed, in areas underlain by artificial fill, or in areas where exposed sediment will be buried but not otherwise disturbed. This mitigation also ensures compliance with the City of San Diego's paleontological impact requirements (DSD 2011).

PALEO-4: Construction Personnel Education—Prior to construction, a qualified paleontologist shall be employed to help implement the paleontological portion of the environmental training program for construction workers. All employees involved with earth-moving activities shall receive this training and shall be instructed as to the laws regarding the protection of paleontological resources.

Implementation of these mitigation measures will reduce the potentially significant environmental impact of the Project's earth-moving activities on paleontological resources to a less than significant level. These measures will allow for the recovery of fossil remains and associated specimen data and corresponding provenience data that otherwise might have been destroyed by construction and unauthorized fossil collecting.

4.15.4 Laws, Ordinances, Regulations, and Standards

Paleontological resources are classified as non-renewable scientific resources and are protected by several federal, state, and local statutes. Professional standards for assessment and mitigation of adverse impacts on paleontological resources have been established for vertebrate fossils by the SVP (1995, 1996).

Design, construction, and operation of the Project, including pipelines and ancillary facilities, will be conducted in accordance with all LORS applicable to paleontological resources. Federal, state, and local LORS applicable to paleontological resources are summarized in Table 4.15-1 and discussed briefly below, along with professional standards for paleontological resources assessment and impact mitigation.

Table 4.15-1 Applicable LORS for Paleontological Resources

LORS	Applicability	AFC Reference	Conformity
Federal			
No applicable Federal LORS			
State			
The Warren – Alquist Act of 1974, as amended	Applicable – Paleontological resources may be encountered by earth-moving activities.	Section 5.15.5.2	Underlying geologic formations are considered to have high sensitivity for paleontological resources. Monitoring by a qualified paleontologist is proposed as part of Project mitigation. The mitigation program will follow the SVP guidelines.
California Environmental Quality Act of 1970 (13 PRC 21000 et seq.; 21083.2; 14 CCR §15064.5; 15126.4; 15331; Appendix G; and Guidelines for the Implementation of the California Environmental Quality Act, as amended May 10, 1980 [14 Cal. Admin. Code: 15000 et seq.])	Applicable – Paleontological resources may be encountered by earth-moving activities.	Section 5.15.5.2	Underlying geologic formations are considered to have high sensitivity for paleontological resources. Monitoring by a qualified paleontologist is proposed as part of Project mitigation. The mitigation program will follow the SVP guidelines.
Public Resources Code, Sections 5097.5/5097.9	Not Applicable – Project facilities are not located on state-owned land.	Section 5.15.5.2	N/A
Local			
San Diego County Code of Regulatory Ordinances, Title 8, Division 7, Chapter 4, Section 87.430	Not Applicable – Project facilities are not located on County-owned land.	Section 5.15.5.3	N/A
San Diego County General Plan Conservation Element	Not Applicable – Project facilities are not located on County-owned land.	Section 5.15.5.3	N/A
County of San Diego Guidelines for Determining Significance – Paleontological Resources	Not Applicable – Project facilities are not located on County-owned land.	Section 5.15.5.3	N/A

4.15 Paleontological Resources

LORS	Applicability	AFC Reference	Conformity
City of San Diego CEQA Significance Determination Thresholds	Applicable – City responsible for Habitat Conservation Plan boundary changes and associated community plan amendments.	Section 5.15.5.3	The Project has fulfilled the requirements of these thresholds by requiring paleontological monitoring of ground disturbing activities.
Professional Standards			
Society of Vertebrate Paleontology	Applicable only in that CEC guidelines for paleontological resources assessment follow the professional standards as set forth by the SVP.	Section 5.15.5.4	Underlying geologic formations are considered to have high sensitivity for paleontological resources. Monitoring by a qualified paleontologist is proposed as part of Project mitigation. The mitigation program will follow the SVP guidelines.

4.15.4.1 Federal

Federal protection of significant paleontological resources does not apply to the Project because it does not involve federally owned or managed lands. Federal LORS pertaining to paleontological resources is included here for the purposes of comprehensiveness only.

Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 USC 431 et seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands. Federal agencies normally interpret the provisions of the Antiquities Act to prohibit the disturbance and/or collection of all vertebrate fossils without a specific permit, which are normally granted for mitigation activities and scientific research only. Collection of fossils for commercial purposes is prohibited; however, collection of invertebrate fossils by amateurs is typically allowed without a permit.

4.15.4.2 State

CEC's environmental review process under the Warren-Alquist Act is considered functionally equivalent to CEQA (Public Resources Code Sections 21000 et seq.). CEQA requires public agencies and private interests to identify the environmental impacts of proposed projects (Division I, California Public Resources Code: 5020.1 [b]). The CEQA Environmental Checklist found in Appendix G of the CEQA Statute and Guidelines (Section 15023, Appendix G, Section V, part c) asks, "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

As the CEQA lead agency for the Project, the CEC is responsible to ensure that paleontological resources are protected in compliance with CEQA and other applicable statutes. California Public Resources Code Section 21081.6, entitled Mitigation Monitoring Compliance and Reporting, requires that the CEQA lead agency demonstrate project compliance with mitigation measures developed during the environmental impact review process.

Other state requirements regarding management of paleontological resource are provided in California Public Resources Code Chapter 1.7, Section 5097.5 (Stats. 1965, c. 1136, p. 2792), “Archaeological, Paleontological, and Historical Sites.” This statute defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor. It does not apply to the current Project because it is entirely on private lands.

4.15.4.3 Local

The San Diego County Code of Regulatory Ordinances (Title 8, Division 7, Chapter 4, Section 87.430; “Grading Ordinance”) states that a paleontological monitor can be required at the discretion of the County. In addition, suspension of grading operations is required upon discovery of fossils greater than 12 inches in any dimension. The County must be notified of paleontological discovery during grading activities. The ordinance gives the County Official the authority to determine the appropriate resource recovery operations, which must be completed prior to the County’s authorization to resume normal grading operations.

The San Diego County General Plan Conservation Element provides policies for protection of natural resources, including paleontological resources. In addition, Appendix G of the Conservation Element lists Unique Geologic Features for conservation, many of which are fossiliferous formations. Policies do not, however, place legal requirements on projects with regard to paleontological resources. It is the general policy of the County to maintain an inventory of fossils and unique geological formations and to provide opportunity to educate the public regarding those resources.

The County of San Diego’s Guidelines for Determining Significance – Paleontological Resources (DPLU 2009) provides an overview of assessing paleontological sensitivity and identifying impacts on paleontological resources and unique geological formations. The guidelines also outline standard mitigation and project design considerations. A Project Paleontologist and paleontological monitoring are required for projects requiring excavation of 2,500 cubic yards or more in areas of moderate to high paleontological sensitivity. A standard monitor is required for projects requiring excavation of less than 2,500 cubic yards in an area of moderate to high paleontological sensitivity. A standard monitor is also required for excavations within areas of low to marginal paleontological sensitivity. In all cases, monitoring is only required if excavation is of an undisturbed substratum or deeper bedrock.

The City of San Diego’s CEQA Significance Determination Thresholds (DSD 2011) defines significant impacts on paleontological resources and identifies when paleontological monitoring is required. Specifically, under the City’s thresholds a significant impact would occur if a project would either: (1) Require over 1,000 cubic yards of excavation in an area considered to have high paleontological sensitivity, or (2) require over 2,000 cubic yards of excavation in an area considered to have moderate paleontological sensitivity. Paleontological monitoring is required under both of these conditions and when excavation will extend 10 feet or more in depth. No monitoring is required in areas with no or low paleontological sensitivity.

4.15.4.4 Professional Standards

The SVP, an international organization of professional paleontologists, has established standard guidelines (SVP 1991, 1995, 1996) that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil

recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. The guidelines identify two key phases for protecting vertebrate paleontological resources from project impacts: (1) assess the likelihood that the project’s area of potential effect contains significant paleontological resources that could be directly or indirectly impacted, damaged, or destroyed as a result of the project, and (2) formulate and implement measures to mitigate potential adverse impacts. Most practicing paleontologists in the nation adhere to the SVP’s guidelines and extend those to address other types of fossils of scientific significance, such as invertebrate fossils and paleobotanical specimens. Many federal and state regulatory agencies, including the CEC, have informally adopted the SVP standard guidelines.

4.15.5 Agencies and Agency Contacts

The agencies and agency contacts are identified in Table 4.15-2.

Table 4.15-2 Agencies and Agency Contacts for Paleontological Resources

Agency	Name	Title	Phone	Email	Mailing Address
City of San Diego	Morris Dye	Development Project Manager	619-236-7258	mdye@sandiego.gov	202 C Street, MS 5A San Diego, CA 92101
City of San Diego	Myra Herrmann	Senior Planner, Development Services Department	619-446-5372	mhermann@sandiego.gov	202 C Street, MS 5A San Diego, CA 92101

4.15.6 Required Permits

No state, county, or city agency requires a paleontological collection permit to allow for the recovery of fossil remains discovered as a result of the Project.

4.15.7 References

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DATA ADEQUACY WORKSHEETS

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Section 4.15.1, 4.15.2, 4.15.3,		
Appendix B (g) (16) (A)	Identification of the physiographic province and a brief summary of the geologic setting, formations, and stratigraphy of the project area. The size of the paleontological study area may vary depending on the depositional history of the region.	4.15.1.1		
Appendix B (g) (16) (B)	A discussion of the sensitivity of the project area described in subsection (g)(16)(A) and the presence and significance of any known paleontologic localities or other paleontologic resources within or adjacent to the project. Include a discussion of sensitivity for each geologic unit identified on the most recent geologic map at a scale of 1:24,000. Provide rationale as to why the sensitivity was assigned.	4.15.1.2		
Appendix B (g) (16) (C)	A summary of all local museums, literature searches and field surveys used to provide information about paleontologic resources in the project area described in subsection (g)(16)(A). Identify the dates of the surveys, methods used in completing the surveys, and the names and qualifications of the individuals conducting the surveys.	4.15.1.3		

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (16) (D)	Information on the specific location of known paleontologic resources, survey reports, locality records, and maps at a scale of 1:24,000, showing occurrences of fossil finds, if known, within a one-mile radius of the project and related facilities shall be included in a separate appendix to the Application and submitted to the Commission under a request for confidentiality, pursuant to Title 20, California Code of Regulations, s 2501 et seq.	4.15.1.4		Maps n/a
Appendix B (g) (16) (E)	A discussion of any educational programs proposed to enhance awareness of potential impacts to paleontological resources by employees, measures proposed for mitigation of impacts to known paleontologic resources, and a set of contingency measures for mitigation of potential impacts to currently unknown paleontologic resources.	4.15.3		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	4.15.4		

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	4.15.6–No permits required.		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	4.15.5		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	4.15.6–No permits required.		