APPENDIX N

Paleontological Resources Review Memorandum

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
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MEMORANDUM

To:	Jonathan Frankel, New Urban West
From:	Sarah Siren, M.S., GISP, and Michael Williams, Ph.D.
Subject:	Paleontological Resources Review – Carmel Mountain Ranch Golf Course Project
Date:	1/21/20
cc:	Alexandra Martini, Dudek
Attachment(s):	Paleontological Records Search Results Letter; Standard Mitigation Program Guidelines

Dudek is providing this memo after completing a review of the potential for impacts to paleontological resources during construction activities for the Trails Community of Carmel Mountain Ranch (project). The project proposes revitalization of the abandoned Carmel Mountain Ranch Golf Course by enhancing open space (approx. 111.27 acres), improving the trials system (approx. 6 miles), and adding to the City's multi-family and senior family housing stock (approx. 1,200 units). The project site is located along Rancho Carmel Drive, within the existing golf course in the City of San Diego (City) in San Diego County, California. The project area is underlain by mapped deposits of Quaternary alluvium (Holocene; less than 11,600 years ago) and middle Eocene Friars Formation (~47-46 million years ago; Kennedy and Tan, 2008). Based on the records search results obtained from the San Diego Natural History Museum (SDNHM), the Friars Formation is known to produce scientifically significant paleontological resources throughout San Diego County (SDNHM 2019; Attachment A). The middle Eocene Friars Formation has high paleontological resource sensitivity according to the City of San Diego (2011) guidelines. Quaternary alluvium has low paleontological sensitivity due to its young age (Deméré and Walsh 1993; City of San Diego, 2011). Any fossil material found in these Holocene age Quaternary alluvial deposits are ex-situ and would not be considered scientifically significant or unique.

There are a total of twenty fossil localities documented by the SDNHM (2019) within a one-mile radius of the project site. All of these localities were discovered within the Friars Formation (undivided), which underlies the project area. Fluvial deposits within the Friars Formation have yielded plant, invertebrate, and vertebrate fossils. Taxa include terrestrial plants (e.g., fern, horsetail, willow, and myrtle), mollusks (e.g., snail), aquatic lower vertebrates (e.g., bony fish), and terrestrial vertebrates (e.g., turtles, lizards, snakes, crocodiles, birds, marsupials, apatotheres, insectivorans, pantolestids, bats, primates, carnivorans, rodents, artiodactyls, and perissodactlys such as bronotheres and rhinoceroces) (SDNHM, 2019).

No paleontological resources were identified within the project area as a result of the institutional records search and desktop geological review. It is not anticipated that paleontological resources will be impacted given the limited and relatively shallow construction excavation planned. However, intact paleontological resources may be encountered below a surficial layer of alluvium during excavation into previously undisturbed sedimentary deposits of the Friars Formation. It is likely that high sensitivity formational will be encountered at the surface in some areas of the project site, with the potential for impacting the Friars Formation. Given the proximity of past fossil discoveries

in the area and the underlying paleontologically sensitive deposits, the project site has the potential to yield scientifically significant paleontological resources. 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 and trenching for utilities, have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. In accordance with the City's Land Development Manual Appendix P (see Attachment B), impacts would be reduced to below a level of significance. Impacts of the project are considered less than significant with mitigation incorporated during construction. No further mitigation is required.

If you have any questions regarding this memo, please feel free to contact me (760.846.9326 or ssiren@dudek.com).

Sincerely,

Sarah A. Siren, M.S., GISP
Senior Paleontologist

Michael Williams, Ph.D.
Senior Paleontologist

Enc. Paleontological Records Search Results Letter; Land Development Manual Appendix P

References Cited

City of San Diego, 2011. *California Environmental Quality Act, Significance Determination Thresholds*. Development Services Department, 84 p.

Deméré, T.A. and Walsh, S.L. 1993. *County of San Diego Paleontological Resources*. Prepared for the San Diego Planning Commission. 1-68.

Kennedy, M.P., and S.S. Tan, 2008. *Geologic Map of the San Diego 30' x 60' Quadrangle, California.* California Geological Survey, Regional Geologic Map Series 1:100,000 scale, map no. 3.

San Diego, County of, 2007. *Guidelines for Determining Significance, Paleontological Resources*. Land Use and Environment Group, Department of Planning and Land Use, Department of Public Works.

San Diego Natural History Museum (SDNHM), 2019. *Paleontological Records Search, Carmel Mountain Ranch Golf Course Residence*. Unpublished Records Search Results Letter from the San Diego Natural History Museum, San Diego, California.

Society of Vertebrate Paleontology (SVP), 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.* 11 p. Available; http://vertpaleo.org/PDFS/68/68c554bb-86f1-442f-a0dc-25299762d36c.pdf.

Attachment A

Paleontological Records Search Results Letter

14 August 2019

Sarah Siren
Dudek
605 Third Street
Encinitas, CA 92024

RE: Paleontological Records Search – Carmel Mountain Ranch Golf Course

Dear Ms. Siren:

This letter presents the results of a paleontological records search conducted for the Carmel Mountain Ranch Golf Course project (Project), located in the Carmel Mountain neighborhood within the Carmel Mountain Ranch community plan area of the City of San Diego, San Diego County, California. The Project site lies east of Interstate 15, south of Carmel Mountain Road, and south and west of Camino del Norte, and lies along both the north and south sides of Ted Williams Parkway.

A review of published geological maps and a site-specific geotechnical investigation report covering the Project site and surrounding area was conducted to determine the specific geologic units underlying the Project site. Each geologic unit was subsequently assigned a paleontological resource sensitivity following City of San Diego guidelines (City of San Diego, 2011). In addition, a search of the paleontological collection records housed at the San Diego Natural History Museum (SDNHM) was conducted in order to determine if any documented fossil collection localities occur at the Project site or within the immediate surrounding area.

Geologic Units Underlying the Project Area

Published geological reports (e.g., Kennedy and Tan, 2008) covering the Project area indicate that the Project site is underlain by late Quaternary-age young alluvial flood plain deposits, several middle Eocene-age sedimentary units (the Mission Valley Formation, Stadium Conglomerate, and Friars Formation, from youngest to oldest), late Cretaceous-age intrusive igneous rocks, and early Cretaceous-age undivided metasedimentary and metavolcanic rocks. However, the middle Eocene-age sedimentary units as exposed in the vicinity of the Project site were assigned by Walsh (1996) and Walsh et al. (1996) to the upper tongue, conglomerate tongue, and lower tongue of the Friars Formation, respectively; this revision is followed in the discussion below. The listed geologic units and their paleontological sensitivity are summarized below. The SDNHM has 20 recorded fossil localities within one mile of the Project site, all from the upper tongue of the Friars Formation, which are discussed in more detail below.

young alluvial flood plain deposits – Holocene- and late Pleistocene-age alluvial flood plain deposits (mapped by Kennedy and Tan, 2008 as Qya) occur in modern floodplains, and primarily occur in the western portion of the Project site near Interstate 15 and Rancho Carmel Drive. The SDNHM does not have any fossil localities from these deposits within a one-mile radius of the Project area. These deposits are generally less than 11,700 years old, and range in composition from unconsolidated to moderately consolidated silt, sand, pebbly and cobbly sand, and boulders. Young alluvial flood plain deposits are assigned a low paleontological sensitivity based on their relatively young geologic age and lack of recorded fossil collection localities. However, these deposits commonly overlie geologic units of

high or moderate paleontological sensitivity that could be impacted by construction where the contact is relatively shallow.

Friars Formation – The fluvial deposits of the middle Eocene-age (approximately 47 to 46 million years old) Friars Formation underlie the majority of the Project site. The SDNHM has 20 fossil collection localities from the Friars Formation within a one-mile radius of the Project sites. These localities produced fossil impressions or remains of plants (e.g., fern, horsetail, willow, and myrtle), a snail, aquatic vertebrates (e.g., bony fish), and terrestrial vertebrates (e.g., turtles, lizards, snakes, crocodiles, birds, marsupials, apatotheres, insectivorans, pantolestids, bats, primates, carnivorans, rodents, artiodactyls, and perissodactyls such as brontotheres and rhinoceroses). The Friars Formation is assigned a high paleontological sensitivity on the basis of the recovery of diverse and well-preserved assemblages of both marine invertebrates and terrestrial vertebrates from these deposits.

Cretaceous intrusive igneous rocks – The Cretaceous intrusive igneous rocks of San Diego County comprise part of the northern end of the Peninsular Ranges Batholith, and include the unit mapped as granodiorite by Kennedy and Tan (2008). The southern and southwestern portions of Project site are underlain by these rocks. The SDNHM does not have any fossil localities from intrusive igneous rocks within a one-mile radius of the Project site. Plutonic igneous rocks do not preserve fossils because they crystallize at extremely high temperatures and pressures several miles below the earth's surface, so these rocks are assigned no paleontological sensitivity.

Cretaceous metasedimentary and metavolcanic rocks – Crystalline basement rocks of early Cretaceous age (approximately 145 to 125 million years old), mapped as Mesozoic metasedimentary and metavolcanic rocks by Kennedy and Tan (2008), underlie the southeastern margins of the Project site. The SDNHM does not have any fossil localities from this geologic unit within a one-mile radius of the Project site. The metavolcanic portions of this unit rarely preserve fossils due to the high temperatures associated with their formation; some of the volcanic breccias, however, have produced petrified wood, and are assigned a marginal sensitivity. The metasedimentary portions have the potential to yield fossils, including siliceous microfossils (e.g., radiolarians) and marine macroinvertebrates (e.g., clams and belemnites), and are assigned a moderate paleontological sensitivity. The lack of nearby localities from these deposits indicates that fossil recovery is unlikely, so the geologic unit as a whole as exposed within the Project site is assigned a low paleontological sensitivity.

Summary and Recommendations

The high paleontological sensitivity of the Friars Formation in San Diego County (Deméré and Walsh, 1993), as well as the presence of numerous fossil collection localities in the vicinity of the Project site, suggest the potential for construction of the proposed Project to result in impacts to paleontological resources. Any proposed excavation activities that extend deep enough to encounter previously undisturbed deposits of this geologic unit have the potential to impact the paleontological resources preserved therein. For these reasons, implementation of a complete paleontological resource mitigation program during ground-disturbing activities is recommended.

The fossil collection locality information contained within this paleontological record search should be considered private and is the sole property of the San Diego Natural History Museum. Any use

or reprocessing of information contained within this document beyond the scope of the Carmel Mountain Ranch Golf Course project is prohibited.

If you have any questions concerning these findings please feel free to contact me at 619-255-0321 or kmccomas@sdnhm.org.

Sincerely,

Katie McComas, M.S.
Paleontological Report Writer & GIS Specialist
San Diego Natural History Museum

Enc: Figure 1: Project map
Appendix: List of SDNHM fossil localities in the vicinity of the project

Literature Cited

City of San Diego. 2011. California Environmental Quality Act, Significance Determination Thresholds. Development Services Department, 84 p.

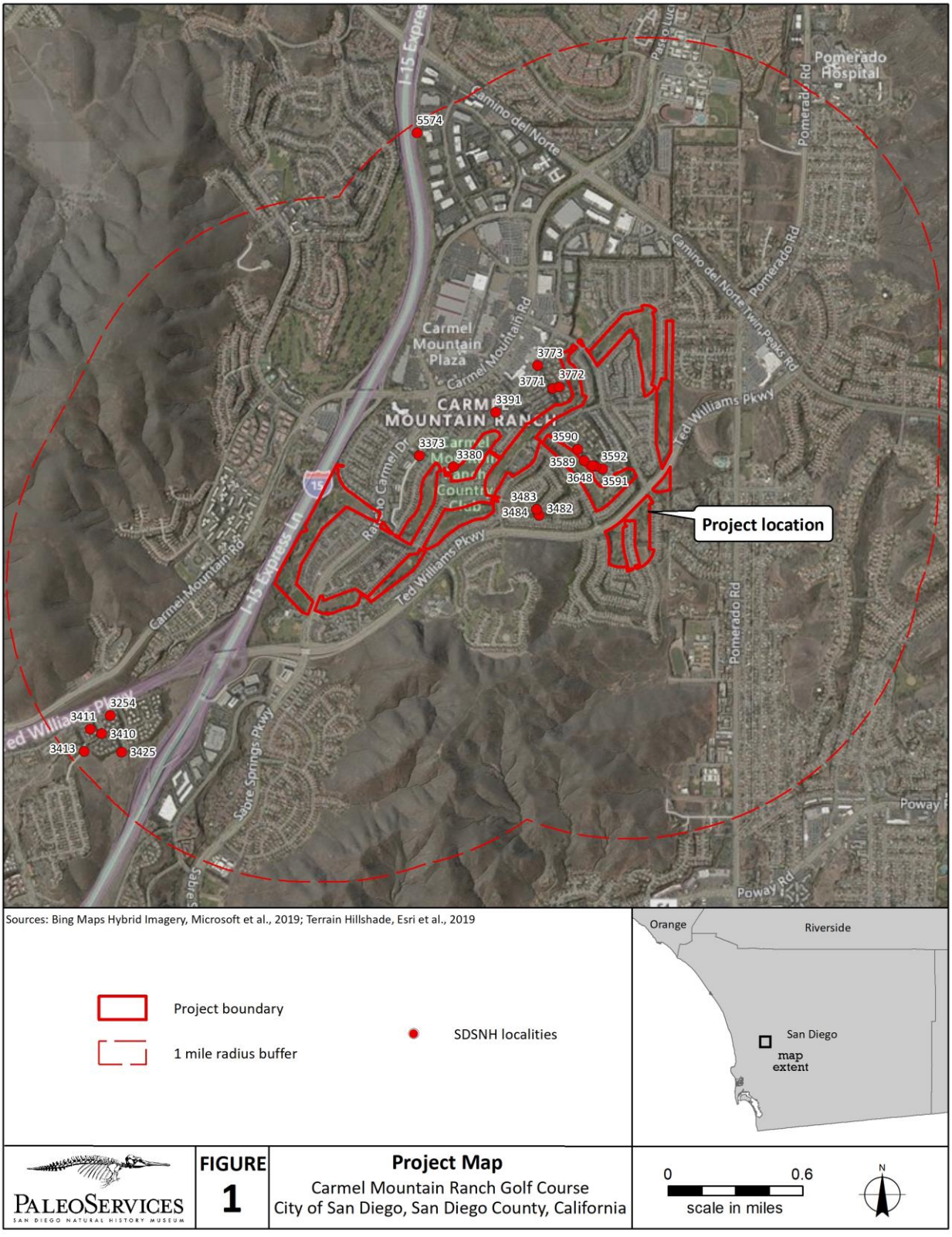
Deméré, T.A., and S.L. Walsh. 1993. Paleontological Resources, County of San Diego. Unpublished technical report prepared for the San Diego County Department of Public Works: 1–68.

Kennedy, M.P., and Tan, S.S. 2008. Geologic Map of the San Diego 30' x 60' Quadrangle, California. California Geological Survey, Regional Geologic Map Series 1:100,000 scale, map no. 3.

San Diego Natural History Museum (SDNHM), unpublished paleontological collections data.

Walsh, S.L. 1996. Middle Eocene mammal faunas of San Diego County, California, Pp. 75–119. In, D.R. Prothero and R.J. Emry (eds.). The Terrestrial Eocene-Oligocene Transition in North America. Cambridge University Press.

Walsh, S.L., D.R. Prothero, and D.J. Lundquist. 1996. Stratigraphy and paleomagnetism of the middle Eocene Friars Formation and Poway Group, southwestern San Diego County, California, Pp. 120-154. In, D.R. Prothero and R.J. Emry (eds.). The Terrestrial Eocene-Oligocene Transition in North America. Cambridge University Press.


I-15 Express
Camino del Norte
Pomerado Hospital
Pomerado Rd
Carmel Mountain Plaza
Carmel Mountain Rd
Twin Peaks Rd
Ted Williams Pkwy
Rancho Carmel Dr
I-15 Express Ln
Sabre Springs Pkwy
Poway Rd
Poway
5574
3773
3772
3771
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3373
3380
3590
3589
3592
3648
3591
3483
3484
3482
3254
3411
3410
3413
3425
Project location
Sources: Bing Maps Hybrid Imagery, Microsoft et al., 2019; Terrain Hillshade, Esri et al., 2019
Project boundary
1 mile radius buffer
SDSNH localities
Orange
Riverside
San Diego
map extent
PALEOSERVICES
SAN DIEGO NATURAL HISTORY MUSEUM
FIGURE 1
Project Map
Carmel Mountain Ranch Golf Course
City of San Diego, San Diego County, California
0
0.6
scale in miles
N

Appendix: Locality List
San Diego Natural History Museum
Department of Paleontology

Locality Number	Locality Name	Location	Elevation (feet)	Geologic Unit	Era	Period	Epoch
3254	Azuaga Street, Rancho Penasquitos	San Diego County, California	670	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3373	Carmel Mountain Ranch Unit 15 site 2	City of San Diego, San Diego County, California	660	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3380	Carmel Mountain Ranch Unit 16 Site 3	City of San Diego, San Diego County, California		Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3391	Carmel Mountain Ranch Unit 16 Site 1	City of San Diego, San Diego County, California	780	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3410	Azuaga II	City of San Diego, San Diego County, California	650	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3411	Azuaga II	City of San Diego, San Diego County, California	680	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3413	Azuaga II	City of San Diego, San Diego County, California	620	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3425	Azuaga II	City of San Diego, San Diego County, California	597	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3482	Carmel Mountain Ranch Unit 20-B Site 2	City of San Diego, San Diego County, California	719	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3483	Carmel Mountain Ranch Unit 20-B Site 3	City of San Diego, San Diego County, California	716	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3484	Carmel Mountain Ranch Unit 20-B Site 4	City of San Diego, San Diego County, California	714	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3589	Carmel Mountain Ranch	City of San Diego, San Diego County, California	750	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3590	Carmel Mountain Ranch	City of San Diego, San Diego County, California	755	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3591	Carmel Mountain Ranch	City of San Diego, San Diego County, California	746	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3592	Carmel Mountain Ranch	City of San Diego, San Diego County, California	746	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3648	Carmel Mountain Ranch	City of San Diego, San Diego County, California	746	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3771	Carmel Mountain Ranch Unit 19 site 1	City of San Diego, San Diego County, California	740	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3772	Carmel Mountain Ranch Unit 19 site 2	City of San Diego, San Diego County, California	728	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
3773	Carmel Mountain Ranch Unit 19 site 3	City of San Diego, San Diego County, California	697	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene
5574	I-15 Managed Lanes Unit 1 Red Paleosol	City of San Diego, San Diego County, California	754	Friars Formation, upper tongue	Cenozoic	Paleogene	middle Eocene

Attachment B

Standard Mitigation Program Guidelines (from the City of San Diego's Land Development Manual, Appendix P)

LAND DEVELOPMENT MANUAL
APPENDIX P

GENERAL GRADING GUIDELINES FOR PALEONTOLOGICAL RESOURCES

Paleontological resources (i.e., fossils) are the buried remains and/or traces of prehistoric organisms (i.e., animals, plants, and microbes). Body fossils such as bonesor teeth, shells, leaves, and wood, as well as trace fossils such as tracks, trails, burrows, and footprints, are found in the geologic deposits (formations) within which they were originally buried. Fossil remains are considered important if they are: 1) well preserved; 2) taxonomically identifiable; 3) type/topotypic specimens; 4) age diagnostic; 5) useful in environmental reconstruction; or 6) represent new, rare, and/or endemic taxa.

Fossils are typically found buried in geologic deposits of sedimentary rock layers. They are exposed by natural weathering as well as by manmade earthmoving operations. Paleontological resources may be encountered during grading/excavation activities associated with project construction (e.g., residential subdivision projects, new roadway projects, urban redevelopment projects, or utility installation/improvement projects) where such work would be performed in previously undisturbed geologic deposits/formations/rock units (i.e., not in artificial fill materials).

The mapping of geologic deposits/formations/rock units can be located in the published geologic maps by Kennedy and Tan, 2008 all areas of the City of San Diego except Otay Mesa; and Todd, 2004 for the Otay Mesa area. The maps use colors to indicate the geographic distribution of individual geologic deposits/formations/rock units, with a map legend for reference of the geologic deposits/formations/rock units that are present in the project area. The geologic maps are available through the California Geological Survey and United State Geological Survey. Online digital versions of 1:100,000 scale maps are available at the following websites: https://ngmdb.usgs.gov/mapview/; http://www.conservation.ca.gov/cgs/rghm/rgm/Pages/preliminary_geologic_maps.aspx; and https://pubs.usgs.gov/of/2004/1361/.

These General Grading Guidelines for Paleontological Resources do not replace the Significance Determination Thresholds set forth in Land Development Manual Appendix A for Paleontological Resources.

The following is the standard monitoring requirement that shall be placed on grading plans and implemented when required pursuant to LDC section 142.0151:

I. Prior to Permit Issuance

Entitlements Plan Check

Prior to issuance of any construction permits, including but not limited to, the first Grading Permit, Demolition Plans/Permits and Building Plans/Permits or a Notice to Proceed for Subdivisions, but prior to the first preconstruction meeting, whichever is applicable, the City Engineer (CE) and/or Building Inspector (BI) shall verify that the requirements for Paleontological Monitoring have been noted on the appropriate construction documents.

1. The applicant shall submit a letter of verification to Resident Engineer (RE) and/or Building Inspector (BI) identifying the qualified Principal Investigator (PI) for the project and the names of all persons involved in the paleontological monitoring program. A qualified PI is defined as a person with a Ph.D. or M.S. or equivalent in paleontology or closely related field (e.g., sedimentary or stratigraphic geology, evolutionary biology, etc.) with demonstrated knowledge of southern California paleontology and geology, and documented experience in professional paleontological procedures and techniques.

2. **II. Prior to Start of Construction**

A. Verification of Records Search

1. The PI shall provide verification to RE and/or BI that a site specific records search has been completed. Verification includes, but is not limited to a copy of a confirmation letter from the San Diego Natural History Museum, or another relevant institution that maintains paleontological collections recovered from sites within the City of San Diego.

2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.

B. PI Shall Attend Preconstruction Meetings

1. Prior to beginning any work that requires monitoring, the Applicant shall arrange a Preconstruction Meeting that shall include the PI, Construction Manager (CM) and/or Grading Contractor, RE, and BI, as appropriate. The qualified paleontologist (PI) shall attend any grading/excavation related Preconstruction Meetings to make comments and/or suggestions concerning the Paleontological Monitoring program with the Construction Manager and/or Grading Contractor.

a. If the PI is unable to attend the Preconstruction Meeting, the Applicant shall schedule a focused Preconstruction Meeting with the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.

2. Identify Areas to be Monitored

   Prior to the start of any work that requires monitoring, the PI shall submit a Paleontological Monitoring Exhibit (PME) based on the appropriate construction documents (reduced to 11x17) to RE and/or BI identifying the areas to be monitored including the delineation of grading/excavation limits. The PME shall be based on the results of a site specific records search as well as information regarding existing known geologic conditions (e.g., geologic deposits as listed in the Paleontological Monitoring Determination Matrix below).

3. When Monitoring Will Occur
   a. Prior to the start of any work, the PI shall also submit a construction schedule to the RE and/or BI indicating when and where monitoring will occur.

   b. The PI may submit a detailed letter to RE and/or BI prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction documents and geotechnical reports which indicate conditions such as depth of excavation and/or thickness of artificial fill overlying bedrock, presence or absence of fossils , etc., which may reduce or increase the potential for resources to be present.

III. During Construction

A. Monitor Shall be Present During Grading/Excavation/Trenching

1. The paleontological monitor shall be present full-time during grading/excavation/trenching activities as identified on the PME that could result in impacts to formations with high and moderate resource sensitivity. **The Construction Manager is responsible for notifying the PI, RE and/or BI of changes to any construction activities such as in the case of a potential safety concern within the area being monitored. In certain circumstances OSHA safety requirements may necessitate modification of the PME.**

2. The PI may submit a detailed letter to RE and/or BI during construction requesting a modification to the monitoring program when a field condition such as trenching activities that do not encounter previously undisturbed and paleontologically sensitive geologic deposits as previously assumed, and/or when unique/unusual fossils are encountered, which may reduce or increase the potential for paleontological resources to be present.

3. The paleontological monitor shall document field activity via the Consultant Site Visit Record (CSVR). The CSVR's shall be emailed by the CM to the RE and/or BI the first day of monitoring, the last day of monitoring, monthly (**Notification of Monitoring Completion)**, and in the case of ANY discoveries.

B. Discovery Notification Process

1. In the event of a discovery, the paleontological monitor shall direct the contractor to temporarily divert trenching activities in the area of discovery and notify the RE and/or BI. The contractor shall also process a construction change for administrative purposes to formalize the documentation and recovery program, including modification to Mitigation Monitoring and Compliance (MMC).

2. The paleontological monitor shall notify the PI (unless paleontological monitor is the PI) of the discovery.

3. The PI shall notify MMC of the discovery, and shall submit documentation to MMC within 24 hours by email with photos of the resource in context.

C. Recovery of Fossils

If a paleontological resource is encountered:

1. The paleontological monitor shall salvage unearthed fossil remains, including simple excavation of exposed specimens or, if necessary as determined by the PI, plaster-jacketing of large and/or fragile specimens or more elaborate quarry excavations of richly fossiliferous deposits.

2. The paleontological monitor shall record stratigraphic and geologic data to provide a context for the recovered fossil remains, including a detailed description of all paleontological localities within the project site, as well as the lithology of fossil-bearing strata within the measured stratigraphic section, and photographic documentation of the geologic setting.

V. Post Construction

A. Preparation and Submittal of Draft Paleontological Monitoring Report

1. The PI shall submit two copies of the Draft Paleontological Monitoring Report (even if negative), prepared to the satisfaction of the Development Services Department. The Draft Paleontological Monitoring Report shall describe the methods, results, and conclusions of all phases of the Paleontological Monitoring Program (with appropriate graphics) to MMC for review and approval within 90 days following the completion of monitoring,

a. For significant or potentially significant paleontological resources encountered during monitoring, as identified by the PI, the Paleontological Recovery Program shall be included in the Draft Monitoring Report.

b. The PI shall be responsible for recording (on the appropriate forms) any significant or potentially significant fossil resources encountered during the Paleontological Monitoring Program in accordance with the City's Paleontological Guidelines (revised November 2017), and submittal of such forms to the San Diego Natural History Museum and MMC with the Draft Paleontological Monitoring Report.

2. MMC shall return the Draft Paleontological Monitoring Report to the PI for revision or, for preparation of the Final Report.

3. The PI shall submit revised Draft Paleontological Monitoring Report to MMC for approval.

4. MMC shall provide written verification to the PI of the approved Draft Paleontological Monitoring Report.

5. MMC shall notify the RE and/or BI, of receipt of all Draft Paleontological Monitoring Report submittals and approvals.

B. Handling of Recovered Fossils

1. The PI shall ensure that all fossils collected are cleaned to the point of curation (e.g., removal of extraneous sediment, repair of broken specimens, and consolidation of fragile/brittle specimens) and catalogued as part of the Paleontological Monitoring Program.

2. The PI shall ensure that all fossils are analyzed to identify stratigraphic provenance, geochronology, and taphonomic context of the source geologic deposit; that faunal material is taxonomically identified; and that curation has been completed, as appropriate.

C. Curation of Fossil Remains: Deed of Gift and Acceptance Verification

1. The PI shall be responsible for ensuring that all fossils associated with the paleontological monitoring program for this project are permanently curated with an accredited institution that maintains paleontological collections (such as the San Diego Natural History Museum).

2. The PI shall include an acceptance verification from the curation institution in the Final Paleontological Monitoring Report submitted to the RE and/or BI, and MMC.

D. Final Paleontological Monitoring Report(s)

1. The PI shall submit two copies of the Final Paleontological Monitoring Report to MMC (even if negative), within 90 days after notification from MMC that the Final Paleontological Monitoring Report has been approved.

2. The RE and/or BI shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Paleontological Monitoring Report from MMC, which includes the Acceptance Verification from the curation institution.

Paleontological Monitoring Determination Matrix

Geological Deposit/Formation/Rock Unit	Potential Fossil Localities	Sensitivity Rating
Alluvium (Qsw, Qal, or Qls)	All communities where this unit occurs	Low
Ardath Shale (Ta)	All communities where this unit occurs	High
Bay Point/Marine Terrace (Qbp) [1]	All communities where unit occurs	High
Cabrillo Formation (Kcs)	All communities where unit occurs	Moderate
Delmar Formation (Td)	All communities where unit occurs	High
Friars Formation (Tf)	All communities where unit occurs	High
Granite/Plutonic (Kg)	All communities where unit occurs	Zero
Lindavista Formation (Qln, Qlb) [2]	A. Mira Mesa/Tierrasanta B. All other areas	A. High B. Moderate
Lusardi Formation (Kl)	Black Mountain Ranch/Lusardi Canyon Poway/Rancho Santa Fe B. All other areas	A. High B. Moderate
Mission Valley Formation (Tmv)	All communities where unit occurs	High
Mt. Soledad Formation (Tm, Tmss, Tmsc)	A. Rose Canyon B. All other areas where this unit occurs	A. High B. Moderate
Otay Formation (To)	All communities where unit occurs	High
Point Loma Formation (Kp)	All communities where unit occurs	High
Pomerado Conglomerate (Tp)	A. Scripps Ranch/Tierrasanta B. All other areas	High
River /Stream Terrace Deposits (Qt)	A. South Eastern/Chollas Valley/Fairbanks Ranch/Skyline/Paradise Hills/Otay Mesa, Nestor/San Ysidro B. All other areas	A. Moderate B. Low
San Diego Formation (Qsd)	All communities where this unit occurs.	High
Santiago Peak Volcanics (Jsp) A. Metasedimentary B. Metavolcanic	A. Black Mountain Ranch/La Jolla Valley, Fairbanks Ranch/Mira Mesa/Peñasquitos B. All other areas	A. Moderate B. Zero
Scripps Formation (Tsd)	All communities where this unit occurs	High
Stadium Conglomerate (Tst)	All communities where this unit occurs	High
Sweetwater Formation	All communities where this unit occurs	High
Torrey Sandstone (Tf)	A. Black Mountain Ranch/Carmel Valley B. All other areas	A. High B. Low