

Appendices

Appendix 5.4-3 Paleontological Record Search for Solana Beach Seniors Project

Appendices

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SAN DIEGO NATURAL HISTORY MUSEUM

BALBOA PARK - SAN DIEGO SOCIETY OF NATURAL HISTORY - ESTABLISHED 1874

12 November 2015

Kelly Kanaster
The Lightfoot Planning Group
5900 Pasteur Ct #110
Carlsbad, CA 92008

RE: Paleontological Record Search for the Solana Beach Seniors Project (APN 289-390-51)

Dear Ms. Kanaster:

This letter presents the results of a paleontological record search conducted for the Solana Beach Seniors project (APN 289-390-51), located east and adjacent to Interstate 5, and bounded to the north by Genevieve Street, and to the east by Marine View Avenue, in the City of Solana Beach. The project area occupies approximately 2.9 acres, with an approximate perimeter of 0.4 miles. The sedimentary rocks directly underlying the project site have been mapped by Kennedy (1975) as the early to middle Eocene-age (approximately 48 to 49 million years old) Torrey Sandstone.

The San Diego Natural History Museum documents twenty-four recorded fossil collecting localities (see attached descriptions) within a one-mile radius of the project site (see attached map). Three of these localities were discovered in a late Pleistocene-age unnamed lagoonal deposit. These localities produced shell remains of marine invertebrates (e.g., segmented worms, barnacles, crabs, ostracods, bryozoans, sea urchins, snails, clams, mussels, oysters, and foraminifera), fossilized remains of marine vertebrates (e.g., fish), and fossilized remains of terrestrial vertebrates (e.g., rodents). Thirteen localities were discovered in lagoonal and estuarine deposits of the late Pleistocene-age (approximately 80,000 to 220,000 years old) Bay Point Formation. Fossils produced include leaf impressions of plants (e.g., flowering plants), shell remains and molds of marine invertebrates (e.g., segmented worms, barnacles, shrimp, crabs, ostracods, bryozoans, sand dollars, heart urchins, snails, clams, mussels, oysters, chitons, tusk shells, foraminifera, and sponges), mineralized remains of marine vertebrates (e.g., fish and rays), and fossilized remains of terrestrial vertebrates (e.g., birds, rabbits, lizards, and rodents). One locality was discovered in marine deposits of the early Eocene-age (approximately 48 to 49 million years old) Torrey Sandstone. Recovered fossils include molds of marine invertebrates (e.g., segmented worms, shrimp, corals, sea urchins, snails, clams, oysters, tusk shells, and sponges). The remaining seven localities were found in estuarine deposits of the early Eocene-age (approximately 49 to 50 million years old) Delmar Formation. These localities produced shell remains and molds of marine invertebrates (e.g., snails, clams, mussels, and oysters), fossilized remains of marine vertebrates (e.g., sharks), and mineralized remains of terrestrial vertebrates (e.g., brontotheres).

Deméré and Walsh (1993) have assigned a moderate paleontological resource sensitivity to the Torrey Sandstone. Depending on the depth of excavation, ground-disturbing activities associated with the proposed project have the potential to impact previously undisturbed sedimentary deposits of the Torrey Sandstone, and thus have the potential to cause negative impacts to paleontological resources preserved in these deposits. For the reasons described above, implementation of a complete paleontological resource mitigation program during construction is recommended.

The 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 Solana Beach Seniors project (APN 289-390-51) is prohibited.

If you have any questions concerning these findings please feel free to contact me at 619-255-0320 or nanderson@sdnhm.org.

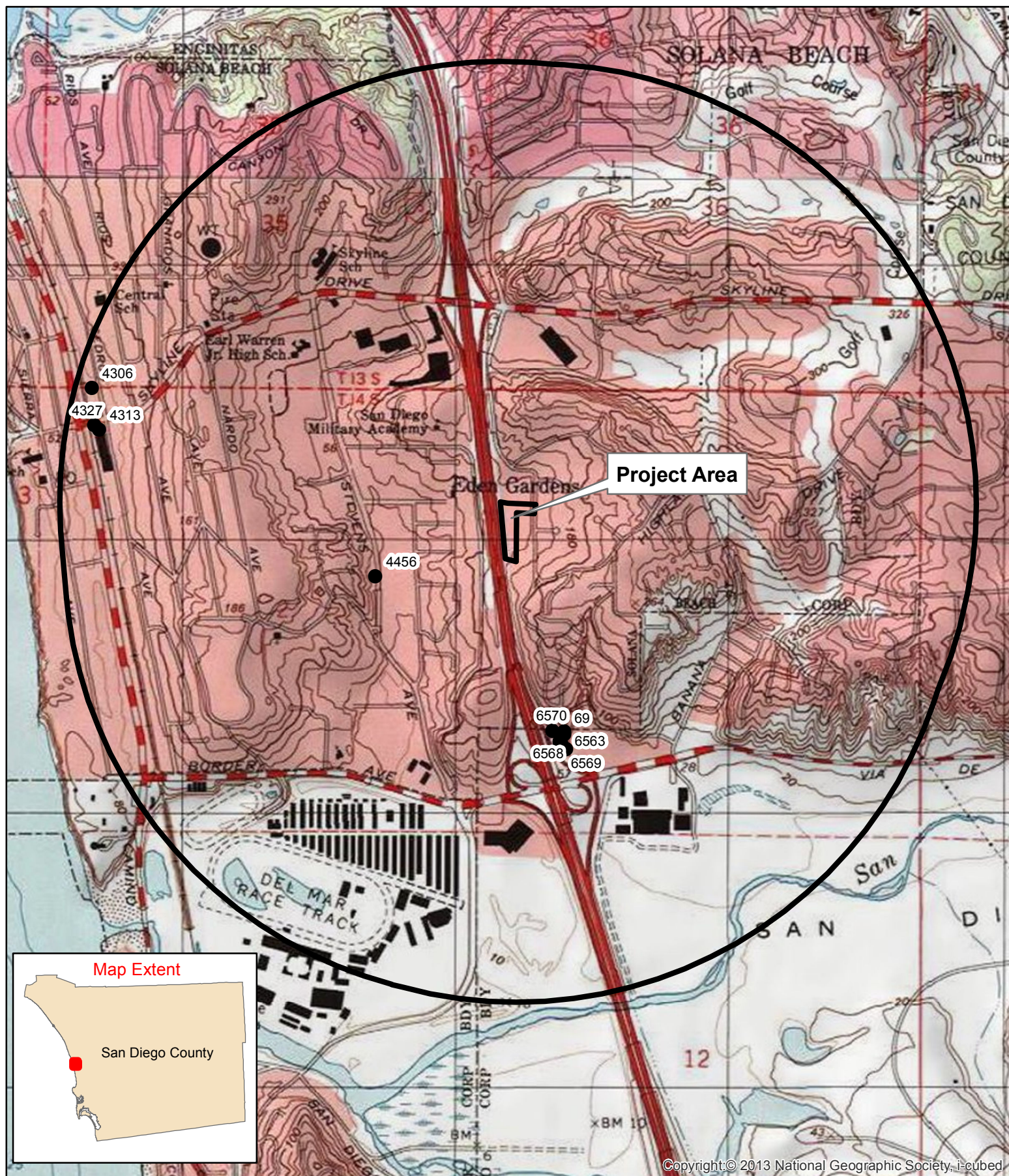
Sincerely,

A handwritten signature in black ink, appearing to read 'Nikki Anderson', with a long horizontal flourish extending to the right.

Nikki Anderson
Lead Fossil Preparator
Department of Paleontology

Literature Cited:

- Deméré, T. A. and Walsh, S.L. 1993. Paleontological Resources, County of San Diego. Prepared for the San Diego Planning Commission: 1-68.
- Kennedy, M.P. 1975. Geology of the Western San Diego Metropolitan area, California. California Division of Mines and Geology Bulletin. 200-A:1-39.



SDNHM fossil localities within one mile of the Solana Beach Seniors project (APN:289-390-51) (Base maps USGS Topographic Maps of the Encinitas, Rancho Santa Fe, and Del Mar 7.5' Quadrangles, California).



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SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY LIST

PAL120

NUMBER	---LOCALITY NAME AND GEOGRAPHIC LOCATION---	-----ROCK AND TIME UNITS-ROCK TYPE-FIELD NOTES-----	-----COLLECTORS-COMPILED BY-ENTERED BY-DONOR-----
69	San Dieguito Valley San Diego San Diego Co. CA U.S.A. 32°58'54"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967	unnamed lagoonal deposit Cenozoic Quaternary late Pleistocene sdst-	Frank Stephens 11 Oct 1928 U.S. Grant IV 10 Jan 1929 H.P. Don Vito 25 Mar 1994
2904	Flower Hill Shopping Center San Diego San Diego Co. CA U.S.A. 32°58'54"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967	unnamed lagoonal deposit Cenozoic Quaternary late Pleistocene sdst-	T.A. Demere 28 Feb 1976 T.A. Demere 10 Sep 1985 H.P. Don Vito 24 Apr 1995
5009	San Dieguito Valley - I-5 & Via de la Valle San Diego San Diego Co. CA U.S.A. 32°58'54"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	unnamed lagoonal deposit Cenozoic Quaternary late Pleistocene sdst-lagoonal Tom's find and loose leaf binder	Donald E. Thompson & Dr. George Cox 0 0 H.P. Don Vito 10 Sep 2003 H.P. Don Vito 10 Sep 2003
4306	Solana Beach Grade Change Solana Beach San Diego Co. CA U.S.A. 32°59'35"N--117°16'13"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Nestor Terrace Cenozoic Quaternary late Pleistocene sdst-marine	D.R. Swanson, B.O. Riney 22 Apr 1999 T.A. Demere 8 Jun 1999 N.S. Rugh 9 Jun 1999
4313	Solana Beach Grade Change Solana Beach San Diego Co. CA U.S.A. 32°59'30"N--117°16'12"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Nestor Terrace Cenozoic Quaternary late Pleistocene mdst-estuarine channel fill deposit B.O. Riney	B.O. Riney, D.R. Swanson 28 Jan 1999 T.A. Demere 18 Jun 1999 N.S. Rugh 21 Jun 1999
4327	Solana Beach Grade Change Solana Beach San Diego Co. CA U.S.A. 32°59'30"N--117°16'12"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Nestor Terrace Cenozoic Quaternary late Pleistocene sltst-estuarine channel fill deposit	D.R. Swanson 14 May 1999 T.A. Demere 18 Jun 1999 N.S. Rugh 21 Jun 1999
6553	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal GC #3, pgs 12-14, CSP #12, pgs 57-58	G. Calvano, C.S. Plouffe, J.E. El Adli 31 Aug 2011 K.A. Randall 1 May 2012 K.A. Randall 1 May 2012
6554	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal GC #3, pgs 12-14	G. Calvano, 19 Aug 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6555	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal GC #3, pg 12-14, CSP #12, pg 65	G. Calvano, C.S. Plouffe 9 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6556	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary Pleistocene sdst-lagoonal TAD #13 pg 82,83,84,85; CSP #12, pg 61-62	T. Demere, C.S. Plouffe 2 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6557	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal CSP #12, pg 74	C.S. Plouffe 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6558	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal CSP #12, pg 74	C.S. Plouffe 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6560	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal CSP #12, pg 74, TAD #13 pg 89, 92, 94, 95	C.S. Plouffe, T.A. Demere 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012

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PAL120

NUMBER	LOCALITY NAME AND GEOGRAPHIC LOCATION	ROCK AND TIME UNITS-ROCK TYPE-FIELD NOTES	COLLECTORS-COMPILED BY-ENTERED BY-DONOR
6561	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal CSP #12, pg 74; TAD #13m pgs. 89, 92-94	C.S. Plouffe, T.A. Demere 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6562	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-lagoonal CSP #12, pg 74; TAD #13 pg 98, 100	C.S. Plouffe, T.A. Demere 22 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6563	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'52"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	Bay Point Formation Cenozoic Quaternary late Pleistocene sdst-estuarine TAD #13, pg 88-89, 93-94	T.A. Demere 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
4456	SER #1 Solana Beach San Diego Co. CA U.S.A. 32°59'12"N--117°15'33"W Del Mar, CA 1:24000 USGS 1975	La Jolla Group Torrey Sandstone Cenozoic Paleogene middle Eocene Uintan sdst-marine D.R. Swanson	D.R. Swanson 2 Feb 2000 D.R. Swanson 2 May 2000 H.M. Wagner 4 May 2000
6564	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	La Jolla Group Delmar Formation Cenozoic Paleogene middle Eocene sdst-lagoonal CSP #12, pg 75-76	C.S. Plouffe 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6565	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 7"W Del Mar, CA 1:24000 USGS 1967(1975)	La Jolla Group Delmar Formation Cenozoic Paleogene middle Eocene sdst-estuarine CSP #12, pg 75	C.S. Plouffe 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6566	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 7"W Del Mar, CA 1:24000 USGS 1967(1975)	La Jolla Group Delmar Formation Cenozoic Paleogene middle Eocene sdst-estuarine CSP #12, pg 75	C.S. Plouffe 20 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6567	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'53"N--117°15' 7"W Del Mar, CA 1:24000 USGS 1967(1975)	La Jolla Group Delmar Formation Cenozoic Paleogene middle Eocene sdst-estuarine GC #3, PG 24	G. Calvano 23 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6568	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'54"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	La Jolla Group Delmar Formation Cenozoic Paleogene middle Eocene sdst-estuarine CSP #12, pgs 62-63	C.S. Plouffe 2 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6569	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'54"N--117°15' 6"W Del Mar, CA 1:24000 USGS 1967(1975)	La Jolla Group Delmar Formation Cenozoic Paleogene middle Eocene sdst-estuarine CSP #12, pgs 34	C.S. Plouffe 25 Jul 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012
6570	Flower Hill Promenade San Diego San Diego Co. CA USA 32°58'54"N--117°15' 8"W Del Mar, CA 1:24000 USGS 1967(1975)	La Jolla Group Delmar Formation Cenozoic Paleogene middle Eocene sdst-estuarine CSP #12, pg 66	C.S. Plouffe 12 Sep 2011 K.A. Randall 3 May 2012 K.A. Randall 4 May 2012