APPENDIX D

CULTURAL RESOURCES MEMORANDUM & PALEONTOLOGICAL ASSESSMENT

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May 15, 2013

Mona DeLeon, AICP
Principal
LSA Associates, Inc.

Subject: Belmont Pool Cultural Resources Letter Report for the Belmont Pool Replacement Project, 4000 East Olympic Plaza,
City of Long Beach, Los Angeles County, California

Dear Ms. DeLeon:

CULTURAL RESOURCES

A cultural resource record search of an area that included the Belmont Pool Replacement Project area plus an additional 0.25-mile area was conducted by Ryo Braco of LSA Associates, Inc. (LSA) on April 4, 2013, at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) at California State University, Fullerton (CSUF). This record search identified no recorded cultural resources in the Project area, or within 0.25 mile of the Project area. The record search did identify two cultural resource studies that included the entire Project area: Weinman (1978) and Weinman and Stickel (1978). As well, two additional studies determined to be unmappable by the SCCIC, Dixon (1974) and Hill (1985), also appear to pertain to the current Project area.

No buildings listed in the Directory of Properties of the Historic Property Data (HPD) File for Los Angeles County were found to exist within the Project area. One listed property in the HPD is located approximately 0.25 mile outside of the current Project area. This property, 108 Park Avenue, Long Beach, was determined ineligible for the National Register of Historic Places (National Register) by consensus through the Section 106 process. This property was not evaluated for the California Register of Historical Resources (California Register) or for local listing.

As part of the record search, a copy of the historic *Long Beach, California* 7.5-minute quadrangle map (United States Geological Survey [USGS] 1925) was provided. This map clearly shows that the northern edge of the Project area once contained three buildings. These buildings were located along the south side of East Olympic Plaza where a grassy park currently exists. The Belmont Pier is clearly depicted on the 1925 map approximately 500 feet (ft) west of the western edge of the current Project area. The historic map shows that the beach in the vicinity of the Project area was only about 100 ft wide in 1925, but is at present approximately 400–500 ft wide. It is on this wide sandy area that the majority of the current Project area is located. Based on aerial photographs, development of buildings with a parking lot on the sandy beach occurred sometime between 1952 and 1972. Belmont Pier was extended approximately 400 ft sometime between 1925 and 1952, when the majority of sand accumulation occurred. Two smaller additions were added to the end of the pier sometime between 1952 and 1972. Beach width also increased slightly after 1972.

Additional History

The Belmont Plaza Olympic Pool was constructed in the late 1960s at a cost of $3.7 million for the 1968 United States Olympics (U.S. Olympics) swimming trials. It opened in 1968, in time for the

U.S. Olympics swimming trials, and hosted both the 1968 and 1976 U.S. Olympics swimming trials, as well as the 1974 and 1978 National Collegiate Athletic Association (NCAA) swimming championships. The pool measures 150 x 240 ft, and has had some major records broken at this facility. In March 2011, Tom Shields set the current NCAA record in the 200-yard butterfly swim with a time of 1:40.31, while in May of 2010, Vlad Morozov set the current national high school record in the 50-yard freestyle with a time of 19.43 seconds. On January 10, 2013, the indoor pool was closed when an engineering report warned it was at risk of collapse in even a moderate earthquake. That preliminary report was confirmed on February 1, when it was announced that the pool would stay closed permanently. According to a local official, it is estimated that repairs to the building to make it a building that "balances recreational and competitive swimming needs" will cost between $54 and $62 million.

Sincerely,

LSA ASSOCIATES, INC.

Ivan H. Strudwick
Archaeologist

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June 6, 2014

Craig Chalfant, Planner
City of Long Beach
City Manager's Office
333 West Ocean Boulevard
Long Beach, CA 90802

Subject: Paleontological Assessment for the Belmont Pool Replacement Project, 4000 East Olympic Plaza, City of Long Beach, Los Angeles County, California

Dear Mr. Chalfant:

LSA Associates, Inc. (LSA) conducted a Paleontological Assessment for the Belmont Pool Replacement Project (proposed Project), located at 4000 East Olympic Plaza in the City of Long Beach (City) in Los Angeles County (County), California (Figure 1; see Attachment A). The proposed Project includes demolition of the existing pool complex and buildings and construction of a new pool complex. This assessment was conducted pursuant to the California Environmental Quality Act (CEQA).

PROJECT LOCATION AND DESCRIPTION

The proposed Project is located within a portion of Section 9, Township 5 South, Range 12 West, San Bernardino Baseline and Meridian, as shown on the *Long Beach, California* 7.5-minute topographic quadrangle (United States Geological Survey [USGS] 1964) (Figure 1, see Attachment A).

The proposed Project includes a replacement pool facility; the existing pool complex will be demolished due to seismic safety issues and a new, more modern pool complex will be built in its place. The proposed pool facility will be larger and will provide opportunities for public swimming, as well as swimming, diving, and aquatic sport training and competitive meets.

PROJECT CHARACTERISTICS

In order to demolish the existing pool facility, occasional excavations that extend at least as deep as the deepest portion of the existing pool may be necessary; however, most excavations will be in the upper several feet as needed to remove building foundations and prepare the ground surface for any new structures and the new pool. According to the most recent geotechnical report (GMU Geotechnical, Inc., 2013), a temporary aboveground pool is planned for the parking lot area east of the existing Belmont Plaza Pool Plaza. Two-thirds of the pool will be constructed at the existing grade and will be supported on a 12-inch-thick concrete slab; the remainder of the pool will be constructed on 3 feet (ft) of new fill and a 12-inch-thick concrete slab. The concrete slab will also support braced walls. In addition, isolated footings will support a raised pool deck and bleachers that will surround the pool. Other improvements will include temporary restroom/shower and office trailers; temporary asphalt walkways, curbs, and planters; and 70 to 80 ft high light poles. GMU Geotechnical, Inc. (2013) states that based on the current plans, only minor excavations of no more than approximately 18 inches will be required to develop the proposed property, mainly to remove and recompact the on-site fill soils. Slightly deeper excavations will be needed to install any new utility lines or remove lines that will be abandoned, but these should be no more than 4 to 5 ft below the surface.

MACTEC (2009) made the recommendation that if and when permanent buildings or structures are constructed on site, the on-site soils should be improved through the use of stone columns or vibro-replacement to densify the on-site soils through the addition of coarse-grained material. MACTEC recommended that these ground improvements extend at least 25 ft below the surface to an elevation of approximately 18 ft below sea level. Once this has been completed, additional excavation and recompaction to depths of 5 ft beyond and below any footings and 2 ft beyond and below any areas that will receive paving will also be required, along with the removal and recompaction of any Artificial Fill.

METHODOLOGY

Literature and Locality Review

LSA conducted a paleontological literature search and locality review to obtain geological and paleontological locality information pertinent to the Project and the area immediately surrounding the Project. This included geologic maps, paleontological literature, and the geotechnical reports that were prepared for the Project (MACTEC, 2009; GMU Geotechnical, Inc., 2013). In addition, LSA requested information form the Natural History Museum of Los Angeles County (LACM).

The objective of this archival research was to determine the geology of the Project and whether there were any known paleontological localities within or immediately adjacent to the Project site. Even if there were no known localities nearby, the results could be used to determine whether there were any geologic formations in the Project area with the potential to contain paleontological resources based on localities from similar sediments.

Pedestrian Survey

Based on the developed nature of the Project, a pedestrian survey was not conducted as part of the assessment. Much, if not all, of the surface of the Project area has been disturbed by prior construction in the area. In addition, much of the ground surface within the Project area has been obscured with paving, existing buildings, and landscaping.

FINDINGS

Geology

The Project area is located at the northern end of the Peninsular Ranges Geomorphic Province, a 900-mile northwest-southeast trending structural block that extends from the tip of Baja California to the Transverse Ranges and includes the Los Angeles Basin (Norris and Webb, 1976). The total width of the province is approximately 225 miles, with a maximum landbound width of 65 miles (Sharp, 1976). The Peninsular Ranges contain extensive Cretaceous (more than 65 million years ago [mya]) and pre-Cretaceous igneous and metamorphic rock covered by limited exposures of post-Cretaceous sedimentary deposits.

Specifically, the Project is located within the Los Angeles Basin, which is a broad, almost level alluvial plain (gradient of 0.5 to 1 percent). It is bounded on the north and northeast by hills and mountains of the Northern Peninsular and Transverse Ranges and on the south and west by the Pacific Ocean. The Los Angeles Basin is divided into several areas. The Downey Plain, in which the Project lies, is the largest section and is located in the central portion of the Los Angeles Basin. The Tustin Plain is located to the east and separated from the Los Angeles Basin by the Santa Ana River. The Torrance Plain and the El Segundo Sand Hills are located on the western margin. Smaller plains, such as the Santa Monica and La Brea Plains, are located on the northern margin.

The marine and nonmarine sediments within the Los Angeles Basin are up to 6 miles deep. The Basin began to form approximately 15 mya due to crustal stretching from movement along various faults. The crustal stretching resulted in the formation of a large, bowl-like basin. Thick layers of sediment from both the ocean and rivers accumulated in this bowl. Approximately 5 mya, the crustal stretching subsided and the ocean floor of the Basin was uplifted to the surface. Additional sediment accumulated during and after the uplifting, resulting in the shallow gradient of the Basin as it exists today.

Currently, the main sediment sources for the Los Angeles Basin are several rivers that flow into it. These include the Santa Ana, San Gabriel, and Los Angeles Rivers. The current path of the Santa Ana River is located approximately 12.5 miles to the east of the current Project, the current path of the San Gabriel River is located approximately 2 miles to the east, and the current path of the Los Angeles River is located approximately 3.5 miles to the west. Because the gradient of the Los Angeles Basin is quite shallow, these rivers have not always flowed in their current channels; rather, they have flowed across the entire Los Angeles Basin, evenly depositing sediment. In fact, prior to the flood of 1825, the Los Angeles River ran west and emptied into the Pacific Ocean in the area of Marina Del Rey, north of the Palos Verdes Peninsula, following the current path of Ballona Creek. This is 20 miles north of the location in which the Los Angeles River currently enters the Pacific Ocean at Wilmington.

Specifically, Saucedo et al. (2003) have mapped Artificial Fill as occurring on the surface of the Project area. Artificial Fill is also noted as being present on the surface of the Project in the geotechnical reports (MACTEC, 2009; GMU Geotechnical, Inc., 2013) and may extend 4 to 5 ft below the surface. The geotechnical reports also state that beneath the Artificial Fill lie deposits of alluvium and of beach and estuary-type sediments that extend to the deepest borings that reached 75 ft below the surface. Saucedo et al. (2003) also indicates that Late Pleistocene to Holocene Alluvium and Late Holocene deposits of beach and estuarine sediments are located nearby. Each unit is described in more detail below.

Artificial Fill. Artificial Fill is not mapped within the Project area on the geologic map by Saucedo et al. (2003), but it is noted as being present by two geologic studies that have been completed for the Project (MACTEC, 2009; GMU Geotechnical, Inc., 2013). Artificial Fill consists of sediments that have been removed from one location and transported to another by humans. The transportation distance can range from a few feet to dozens of miles. Composition is dependent on the source. When Artificial Fill is compacted and dense, it is known as “engineered fill,” but it can be unconsolidated and loosely compacted. Artificial Fill will sometimes contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material. Depending on the area, thickness can be less than 1 foot or several hundred feet. Within the subsurface of the Project, the geotechnical studies indicate that the thickness of the Artificial Fill ranges between 1.5 and 3.5 ft thick (MACTEC, 2009; GMU Geotechnical, Inc., 2013).

Very Young Beach Deposits. These deposits are unconsolidated and consist mostly of well-sorted fine- to coarse-grained sand and sand-sized fragments of fragmented shells within areas subjected to active wave action. According to Saucedo et al. (2003), these sediments were deposited during the late Holocene. These sediments are likely less than several 1,000 years old given the fact that sea levels have been relatively stable over the last 7,000 years and that prior to this time (18,000 to 7,000 years ago), sea levels had been mostly rising due to melting glaciers (Fairbanks, 1989). The active beach was well off shore and approximately 400 ft below the current sea level 18,000 years ago. The color is dependent on the sediment source; however, in this area it is generally light yellow-brown to almost white. These sediments can be several feet to possibly tens of feet thick, and in the active beach zone, this thickness can vary with the seasonal movement of the sand on and off shore. Within the Project, the geotechnical studies indicate these sediments may range in thickness between 8 and 13 ft below the Artificial Fill (MACTEC, 2009; GMU Geotechnical, Inc., 2013).

Very Young Estuarine Deposits. These deposits are composed mostly of loose to moderately dense fine-grained sand, silt, and clay. These sediments were deposited in an estuary-type environment. Like the Very Young Beach Deposits, these sediments are likely less than several thousand years old for the same reason given above. Within the Project area, these sediments are 4 to 15 ft thick and both underlie and interfinger with the Very Young Beach Deposits (MACTEC, 2009; GMU Geotechnical, Inc., 2013).

Young Alluvial Floodplain Deposits. Young Alluvial Floodplain Deposits were deposited during the Holocene to the late Pleistocene (Saucedo et al., 2003). These sediments are less than 126,000 years old; however, it is likely that the upper approximately 15 ft of these deposits are from the Holocene and are less than 11,700 years old. These deposits are composed of mixtures of gravel, sand, silt, or mud that were deposited by flowing water in a stream or river. The color is often dependent on upstream geology but usually includes shades of light grey, light brown, or yellow-brown. Sand grains range from angular to rounded, while the gravels and pebbles are usually more rounded than the sand grains.

Like the Very Young Beach and Very Young Estuarine Deposits, although the upper 10 to 15 ft of thickness of the Young Alluvial Floodplain Deposits can contain remains of plants and animals, generally not enough time has passed for the remains to become fossilized; in addition, the remains are contemporaneous with modern species and are usually not considered to be significant.

Once a depth of 10 to 15 ft of thickness for these sediments is reached (potentially as shallow as 23 ft below the ground surface), it is possible that alluvial sediments from the Pleistocene will be encountered, and these older sediments can and do contain fossils (Jefferson, 1991a and 1991b; Reynolds and Reynolds, 1991; and Miller, 1971). Mammoths are the indicator fossil for the Pleistocene Epoch, which is divided into the older Irvingtonian North American Land Mammal Age

(NALMA) that spans the period between 2.58 million and 2400,000 years ago, and the Rancholabrean NALMA, which spans the last 240,000 years of the Pleistocene. The indicator fossil for the Rancholabrean NALMA is *Bison* sp. Other fossils that may be present include camels, antelopes, saber-toothed cats, dire-wolves, bears, deer, sloths, rodents, birds, reptiles, and fish (Jefferson, 1991a, 1991b, and 1987; Reynolds and Reynolds, 1991; and Miller, 1971).

For the current Project, these Pleistocene sediments will likely not be encountered until a depth of at least 23 ft below the surface is reached, which is below the anticipated excavation depth associated with this Project. This minimum depth is based on minimums of 1 to 2 ft of Artificial Fill, 8 ft of Very Young Beach Deposits, 4 ft of Very Young Estuarine Deposits, and 10 ft of Holocene Alluvium. However, the actual depth to reach the Pleistocene Alluvium, will likely be somewhat greater.

Results of the Locality Search

According to the results of the locality search conducted through the LACM (provided in Attachment B), the surficial deposits within the Project are composed of active beach sands. These types of sediments typically do not contain significant vertebrate fossils at least in the uppermost layers; however, the LACM states that these deposits often overlie sediments that can contain paleontological resources. The closest locality to the Project that is within similar sediments and that may be encountered at depth within the Project is LACM 2031, near the intersection of Grand Avenue and East Livingston Drive (800 ft to the northwest), which produced a specimen of a Bison (*Bison* sp.) at a depth of approximately 25 ft. The next closest locality is LACM 7739, located between the parking lot of Bluff Park and the shoreline (1.1 miles to the west), which produced a rich suite of fossil marine vertebrates, including sharks, rays, and bony fish (see full list in Appendix B), as well as associated fossil invertebrates (including snails, clams, tusk shells, barnacles, crabs, and sea urchins) at a depth of approximately 25 ft below the surface. Just to the west of locality LACM 7739, located across from Bixby Park south of Ocean Boulevard at approximately 17th Place (1.3 miles to the west), LACM 1005 produced fossil specimens of mammoth (*Mammuthus columbi*) and ground sloth (*Nothrotheriops shastensis*) at approximately 60 ft below the surface. Finally, LACM 6896, located along Ocean Boulevard near its intersection with Magnolia Avenue (approximately 3 miles to the west), produced a whale humerus at a depth of less than 100 ft during pile-driving activities.

Results of the Literature Search

Artificial Fill. Artificial Fill can contain fossils, but these fossils have been removed from their original location and are thus out of context. They are not considered to be important for scientific study.

Very Young Beach Deposits. Although Very Young Beach Deposits can contain remains of animals such as shells, shell fragments, and occasional bones, based on their young age, not enough time has passed for the remains to become fossilized; in addition, the remains are contemporaneous with modern species and are usually not considered to be significant.

Very Young Estuarine Deposits. Like the Very Young Beach Deposits, Very Young Estuarine Deposits can contain remains of animals such as shells, shell fragments, and occasional bones. However, based on their young age, not enough time has passed for the remains to become fossilized. In addition, the remains are contemporaneous with modern species and are usually not considered to be significant.

Young Alluvial Floodplain Deposits. Although not mapped within the Project site, these sediments are located nearby and were observed in the borings by the geotechnical studies (MACTEC, 2009; GMU Geotechnical, Inc., 2013). The upper 10 to 15 ft of thickness of these sediments are likely from the Holocene and are less than 11,700 years old, and like the sediments described above, the upper layers of these sediments are generally not considered to have paleontological significance. However, once a thickness of at least 10 to 15 ft is reached (23 to 28 ft below the surface), it is possible that the sediments may be from the Pleistocene and older than 11,700 years ago.

Fossils are known in similar Pleistocene sediments from excavations for roads, housing developments, and quarries in Southern California (Jefferson, 1991a and 1991b; Miller, 1971; and Reynolds and Reynolds, 1991). Mammoths are the indicator fossil for the Pleistocene Epoch, which is divided into the older Irvingtonian NALMA, which spans the period between 2.58 million and 240,000 years ago, and the Rancholabrean NALMA, which spans the last 240,000 years of the Pleistocene. Within the Project area, these sediments will be from the Rancholabrean NALMA. The indicator fossil for the Rancholabrean NALMA is *Bison* sp. Other fossils that may be present include camels, antelopes, saber-toothed cats, dire-wolves, bears, deer, sloths, rodents, birds, reptiles, and fish (Jefferson, 1991a, 1991b, and 1987; Reynolds and Reynolds, 1991; and Miller, 1971). These fossils help describe climatic and habitat conditions during the Pleistocene. There is potential for these types of fossils whenever Pleistocene alluvial sediments are exposed, and they are considered to have high paleontological significance.

RECOMMENDATIONS

Based on the Project description, the results of an examination of the area geology, and the results of a locality search, the geologic units that are likely present within the Project include Artificial Fill, Very Young Beach Deposits, Very Young Estuarine Deposits, and Young Alluvial Deposits, all of which have a low potential to contain paleontological resources as long as no excavation work extends deeper than 23 ft below the surface, where Pleistocene Alluvial sediments with a high paleontological sensitivity may begin to be encountered. As such, no additional paleontological work is recommended, as it is unlikely that excavation associated with this Project will extend as deep as 23 ft below the surface. However, in the unlikely event that paleontological resources are discovered during excavation associated with this Project, work in the immediate vicinity of the find should be diverted and a Professional Paleontologist contacted to examine the discovery to assess the find for significance and, if needed, collect the find and make recommendations for the need for further paleontological mitigation.

If excavation work extends deeper than 23 ft below the surface and sediments can actually be observed, or if paleontological resources are discovered at a shallower depth, it is recommended that paleontological monitoring occur in those areas under the direction and supervision of a Professional Paleontologist to mitigate impacts to significant paleontological resources that may exist in that portion of the Project. This may require preparation of a Paleontological Resources Impact Mitigation Program (PRIMP). If excavation below 23 ft is limited to soil stabilization techniques such as vibro-replacement, as discussed in the MACTEC geotechnical report (MACTEC, 2009), monitoring will not be required because it is essentially impossible to monitor this activity for paleontological resources and monitoring is limited to areas that can actually be observed, such as open excavations. If any fossils are collected during monitoring, they should be prepared to the point of identification, identified to the lowest taxonomic level, and curated into an accredited institutional repository. If paleontological monitoring occurs, a report of findings shall be prepared by the Professional Paleontologist to document the results of the monitoring at the conclusion of the monitoring effort.

Sincerely,

LSA ASSOCIATES, INC.

Brooks Smith
Associate, Cultural and Paleontological Resources Group

Attachments: A. Figure 1: Project Location and Vicinity Map
B. LACM Locality Search Results

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ATTACHMENT A

FIGURE 1: PROJECT LOCATION AND VICINITY MAP

ATTACHMENT B

LACM LOCALITY SEARCH RESULTS