APPENDIX E

CULTURAL RESOURCES ASSESSMENT AND PALEONTOLOGICAL RESOURCES ASSESSMENT

PHASE I CULTURAL RESOURCES ASSESSMENT FOR THE ELYSIAN RESERVOIR WATER QUALITY IMPROVEMENT PROJECT CITY OF LOS ANGELES, CALIFORNIA

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EXECUTIVE SUMMARY

The City of Los Angeles Department of Water and Power (LADWP) is proposing to replace the uncovered Elysian Reservoir with a new buried concrete-covered reservoir (Project). The Project is being undertaken by the LADWP in order to ensure compliance with updated United States Environmental Protection Agency (EPA) water quality standards. The new buried concrete-covered reservoir would be sited essentially within the confines of the existing reservoir footprint. The new buried concrete-covered reservoir would provide an equal amount of potable water storage (55 million gallons [MG]) as is available in the existing reservoir. A shallow wildlife pond of not less than 0.5-acres in size would also be created to the north of the tank location. After completion of Project construction, the site would be open to the public as part of Elysian Park. Other than facilities related to water storage and transmission, the new recreation area would be maintained and operated by the Los Angeles Department of Recreation and Parks (LADRP).

Archival research for this Project was conducted by Timothy Harris, B.A., on August 25, 2008 at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The records search revealed that a total of 16 cultural resource investigations were previously conducted within ½-mile radius of the Project area. A total of three cultural resources were previously recorded within the ½-mile records search study area. The three resources include two historic structures and one historic archaeological refuse deposit. No cultural resources have been previously recorded within the Project area itself.

A letter requesting a Sacred Lands File (SLF) check was conducted by the Native American Heritage Commission (NAHC). The response from the NAHC indicated "the presence of Native American cultural resources in the immediate Project area." Given the results of the search, the NAHC suggested that a designated representative of the *Gabrielino-Tongva* tribe be contacted for further information.

A cultural resources field survey was conducted on September 22, 2008 and August 13, 2010. Areas surveyed were those determined to be potentially impacted by the Project. Aside from the historic-era Elysian Reservoir itself, no other cultural resources were recorded during the survey.

Elysian Reservoir was evaluated for its eligibility to the California Register of Historical Resources (CRHR). The reservoir was found not to be eligible under any of the CRHR criteria.

Because the Project would be constructed in an area known to be inhabited by Native American Indians prehistorically and experienced usage associated with water conveyance systems during the historic-era, it is likely that prehistoric and/or historic archaeological resources may be present within the Project area. Such resources may lie beneath the surface obscured by pavement, vegetation, or the reservoir itself. Because the potential to encounter archaeological resources exists for this Project, archaeological and Native American monitoring is recommended during all ground disturbing activities.

INTRODUCTION

This document reports a Phase I cultural resources assessment in connection with the Elysian Reservoir Water Quality Improvement Project (Project). The City of Los Angeles Department of Water and Power (LADWP) proposes to replace the uncovered Elysian Reservoir with a new buried concrete-covered reservoir. The Project site is located 1.5 miles north of downtown Los Angeles within Elysian Park (Figure 1). The Project is being undertaken by LADWP in order to ensure compliance with updated United States Environmental Protection Agency (EPA) water quality standards. This survey and assessment was conducted under the California Environmental Quality Act (CEQA).

PROJECT PERSONNEL

AECOM personnel involved in the cultural resources assessment are as follows: Sara Dietler, B.A., report author, surveyor and project manager; Angel Tomes, M.A., architectural historian and report author; Frank Humphries, B.A., archaeological surveyor; and Tim Harris, B.A., archaeological surveyor, graphics and GIS specialist. Resumes of key personnel are included in Appendix A.

REPORT ORGANIZATION

This report is organized following the *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format* guidelines, Department of Parks and Recreation, Office of Historic Preservation, State of California, 1990. These guidelines provide a standardized format and suggested report content, scaled to the size of the Project. First, a Project description, including Project location and setting, proposed work, and construction phasing is provided. Next, the environmental and cultural settings are presented along with a detailed historic overview of the Project area. A description of the archival and field survey research methods follows. The final section summarizes the results of the research and provides recommendations for resource eligibility and further work.

Source: California Geospatial Information Library (2003-5)

N

0 3 6 12 18 24 Miles

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Figure 1
Regional Location Map

PROJECT DESCRIPTION

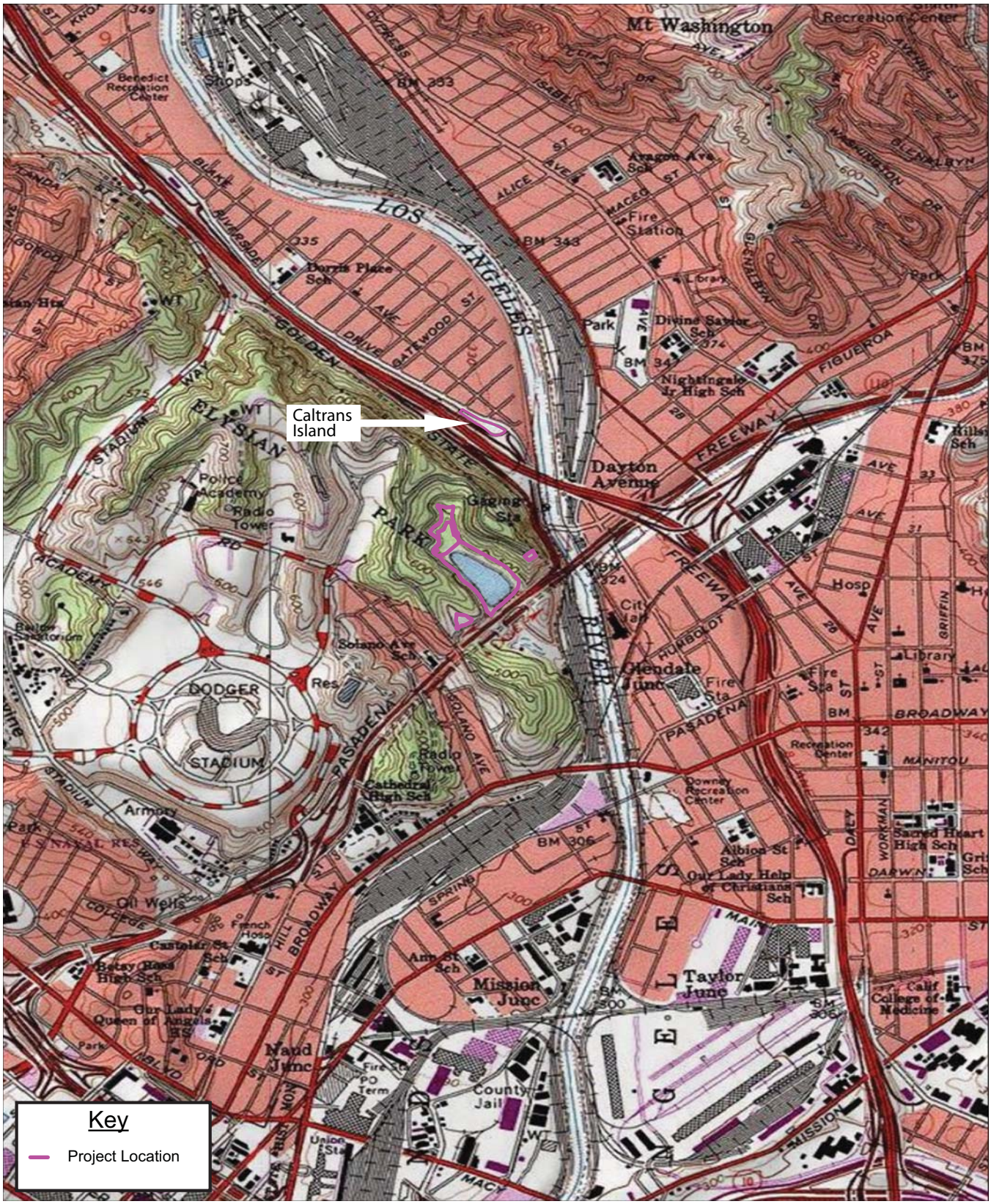
PROJECT LOCATION AND SETTING

Elysian Reservoir is located approximately 1.5 miles north of downtown Los Angeles (Figure 2). The Elysian Reservoir property is owned by the City of Los Angeles and operated and maintained by the LADWP. The Project area for the purposes of this cultural resources assessment includes the Elysian Reservoir footprint, the road circumscribing the reservoir, a portion of the undeveloped area on the northwest end of the reservoir, but below Grand View Drive, the picnic grounds north of Grand View Drive between Park Row Drive and the reservoir, a truck turnaround area would be provided at Point Grand View, northeast of the reservoir, and an inlet pipe alignment connecting the reservoir to a Caltrans island adjacent to Riverside Drive, and the Caltrans island itself (Figure 3 and 4).

The reservoir is surrounded by Elysian Park. Elysian Park is also owned by the City of Los Angeles, and is operated and maintained by City of Los Angeles Department of Recreation and Parks (LADRP). Elysian Park is the oldest and second largest park in the City. The reservoir itself lies northwest of and immediately adjacent to the Pasadena Freeway (State Route [SR] 110), between Dodger Stadium to the southwest and the Golden State Freeway (Interstate [I] 5) to the northeast. Elysian Reservoir is accessed from Grand View Drive, which is located within the interior of Elysian Park.

Elysian Reservoir operates with a storage capacity of 55 million gallons (MG). It has a maximum depth of 50 feet, a high water elevation of 462 feet, and a surface area of approximately 6 acres at the high water elevation. The reservoir is approximately 900 feet long and approximately 400 feet wide at the maximum width near the dam at the southern end, tapering to approximately 170 feet wide near the inlet at the northern end. The bottom and sides of the reservoir are paved with asphaltic concrete. A concrete parapet wall (approximately 1.5 to 3.0 feet in height) is located several feet outside the upper edge of the reservoir side walls. The parapet wall is topped with a 7-foot tall chain link fence that encloses the entire reservoir. An approximately 12- to 16-foot wide paved road is located around the perimeter of the reservoir. The remainder of the surrounding 14-acre reservoir property is vegetated. The property is currently segregated from Elysian Park by a second chain link fence.

Elysian Park is an approximately 585-acre regional park within the Santa Monica Mountains Zone. Elysian Park itself is designated as Open Space. Land uses in the vicinity of the Elysian Park are primarily devoted to single- and multi-family residential uses, with some small-scale commercial uses. Nearby Dodger Stadium, is also designated Open Space. In addition to the Elysian Reservoir and Dodger Stadium, also located within in the park is the Los Angeles Police Academy, a U.S. Naval reserve armory, and two radio towers.



Source: California Geospatial Information Library (2003-5)

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Figure 2
Project Location Map

Source: Globexplorer 2007

N

0 300 600 900 Feet

AECOM

Figure 3
Project Area Map 1

Cultural Resources Assessment for the Elysian Reservoir Improvement Project

P:\2008\0812158ElysianResEIR\Graphics\Illustrator\Elysian 2010\Cultural\PDFs (T.Harris) 10/20/10

Source: Globexplorer 2007

N

0 400 800 1,200 Feet

AECOM

Figure 4
Project Area Map 2

PROPOSED PROJECT WORK

The primary goal of the Project is to improve the quality, reliability, and stability of the Elysian Reservoir service area drinking water supply. The Project will allow the reservoir continue to meet existing demand in the service area, while, enhancing the open space and recreation opportunities in Elysian Park. Specific objectives related to this goal are to:

- Comply with recent revisions to water quality standards enacted by the EPA and, by extension, the California Department of Public Health, including the Stage 2 Disinfectants and Disinfection Byproducts Rule (D-DBPR), which establishes new regulations related to the formation of potentially carcinogenic disinfection byproducts that may result from certain drinking water chemical disinfection processes, and the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), which establishes new regulations related to the presence of microbial pathogens in drinking water supplies.

- Preserve local water storage capability to maintain reliability and flexibility to meet existing reservoir service area demand for drinking water at required distribution system pressures, including during emergency or planned outages of upstream supplies.

A secondary objective of the proposed project is to provide a publicly accessible recreation area at the Elysian Reservoir property.

To accomplish the objectives of the proposed Project, the open-surface Elysian Reservoir would be replaced with a new buried concrete-covered reservoir. The buried concrete-covered reservoir would be slightly smaller than and contained within the footprint of the existing reservoir, but because the side slopes and bottom would be reshaped to accommodate the required sub-grade drainage system, the total storage volume of the proposed reservoir would remain approximately the same as the existing reservoir (55 MG).

In addition to the buried reservoir itself, a new 54-inch diameter water supply bypass line would also be constructed to replace the existing 67-year-old 36-inch bypass line (Figure 4), which is located under the east side of the existing reservoir. Similar to the existing line, the new bypass line would provide the capability to divert water from upstream supply lines around the reservoir when necessary. However, in addition to replacing an aging supply line, the new bypass line would provide greater capacity and would be located to the west of the reservoir, which would not only allow for unimpeded water supply operations during the reservoir construction but would also provide greater accessibility to the line after construction was complete.

The proposed buried reservoir would be covered with a maximum of 3 feet of topsoil, and the property would be developed in accordance with a recreation plan prepared by LADRP. The recreation facilities may include up to three soccer fields; a skate plaza; playground; perimeter walking/jogging path with exercise stations; recreation

building(s) housing restrooms, concession areas, offices, and equipment storage areas; and a maintenance storage yard; and the associated parking area. These elements would involve about 6 to 8 acres and would be contained within the existing reservoir property. Hard-surface roads to provide access for heavy equipment to the reservoir for maintenance and operations purposes would also need to be provided. A shallow, not less than 0.5-acre wildlife pond would also be constructed at the north end of the Elysian Reservoir property.

In addition to the reservoir elements and the recreation improvements above the reservoir, a new 54-inch diameter underground inlet line connecting the buried reservoir to the existing Riverside Trunk Line adjacent to Riverside Drive would be constructed to replace the existing 67-year-old 36-inch inlet line. This new inlet line would provide improved distribution system capability, which would otherwise be limited based on the diameter of the existing inlet line. The primary site for the inlet line construction would be located within the Caltrans island adjacent to the on-ramp to the northbound I-5, along the west side of Riverside Drive, roughly between Barclay Street and Duvall Street. Construction of the new inlet line would proceed essentially independently of construction of the reservoir itself (which includes the new bypass line), occurring concurrently with the first two years of the reservoir construction.

RESERVOIR CONSTRUCTION

Construction of the proposed buried reservoir, including the active recreation area, would take approximately 5.5 years to complete. Because of the size and configuration of the reservoir property in relation to the footprint of the existing Elysian Reservoir and proposed buried reservoir, certain construction activities would be required to be conducted outside the reservoir property boundaries and within adjacent areas of Elysian Park. The canyon north of the reservoir, but below Grand View Drive, would be used to temporarily stockpile earth material excavated from the reservoir site until the material was needed to backfill around the completed reservoir. As the only relatively flat area near the reservoir site, the existing picnic grounds north of Grand View Drive between Park Row Drive and the reservoir would be used as a construction staging area, including for temporary offices and other support facilities, equipment, and construction materials laydown.

Throughout construction, Grand View Drive would be completely closed to ensure public safety and to provide truck access and maneuvering, worker parking, and limited material and equipment staging areas. This road segment essentially surrounds the reservoir. It is located outside the reservoir property but entirely within the boundaries of Elysian Park. Because of restrictions related to loads on certain roads and bridges and to minimize impacts to local neighborhoods, the proposed truck delivery and haul route in the vicinity of the reservoir remains largely within the confines of Elysian Park. The inbound route would proceed from the Stadium Way exit from I-5, south along Stadium Way, east (left) on Academy Road (to the Dodger Stadium Gate), north (left) on Academy Road, north (left) on Solano Canyon Drive, south (right) on Park Row Drive to Park Row Street, and east (left) on Grand View Drive to the project site. Outbound traffic would follow the same route in reverse (see Figure 2-7).

During certain periods of construction involving truck deliveries to and hauling from the site, parking restrictions would be required along Solano Canyon Drive, Park Row Drive, and Park Row Street to allow for the safe passage of trucks. Parking along the west side of Park Row Street in front of existing residences near the Grand View Drive entry to the reservoir would be maintained; however, a flag person may be required in this segment to facilitate the safe passage of vehicles. Closures of park roads other than Grand View Drive may also be required during certain periods.

Construction of the buried reservoir would consist of several tasks, including mobilization; construction of the new bypass line; demolition of the existing reservoir; excavation and reshaping of the reservoir sides and bottom; construction of the concrete perimeter retaining walls and interior shear walls; installation of the concrete liner; construction of the concrete roof columns and roof; backfilling around and above the reservoir; and construction of the recreation facility above the new structure. Each of these tasks would require truck deliveries and/or haul trips and the operation of heavy equipment, including cranes, excavators, loaders, graders, dozers, and various types of trucks.

PHASE 1: MOBILIZATION, BYPASS LINE CONSTRUCTION & ACTIVATION, AND RESERVOIR DEMOLITION (16 MONTHS)

The first phase of reservoir construction would consist of mobilizing for construction, constructing and activating the new reservoir bypass line, draining Elysian Reservoir, and demolishing the existing reservoir and appurtenant facilities. This phase would require approximately 16 months to complete.

Mobilization would entail widening and stabilizing existing on-site roads as necessary for truck access during construction, clearing and preparing construction materials laydown areas and vehicle and equipment parking areas, erecting temporary offices and other support facilities, and establishing temporary electrical power connections. Improvements to Grand View Drive at the intersection with Park Row Street would be required to facilitate outbound truck traffic from the reservoir site. This may include both grading and widening the road at the intersection. The trimming of some existing trees along Grand View Drive would be necessary to allow for truck passage. A truck turnaround area would be provided at Point Grand View, northeast of the reservoir. This may require the removal of the parking island, including several palm trees, during construction to provide an adequate turning radius for trucks. However, it would eliminate the requirement to provide a turnaround elsewhere along Grand View Drive, which would require cutting and filling areas adjacent to the road. The parking island, including the trees, would be restored after construction. As discussed above, the laydown area would be located inside Elysian Park, but outside the reservoir property boundary in the existing picnic grounds located north of Grand View Drive between Park Row Drive and the reservoir. This area would provide approximately 1 acre of relatively flat ground for construction staging. In order to provide a functional area for storage and maneuvering, most of the existing trees in the picnic area may need to be removed. The area would be

restored in accordance with LADRP requirements after completion of the project. The mobilization task would take approximately 1 month.

To minimize disruptions to the Elysian Reservoir service area water distribution system, the construction of the new bypass line would be substantially completed prior to the removal of the existing bypass from service. The bypass line construction would entail the excavation of several vertical shafts and interconnecting tunnels that would route the line around Elysian Reservoir to the west, linking the existing reservoir inlet line (northeast of the reservoir) and outlet line (at the southern end of the reservoir). The excavation of the shafts and tunnels would create approximately 5,000 CY of material, which would be hauled off site. Once the new bypass line is functioning, the existing bypass line would be abandoned in place.

Draining the reservoir would initially be accomplished by normal consumption through the drinking water distribution system until the water level reached the lower limit of the normal operating range of the reservoir. Below this elevation, water would be pumped out of the reservoir to be used for irrigation and/or drained into the storm water system. To maintain the stability of the earth dam located at the southern end of the reservoir, the rate at which the water level would be lowered would be carefully controlled. At the controlled rate, the existing storm water facilities are adequately sized to accommodate the reservoir draining. After the water reaches the lower limit of the normal operating range, it would take approximately 2 weeks to drain the remaining water from the reservoir and an additional 2 to 3 weeks for the reservoir to dry out.

Demolition of the existing reservoir would include the removal of the reservoir's existing asphalt liner; the inlet structure and portions of the inlet line; the outlet tower and portions of the outlet lines; and the surrounding parapet wall and fence. In addition, numerous sub-grade concrete caisson foundations that were constructed within the reservoir to support a previously proposed but never completed aluminum cover would need to be removed to accommodate the proposed buried reservoir structure.

PHASE 2: RESERVOIR ROUGH SHAPING, RETAINING WALL EXCAVATION, SUB-GRADE EXCAVATION AND PREPARATION, AND NEW INLET AND OUTLET STRUCTURES (19 MONTHS)

The second phase of reservoir construction would involve the reservoir bottom rough shaping and excavating and preparing the sub-grade below the reservoir to adequately support the load of the concrete roof system and the soil cover. A new inlet structure and outlet structure for the reservoir would also be constructed during this phase. The entire phase would require approximately 19 months to complete.

In order for the sub-drain system installed beneath the reservoir to function properly, the bottom of the reservoir could not exceed a slope of five horizontal units to each vertical unit (5h:1v). This would require reshaping the outer portions of the existing reservoir bottom, which currently slope at approximately 2h:1v (over twice the maximum slope required for the sub-drain system to function properly). The reshaping of the reservoir bottom

would create approximately 93,500 CY of excavated material, which would be placed in the stockpile area north of the reservoir until used during later phases of reservoir construction. The temporary stockpile area would be approximately 3-acres in size and would need to be cleared and properly engineered to stabilize slopes and provide for appropriate drainage. The stockpile would be protected throughout project construction by stabilizing exposed areas and providing barriers to minimize runoff, erosion, and sedimentation. The reservoir rough shaping task would actually be initiated during the final month of Phase 1 and would require a total of approximately 9 months to complete.

Approximately 29,000 CY of material would also be excavated to allow space for the construction of the reservoir perimeter retaining walls during Phase 3 of construction. This material would also be placed in the stockpile area until used during later phases of reservoir construction. This excavation task would require approximately 6 months to complete.

Elysian Reservoir rests on soil layers above bedrock, which are incapable of adequately supporting the proposed buried reservoir. Preparation of the sub-grade would include excavating these soil layers, mixing the excavated soil with cement, and placing the soil-cement mixture in the previously excavated areas to provide a structurally sound base for the new reservoir. This task would entail excavating, mixing, and returning approximately 44,500 CY of soil. This activity would occur entirely within the existing reservoir footprint, except for approximately 6,000 CY of unusable material, which would be placed in the stockpile area. In addition, approximately 60,000 CY of the excavated material previously placed in the stockpile area during rough shaping would be returned to the site to build up the reservoir bottom at the south end, where the new retaining wall would be functionally integrated with the existing earth dam. This fill material would also be mixed with cement to provide a solid base for the buried reservoir. The sub-grade preparation task would require approximately 5 months to complete. Approximately 500 truck trips would be required over that period to deliver the dry cement to the Elysian Reservoir site. This method of reinforcing the sub-grade eliminates the requirement to construct an extensive foundation system of drilled caissons to support the concrete roof and soil cover.

PHASE 3: CONCRETE RESERVOIR AND SUB-DRAIN SYSTEM CONSTRUCTION (14 MONTHS)

The third phase of the project would involve the construction of the new concrete reservoir, including the perimeter retaining walls and interior shear walls, liner and sub-drain system, and column and roof assembly (see Figures 2-8 and 2-9). The entire phase would require approximately 14 months to complete.

Because the elevation of the outer portions of the bottom of the reservoir would be lowered during Phase 2 to allow for proper operation of the sub-drain system, new concrete retaining walls ranging from approximately 15 to 30 feet in height would be required around the entire perimeter of the reservoir to retain the water. These walls would generally follow a horizontal alignment along the upper edge of the existing reservoir. However, at the

southern end of the reservoir, where the retaining wall would be functionally integrated with the existing earth dam, it would be located approximately 135 feet inward from the upper edge (top of dam) of the existing reservoir based on preliminary plans. (The area between the new retaining wall and the existing dam would be backfilled with soil during Phase 4 of construction.) Although this configuration of the retaining walls would reduce the overall footprint of the reservoir, the storage volume of the new structure would remain approximately 55 MG. This is because the reservoir sides and bottom would have been reshaped during Phase 2 to permit the sub-drain system to function properly. This configuration would allow for a greater balancing of cut and fill material on site than would be possible if the wall were located closer to the top of the existing dam.

In addition to the perimeter retaining walls, a series of shear walls would be constructed in the interior of the reservoir to help support the load of the concrete roof and soil cover and to resist inertial loads that may be created by seismic events. To adequately provide the structural support for the buried reservoir, the retaining and shear walls would be a minimum of 24-inch thick reinforced concrete.

To help adequately support loads and prevent seepage, the liner of the buried reservoir would be 7.5-inch thick reinforced impermeable concrete. The liner would be constructed in 25-foot by 25-foot sections, with all joints between sections sealed with water-stop elements. Prior to constructing the liner, a sub-drain system consisting of multi-branched drain lines set within a 12-inch thick gravel bed would be installed beneath the entire reservoir.

In addition to the perimeter and shear walls, an extensive system of columns would be required to support the roof and soil cover. The columns would be set in a grid pattern at 25 feet on-center within the reservoir. They would be cylindrical 2-foot diameter reinforced concrete, with a spread footing integrated into the reservoir liner and a concrete cap to support the roof. The roof would be 12-inch thick reinforced concrete constructed in 25-foot by 25-foot sections, centered over individual columns and with all joints between sections sealed with water-stop elements.

During Phase 3, excavated material that would be unsuitable for use as compacted fill related to various purposes in the reservoir construction would be hauled off site. It is estimated that approximately 15 percent of all the material excavated during the various construction tasks would be unusable rock rubble.

PHASE 4: BACKFILLING AND COVERING THE CONCRETE RESERVOIR (2 MONTHS)

The fourth phase of construction would consist of backfilling behind the retaining walls, including the area between the wall at the south end of the reservoir and the existing earth dam. This phase would also include covering the reservoir with topsoil. It would require 2 months to complete.

A portion of the soil placed in the on-site stockpile (approximately 60,000 CY) would have been previously used during Phase 2 to build up the reservoir bottom below the south end retaining wall and another portion

(approximately 23,500 CY) would have been hauled off site during Phase 3 as material unusable for compacted fill. The balance of the on-site stockpile material (approximately 39,000 CY) would be used to backfill behind the retaining walls of the new reservoir. In addition, approximately 18,500 CY of imported material would be required to complete the backfilling, including the area between the new concrete retaining wall at the south end of the reservoir and the earth dam of the existing Elysian Reservoir. The approximately 0.5-acre wildlife pond would also be constructed north of the reservoir during this phase. It would include a pump and filter system to maintain the water quality.

PHASE 5: RECREATION IMPROVEMENTS (12 MONTHS)

The final phase of the proposed project would involve the construction of the recreation facility and the restoration of areas within Elysian Park that were disturbed by project construction. Several conditions related to the reservoir property and the proposed drinking water storage facilities represent limiting factors related to recreation facility development. First, to avoid extensive grading of the hillsides surrounding the reservoir, which could require the construction of retaining walls and create permanent impacts to the existing park roads, recreation development would be limited to the level area that would exist after completion of the buried reservoir construction. This area is generally trapezoidal, approximately 500 feet along the southern edge, 200 feet along the northern edge, and 1,000 feet in length (along a north-south axis). The geometry and dimensions of this area may limit the space available for larger-scale elements, such as soccer fields. About 6 to 8 acres would be available for recreation purposes, including all parking and support elements.

INLET LINE CONSTRUCTION

The new inlet line construction would involve boring an approximately 2,300-foot long tunnel between the Riverside Trunk Line and a site just north of Elysian Reservoir, where the inlet line would connect to the reservoir bypass line at one of the vertical shafts previously established during the bypass line construction. From this point, the inlet line would also be connected to the new buried reservoir inlet structure (see Figure 4). The construction of the inlet line would take 25 months to complete, and, as discussed above, would occur concurrently with Phase 1 and the initial part Phase 2 of the reservoir construction.

The inlet line construction could occur concurrently with the reservoir construction because the two construction sites are physically separated. Nearly all construction activity related to the new inlet line would take place within the Caltrans island adjacent to the west side of Riverside Drive between the freeway on- and off-ramps opposite Duvall Street and Barclay Street, approximately 1,700 feet northwest of Elysian Reservoir and separated from the reservoir by I-5 and the ridgeline that forms the eastern boundary of the ravine in which Elysian Reservoir is located. The inlet line would be installed by means of tunneling, a construction technique in which a tunnel is excavated utilizing a boring machine or similar equipment, excess earth material is removed, and steel or concrete

tunnel liners or supports are installed and grouted in-place to secure the excavated opening. Once the tunnel is completed, the inlet pipe itself is installed in segments, welded together, and placed in the tunnel. The installation is completed by grouting the space between the pipe and tunnel liner. This type of construction requires a pit from which to launch the boring machine and install the pipe sections. The pit also serves as the receiving area for the earth material excavated from the tunnel. In relation to the length of the Elysian Reservoir inlet line (2,300 feet), pipe tunneling would be the least intrusive method of construction, requiring no trenching or other surface openings other than the launching pit, which would eliminate disruption of traffic on I-5 and the transition roads between I-5 and SR-110. Although the inlet line tunnel would be located primarily within the boundaries of Elysian Park, pipe tunneling would avoid impacts to Elysian Park, since it would be completely subterranean.

The final task of work would take approximately 2 months and would consist of demobilizing and restoring the Caltrans island. Once the inlet line was completed, the existing inlet line would be removed from service, and water would be supplied to the new bypass line through the new inlet line.

PROJECT SETTING

ENVIRONMENTAL SETTING

The Project is located above the relatively flat western Los Angeles Basin in the Elysian Hills. The basin is formed by the Santa Monica Mountains to the northwest, the San Gabriel Mountains to the north, and the San Bernardino and San Jacinto Mountains to the east. The basin was formed by alluvial and fluvial deposits derived from these surrounding mountains. The floodplain forest of the Los Angeles Basin formed one of the most biologically rich habitats in Southern California. Willow, cottonwood and sycamore, and a dense underbrush of alder, hackberry, and shrubs once lined the Los Angeles River as it passed near present-day downtown Los Angeles. Although historically most of the Los Angeles River was dry for at least part of the year, shallow bedrock in the Elysian Park area forced much of the river's underground water to the surface. This allowed for a steady year-round flow of water through the area that later became known as downtown Los Angeles (Gumprecht 1999).

Elysian Park is located amongst a series of low hills reaching a maximum elevation of approximately 650 feet above sea level. The Los Angeles River is located to the east approximately 1,000 feet from the Project area, and flows in a southerly direction along the east side of the hills. Vegetation within Elysian Park is largely composed of nonnative ornamental plant species, although stands of native vegetation still exist in some areas.

CULTURAL SETTING

As a framework for discussing the potential cultural resources expected during the cultural resources investigation for this Project, the following discussion summarizes our current understanding of major prehistoric and historic developments in and around Los Angeles. This is followed by a more focused discussion of the history of the Project area itself.

PREHISTORIC OVERVIEW

The earliest evidence of occupation in the Los Angeles area dates to at least 9,000 years before present (B.P.) and is associated with a period known as the Millingstone Cultural Horizon (Wallace 1955; Warren 1968). Departing from the subsistence strategies of their nomadic big-game hunting predecessors, Millingstone populations established more permanent settlements. These settlements were located primarily on the coast and in the vicinity of estuaries, lagoons, lakes, streams and marshes where a variety of resources including seeds, fish, shellfish, small mammals, and birds were exploited. Early Millingstone occupations are typically identified by the presence of handstones (manos) and millingstones (metates), while those Millingstone occupations dating later than 5,000 years B.P. contain a mortar and pestle complex as well, signifying the exploitation of acorns in the region.

Although many aspects of Millingstone culture persisted, by 3,500 years B.P. a number of socioeconomic changes occurred (Erlandson 1994; Wallace 1955; Warren 1968). These changes are associated with the period known as the Intermediate Horizon (Wallace 1955). Increased populations in the region necessitated the intensification of existing terrestrial and marine resources (Erlandson 1994). This was accomplished in part through the use of the circular shell fishhook on the coast and more abundant and diverse hunting equipment. Evidence for shifts in settlement patterns has been noted at a variety of locations at this time and is seen by many researchers as reflecting increasingly territorial and sedentary populations. The Intermediate Horizon marks a period in which specialization in labor emerged, trading networks became an increasingly important means by which both utilitarian and non-utilitarian materials were acquired, and travel routes were extended. Archaeological evidence suggests that the margins of numerous rivers, marshes, and swamps within the Los Angeles River Drainage served as ideal locations for prehistoric settlement during this period. These well-watered areas contained a rich collection of resources and are likely to have been among the more heavily trafficked travel routes.

The Late Prehistoric period, spanning from approximately 1,500 years B.P. to the mission era, is the period associated with the florescence of the contemporary Native American group known as the *Gabrielino* (Wallace 1955). Coming ashore near Malibu Lagoon or Mugu Lagoon in October of 1542, *Juan Rodriguez Cabrillo* was the first European to make contact with the *Gabrielino* Indians. Occupying the southern Channel Islands and adjacent mainland areas of Los Angeles and Orange counties, the *Gabrielino* are reported to have been second only to their Chumash neighbors in terms of population size, regional influence, and degree of sedentism (Bean and Smith 1978). The *Gabrielino* are estimated to have numbered around 5,000 in the pre-contact period (Kroeber 1925) and maps produced by early explorers indicate that at least twenty-six *Gabrielino* villages were within close proximity to known Los Angeles River courses, while an additional eighteen villages were within reasonably close proximity to the river (Gumprecht 1999). Subsistence consisted of hunting, fishing, and gathering. Small terrestrial game were hunted with deadfalls, rabbit drives, and by burning undergrowth, while larger game such as deer were hunted using bows and arrows. Fish were taken by hook and line, nets, traps, spears, and poison (Bean and Smith 1978; Reid 1939 [1852]). The primary plant resources were the acorn, gathered in the fall and processed in mortars and pestles, and various seeds that were harvested in late spring and summer and ground with manos and metates. The seeds included chia and other sages, various grasses, and islay or holly leafed-cherry (Reid 1939 [1852]).

HISTORIC OVERVIEW

The *Gabrielino* were virtually ignored between the time of *Cabrillo's* visit and the Spanish Period, which began in 1769 when *Gaspar de Portola* and a small Spanish contingent began their exploratory journey along the California coast from San Diego to Monterey. Passing through the Los Angeles area, they reached the San Gabriel Valley on August 2nd and traveled west through a pass between two hills where they encountered the Los Angeles

River and camped on its east bank near the present-day North Broadway Bridge and the entrance to Elysian Park. This location has been designated California Historic Landmark Number 655, the Portola Trail Campsite, and is located approximately ½-mile to the southeast of the Project area. Father *Crespi's* diaries indicate that on that day they "entered a spacious valley, well grown with cottonwoods and alders, among which ran a beautiful river. This plain where the river runs is very extensive and…is the most suitable site for a large settlement" (The River Project 2001). He goes on to describe this "green, lush valley", its "very full flowing, wide river", the "riot of color" in the hills, and the abundance of native grapevines, wild roses, grizzly, antelope, quail and steelhead trout. *Crespi* observed that the soil was rich and "capable of supporting every kind of grain and fruit which may be planted." The river was named *El Rio y Valle de Nuestra Senora la Reina de Los Angeles de la Porciuncula*.

Gabrielino villages are reported by early explorers to have been most abundant near the Los Angeles River, in the area north of downtown, known as the Glendale Narrows, and those areas along the rivers various outlets into the sea. Among those villages north of downtown are *Maawnga* in the Glendale Narrows; *Totongna* and *Kawengna,* in the San Fernando Valley; *Hahamongna*, northeast of Glendale; and the village of *Yangna*, under present day downtown Los Angeles.

The exact location of *Yangna*, within downtown Los Angeles continues to be debated, although some believe it to have been located under the present-day Civic Center (McCawley 1996). Other proposed locations are near the present day Union Station (Chartkoff and Chartkoff 1972:64), to the south of the old Spanish Plaza, and near the original site of the Bella Union Hotel located on the 300 Block of North Main Street (Robinson 1963:83, as cited in Dillon 1994:30). Dillon (1994:30) hypothesizes that the Union Station location is an unlikely spot for a large village or habitation, as it lies within the annual Los Angeles River flood zone. Local sources such as the Echo Park Historical Society, report that when *Gaspar de Portola* and Father *Juan Crespi* camped on the river bank opposite the North Broadway Bridge entrance to Elysian Park, they were served refreshment by *Yangna* Indian villagers from the current location of the Los Angeles Police Academy (Echo Park Historical Society 2008). The Los Angeles Police Academy is located in the northern portion of Elysian Park, which is not a possible location for the Native American Village of *Yangna*. It is possible however, that the local histories are actually referring to the village of *Maawnga* which was reported to have been originally located within the *Rancho de los Felis*. This rancho originally encompassed Griffith Park and extended south to the northern portion of Elysian Park. The village of *Maawnga*, also recorded as *Maungna*, is believed to have been located "high on a bluff overlooking Glendale Narrows in the hills now occupied by Elysian Park" (Gumprecht 1999:31).

Missions were established in the years that followed the *Portola* expedition, the fourth being the *Mission San Gabriel Arcangel* founded in 1771 near the present-day city of Montebello, approximately 7.5 miles east of the Project area. By the early 1800s, the majority of the surviving *Gabrielino* population had entered the mission system. The *Gabrielino* inhabiting Los Angeles County were under the jurisdiction of either *Mission San Gabriel*

or *Mission San Fernando*. Mission life offered the Indians security in a time when their traditional trade and political alliances were failing and epidemics and subsistence instabilities were increasing (Jackson 1999).

On September 4, 1781, twelve years after *Crespi's* initial visit, the *El Pueblo de la Reina de los Angeles* was established not far from the site where *Portola* and his men camped. Watered by the river's ample flow and the areas rich soils, the original pueblo occupied 28 square miles and consisted of a central square, surrounded by twelve houses, and a series of 36 agricultural fields occupying 250 acres, plotted to the east between the town and the river (Gumprecht 1999).

An irrigation system that would carry water from the river to the fields and the pueblo was the communities' first priority and was constructed almost immediately. The main irrigation ditch, or *Zanja Madre*, was completed by the end of October 1781. It was constructed in the area of present-day Elysian Park, and carried water south (roughly parallel to what is presently Spring Street) to the agricultural lands situated just east of the pueblo (Gumprecht 1999).

By 1786, the flourishing pueblo attained self-sufficiency and funding by the Spanish government ceased (Gumprecht 1999). Fed by a steady supply of water and an expanding irrigation system, agriculture and ranching grew, and by the early 1800s the pueblo produced 47 cultigens. Among the most popular were grapes used for the production of wine (Gumprect 1999). Vineyards blanketed the landscape between present-day San Pedro Street and the river. By 1830 an estimated 100,000 vines were being cultivated at twenty-six Los Angeles vineyards. Over 8,300 acres of land were being irrigated by the *zanjas* during the 1880s (Gumprecht 1999).

When the Southern Pacific Railroad extended its line from San Francisco to Los Angeles in 1876, newcomers poured into Los Angeles and the population nearly doubled between 1870 and 1880. The completion of the second transcontinental line, the Santa Fe, took place in 1886 causing a fare war which drove fares to an unprecedented low. More settlers continued to head west and the demand for real estate skyrocketed. As real estate prices soared, land that had been farmed for decades outlived its agricultural value and was sold to become residential communities. The subdivision of the large ranchos took place during this time. The city's population rose from 11,000 in 1880 to 50,000 by 1890 (Meyer 1981:45).

As a result of growing population and the increasing diversion of water, the once plentiful water supply provided by the Los Angeles River began to dwindle. The once extensive flood plain dried up, the abundant lushly forested landscape had been cleared for construction materials and fuel, and the tens of thousands of head of cattle, horses, and sheep owned by ranchers had decimated the local grasses (Gumprecht 1999). A number of waterworks projects were underway during the second half of the 19th century in an effort to increase water flow and water retention. Projects included the construction of the Buena Vista Reservoir (within present-day Elysian Park, near the Project area), the Silverlake Reservoir, and the further expansion of the *Zanja Madre* irrigation ditches.

ELYSIAN PARK HISTORIC SETTING

The following section provides a historical setting for the Elysian Park area. A portion of this context was taken, with modifications, from *Water Conveyance Systems in California* (JRP Historical Consulting 2000).

ELYSIAN PARK HISTORY

In 1781, the Pueblo of Los Angeles was officially established along the Los Angeles River. The original Pueblo consisted of a public land grant which included four square leagues, or 28 square miles (Gumprect 1999). In 1883, city officials decided to create Elysian Park on a 746-acre piece of land west of the river (Gumprect 1999) within a hill area known as the Rock Quarry Hills (Echo Park Historical Society 2008). The Rock Quarry Hills area was beyond the reach of the *zanjas* and the city's domestic water supply system, and as such, the land was worthless. At the time, land was valued based on the available water supply, not on the land itself (Gumprecht 1999:78). Reduced from its original size, Elysian Park currently covers approximately 575-acres, second only in size to Griffith Park. Elysian Park is the last remaining large piece of the original Pueblo of Los Angeles public land grant (Echo Park Historical Society 2008).

In 1893 the Los Angeles Horticultural Society established the arboretum, as well as botanical gardens within the park. In 1967, the Chavez Ravine Arboretum was declared Los Angeles City Historical-Cultural Monument No. 48. The Avenue of the Palms was planted on what is now Stadium Way, with a rare specimen of wild date palms in 1895 (Echo Park Historical Society 2008).

The Citizens Committee to Save Elysian Park (CCSEP) was formed in 1965 in an attempt to thwart plans to develop the park. Prior to CCSEP's founding, the Pasadena Freeway split the park, Dodger Stadium had been constructed within portions of the park, and several other developments including the reservoir system were constructed. The CCSEP is still active and has continued to stop development and preserve the Elysian Park lands as open space (Jamison 2008).

CALIFORNIA WATER HISTORY

Water – too much, or too little, has shaped much of California's history. Rain falls unevenly and seasonally over the length of the state, and all too often California faces prolonged drought or flood cycles. The state has a generally Mediterranean climate, with little rain falling through the summer months. Although the amount of available water varies enormously from northern redwood regions of heavy rainfall to dry southern deserts, California as a whole is considered semi-arid, and much of the state relies on winter snow in the mountains to provide spring and summer runoff to water the valleys below.

The effects of the erratic water distribution are magnified by the eccentric placement of population centers. Traditionally, cities and towns are developed from agricultural beginnings located adjacent to water sources.

California, however, developed abruptly during the Gold Rush. Instead of following a gradual growth pattern along waterways based on traditional practices of agriculture, California became suddenly urban, with cities preceding farms.

During the Gold Rush and the years that followed, California rarely let planning for long term water needs interfere with current enterprises, and many decisions were made without regard for an adequate supply of water. People set up businesses in locations that suited them in other ways. Cities were built along the coast, where shipping and commercial advantages outweighed the shortages of municipal water supplies; extracted gold from dry diggings using water carried in miles of mining ditches; planted crops requiring irrigation in fertile, but arid valleys; and brought in the water to make desert housing developments bloom, at least until the lots were sold.

THE LOS ANGELES WATER SYSTEM

For the Pueblo of Los Angeles, the *zanjas*, or publicly owned irrigation ditches, sustained the area for many years and enabled ranching and cultivation of the fertile flood plains. The *zanjas* were established by the residents' Mexican predecessors, and consisted of gravity systems, which resulted in the irrigation of lands that lay to the south of the source. Lands at a higher elevation could not be irrigated by the *zanjas*. The *Zanja Madre* (Mother Ditch) had been constructed, branching off of the river and carrying the water south to the agricultural lands surrounding the pueblo. As the pueblo grew and more water was diverted from the river, the supply began to dwindle. Initially, however, there was little worry about the future water needs of the city, and no regulation of the water distribution itself. Typically, farmers would dig their own ditches from the main ditches or from the river itself. Private water carriers hauled and sold water to households for domestic use (Gumprect 1999).

By the mid-nineteenth century, city officials established a system of water use fees and rules to govern the *zanjas*. They created the official city position of *zanjero*, the highest paid of any public official in Los Angeles. The duties of the *zanjero* varied including issuance of permits for water usages, maintenance of the ditches, maintenance of the city dam, and even the early coordination of flood control work on the Los Angeles River (Gumprect 1999).

While the *zanjas* worked well for irrigation, the water was frequently unsuitable for domestic purposes. The city had no sewer system or other outlet for its liquid waste, and the *zanjas* were being used for laundry, bathing, as well as trash and sewage disposal. Several efforts to pipe domestic water directly to homes were tried as early as 1864. To keep up with demand, the city allowed several private companies to be formed in order to provide domestic supplies of water. The city continued to oversee the irrigation system, eventually enclosing several of the *zanjas* or creating ornamental *zanjas* in several areas (Gumprect 1999).

As Southern California grew, the Los Angeles River became an inadequate supply of water for the residential and industrial development that gradually displaced the farmland. With the arrival of the Southern Pacific railroad, the

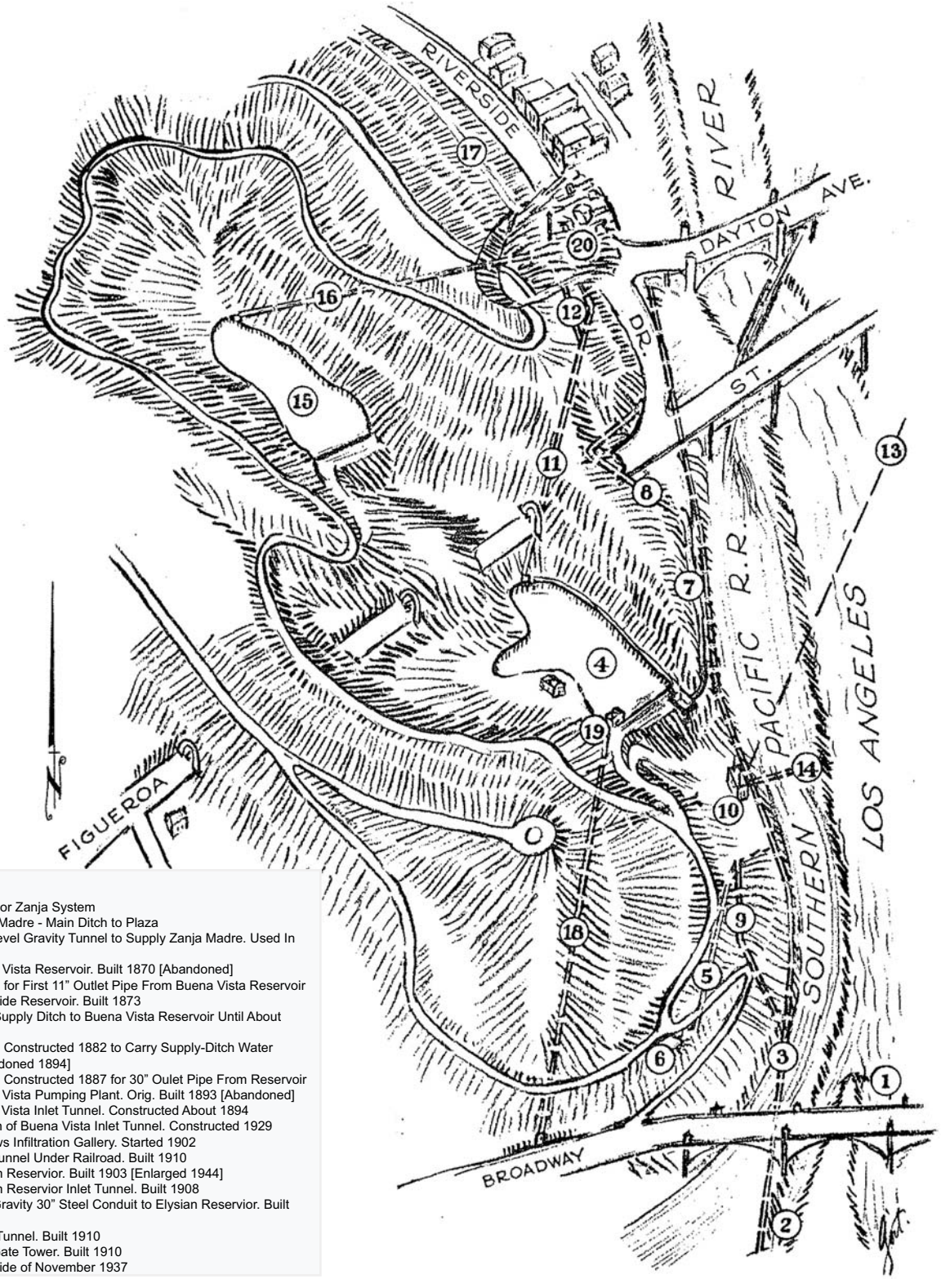
demand became so great that the Los Angeles City Water Company (LACWC) began tapping the river's water supply before it even reached the surface. Water supply reservoirs began to be utilized and the *zanja* system was dismantled ditch by ditch (Gumprect 1999). By 1902, the Los Angeles municipal government took back jurisdiction of its own water needs and purchased the existing water system, which consisted of seven reservoirs and 337 miles of pipe.

ELYSIAN PARK WATER SYSTEM

In 1870, as part of the ongoing city-wide water supply improvements, three small reservoirs on Eternity Street were replaced by a small earthen dam across a ravine in the Elysian Hills which created a larger storage facility for Los Angeles River water (Gumprect 1999:68). This structure eventually became known as Buena Vista Reservoir (Figure 5, key item 4). This was the first water storage facility completed by the LACWC (LADWP 2008). The reservoir was enlarged in 1884 from one MG to 13 MG. The dam and reservoir no longer exist; the former site is a small section of Elysian Park that lies between the Pasadena Freeway and North Broadway called Buena Vista Meadows (Gumprect 1999).

Three years later, in 1873, the East Side Reservoir was built south of the Buena Vista structure within Elysian Park. This structure was abandoned around 1887. Over the ensuing years, several associated buildings, structures, and support features were added to the system, including tunnels, ditches, and pumping plants. In 1903, in an effort to expand its reservoir system, the City of Los Angeles constructed both the Solano Reservoir and the Elysian Reservoir in Elysian Park. The Elysian Reservoir was formed by a rolled earth-filled dam constructed across a small canyon in the northeasterly part of Elysian Park (see Figure 5, key item 15). The reservoir was designed and built under the direction of William Mulholland. In 1908, a timber roof was added to the reservoir and in 1914 this was replaced with a structure supported by concrete columns.

The Elysian Reservoir, with an original capacity of 32.1-acre feet, was becoming inadequate by 1940 due to a growing population and increasing water demands. Enlargement plans (Figure 6) were drawn up in conjunction with the State Highway Department, who were seeking to construct the Arroyo Seco Freeway through the area. The enlargement would result in an increase of reservoir capacity to 168-acre feet, and an increase of the head works from 443 feet to 462 feet (LADWP 1957).



Key

1- Dam For Zanja System
2- Zanja Madre - Main Ditch to Plaza
3- Low Level Gravity Tunnel to Supply Zanja Madre. Used In 1879
4- Buena Vista Reservoir. Built 1870 [Abandoned]
5- Tunnel for First 11" Outlet Pipe From Buena Vista Reservoir
6- East Side Reservoir. Built 1873
7- Main Supply Ditch to Buena Vista Reservoir Until About 1894
8- Tunnel Constructed 1882 to Carry Supply-Ditch Water [Abandoned 1894]
9- Tunnel Constructed 1887 for 30" Oulet Pipe From Reservoir
10- Buena Vista Pumping Plant. Orig. Built 1893 [Abandoned]
11- Buena Vista Inlet Tunnel. Constructed About 1894
12- Branch of Buena Vista Inlet Tunnel. Constructed 1929
13- Narrows Infiltration Gallery. Started 1902
14- Pipe Tunnel Under Railroad. Built 1910
15- Elysian Reservior. Built 1903 [Enlarged 1944]
16- Elysian Reservior Inlet Tunnel. Built 1908
17- High Gravity 30" Steel Conduit to Elysian Reservior. Built 1908
18- Oulet Tunnel. Built 1910
19- New Gate Tower. Built 1910
20- Landslide of November 1937

Source: Brooks, *Notes on Los Angeles Water Supply*, September 1938

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Figure 5
Historic Elysian Park Waterworks Structures 1938

Cultural Resources Assessment for the Elysian Reservoir Improvement Project
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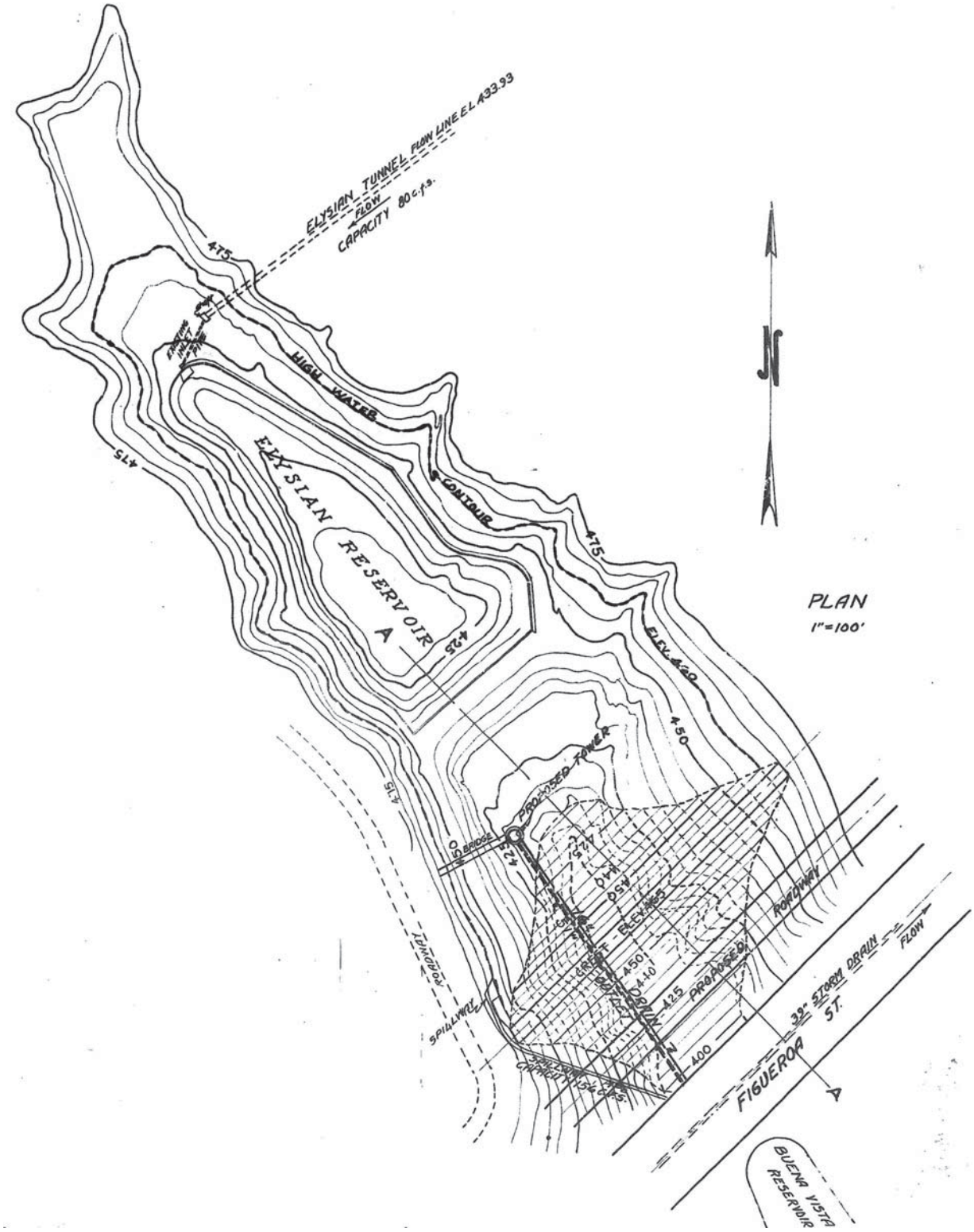

Figure 6
Proposed Enlargement of Elysian Reservoir, November 1940 (LADWP 1940)

The freeway embankment was combined as a berm on the downstream slope of the dam. The reservoir enlargement was partially constructed as a Works Project Administration (WPA) project; however, due to manpower shortages resulting from WWII, work was completed by LADWP, under the supervision of the Field Engineering Division. At the time of WPA abandonment, the outlet works, by-pass line (Plate 1 and Plate 2), and surface drains were near completion. The reservoir was placed back in service in May 1943 (LADWP 1957).

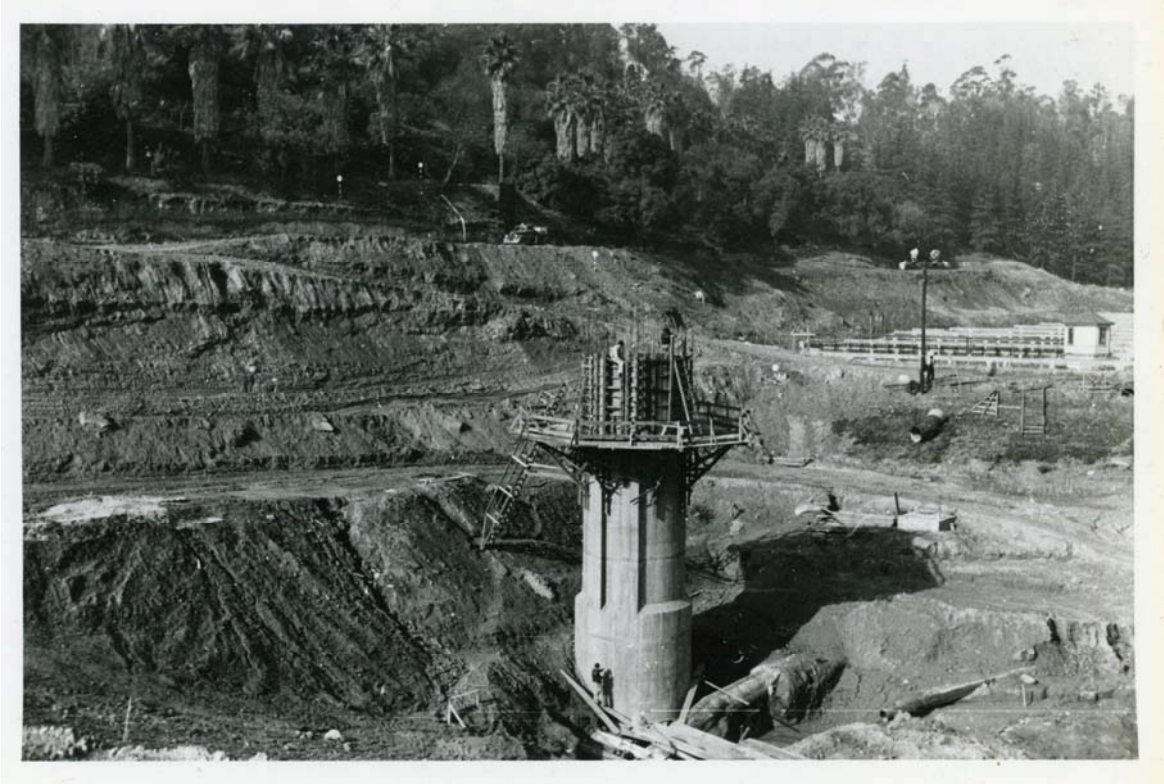

Plate 1. Reservoir Enlargement, December 17, 1941 (LADWP 1957:30)

WILLIAM MULHOLLAND

William Mulholland, born in Ireland in 1855, spent his early life as a sailor and eventually settled in the United States upon his departure from the service. In 1877, by the age of 22, Mulholland was living in California. One year later he received a job working for the LACWC as a *zanjero*, where he was required to keep the *Zanja Madre* free of debris and weeds along its route from the river to the Buena Vista Reservoir in Elysian Park (Rock Quarry Hills). Mulholland was eventually promoted to foreman of the ditch gang, and continued to work his way up in the organization until, eventually, he was made superintendent in 1886 (Matson 1976). He kept his position even after the City of Los Angeles regained control of the city water supply from the LACWC in 1902 (Mulholland 2000).

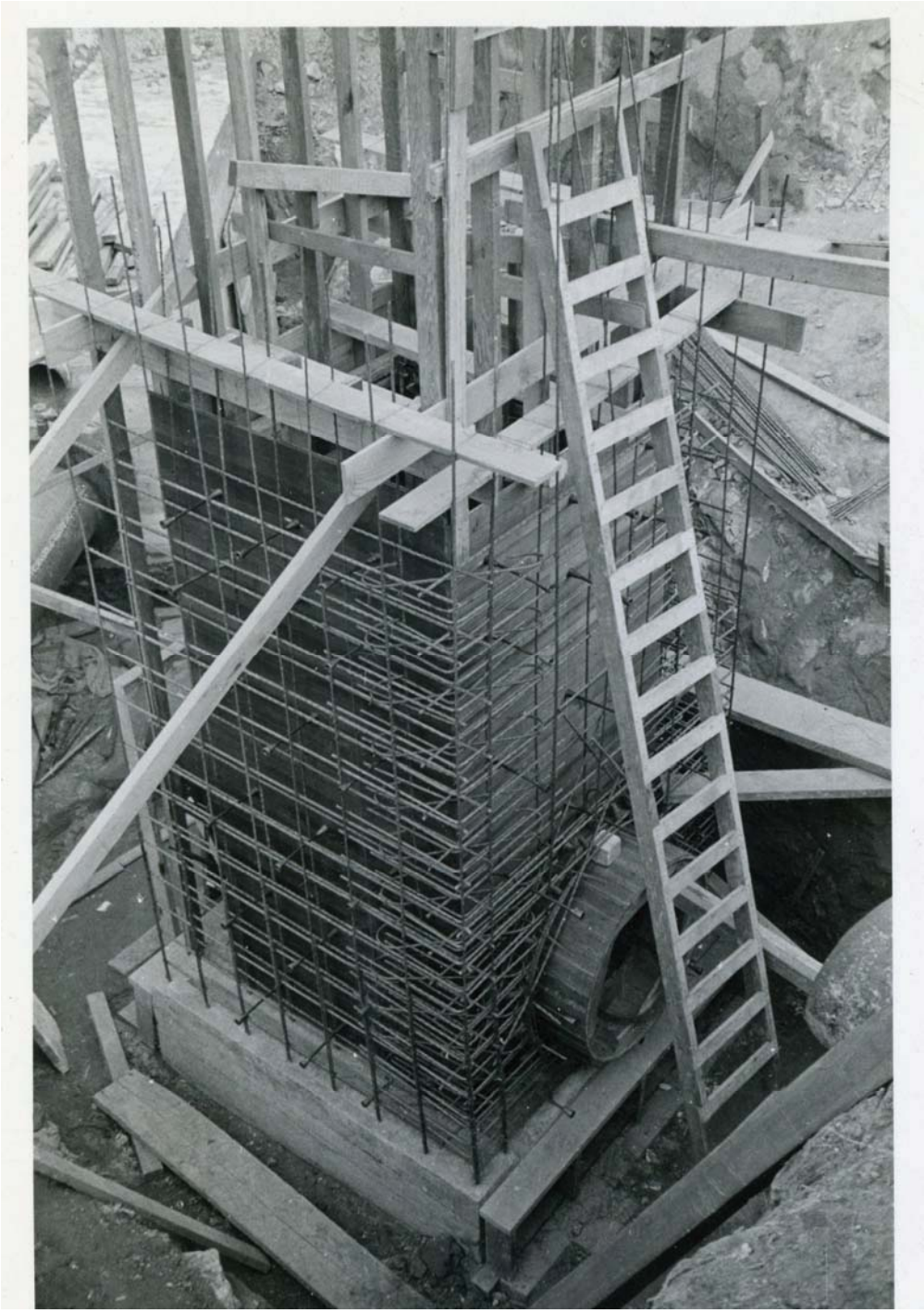

Plate 2. Inlet Tower Foundation January 10, 1942 (LADWP 1957:22)

Known as "the Chief," William Mulholland, a self-taught engineer, continually devised new systems to enable the delivery of more water to the city. In the spring of 1903, he was engaged in completing the new high-gravity reservoir (the future Elysian Reservoir) in Elysian Park, to be located to the west of the Buena Vista Reservoir. Not long after, under the direction of Mulholland, the Los Angeles Bureau of Water Works and Supply constructed the 233-mile long Los Angeles Aqueduct. This five year project, completed in 1913, employed the

labor of thousands of men, and brought millions of gallons of water from the Owens Valley into the San Fernando (now Los Angeles) Reservoir (Gumprecht 1999). Mulholland was also involved in design ideas for the Colorado River Aqueduct, Hoover Dam, and the Panama Canal.

Mulholland's career ended approximately 15 years later when the St. Francis Dam, a project he oversaw, failed just hours after he inspected it. This catastrophe sent 12.5 billion gallons of water flooding into the Santa Clarita Valley, just north of Los Angeles. The town of Santa Paula lay buried under 20 feet of mud and debris; other nearby areas were covered in up to 70 feet of debris. The final death count was estimated at 450 people. Mulholland took full responsibility for the engineering disaster and resigned his position. He died in 1935.

RESEARCH METHODS

The cultural resources investigation for this Project involved archival research including an archival records search, a sacred land files check, and other background research.

RESEARCH METHODS

ARCHIVAL RESEARCH

RECORDS SEARCH

Archival research for this Project was conducted by Timothy Harris, B.A., on August 25, 2008 at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The research focused on the identification of previously recorded cultural resources within ½-mile radius of the Project area. The archival research involved review of archaeological site records, historic maps and historic site and building inventories.

The records search revealed that a total of 16 cultural resource investigations were previously conducted within ½-mile radius of the Project (Table 1). These cultural resource investigations include: seven cultural resource assessments, four historic bridge evaluations, two determinations of eligibility, two monitoring reports, and one Finding of Effect document. The entire Project area has been previously surveyed as one (LA-1747) of the 16 previous investigations encompassed the entirety of the Project area (see Table 1).

Table 1
Previous Surveys Conducted within ½-Mile of the Project

Author	Report # (LA-)	Description	Date
Anonymous	2950	Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project	1992
Anonymous	4386	Cultural Resources Overview Los Angeles County Metropolitan Transportation Authority's Interstate Commerce Commission Abandonment Exemption Pasadena-Los Angeles Light Rail Transit Project	1993
Anonymous	4044	Environmental Impact Report: Seismic Retrofit of Olympic Boulevard and North Broadway Bridges Over the Angeles River	1995
Anonymous	4389	Metro Pasadena Project Preliminary Engineering Structural Feasibility for the Los Angeles River Crossing	1992
Arrington, Cindy and Nancy Sikes	8255	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II	2006
Blodgett, Leslie M.	1747**	Archaeological Resources Assessment and Impact Analysis for the Proposed Elysian Reservoir Roof Project, City of Los Angeles, California	1989

Table 1
Previous Surveys Conducted within ½-Mile of the Project

Author	Report # (LA-)	Description	Date
Borg, Roger	6362	Finding of Effect on Historic Properties Arroyo Seco Parkway and Four Level Interchange	1994
Greenwood, Roberta S.	6837	Cultural Resources Monitoring: Northeast Interceptor Sewer Project	2003
Hatheway, Roger G.	4452	Determination of Eligibility Report Chinatown	1982
Lapin, Philippe	4741	Cultural Resources Assessment for Pacific Bell Mobil Services Facility LA 702-03, County of Los Angeles, California	1999
Lee, Portia	4218	Seismic Retrofit of North Broadway Bridge over the Los Angeles River	n.d.
McLean, Deborah K.	3960	Archaeological Assessment for Pacific Bell Mobile Services Telecommunications Facility LA 108-01, 2000 North Figueroa Street, City and County of Los Angeles, California	1998
Moffatt & Nichol	4390	Arroyo Seco Bridge Reconstruction Preliminary Design and Seismic Retrofit	1993
Slawson, Dana N.	4624	Historical Resources Assessment for the Proposed Rehabilitation of the Lincoln Heights Youth Center and Boxing Gymnasium	1999
Snyder, John W.	8252	Request for Determination of Eligibility for Inclusion in the National Register of Historic Places	1986
Sylvia, Barbara	6345	Highway Project Description to grind and cold plane existing asphalt and concrete pavement, place rubberized asphalt concrete and replace existing lane stripes with thermoplastic striping on the Northbound Route 110 to Northbound Route 5 connector	2001

**Indicates study overlapping with Project area

The records search indicated that a total of three cultural resources were previously recorded within the ½-mile records search study area (Table 2). The three resources include two historic structures and one historic archaeological refuse deposit. No cultural resources have been previously recorded within the Project area itself.

Table 2
Previously Recorded Cultural Resource Sites within ½-Mile of the Project Area

Permanent Trinomial (CA-LAN-)	P-Number (P-19-)	Other Number	Description	Date Recorded
	003685		Deposit of commercial and industrial refuse	7/23/2003
	186859		The Arroyo Seco Flood Control Channel	3/26/2003 & 6/11/2003
	188229		Buena Vista Viaduct	8/18/1986

Of the two previously recorded historic structures, one is the Arroyo Seco Flood Control Channel (19-186859) located approximately ¼-mile west of the Project area. The initial construction of the channel began in 1934 following a catastrophic flood and was completed between 1946 and 1947 (Strauss, Dolan and Gregory 2003). The channel extends from the base of the Devil's Gate Dam for a distance of 10 miles where it converges with the Los Angeles River (Strauss, Dolan and Gregory 2003). The Channel is associated with a significant series of events in the Los Angeles Basin. These events include the channeling of Los Angeles rivers, which led to unimpeded development, as well as the construction of the Arroyo Seco Parkway. The channel was also constructed through the use of the WPA program, a program created to help the failing economy at the time. The channel was recommended as eligible for the National Register of Historic Places under Criterion A (Strauss, Dolan and Gregory 2003).

The second historic structure previously recorded within the ½-mile study area is the Buena Vista Viaduct (19-188229) located approximately ½-mile to the southeast of the Project area. The Buena Vista Viaduct is located on North Broadway, near the entrance to Elysian Park. The Buena Vista Viaduct became one of 12 significant bridges that cross the Los Angeles River after its construction in 1910 (Anonymous 1986). Designed by Homer Hamlin, the viaduct is the longest and widest concrete bridge in the state with innovative architectural and engineering designs (Anonymous 1986).

The single previously recorded historic archaeological resource within the ½-mile study area (19-003685) is located approximately ¼-mile west of the Project area. This resource is characterized as a historic refuse deposit containing industrial and commercial trash such as bricks and glass bottles. The artifacts date from between approximately 1920 and 1950 (Hale 2003).

SACRED LANDS FILE SEARCH

A letter requesting a Sacred Lands File (SLF) search was prepared and sent to the Native American Heritage Commission (NAHC) on July 21, 2008. The response from the NAHC dated July 23, 2008 indicated "the presence of Native American cultural resources in the immediate Project area." Given the results of the search, the NAHC suggested that Anthony Morales, a representative of the *Gabrielino-Tongva* tribe, be contacted for further information.

Mr. Morales was contacted via telephone on October 29, 2008. While Mr. Morales had no information about specific Native American archaeological sites within the Project area, he was very concerned about potential ground-disturbing activities taking place within Elysian Park and in the vicinity of the Los Angeles River watershed. He mentioned that *Gabrielino-Tongva* lived in the Elysian Hills and several villages were known to exist near the Los Angeles river bed. Mr. Morales stated that this is a "very sensitive area." Mr. Morales imparted information regarding the discovery of Native American remains during the remodeling of a gymnasium at the Cathedral High School (located at 1253 Bishops Road, approximately ½-mile to the southeast of the Project area,

directly south of Dodger Stadium). Mr. Morales was adamant that [mitigation] for the Project include archaeological and Native American monitoring during all ground-disturbing activities.

ADDITIONAL HISTORICAL RESEARCH

Additional historic research to develop a historical context for Elysian Reservoir was conducted at a number of archival repositories and local agency archives. Archives searched include the Los Angeles Public Library (LAPL), the City of Los Angeles Bureau of Engineering Vault, and plans, photos and historical narratives provided by the LADWP. Documents searched during the course of the research include book publications, historic newspaper articles, historic photographs, historic maps, and engineering plans.

CULTURAL RESOURCES SURVEYS

CULTURAL RESOURCES SURVEY

A cultural resources field survey of the Project area was conducted by Sara Dietler, B.A. and Frank Humphries, B.A. on September 22, 2008. Areas surveyed were those determined to be potentially affected by the Project. The cultural resources survey included an archaeological investigations and the documentation of historic architectural resources. As described in the Project Description section of this report, changes have been made to the footprint of the Project area itself. The new areas encompassed by the changes to the proposed project were surveyed August 13, 2010 by Sara Dietler.

ARCHAEOLOGICAL SURVEY

The archaeological survey involved the investigation of the reservoir perimeter, edges of the roadway surrounding the reservoir, an open space area to the north of the reservoir where the proposed wildlife pond would be constructed (this area is to be used for materials and equipment staging during construction), and the westernmost Pipe Jacking Pit location. The easternmost Pipe Jacking Pit is located within the cemented channel of the Los Angeles River and was therefore not accessible to surveyors. The inlet pipeline running between the Pipe Jacking Pits will be placed within a tunnel constructed by boring. This area is characterized a precipitous escarpment with relatively dense vegetation. The pipeline route was not surveyed. In addition, new areas surveyed in 2010 include; the proposed stockpile area which extends north of the reservoir up to Grand View Drive, the picnic grounds north of Grand View Drive between Park Row Drive, and the Caltrans island adjacent to Riverside Drive. All other areas to be affected by the proposed Project were investigated during the 2008 survey.

Survey along the perimeter of the reservoir involved an investigation of the roadway edges. Along the western edge of the road, a vertical cut was visible consisting of sandstone bedrock sediments described as light tan coarse grained beds (Plate 3). Surface visibility along the edges of the road was between 20 (in areas of dense vegetation) to 100 (in the area of the sandstone cut) percent.

Plate 3. Road on West Side of Reservoir, View to Northwest

The proposed pond/staging area, located on the northwest end of the reservoir (Plate 4), appeared to have been recently mowed or cleared of some vegetation. Surface visibility in this area was approximately 50 percent. There were large piles of raw cement that obscured portions of the surface in this part of the Project area. Surveyors focused on areas not obscured by vegetation or raw cement to identify any possible archaeological resources.

Plate 4. Pond/Staging Area at Northwestern End of Reservoir, View to East

The Proposed staging area located to the north of the northwest end of the reservoir outside of the reservoir property and within Elysian Park itself was densely vegetated with a slope of 40 degrees (Plate 5). Visibility in this area was less than 10 percent.

Plate 5. Staging Area within Elysian Park to the North of Reservoir, View to North

The picnic grounds north of Grand View Drive between Park Row Drive and the reservoir, within Elysian Park, are landscaped mainly with Gum trees and short grassy areas. The picnic grounds themselves are located in a knoll with a perimeter of open ground (Plate 6). Open areas were inspected for cultural resources. The area had a visibility of approximately 80 percent.

Plate 6. Gum Grove Park and Picnic Area, View to East

The truck turnaround area located within Elysian Park, is completely developed as a viewpoint and parking area which includes a traffic island separating the parking area from Grand View Drive (Plate 7). As it is completely paved, ground visibility is zero with the exception of the traffic island which was inspected for cultural resources. This is a modern traffic island with immature palm trees and is not a historic-era feature of Elysian Park.

Plate 7. Location of Truck Turnaround Area, Currently a Viewpoint, View to Northwest

The primary site for the inlet line construction would be located within the Caltrans island adjacent to the on-ramp to the northbound I-5, along the west side of Riverside Drive, roughly between Barclay Street and Duvall Street. This ground surface of this island is almost completely obscured by very dense vegetation (see Figure 4). A chain-link fence line runs from east to west along the north edge of the island, parallel to Riverside Drive. A small strip of gravel covered ground surface was visible on either side of the fence (Plate 8). This area was inspected for cultural resources. Overall visibility of the island was approximately zero to three percent.

Plate 8. Caltrans Island, View to South

Soil was consistent throughout the various surveyed locations and was observed as light grayish brown sandy silt.

No archaeological resources were encountered as a result of the survey.

HISTORIC ARCHITECTURAL RESOURCES SURVEY

The Elysian Reservoir itself was surveyed as part of the historic architectural portion of the survey (Plate 9). Elysian Reservoir is an uncovered, irregularly-shaped concrete-lined basin, approximately 900 feet long, and 400 feet wide. It has a maximum depth of 50 feet, and an area of 6.16 acres at elevation 462. The sides of the reservoir, in general, slope 1 (horizontal) on 3 (vertical) from the bottom of the structure to elevation 440, and 1 on 2 from elevation 440 to the top of the slope. The reservoir is located approximately 460 feet above mean sea level.

Plate 9. Overview of Reservoir, View to North

A narrow foot bridge with open, square-shaped concrete piers leads to a reinforced concrete-lined, circular outlet tower with a cone-shaped octagonal roof atop the southern portion of the reservoir. The tower has an overall height, exclusive of the gate house, of 67 feet (Plate 10). The bridge deck is lined with wood planks, and features metal truss railing. Concrete stairs, located southwest of the bridge, provide access to the water. Water is supplied through the Elysian Tunnel, located on the northeast side of the reservoir. A spillway tunnel of reinforced concrete is located on the southeast side of the reservoir. The total length of the spillway is 1,100 feet with a drop in elevation of 145 feet. The reservoir is enclosed by a chain link fence which sits atop a concrete wall.

Plate 10. Outlet Tower and Bridge under Construction, May 13, 1942 (LADWP 1957:28)

Other historic-era Elysian Reservoir features include: concrete-lined ditches (storm drains) located on the southern end of the reservoir, and sections of historic-era roads. Table 3 shows the dates of events and improvements to the Elysian Reservoir.

Table 3
Timeline of Events and Improvements for the Elysian Reservoir

Modifications	Date
Elysian Reservoir Constructed	1903
Elysian Reservoir Inlet Tunnel Added	Built – 1908
High Gravity 30 inch Steel Conduit in Tunnel	Added – 1908
30 inch Steel Conduit Replaced by 40 inch Welded Steel	1929
Landslide in Elysian Park near Riverside Drive and Dayton Avenue	1937
Portion of Elysian Tunnel Abandoned	1937
New Section Added to Elysian Tunnel	Added – 1940
Spillway Tunnel Added	Built – 1942
Inlet Control Shaft Added	Added – 1942
Outlet Tower and Footbridge Added	Built – 1943
Reservoir Wall Added	Ca. 1943
Paved Roadway at Southern end of Reservoir	Built – 1943
Enlarged Reservoir Placed Back in Service	1943
Entire Surface of Reservoir, and Roadway Surfaces, Sprayed with 3 inch Minimum Asphaltic Concrete Pavement	Ca. 1946
Resurfaced a Portion of the Reservoir at the Inlet Structure	1966
Source: Bureau of Water Works and Supply – Elysian Reservoir Plans	

The reservoir and components were photographed and recorded on DPR forms (Appendix B).

As part of the 2010 survey update, the portions of Elysian Park itself which will be affected by the proposed project were surveyed for any historic-era resources. The Project will not disturb any areas of historic-era landscaping or any historic-era build elements associated with Elysian Park itself. As noted in the Project Description, all plantings and elements that are disturbed by the Project will be replaced after the completion of the Project.

RESULTS, EVALUATION AND RECOMMENDATIONS

RESULTS

The Elysian Reservoir was recorded and evaluated as part of this assessment. The reservoir was originally constructed in 1903. Between 1940 and 1943, components were added to the reservoir system, and the reservoir itself was enlarged. No major alterations have been made since the 1940s, and the reservoir continues to function in the same capacity, providing water storage and service for surrounding neighborhoods.

REGULATORY SETTING

Cultural resources in California are protected by a number of federal, state, and local regulations, statues, and ordinances. The determination of California Register of Historical Resources (CRHR) significance of a resource is guided by specific legal context outlined in Sections 15064.5 (b), 21083.2, and 21084.1 of the Public Resources Code (PRC), and the CEQA Guidelines (California Code of Regulations Title 14, Section 15064.5). A cultural resource may be eligible for listing on the CRHR if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage:
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

RESOURCES EVALUATION

In April 2005, BonTerra Consulting (BonTerra) completed a preliminary cultural resources assessment for the proposed Elysian Reservoir Project for LADWP. The BonTerra study was not completed; however, their initial assessment indicated potential significance of the Elysian Reservoir under CRHR Criterion 2, for association with William Mulholland. They indicated in their preliminary assessment that "given alterations and upgrades to the reservoir since its design and construction under William Mulholland in 1903, the historical aspects of the structure's integrity may have been compromised or degraded. Therefore, it is recommended that the existing

structure be studied and evaluated by a qualified architectural historian…to determine its material integrity and significance under CEQA" (BonTerra 2005: 4).

In order to determine the potential eligibility of the Elysian Reservoir, as part of this study, a cultural resources survey of the Project area, and archival research were conducted. This information included, but was not necessarily limited to:

- Construction plans for the Elysian Reservoir, on file at the LADWP, Los Angeles, California
- Field Engineer Notes – Elysian Reservoir, on file at the LADWP, Los Angeles, California
- Sanborn Fire Insurance Maps, available online
- Historical Photographs of Elysian Reservoir, on file at the LADWP, Los Angeles, California
- Historic Topographic Maps, various dates, available online
- Various Secondary Sources on Los Angeles Water History, on file at the Los Angeles Public Library

APPLICATION OF THE CRHR CRITERIA

Historic water-related systems may be found eligible to the CRHR under any of the previously outlined significance criteria, although some criteria are more commonly relevant than others. Potential significance is evaluated in direct relation to the contextual themes identified as being relevant to a particular region.

Like other types of public works facilities, water-related systems are inherently important to the communities they serve, providing infrastructure essential for community development. For a water system to be considered eligible under Criterion 1, it must be found to be associated with specific important events or patterns of events. The significance of the documented association must be an important association in and of itself, not mere coexistence.

For eligibility under Criterion 2, a property must be associated with an important person's productive life, and must be the property that is most closely associated with that person. Water-related systems are rarely found eligible under Criterion 2, however, a water system could be found eligible under this criterion if the person's association with the system is strong, and no other properties closely associated with that person remain.

Water-related systems can be determined eligible for the CRHR under Criterion 3 for their engineering or design values. Properties eligible under this criterion may have unique features, or they may be good examples of a type of property.

Eligibility under Criterion 4 hinges on the ability of the property, as contained in artifacts and objects, to further address issues of scientific importance to the period of significance. These data are primarily derived from archaeological sites, and rarely buildings and structures themselves. Archaeological features or deposits may provide new information not available elsewhere regarding kinds of documented or undocumented activities in the area. While buildings and structures can sometimes provide important information regarding historic construction techniques, most of these techniques are well documented in both written and visual sources, and generally, would not yield new primary information.

PERIOD OF SIGNIFICANCE

The concept of a period of significance assists in the evaluation process by establishing the length of time a property was associated with important events, activities, or persons; or the time it attained the characteristics which qualify it for CRHR eligibility. Period of significance usually begins with the date events began giving the property its historic significance; this is often the date of construction. Some periods of significance are as brief as a single year. Many, however, span several years, and consist of beginning and close dates (United States Department of the Interior 1997). For the Elysian Reservoir, the period of significance was determined to be 1903 (the date of construction) to 1908 (the date of roughly contemporaneous improvements).

ELYSIAN RESERVOIR ASSESSMENT

CRITERION 1

The Elysian Reservoir was one of the first reservoirs constructed by the City of Los Angeles after they resumed control of their water works system. Along with other reservoirs from that time, the Elysian Reservoir played a key role in the City's ability to deliver water to Los Angeles' growing population. Due to the numerous modifications, such as the reservoir enlargement between 1940 and 1943, undertaken on the reservoir over the years, however, it has lost a significant degree of historic integrity to that time period.

A consideration of significance under Criterion 1 for water system resources hinges on an understanding of the cultural atmosphere in which they were planned, financed, and built. This understanding is generally derived from the original physical features of the building or structure. In the case of the Elysian Reservoir, these physical features have either been severely degraded, or no longer exist. Although the reservoir is associated with an important local historic event, its loss of historic integrity from its period of significance overrides its potential eligibility. While the reservoir does retain integrity of location and setting, it has lost integrity of materials, design, workmanship, feeling and association. While rare or unusual properties are sometimes allowed a greater number of alterations (United States Department of the Interior 1995), Elysian Reservoir does not fall into this category of properties. It was not the first reservoir in the region, nor did it involve innovative construction techniques. Instead, it relied upon existing, proven technologies.

The renovated and enlarged dam was partially completed as a WPA project; however, much of the work was done by LADWP after the WPA abandoned the project. The WPA abandonment was due to the shortage of manpower resulting from the United States' entry into WWII. The dam, therefore, does not appear to retain a high degree of association as a WPA-completed project. As such, Elysian Reservoir does not appear to meet eligibility Criterion 1 for CRHR listing.

CRITERION 2

In terms of Criterion 2, the highest potential for eligibility of Elysian Reservoir is its association with William Mulholland. The preliminary assessment of the Elysian Reservoir completed by BonTerra in 2005 indicated the possibility of eligibility under CRHR Criterion 2, through its association with Mulholland. This potential eligibility suffers, however, from the facility's extensive loss of integrity. Further research of the reservoir conducted as part of this study revealed several alterations and modifications, undertaken predominately in the 1940s, that have compromised its historic integrity. Some of the modifications (listed in Table 1) are outlined below:

- Removal of reservoir appurtenances
- Stripping of bottom and side slopes of reservoir
- Construction of new reservoir appurtenances, including spillway, inlet structures, outlet tower and footbridge, outlet lines, by-pass line, reservoir wall, fence, roadways and storm drains, and the paving of the inside surfaces of the reservoir and the roadway surfaces with asphaltic paving

The reservoir no longer maintains a sense of place and time to Mulholland's original design. This lack of integrity is especially problematic within the specific context of Mulholland, in that there are other, better known, water-related properties with associations to him, such as the Los Angeles Aqueduct. Elysian Reservoir, therefore, does not appear to be eligible under Criterion 2.

CRITERION 3

As previously noted, the Elysian Reservoir has undergone several modifications that have degraded its original historic features. While it is generally recognized when assessing a property's integrity that historic resources can undergo nominal changes without destroying the integrity, it is necessary for the property to retain enough historic features to convey its original historic appearance (United States Department of the Interior 1995). In its present condition and configuration, Elysian Reservoir does not resemble its original historic design or appearance due to the subsequent enlargement of the facility in the 1940s, and other ad-hoc alterations. Because of this substantial loss of integrity, this property does not appear to meet eligibility Criterion 3 for CRHR listing.

CRITERION 4

Elysian Reservoir has been documented in several primary and secondary sources; therefore the structure does not appear to possess the potential to answer important scientific questions or yield previously unknown information. The research value of Elysian Reservoir has been realized through these previous studies and documentation. This property does not appear to be eligible for listing under CRHR Criterion 4.

OTHER FEATURES

Other historic-era features located within the Project area (e.g., ditches, roads), and associated with Elysian Reservoir do not appear eligible for CRHR listing. Most of the features were constructed during the reservoir enlargement, after the period of significance, and do not, themselves, embody distinctive characteristics or important associations.

The *Zanja Madre*, the original ditch dug for irrigation purposes from the Los Angeles River, is located approximately ½-mile to the southeast of the Project area (See Figure 5, key item 2). The low-level gravity tunnel which supplied the *Zanja Madre,* lies approximately ¼-mile to the east of the project area (See Figure 5, key item 3). Segments of the *Zanja Madre* linear feature have been recorded and determined to be eligible for listing on the National Register of Historical Resources (Gust 2007). The Project, which includes covering the existing reservoir, would not cause a substantial adverse change to the characteristics that convey the potential eligibility of the *Zanja Madre*. Visual aspects of integrity (i.e., setting) for this resource have already been compromised due to the development undertaken in its vicinity. Other aspects of integrity (e.g., materials, workmanship, design) for the ditch would not be affected by the Project. Section 15064.5 of the CEQA Guidelines defines a substantial adverse change as:

> "Physical demolition, destruction, or alteration of the resource or its immediate surrounds, such that the significance of a historical resource would be materially impaired."

An evaluation of other Elysian Park water system remnants or features (e.g. dams) was not a part of the current scope of work, and therefore, was not undertaken. Potential as a historic district derives importance from an area representing a unified entity resulting from the interrelationship of its resources. An evaluation of the reservoir alone did not allow for an assessment of its potential as a contributor to a possible Park district. Should Project plans change to include previously unsurveyed areas, an evaluation of unrecorded resources would need to occur.

RECOMMENDATIONS

The Project area lies in close proximity to the original Pueblo of the City of Los Angeles, as well as the Los Angeles River. Two historic resources, as well as a historic archaeological site exist in the nearby vicinity of the Project. The location of the Project, Elysian Park, is the oldest city park in Los Angeles and has a wide and varied history of its own. Research revealed the possible close proximity of the Native American village *Maungna* to the Project area, as well as over one hundred years of history of the Elysian Reservoir itself. In addition to potentially uncovering Native American cultural resources, the possibility of unearthing buried and abandoned tunnels, pipelines, and other components of the various water conveyance systems placed in the Project area historically, is possible.

Based on the results of the archival research and the Sacred Lands File search, it is possible that prehistoric and/or historic archaeological resources may be present within the Project area. Such resources may lie beneath the surface obscured by pavement, vegetation, or other reservoir features. Because the potential to encounter archaeological resources exists for the proposed project, the construction contractor shall use archaeological and Native American monitoring during all ground disturbing activities, including, but not limited to, trenching, boring, and grading. The archaeological monitor shall have the authority to re-direct construction equipment in the event potential archaeological resources are encountered. In the event archaeological resources are encountered, work in the vicinity of the discovery shall halt until appropriate treatment of the resource is determined by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5.

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APPENDIX A

RESUMES OF KEY PERSONNEL

Sara Dietler
Project Archaeologist

Education
BA, Anthropology, San Diego State University, 1998
Minor, American Indian Studies, San Diego State University, 1998

Affiliations
Society for American Archaeology
Society for California Archaeology

Publications and Professional Papers
Dietler, S. 2000. Protohistoric Burial Practices of the Gabrielino as Evidenced by the Comparison of Funerary Objects from Three Southern California Sites. In Proceedings of the Society for California Archaeology, Volume 13. Judyth Reed, Greg Greenway, and Kevin McCormick eds. Society for California Archaeology. Fresno.

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Dietler, S. 2008. Digging Deep: Archival Research into the History of Los Angeles' City Cemetery. Oral Presentation at the Society for California Archaeology Meeting, Burbank, California, April.

Strauss, M., S. Dietler, and C. Ehringer. 2008. Death Lends a Hand: Archaeological Excavations of Los Angeles's City Cemetery. Oral paper presentation at the Society for Historical Archaeology Annual Meeting, Albuquerque, NM.

Ehringer, C., L. Kry, S. Dietler, and M. Strauss, 2008. After the Bones Have Gone: The Role of Personal Effects in Identifying Unmarked Historic Burials. Poster presentation at the Society for Historical Archaeology Annual Meeting, Albuquerque, NM.

Presentations and Lectures
2005. Guest lecturer at Santa Monica Community College regarding career opportunities in cultural resources management, Santa Monica, CA.

2006. Guest lecturer at Santa Monica Community College regarding early Los Angeles history and cemetery research and excavation, Santa Monica, CA.

Sara Dietler is a project archaeologist with fourteen years of experience in cultural resource management and is also a cross-trained paleontological monitor. She has worked for more than nine years in the Los Angeles area and participated in both historic and prehistoric research throughout the county. Since joining AECOM's Los Angeles office, she has specialized in the development history of downtown Los Angeles and co-authored technical reports on numerous projects relating to this subject.

As lead archaeologist for the Los Angeles office, Sara directs prehistoric and historic field and research projects for many clients in the Los Angeles area including public agencies and private developers. She manages a staff of cultural resources specialists who conduct various types of cultural resources compliance including phase I surveys, construction monitoring, Native American consultation, archaeological testing and treatment, historic resource significance evaluations, and large-scale data recovery programs. Sara prepares technical documents in support of CEQA and Section 106 compliance as well as cultural resources components for General and Specific Plans.

Project Experience

Central Los Angeles High School #9, Los Angeles, CA
Conducted on-site monitoring and investigation of archaeological sites exposed as a result of construction activities. During data recovery phase in connection with a 19th century cemetery located on-site, participated in locating of features, feature excavation,

mapping and client coordination. Organized background research on cemetery including; genealogical, local libraries, city and county archives, other local cemetery records, internet and local fraternal organizations. Advised in lab methodology and set up, and served as project manager, contributing author and editor for the in-progress technical report.

Main Street Archaeological/Paleontological Monitoring and Assessment, Los Angeles, CA
Directed the archaeological and paleontological monitoring of a police parking facility in downtown Los Angeles. Coordinated with the client and construction personnel throughout the project. Archaeological monitoring resulted in the identification of nineteen archaeological features. Completed the analysis of artifacts recovered and is currently producing a technical report.

Lakeside Recreational Complex, Sylmar, CA
AECOM conducted a Phase I cultural resources evaluation of the historic-era Lakeside Debris Basin property including a California Register eligibility assessment for the facility itself and archaeological features identified as a result of the survey, and prepared a Cultural Resources Technical Report with findings and recommendations for further work, pursuant to CEQA requirements. Project Archaeologist.

Temple Street Widening Project, Los Angeles, CA
AECOM conducted archaeological monitoring during the widening of Temple Street in downtown Los Angeles. Extensive coordination with general contractors was involved, as well as response to discoveries including and segment of the zanja irrigation ditch and a large historic refuse deposit to determine appropriate treatment and develop recommendations. At the completion of the monitoring phase, AECOM archaeologists analyzed the artifacts and features documented during excavation and prepared and archaeological resource assessment.

Topanga Library Project, Topanga Canyon, CA
AECOM conducted archaeological monitoring during construction of the Topanga Library. Construction included the installation waterlines along the roadway outside of the main project area. Monitoring resulted in the discovery of materials associated with the recorded archaeological site CA-LAN-8. Directed cultural resource specialists in conducting archaeological testing of this site and worked closely with the LADPW to assist them in mitigating the effects of the project as well as coordinating with several agencies with oversight on the project. Resources were identified and evaluated for eligibility to the National Register of Historic Places. Assistant Project Archaeologist.

Metro Universal, North Hollywood, CA
Assisted in compiling a compendium of over seventy years of archaeological excavation and construction monitoring in and around the Campo historic site. Drafted appropriate mitigation for the archaeological resources within the scope of the proposed development. At the request of the client a Vision Plan for the Universal City property to the east of the project area was peer reviewed for consistency and appropriate mitigation to historical resources on that property and affects to the historical resources on the Metro Universal Project location.

Glassell Park Early Education Center and Affordable Housing Project, Los Angeles, CA
Conducted a Phase I study for the Glassell Park Early Education Center (EEC) and Affordable Housing Project adjacent to the existing Glassell Park Elementary School. Prepared a cultural resources study with findings and recommendations for further work, pursuant to CEQA requirements.

Belmont Primary Care #11, Los Angeles, CA
Conducted on-site monitoring and investigation

of a historic trash deposit exposed during grading. Assisted in completing and presenting background research on the property in order to contextualize the artifact findings. Conducted historic map research, as well as visiting local libraries, and city and county archives.

Olive View Medical Center Emergency Services Expansion, Los Angeles, CA
Participated in a Phase I cultural resources evaluation of a portion of the Olive View Medical Center campus in Sylmar. Assisted in research to support a California Register eligibility assessment of the MacClay Highline, an underground spur of the Los Angeles Aqueduct.

Olive View Medical Center Building 403 Cultural Evaluation
Los Angeles, CA
Completed the historic architectural survey and assisted the architectural historian in evaluating a historic ward building on the property of the Olive View Medical Center campus in Sylmar that was slated for demolition.

Chevron Station 31 Connection Project Fellows, CA
Directed a Phase I cultural resources evaluation of an undeveloped property in Kern County. Conducted an assessment of resources discovered during survey and prepared a Cultural Resources Technical Report with findings and recommendations for further work, pursuant to CEQA requirements.

Lang Ranch, El Monte, CA
Participated in the Phase I archaeological survey of the 46-acre project area. Project work involved the archaeological testing at two artifact isolate locations to determine presence of sub-surface deposits. Assisted in the preparation of an Archaeological Resources Technical Report and EIR section with findings and recommendations for further work, pursuant to CEQA requirements.

Woodland Duck Farm Project, El Monte, CA
Completed the Phase I investigation, including a historic structure and archaeological survey of the site of the former historic Woodland Duck Farm. Researched the history and background of the farm itself, assisted the Architectural Historian in the analysis of structures related to the duck farm and co-authored the technical report.

Santa Anita Reservoir, Los Angeles County, CA
Completed the Phase I investigation, including a historic structure and archaeological survey of the site of the Santa Anita Dam, Reservoir and Complex. Researched the history and background of the farm itself, assisted the Architectural Historian in the analysis of structures related to the dam complex and co-authored the technical report.

Western Bypass Bridge, Temecula, CA
Oversaw Phase I investigation including a record search and survey of the project area. Completed all documentation required for MND document.

Hellman Ranch Monitoring, Orange County, CA
Served as Lab Director for the final monitoring phase of the project, cataloging and analyzing artifacts recovered from salvage monitoring and test units placed in relation to recovered intact burials. Conducted microscopic analysis of small items such as bone tools and shell and stone beads. Directed lab assistants and oversaw special studies including the photo-documentation of the entire collection. Completed a section reporting on the results of the bead and ornament analysis in the final report, which was published as part of the AECOM technical series.

Home Depot Monitoring – Lake Elsinore, Riverside County, CA
Participated in archaeological monitoring of

Caltrans road-widening in vicinity of historic cemetery. Assisted in preparing negative report of findings. Coordinated with Caltrans.

Public Safety Facilities Master Plan, Los Angeles County, CA
Assisted in research and survey of a Phase I archaeological resources evaluation of an approximately five-square block area in downtown Los Angeles. Completed a record search at the South Central Coastal Information Center in addition to research on specific historic attributes present on the properties and general site history within the APE.

The Grove at Farmers Market Monitoring Project, Los Angeles, CA
Served as Lab Director for the analysis of a historic collection recovered from the area surrounding the historic Farmers Market and the nearby Gilmore Adobe. The project included cataloging and analysis of all recovered artifacts, reconstruction of items, photo-documentation and preparation for display and curation of the entire collection. Co-authored the resulting technical report for the project, which detailed the results of monitoring. The report included an analysis of features and artifacts recovered and a detailed history of the property.

San Diego Ballpark Project
Served as archaeological monitor for the construction of underground utility line installation for San Diego, California's downtown ballpark. Recovered historic artifacts and kept detailed records. Handled public relations and dealt with a variety of public officials and construction crews effectively, despite the controversial and complicated nature of this multimillion dollar project.

SANDAG Regional Beach Restoration Project
Acted as lead archaeological monitor in the inspection and analysis of offshore sediments along a large portion of coastal of San Diego County. The monitoring represented an effort to identify inundated archaeological sites in sediments representing former coastline. Collected samples of sediment, shellfish, and marine mammal remains from dredging spoils, and identified and described samples. Served as a vital member of a multidisciplinary team in materials evaluation. Job required familiarity with construction methods, and an ability to deal with a high level of media and public interest.

Barona Reservation Cultural Center ProjectSan Diego County, CA
Completed an inventory of the recently purchased core collection for a new archaeological museum. Identified, inventoried, cleaned, and restored the artifacts, including extensive lithic and ceramic assemblages. Transformed the old and poorly packaged collection into one professionally sorted, documented, and labeled, and curated to Federal standards.

All American Pipeline Conversion Survey
Led a field crew as a part of a 170-mile long archaeological survey for the conversion of a high-pressure gas pipeline in the Mojave Desert between the towns of Daggett and Blythe, California. The survey located and updated previously unrecorded resources, including 93 archaeological sites and 22 isolated artifacts.

Level Three Long Haul Construction Monitoring.
Coauthored a technical report concerning the salvage excavation of a Chumash multiple human burial exposed during the project, researching and analyzing the unique assemblage of stone beads associated with the human remains. Monitored the directional drilling, trenching, and clean-up relating to the installation of fiber optic cable along the coast of Santa Barbara and Ventura Counties, California. Worked closely with Chumash monitors in the

identification, boundary and significance testing, and protection of prehistoric archaeological sites.

Model Marsh Data Recovery.
Excavated and water screened as part of a archaeological data recovery project for a buried Late Prehistoric period shell midden site (CA-SDI-15,598) in southern coastal San Diego, California. Following the excavation of 41 archaeological test units and 23 shovel test pits, sorted, catalogued, and speciated over 77,000 grams of shellfish and other cultural materials. Wrote the Invertebrate Faunal Analysis chapter of the resulting technical report.

MILCON Monitoring and Data Recovery.
Served as field crew for the emergency salvage treatment of eleven flexed human burials on northern MCAS Camp Pendleton, San Diego County, California. Data recovery included the identification of burial features during monitoring, exposing, documenting, and identifying visible remains, and then pedestalling and removing them in blocks.

ARCO Burial Ground Salvage Excavation.
Assisted in cataloguing and analyzing artifacts following the salvage excavation of site CA-LAN-2682, a Protohistoric period Gabrielino habitation site and burial ground. Identified, sorted, and catalogued archaeological material including artifacts, large numbers of invertebrate and vertebrate faunal remains, as well as human remains. Conducted extensive research on several similar sites, culminating in an analytical paper presented at the 1999 Society for California Archaeology Meetings and published the following year in the group's proceedings.

Selected Reports

Central Los Angeles High School #9 Archaeological Excavation Report (in progress) (contributing author). Prepared for Los Angeles Unified School District. AECOM. (anticipated 2011).

Piecing Together the Prehistory of Landing Hill: A Place Remembered (contributing author). EDAW Cultural Publications. No. 3. (2007).

Archaeological Resources Assessment for the Alameda Street Improvement Project (in progress). Prepared for City of Los Angeles, Department of Public Works. AECOM. (2010)

Archaeological Resources Assessment for the MTA Universal Project. Prepared for Thomas Properties Group. EDAW, Inc. (2008).

Archaeological Evaluation Proposal (Phase II) of the Admiralty Site (CA-LAN047) for the State Route 90 Connector Road and the Admiralty Way Widening Projects, Marina del Rey, County of Los Angeles, CA. Prepared for Caltrans District 7. EDAW, Inc. (2007).

Cultural Resources Assessment for the Woodland Duck Farm Project, Avocado Heights, Los Angeles County, CA (with A. Tomes). Prepared for San Gabriel River & Lower Los Angeles Rivers and Mountains Conservancy (2007).

APPENDIX B

DPR FORMS

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

 ***Resource Name or #:** Elysian Reservoir

P1. Other Identifier:

***P2. Location:** ☒**Not for Publication** ☐**Unrestricted** ***a. County:** Los Angeles

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Los Angeles **Date:** 1966 (photorevised 1981 and 1994) **T** 1S; **R** 13W; **Unsectioned**; S.B. **B.M.**

c. Address: 1880 Academy Drive City : Los Angeles Zip : 90012

d. UTM: Zone 11 ; 386499mE/3771626mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

This resource is located within Elysian Park, and is accessed from the 110 freeway, Solano Avenue exit. From the Solano Avenue exit, take Solano Avenue toward Academy Road and then make a slight right at Solano Avenue. From Solano Avenue turn left at North Broadway. From N Broadway, turn left at Casanova Street. From Casanova Street turn right at North Park Row Drive. From North Park Row Drive turn right at Elysian Park Drive. The reservoir lies behind a controlled gate access point. Assessor's Parcel No. 5415-004-900.

***P3a. Descrip tion:** (Describe resource and major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The Elysian Reservoir is located in Elysian Park, just north of downtown Los Angeles. The reservoir was constructed in 1903. it is an uncovered, irregularly-shaped concrete-lined basin, approximately 900 feet long, and 400 feet wide. It has a maximum depth of 50 feet, and an area of 6.16 acres at elevation 462. The sides of the reservoir, in general, slope 1 (horizontal) on 3 (vertical) from the bottom of the structure to elevation 440, and 1 on 2 from elevation 440 to the top of the slope. The reservoir is located approximately 460 feet above mean sea level.

***P3b. Reso urce Attributes:** (List attributes and codes)

HP11 - Reservoir

***P4. Resources Present:** ☐Building ☒Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo:
Elysian Reservoir, Southwest end, View to N, 09/22/2008, IMG_0652

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1903

***P7. Owner and Address:**
LADWP

***P8. Recorded by:**
Tomes, A.
EDAW, Inc.
2022 J Street
Sacramento, CA 95814

***P9. Date Recorded:**
October 2008

***P10. Survey Type:** (Describe)
Reconnaissance

***P11**. Report Citation: Dietler, S., Tomes, A. and Strauss, M., 2008. Phase I Cultural Resources Assessment For The Elysian Reservoir Water Quality Improvement Project. Prepared for the City of Los Angeles Department of Water and Power. City of Los Angeles, California.

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☒Continuation Sheet
☒Building, Structure/Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record
☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record
☐Other (List):

B1. Historic Name: Elysian Reservoir and Elysian Park High Gravity Reservoir
B2. Common Name: Elysian Reservoir

B3. Original Use: Reservoir B4. Present Use: Reservoir

***B5. Architectural Style:**
Utilitarian

***B6. Construction History:** (Construction date, alterations, and date of alterations)
Built 1903; Enlarged 1940s.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown Date:** **Original Location:**

***B8. Related Features:**
Dam

B9a. Architect: William Muholland B9b. Builder: LADWP; WPA

***B10. Significance:** **Theme** Water Systems **Area** Los Angeles
Period of Significance 1903 - 1908 **Property Type** Reservoir **Applicable Criteria** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period and geographic scope. Also address integrity.)

The Los Angeles Water System

For the Pueblo of Los Angeles, the *zanjas*, or publicly owned irrigation ditches, sustained the area for many years and enabled ranching and cultivation of the fertile flood plains. The *zanjas* were established by the residents' Mexican predecessors, and consisted of gravity systems, which resulted in the irrigation of lands that lay to the south of the source. Lands at a higher elevation could not be irrigated by the *zanjas*. The *Zanja Madre* (Mother Ditch) had been constructed, branching off of the river and carrying the water south to the agricultural lands surrounding the pueblo. As the pueblo grew and more water was diverted from the river, the supply began to dwindle. Initially, however, there was little worry about the future water needs of the city, and no regulation of the water distribution itself. Typically, farmers would dig their own ditches from the main ditches or from the river itself. Private water carriers hauled and sold water to households for domestic use (Gumprect 1999). (See continuation).

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**

Dietler, S., Tomes, A. and Strauss, M.
2008. Phase I Cultural Resources Assessment For The Elysian Reservoir Water Quality Improvement Project. Prepared for the City of Los Angeles Department of Water and Power. City Of Los Angeles, California

Gumprecht, Blake
1999*The Los Angeles River: Its Life, Death and Possible Rebirth.* John Hopkins University Press, Baltimore, MD

Los Angeles Department of Water and Power
1957 *Elysian Project: Final Construction Report*. Prepared by the Water System Field Engineering Division. On file: Los Angeles Department of Water and Power. Los Angeles, California.
2008 *Historical Photo Collection of the Department of Water and Power, City of Los Angeles.* Electronic Collection online: www.lapl.org. Accessed, October 2, 2008.

Matson, Robert W.
1976 *William Mulholland A Forgotten Forefather.* Pacific Center for Western Studies, Monograph Number Six. University of the Pacific. Stockton, California.

Mulholland, Catherine
2000 *William Mulholland and the Rise of Los Angeles.* University of California Press. Berkeley and Los Angeles, California.

(Sketch Map with north arrow required.)
See attached Sketch Map

B13. Remarks:

***B14. Evaluator:**
Tomes, A.

***Date of Evaluation:**
October 2008

B10 Significance (continued):

By the mid-nineteenth century, city officials established a system of water use fees and rules to govern the *zanjas*. They created the official city position of *zanjero*, the highest paid of any public official in Los Angeles. The duties of the *zanjero* varied including, issuance of permits for water usages, maintenance of the ditches, maintenance of the city dam, and even the early coordination of flood control work on the Los Angeles River.

While the *zanjas* worked well for irrigation, the water was frequently unsuitable for domestic purposes. The city had no sewer system or other outlet for its liquid waste, and the *zanjas* were being used for laundry, bathing, as well as trash and sewage disposal. Several efforts to pipe domestic water directly to homes were tried as early as 1864. To keep up with demand, the city allowed several private companies to be formed in order to provide domestic supplies of water. The city continued to oversee the irrigation system, eventually enclosing several of the *zanjas* or creating ornamental *zanjas* in several areas.

As Southern California grew, the Los Angeles River became an inadequate supply of water for the residential and industrial development that gradually displaced the farmland. With the arrival of the Southern Pacific railroad, the demand became so great that the Los Angeles City Water Company began tapping the river's water supply before it even reached the surface. Water supply reservoirs began to be utilized and the *zanja* system was dismantled ditch by ditch (Gumprect 1999). By 1902, the Los Angeles municipal government took back jurisdiction of its own water needs and purchased the existing water system, which consisted of seven reservoirs and 337 miles of pipe.

Elysian Park Water System

In 1870, as part of the ongoing city-wide water supply improvements, three small reservoirs on Eternity Street were replaced. These structures were replaced by a small earthen dam across a ravine in the Elysian Hills which created a larger storage facility for Los Angeles River water (Gumprect 1999). This structure eventually became known as Buena Vista Reservoir. This was the first water storage facility completed by the Los Angeles City Water Company (LAPL 2008). The reservoir was enlarged in 1884 from one million gallons to 13 million gallons. The dam and reservoir no longer exist; the former site is a small section of Elysian Park that lies between the Pasadena Freeway and North Broadway (Gumprect 1999).

Three years later, in 1873, the East Side Reservoir was built south of the Buena Vista structure within Elysian Park. This structure was abandoned ca. 1887. Over the ensuing years, several associated buildings, structures, and support features were added to the system, including tunnels, ditches, and pumping plants. In 1903, in an effort to expand its reservoir system, the City of Los Angeles constructed the Solano Reservoir, and the Elysian Reservoir in Elysian Park. The Elysian Reservoir was formed by a rolled earth-filled dam constructed across a small canyon in the northeasterly part of Elysian Park. The reservoir was designed and built under the direction of William Mulholland (Gumprecht 1999).

B10 Significance (continued):

The Elysian Reservoir, with an original capacity of 32.1 acre feet, was becoming inadequate by 1940 due to a growing population and increasing water demands. Enlargement plans were drawn up in conjunction with the State Highway Department who were seeking to construct the Arroyo Seco Freeway through the area. The enlargement would result in an increase of reservoir capacity to 168 acre feet, and an increase of the head works from 443 feet to 462 feet (Los Angeles Department of Water and Power 1957).

The freeway embankment was combined as a berm on the downstream slope of the dam. The reservoir enlargement was partially constructed as a Works Project Administration (W.P.A.) project; however, due to manpower shortages resulting from WWII, work was completed by the Los Angeles Department of Water and Power, under the supervision of the Field Engineering Division. At the time of WPA abandonment, the outlet works, by-pass line, and surface drains were near completion. The reservoir was placed back in service in May 1943 (Los Angeles Department of Water and Power 1957).

William Mulholland

William Mulholland, born in Ireland in 1855, spent his early life as a sailor and eventually settled in the United States upon his departure from the service. In 1877, by the age of 22, Mulholland was living in California. One year later he received a job working for the Los Angeles City Water Company (LACWC) as a *zanjero*, where he was required to keep the *Zanja Madre* free of debris and weeds along its route from the river to the Buena Vista Reservoir in Elysian Park (Rock Quarry Hills). Mulholland was eventually promoted to foreman of the ditch gang, and continued to work his way up in the organization until, eventually, he was made superintendent in 1886 (Matson 1976). He kept his position even after the City of Los Angeles regained control of the city water supply from the LACWC in 1902 (Mulholland 2000).

Known as "the Chief", William Mulholland, a self taught engineer, continually devised new systems to enable the delivery of more water to the city. In the spring of 1903, he was engaged in completing the new high-gravity reservoir in Elysian Park, to be located to the west of the Buena Vista Reservoir. Not long after, under the direction of Mulholland, the Los Angeles Bureau of Water Works and Supply constructed the 233-mile long Los Angeles Aqueduct. This five year project, completed in 1913, employed the labor of thousands of men, and brought millions of gallons of water from the Owens Valley into the San Fernando (now Van Norman) Reservoir (Gumprecht 1999). Mulholland was also involved in design ideas for the Colorado River Aqueduct, Hoover Dam, and the Panama Canal.

Mulholland's career ended approximately fifteen years later when the St. Francis Dam, a project he oversaw, failed just hours after he inspected it. This catastrophe sent 12.5 billion gallons of water flooding into the Santa Clarita Valley, just north of Los Angeles. The town of Santa Paula lay buried under 20 feet of mud and debris; other nearby areas were covered in up to 70 feet of debris. The final death count was estimated at 450 people. Mulholland took full responsibility for the engineering disaster and resigned his position. He died in 1935.

B 10 Significance (continued):

Application of the CRHR Criteria

Historic water related systems may be found eligible to the CRHR under any of the previously outlined significance criteria, although some criteria are more commonly relevant than others. Potential significance is evaluated in direct relation to the contextual themes identified as being relevant to a particular region.

Like other types of public works facilities, water related systems are inherently important to the communities they serve, providing infrastructure essential for community development. For a water system to be considered eligible under Criterion 1, it must be found to be associated with specific important events or patterns of events. The significance of the documented association must be an important association in and of itself, not mere coexistence.

For eligibility under Criterion 2, a property must be associated with an important person's productive life, and must be the property that is most closely associated with that person. Water related systems are rarely found eligible under Criterion 2, however, a water system could be found eligible under this criterion if the person's association with the system is strong, and no other properties closely associated with that person remain.

Water related systems can be determined eligible for the CRHR under Criterion 3 for their engineering or design values. Properties eligible under this criterion may have unique features, or they may be good examples of a type of property.

Eligibility under Criterion 4 hinges on the ability of the property, as contained in artifacts and objects, to further address issues of scientific importance to the period of significance. These data are primarily derived from archaeological sites, and rarely buildings and structures themselves. Archaeological features or deposits may provide new information not available elsewhere regarding kinds of documented or undocumented activities in the area. While buildings and structures can sometimes provide important information regarding historic construction techniques, most of these techniques are well documented in both written and visual sources, and generally, would not yield new primary information.

Elysian Reservoir CRHR Evaluation

Criterion 1

The Elysian Reservoir was one of the first reservoirs constructed by the City of Los Angeles after they resumed control of their water works system. Along with other reservoirs from that time, the Elysian Reservoir played a key role in the City's ability to deliver water to Los Angeles' growing population. Due to the numerous modifications undertaken on the reservoir over the years, however, it has lost a significant degree of historic integrity to that time period.

B10 Significance (continued):

A consideration of significance under Criterion 1 for water system properties hinges on an understanding of the cultural atmosphere in which they were planned, financed, and built. This understanding is generally derived from the original physical features of the building or structure. In the case of the Elysian Reservoir, these physical features have either been severely degraded, or no longer exist. Although the reservoir is associated with an important local historic event, its loss of historic integrity from its period of significance overrides its potential eligibility. While the reservoir does retain integrity of location and setting, it has lost integrity of materials, design, workmanship, feeling and association. While rare or unusual properties are sometimes allowed a greater number of alterations (National Register Bulletin 15), the Elysian Reservoir does not fall into this category of properties. It was not the first reservoir in the region, nor did it involve innovative construction techniques. Instead, it relied upon existing, proven technologies.

The renovated and enlarged dam was partially completed as a WPA project, however much of the work was done by the Los Angeles Department of Water and Power after the WPA abandoned the project; The WPA abandonment was due to the shortage of manpower resulting from the United States' entry into WWII. The dam, therefore, does not appear to retain a high degree of association as a WPA-completed project. The Elysian Reservoir, therefore, does not appear to meet eligibility Criterion 1 for CRHR listing.

Criterion 2

In terms of Criterion 2, the highest potential for eligibility of the Elysian Reservoir is its association with William Mulholland. The preliminary assessment of the Elysian Reservoir completed by BonTerra in 2005 indicated the possibility of eligibility under CRHR Criterion 2, through its association with Mulholland. This potential eligibility suffers however, from the facility's extensive loss of integrity. Further research on the property undertaken by EDAW revealed several alterations and modifications, undertaken predominately in the 1940s, that have compromised its historic integrity. Some of the modifications (listed in Table 1) are outlined below:

- Removal of reservoir appurtenances
- Stripping of bottom and side slopes of reservoir
- Construction of new reservoir appurtenances, including spillway, inlet structures, outlet tower and footbridge, outlet lines, by-pass line, reservoir wall, fence, roadways and storm drains, and the paving of the inside surfaces of the reservoir and the roadway surfaces with asphaltic paving

B10 Significance (continued):

The reservoir no longer maintains a sense of place and time to Mulholland's original design. This lack of integrity is especially problematic within the specific context of Mulholland, in that there are other, better known, water-related properties with associations to him, such as the Los Angeles Aqueduct. The Elysian Reservoir, therefore, does not appear to be eligible under Criterion 2.

Criterion 3

As previously noted, the Elysian Reservoir has undergone several modifications that have degraded its original historic features. While it is generally recognized when assessing a property's integrity that historic resources can undergo nominal changes without destroying the integrity, it is necessary for the property to retain enough historic features to convey its original historic appearance (National Register Bulletin 15). In its present condition and configuration, the Elysian Reservoir does not resemble its original historic design or appearance due to the subsequent enlargement of the facility in the 1940s, and other ad-hoc alterations. Because of this substantial loss of integrity, this property does not appear to meet eligibility Criterion 3 for CRHR listing.

Criterion 4

The Elysian Reservoir has been documented in several primary and secondary sources; therefore the structure does not appear to possess the potential to answer important scientific questions, or yield previously unknown information. The research value of the Elysian Reservoir has been realized through these previous studies and documentation. This property does not appear to be eligible for listing under CRHR Criterion 4.

Other Features

Other historic-era features located within in the project area (i.e. ditches, roads), and associated with the Elysian Reservoir do not appear eligible for CRHR listing. Most of the features were constructed during the reservoir enlargement, after the period of significance, and do not, themselves, embody distinctive characteristics or important associations.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

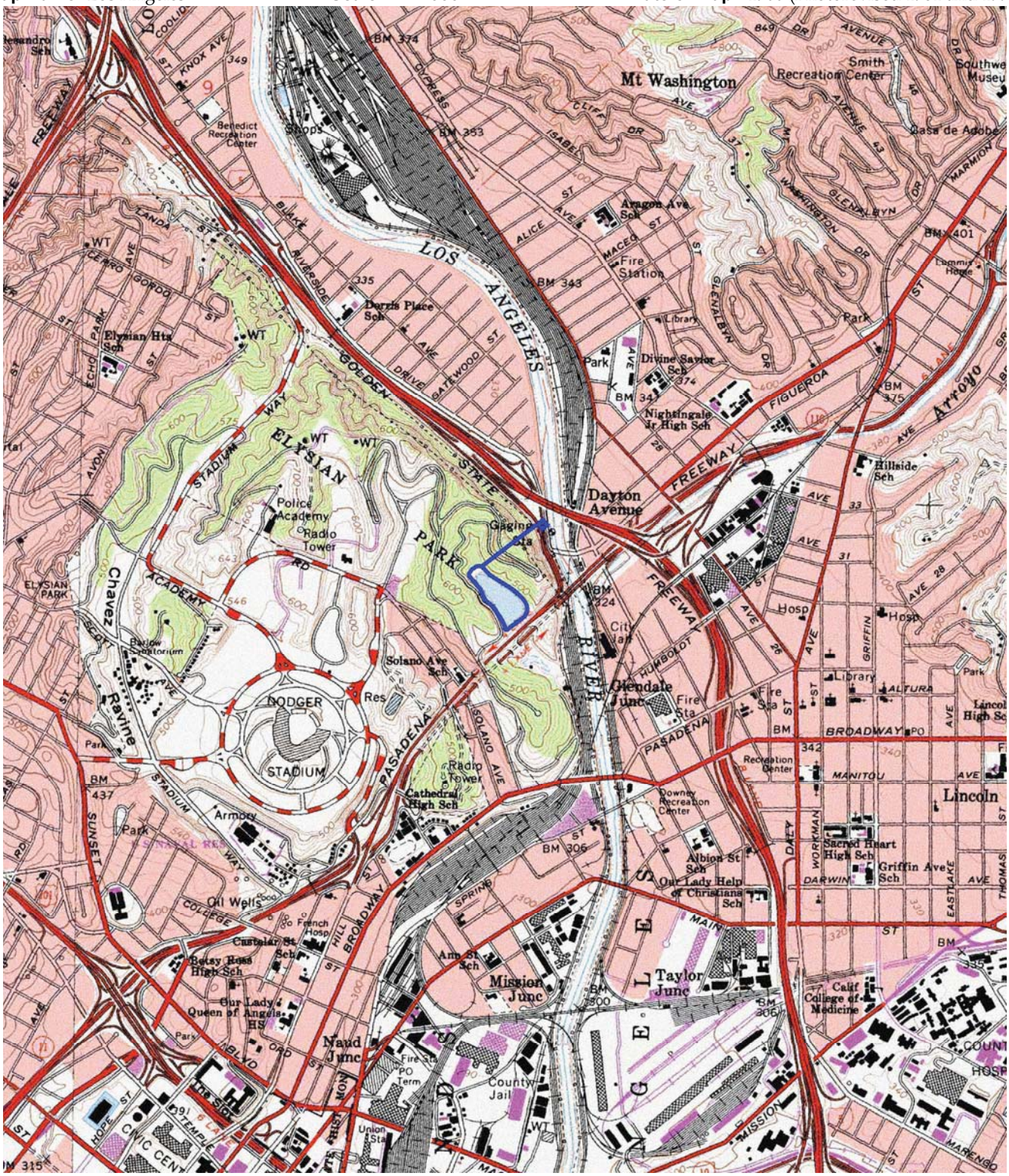
Primary #
HRI#

LOCATION MAP Trinomia

I

*Resource Name or #: Elysian Reservoir

*Map Name: Los Angeles *Scale: 1:24 000 *Date of Map: 1966 (Photorevised 1981 and 1994)



*Required information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

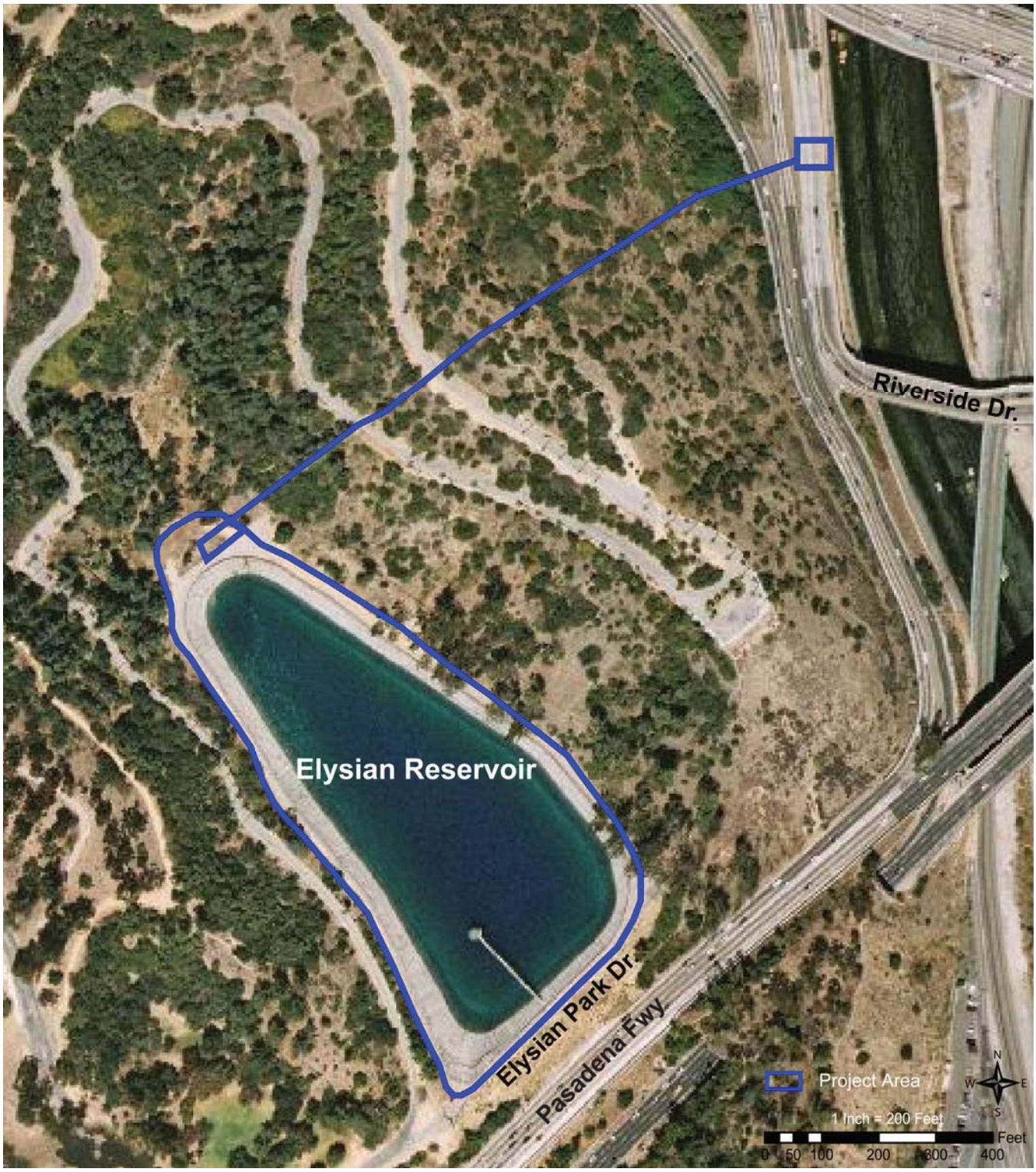
Primary #
HRI#

SKETCH MAP Trinomia

I

Page 9 **of** 9 ***Resource Name or #**: Elysian Reservoir

***Drawn By:** Tim Harris ***Date:** October 2008



DPR 523K (1/95)

*Required information

Cogstone Resource Management Inc.
Paleontology • Archaeology • History

PALEONTOLOGICAL ASSESSMENT

FOR THE ELYSIAN RESERVOIR

WATER QUALITY IMPROVEMENT PROJECT,

CITY OF LOS ANGELES, CALIFORNIA

Submitted to:
EDAW Inc.
515 South Flower Street, 9th Floor
Los Angeles, California 90071

Authors:
Kim Scott and Sherri Gust

Principal Investigator:
Sherri Gust
Qualified Principal Paleontologist

September 2008

Cogstone Project Number: 1671
Type of Study: Paleontological Assessment Report
Localities: (13) LACM 1880, 3882, 4967, 6934, 7017, 7507; LACMIP 512, 4746, 16840 – 16844,
USGS Quadrangle: Los Angeles, 7.5'
Key Words: Puente Formation, Late Miocene, Los Angeles, Los Angeles County, holotype fossils

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EXECUTIVE SUMMARY

Cogstone Resource Management Inc. was retained by EDAW Inc. to provide a Paleontological Assessment for the Elysian Reservoir Water Quality Improvement Project, City of Los Angeles, Los Angeles County, California. This assessment was requested by the Los Angeles Department of Water and Power (LADWP) to meet their responsibility as the lead agency under the California Environmental Quality Act (CEQA).

The project proposes to remove the existing asphalt-lined reservoir and install two large buried concrete tanks totaling 55 million gallons of potable water storage. Additionally, work is planned at the northwestern end of the reservoir within the fenceline, and outside the reservoir property but within Elysian Park, at the middle pipe jacking pit location.

The project area has most recently been mapped as Puente Formation, although in the past this part of the Elysian Hills has been mapped as upper Monterey Formation (locally the Modelo Formation). The Puente Formation is Late Miocene, dating between 11.6 and 5.3 million years old. At the project area the Puente Formation consists of light tan, coarser grained sandstone beds interfingered with buff to white, laminated, fissile, finer grained sands and silts. In places the bedding is interrupted by coarse sands and pebbles.

A records search determined that one vertebrate locality was located within Elysian Park proper (it is unknown if this locality was in the project area) and twelve others were located very near the project area. All fossil localities identified in the search came from the Puente Formation. Of particular note are the holotype of a new species of herring found within Elysian Park proper plus several nearby localities which produced deep water fishes and the holotype of an extinct species of baleen whale. The survey confirmed the presence of fossils in the Puente Formation at the project area.

Species new to science have previously been recovered from the Puente Formation in and near to Elysian Park. Because of this the project area has high paleontological sensitivity. Full-time monitoring is recommended for all excavation impacts to the Puente Formation as part of this project to mitigate the adverse effects to significant, non-renewable paleontological resources.

INTRODUCTION

PURPOSE OF STUDY

Cogstone Resource Management Inc. was retained by EDAW Inc. to provide a Paleontological Assessment for the Elysian Reservoir Water Quality Improvement Project, City of Los Angeles, Los Angeles County, California (Figure 1). This assessment was requested by the Los Angeles Department of Water and Power (LADWP) to meet their responsibility as the lead agency under the California Environmental Quality Act (CEQA).

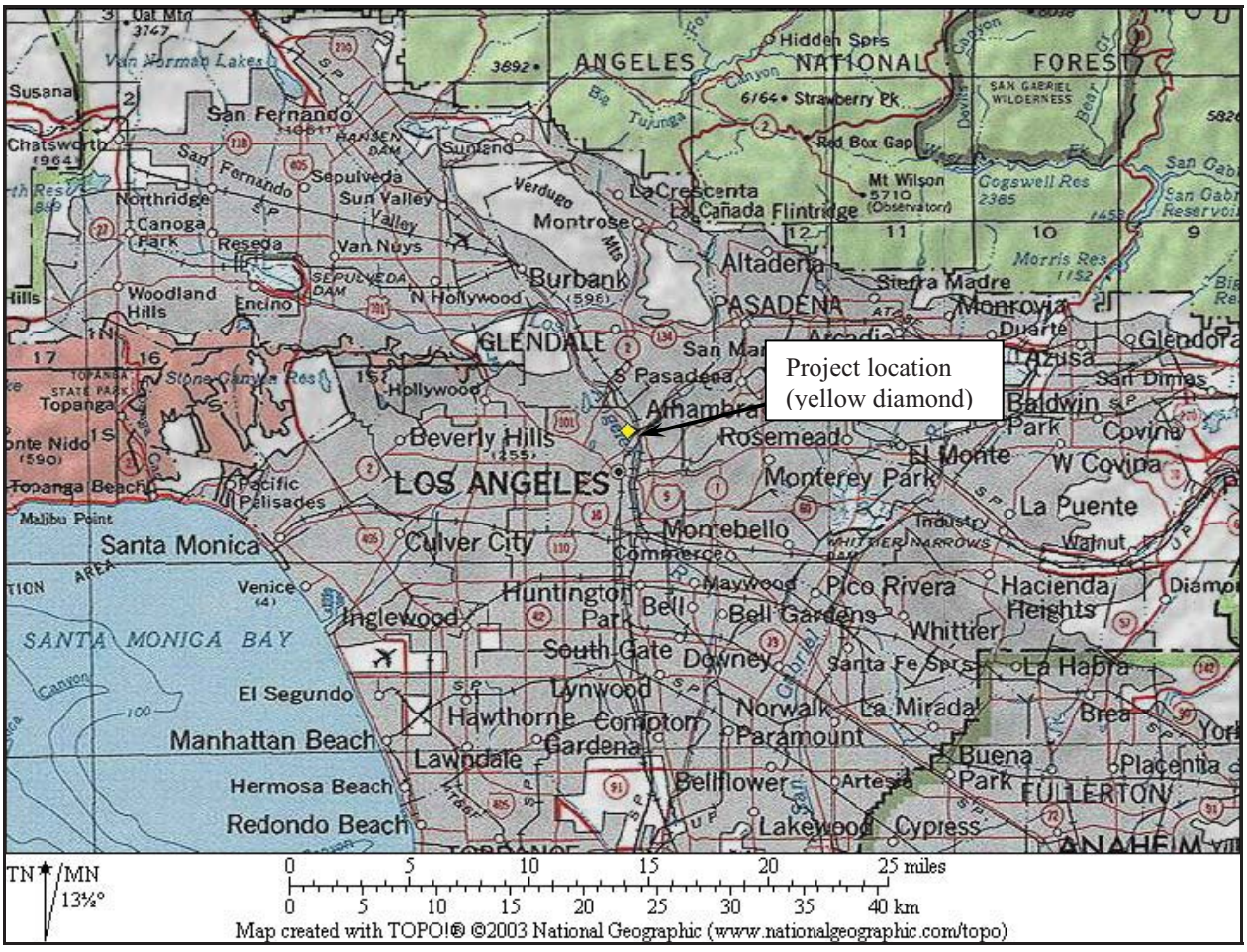

Figure 1. Regional Location Map

PROJECT DESCRIPTION

The proposed project area is contained in unsectioned portion of Township 1 South, Range 13 West of the San Bernardino Base Meridian (Figure 2). The project proposes to remove the existing asphalt-lined reservoir and install two buried concrete tanks totaling 55 million gallons of potable water storage (Figure 3). Additionally, work is planned at the northwestern end of the reservoir property within the fenceline, and outside the reservoir property but within Elysian Park at the middle pipe jacking pit location.

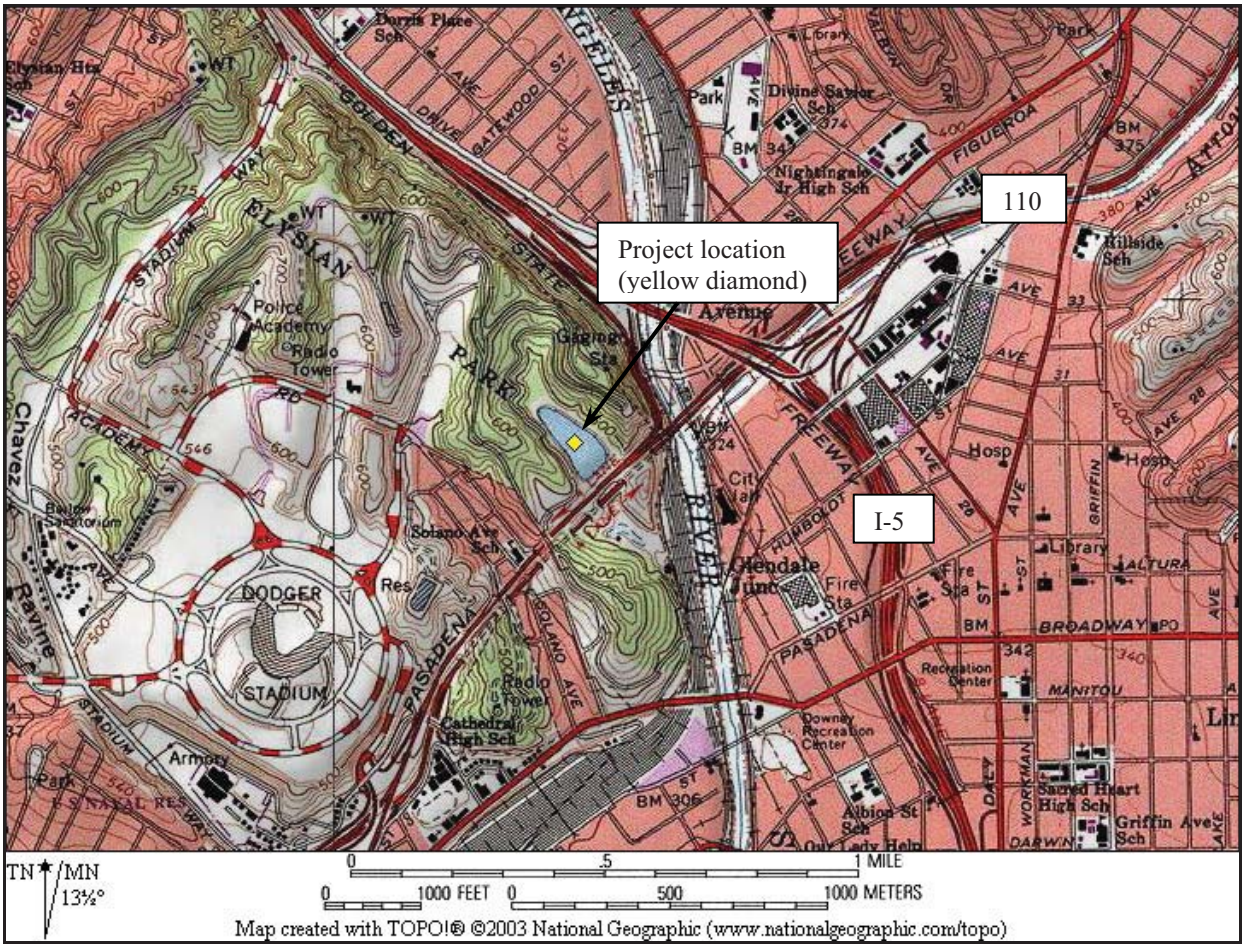

Figure 2. Location of the reservoir within Elysian Park

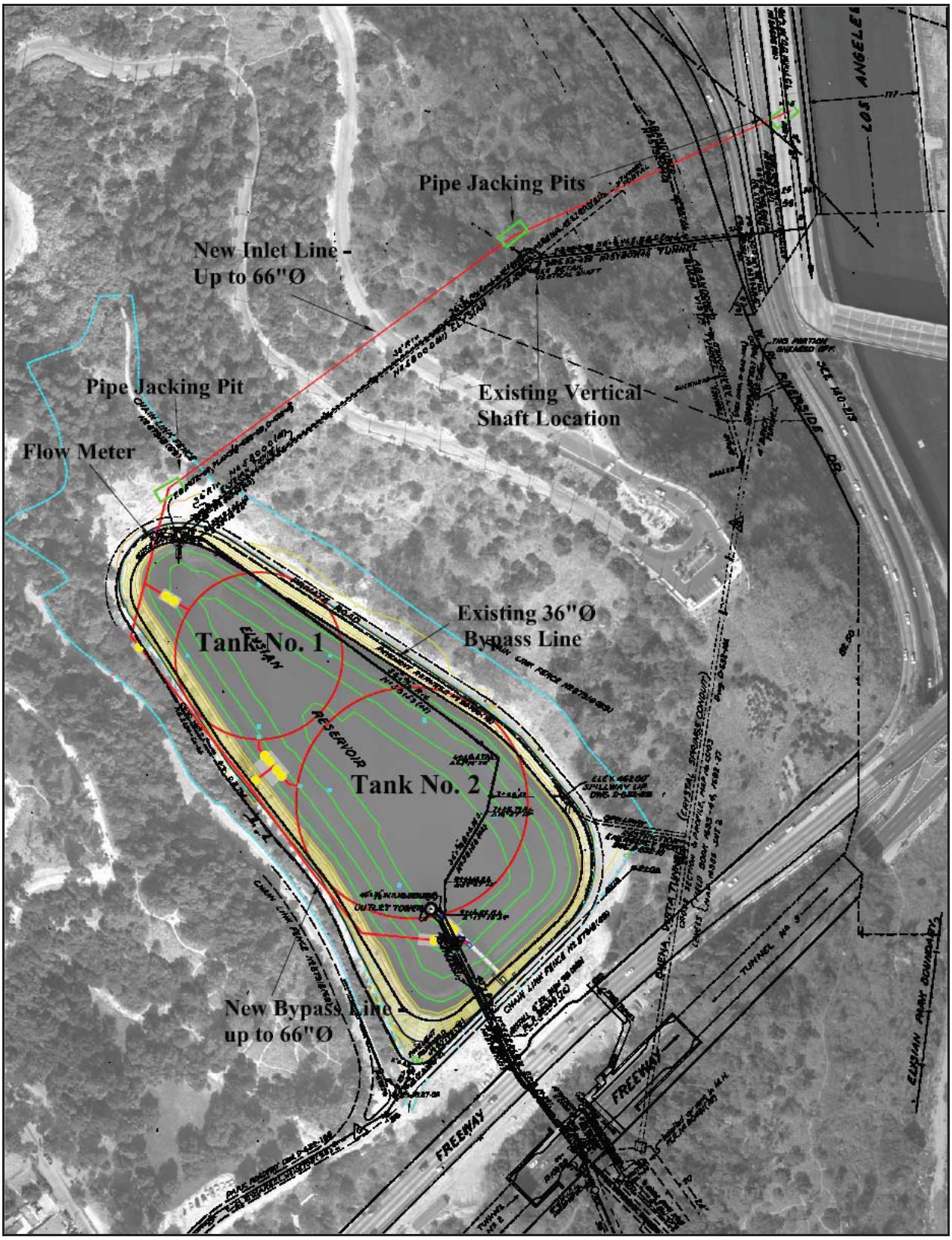

Figure 3. Project construction plan

PROJECT PERSONNEL

Cogstone Resource Management, Inc. conducted the survey, data collection, and report preparation. Sherri Gust served as the Principal Investigator for the project, supervised all work, wrote portions of the report and edited it. Gust is an associate of the Vertebrate Paleontology and Rancho La Brea sections of the Natural History Museum of Los Angeles County, has a BLM paleontology permit and certification as a qualified paleontologist in numerous California counties. She has an M.S. in Anatomy (Evolutionary Morphology) from the University of Southern California, a B.S. in Anthropology from the University of California, Davis and over twenty-five years of experience in California.

Kim Scott conducted the literature review, the survey, and wrote the majority of the report. Scott has a B. S. in Geology with an emphasis in Paleontology from the University of California, Los Angeles and over 10 years of experience with California paleontology and geology. Qualifications of project personnel are provided (Appendix A).

STATE LAWS AND REGULATIONS

The following discussion of applicable state laws has been excerpted and reordered from the California Department of Transportation's on-line Environmental Handbook, Volume 1, Chapter 8 on Paleontology (Caltrans 2003). This project is subject to state and local legislation regarding paleontological resources.

California Environmental Quality Act of 1970 (CEQA) (PRC § Section 21000 *et seq.*)
CEQA declares that it is state policy to "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

CEQA includes historic, archaeological, and paleontological resources as integral features of the environment. If paleontological resources are identified as being within the proposed project site, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource.

DEFINITION OF SIGNIFICANCE FOR PALEONTOLOGICAL RESOURCES

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life;
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of

plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important. Paleontological remains are recognized as nonrenewable resources significant to the history of life (Scott and Springer 2003).

BACKGROUND

NATURAL SETTING

The physiographical, geological, and ecological zones represented in the project vicinity are best described as uplifted hills bordering the northern end of the Los Angeles Basin. The project area is situated at the eastern end of the Santa Monica Mountains in the Elysian Hills. To the north are the Verdugo Hills and San Gabriel Mountains, to the east is the San Gabriel Valley, and to the south is the Los Angeles Basin.

REGIONAL SETTING

This area is part of the California geomorphic province known as the Peninsular Ranges. The Peninsular Ranges are a series of ranges separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault (Wagner 2002).

GEOLOGIC SETTING

Puente Formation

The project area has most recently been mapped as Puente Formation (Yerkes and Campbell 2005), although McLeod (2004) mentions that the project area had been mapped as upper Monterey Formation (locally the Modelo Formation) in the past (Figure 4). The Puente Formation is Late Miocene, dating between 11.6 and 5.3 million years old (GeoWhen 2008). At the project area, the Puente Formation consists of light tan, coarser grained sandstone beds interfingered with buff to white, laminated, fissile, finer grained sands and silts. Structural

features, ripup clasts, and other sedimentary structures suggest the Elysian Hills during the time of deposition were part of the mid-fan facies of an submarine fan (Figure 5). The Puente Formation is well known for producing fossil resources in the Los Angeles area. Fossils are primarily marine and include invertebrates, fish, and marine mammals, although they can also include terrestrial animal and plant fossils that were washed out to sea.

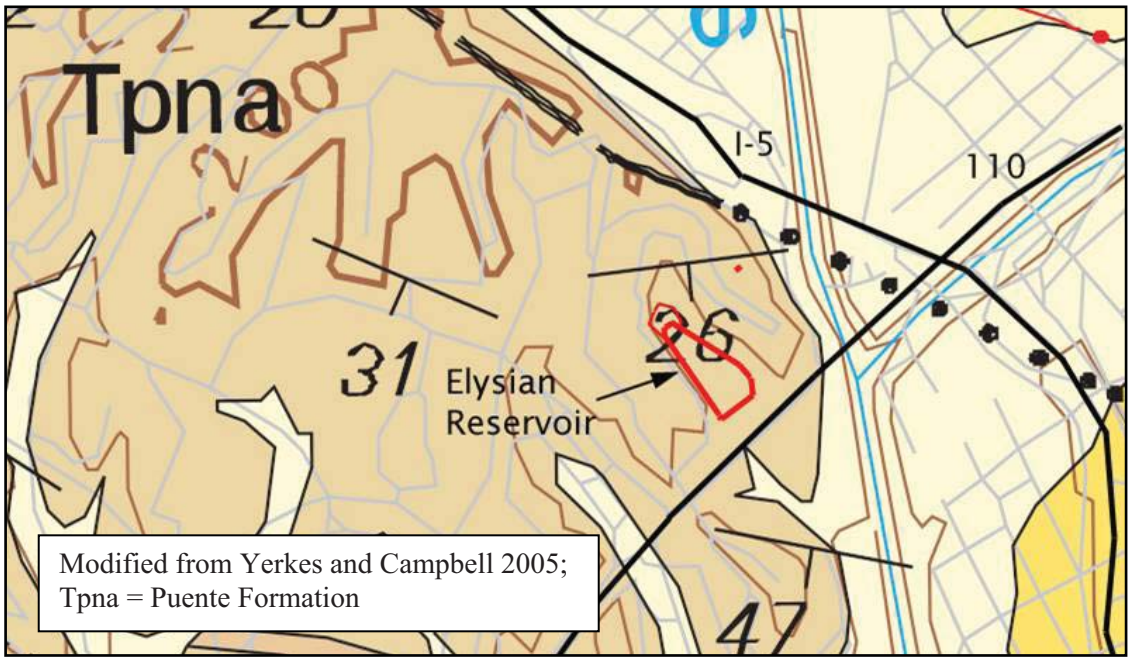

Figure 4. Geology of the project area (in red)

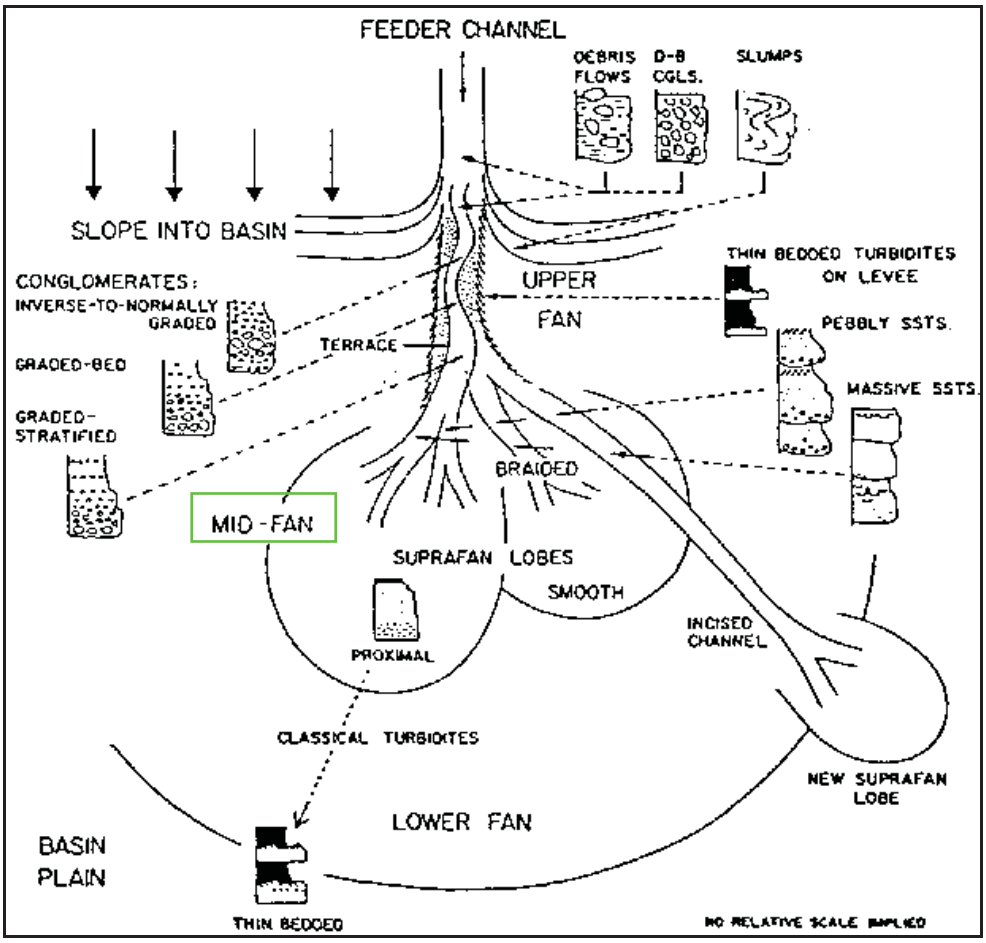

Figure 5. Submarine fan model with the mid fan area near the center of the model

PALEONTOLOGICAL SETTING

During the Late Miocene (11.6 to 5.3 million years ago), most of coastal California was under the ocean. Marine mammals included whales, pinnipeds, and sirenians and were accompanied by fishes very similar to those found in the oceans today. On land the advent of grasslands brought a peak in the diversity of large North American herbivores, especially the horses.

During the Pliocene (5.3 to 2.1 million years ago) and Pleistocene (2.1 million to 11,000 years ago) the water retreated to the west and California made a transition from shallow marine to terrestrial as the ocean receded. In the Los Angeles area the developing terrestrial landscape had a climate that was moister than the present, with free flowing streams and relatively abundant standing water (Shaw and Quinn 1985).

PALEONTOLOGICAL RECORD SEARCH RESULTS

A records search was conducted at the Natural History Museum of Los Angeles County Museum Department of Vertebrate Paleontology (LACM), at the Natural History Museum of Los Angeles County Museum Department of Invertebrate Paleontology (LACMIP), with the Museum of Paleontology at University of California at Berkeley (UCMP), and in existing literature. One vertebrate locality was located within Elysian Park proper (it is unknown if this locality was in the project area), and twelve others were located very near the project area (McLeod 2008, LACMIP 2008).

Of particular note are LACM 4967 which includes the holotype of a new species of herring (*Clupea teijei*) and LACM 3882 which includes the holotype of a new species of baleen whale (*Mixocetus elysius*). Aside from LACM 4967 which was recovered from Elysian Park, the two closest localities (LACM 7507 and LACM 1880) produced deep water fish. Seven invertebrate localities were near the project area in the Puente Formation also, although only one locality included data on the fossils recovered (LACMIP 2008).

Table 1. Nearby recorded paleontological resources in the Puente Formation
↓ indicates a deep water animal; ‡ indicates an extinct taxon

Common Name (taxon)	Locality; Reference
herring (Clupea tiejei‡)	Elysian Park; LACM 4967; McLeod 2008; holotype
snake mackerel (Thyrsocles kreigeri ↓‡)	near San Fernando Rd and Barranca St; LACM 7507; McLeod 2008
cetotherid baleen whale skull (Mixocetus elysius‡)	Lincoln Heights hills; LACM 3882; McLeod 2008; holotype – one of the most complete fossil whale skulls in California
hatchetfish (Argyropelecus bullockii ↓‡) bristelmouth (Cyclothone spp. ↓) rockfish family (Scorpaenidae) extinct deep marine fish (Chauliodus spp. ↓‡) slickhead family (Aleopcephalidae ↓) cod (Eclipes spp.) croaker (Lompoquia spp.)	between Figueroa St and Cypress Ave; LACM 1880; McLeod 2008
baleen whale skull (Mysticeti)	near Mt Washington school; LACM 6934; McLeod 2008
bony fish (Osteichthyes)	near the Southwest Museum; LACM 7017; McLeod 2008
invertebrates	Wilshire between MacArthur Park and Normandie Ave; LACMIP 16840 to 16844
scallop (Delectopecten peckhami)	El Sereno; LACMIP 4746
invertebrates	Monterey Park highlands; LACMIP 512

FIELD SURVEY

METHODS

A paleontologist performed a thorough pedestrian survey of the project area on September 25, 2008. All areas of open ground surface to be impacted by the proposed project (refer to Figure 3) were inspected.

RESULTS

The visible Puente Formation sediments consisted of light tan, coarser grained sandstone beds interfingered with buff to white, laminated, fissile, finer grained sands and silts. In places the bedded structure (layer on layer) is interrupted by coarse sands and pebbles (Figure 6). Ripup clasts and other sedimentary structures suggest middle fan facies as mentioned in the preceding section.

Fossils observed included beds of plant remnants and scattered marine mammal coprolites. No fossils were readily identifiable past the generic identifications of "plant" and "coprolite". No material was collected.

Figure 6. Coarse grained sands from a turbidity current grade upsection to fine grained, laminated beds

POTENTIAL IMPACTS

Paleontological resources are considered to be significant if they provide new data on fossil animals, distribution, evolution or other scientifically important information. The proposed project requires excavation into native sediments of the Puente Formation known to have high potential to produce significant, non-renewable paleontological resources. Species new to science have previously been recovered from Elysian Park and the entire park has high paleontological sensitivity.

MITIGATION PLAN

The following mitigation measures have been developed to reduce the adverse impacts of project construction on paleontological resources to a less than significant level. The measures are derived from the guidelines of the Society of Vertebrate Paleontologists and meet requirements of the City of Los Angeles and CEQA. These general mitigation measures have been used throughout California and have been demonstrated to be successful in protecting resources while allowing timely completion of construction.

1. A qualified principal investigator for paleontology shall be retained to provide professional services. Minimum qualifications are a graduate degree and more than 10 years of experience as a principal investigator with a specialization in vertebrate paleontology. The principal investigator shall be responsible to implement the plan and maintain professional standards of work.

2. Qualified monitors shall perform full-time monitoring of construction grading and excavation in the Puente Formation. A qualified monitor shall have specific training in paleontology and more than two years of paleontological monitoring experience. Monitoring shall include inspection of exposed surfaces and microscopic examination of matrix. The monitor shall have authority to divert grading away from exposed resources temporarily in order to recover the specimens.

3. If the discovery meets the criteria for a fossil locality, then work shall be diverted until the Paleontology Field Supervisor or Principal Investigator evaluates the discovery. Localities require documentation including stratigraphic information. Decisions about fossil salvage shall be made in consultation with the client and the lead agency.

4. If microfossil localities are discovered, the monitor shall collect matrix for processing. In order to limit downtime, the monitor may request heavy machinery assistance to move large quantities of matrix out of the path of construction to designated stockpile areas. Testing of stockpiles shall consist of screen washing small samples (200 pounds) to determine if fossils are present. Productive tests shall result in screen washing of additional matrix from the stockpiles to a maximum of 6000 pounds per locality.

5. The principal investigator shall prepare progress reports to be filed with the client and the lead agency at an interval to be determined by the LADWP (weekly or monthly).

6. Fossils recovered shall be prepared, identified, and cataloged before donation to the federally accredited repository designated by the lead agency. The Natural History Museum of Los Angeles County is recommended for vertebrate and invertebrate fossils. The Museum of Paleontology at the University of California at Berkeley is recommended for plant fossils. Any resources determined not to meet significance criteria shall be offered to local schools for use in educational programs.

7. The principal investigator shall prepare a final report to be filed with the client, the lead agency and the repository. The report shall include a list of resources recovered, documentation of each site/locality, interpretation of resources recovered and shall include all specialist's reports as appendices.

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APPENDIX A: QUALIFICATIONS

SHERRI GUST

Cogstone Paleontology Archaeology History

Registered Professional Archaeologist & Qualified Paleontologist

EDUCATION

1994 M. S., Anatomy and Cell Biology (Evolutionary Morphology), University of Southern California, Los Angeles

1979 B. S., Anthropology (Physical), University of California, Davis

SUMMARY QUALIFICATIONS

Gust has more than 28 years of experience in California, acknowledged credentials for meeting national standards and is certified/qualified in all southern California cities and counties that maintain lists. Gust has managed all company projects to date and past clients have rated her excellent in dealing with project problems.

SELECTED REPORTS AND PROJECTS

2007 Gust, S., A. Glover and K. Houck. The Historic Los Angeles Cemetery, Los Angeles Gold Line Metro Project, East Portal Area, Los Angeles, CA: final technical report. Performed mitigation monitoring, testing, data recovery, artifact and burial analysis and both technical and public friendly reports for Metropolitan Transportation Authority of Los Angeles County.

2007 Gust, S., and K. Scott. Paleontological Evaluation of 2008 Supplemental Control Requirements for the Owens Valley PM10 Planning Area Demonstration of Attainment State Implementation Plan, Inyo County, California. Performed paleontological survey and impact evaluation for Great Basin Unified Air Pollution Control District under subcontract to Sapphos Environmental, Inc.

2007 Gust, S. The Archaeology and History of the Zanja Madre below Broadway, City of Los Angeles, California. Performed research, monitoring, evaluation, public presentations and reporting for Metropolitan Transportation Authority of Los Angeles County.

2007 Gust, S. and K. Houck. History of Coachella's Pioneer Cemetery with a Proposed Memorial. Performed survey, research, interviews, memorial design and report for the City of Coachella under contract to private property owner.

2007 Gust, S., S. McCormick and K. Scott. Paleontological and Archaeological Assessment Report for the Metrolink Expansion Services Project at Fullerton Station, City of Fullerton, California. Performed record searches, Native American consultation and survey and prepared evaluation report for Parsons Brinckerhoff Orange under contract to OCTA.

2006 Scott, K. and S. Gust. Paleontological Resources of the Interstate 80 Median and Auxillary Lanes Project, Sacramento, California. Performed record searches, research, survey and prepared combined paleontological resources identification study/evaluation and mitigation plan for URS Oakland under contract to Caltrans District 3.

KIM SCOTT

Cogstone Paleontology Archaeology History

Paleontology Field & Lab Director

EDUCATION

In progress M.S., Biology (Paleontology), California State University, San Bernardino

2000 B.S., Geology (Paleontology), University of California, Los Angeles

SUMMARY

Scott has more than 10 years of experience in California paleontology. She is a qualified geologist and field paleontologist with extensive survey, monitoring and fossil salvage experience. In addition she has special skills in fossil preparation (cleaning and stabilization) and preparation of stratigraphic sections and other documentation for fossil localities. She is the primary field and lab supervisor for paleontology and conducts all company paleo training.

SELECTED REPORTS AND PROJECTS

2007 Scott, K. and S. Gust. Paleontological Mitigation Report for the Walker Ridge Safety/Rehabilitation Project, Lake County, California. Performed paleontological monitoring, fossil collection, fossil preparation, fossil identification and prepared mitigation report for Pacific Legacy under contract to Caltrans District 1.

2007 Gust, S., and K. Scott. Paleontological Evaluation of 2008 Supplemental Control Requirements for the Owens Valley PM10 Planning Area Demonstration of Attainment State Implementation Plan, Inyo County, California. Performed paleontological survey and impact evaluation for Great Basin Unified Air Pollution Control District under subcontract to Sapphos Environmental, Inc.

2007 Gust, S., S. McCormick and K. Scott. Paleontological and Archaeological Assessment Report for the Metrolink Expansion Services Project at Fullerton Station, City of Fullerton, California. Performed record searches, Native American consultation and survey and prepared evaluation report for Parsons Brinckerhoff Orange under contract to OCTA.

2007 Scott, K. and S. Gust. Paleontological Resources of the SAC16 – Excelsior Road Safety Project, Sacramento County, California. Performed paleontological monitoring and prepared paleontological mitigation report for URS Oakland under contract to Caltrans District 3.

2006 Scott, K. and S. Gust. Paleontological Resources of the Interstate 80 Median and Auxillary Lanes Project, Sacramento, California. Performed record searches, research, survey and prepared combined paleontological resources identification study/evaluation and mitigation plan for URS Oakland under contract to Caltrans District 3.

2005 Scott, K. and S. Gust. Paleontological Resources of the Highway 138 West Expansion, San Bernardino County, California. Performed record search and survey and prepared combined paleontological resources identification study, evaluation and mitigation plan for Applied Earthworks Inc. under contract to Caltrans District 8.