# APPENDIX B
# Biological Resources Memorandum

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**Subject: Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project, Biological Resources Memorandum**

## 1. INTRODUCTION

The Los Angeles Department of Water and Power (LADWP) proposes to implement the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project (proposed project) within its Silver Lake Reservoir Complex (SLRC), which comprises the Silver Lake and Ivanhoe Reservoirs (the reservoirs). This project is being proposed to manage algae growth and reduce related odors at SLRC.

AECOM was retained by LADWP to prepare a biological resource assessment of the proposed project in support of the California Environmental Quality Act (CEQA). This memo summarizes the results of a site survey conducted by AECOM to document existing biological conditions of the proposed project within the SLRC. This report includes the methods used to assess existing biological resources, results of vegetation, wildlife, and habitat evaluations, the list of potential special-status species evaluated, an identification of potential impacts to these resources, and mitigation measures identified to minimize and avoid potential impacts to biological resources.

## 2. PROJECT DESCRIPTION

### 2.1 Project Location and Setting

The proposed project would be located within the boundaries of the 127-acre, LADWP-owned SLRC, located in the Silver Lake community of the City of Los Angeles, approximately 5 miles north of downtown Los Angeles. The SLRC is generally bound by Tesla Avenue on the north, Armstrong Avenue and Silver Lake Boulevard on the east, Van Pelt Place on the south, and Silver Lake Drive on the west. Local access to the project site is provided via Silver Lake Boulevard immediately east of the project site; Glendale Boulevard, approximately 0.2-mile east of the project site; Hyperion Avenue, approximately 0.4-mile west of the project site; and Sunset Boulevard, approximately 0.65-mile southwest of the project site. Regional access is provided via Interstate 5 (I-5, Golden State Freeway), approximately 0.5-mile northeast of the project site; U.S. Route 101 (US 101, Hollywood Freeway), approximately 1.4 miles south of the project site; and State Route 110 (SR 110, Pasadena Freeway), approximately 2.15 miles southeast of the project site. Figures 1 and 2 (Attachment A) depict the regional vicinity and project location, respectively.

The SLRC includes the Silver Lake and Ivanhoe Reservoirs, dams, buildings, water and stormwater infrastructure, interior roads, and public recreational facilities. The proposed facilities would be installed within the reservoirs and the area adjacent to the edges of the reservoir within the SLRC in the areas that currently contain other LADWP facilities. The area surrounding the SLRC is characterized by low-rise single and multi-family residential

structures with various commercial uses located along busier roadways in the neighborhood.

## 2.2 Project Objectives

The objectives of the proposed project are to:

- Comply with the requirements of the SLRC Storage Replacement Project (SRP) Environmental Impact Report
- Install an aeration and recirculation system to ensure full water transfer between both basins and increase the oxygen levels at the bottom of the reservoirs, and properly mix and destratify the water in the reservoirs to minimize stagnation
- Control algal growth and associated odors at the reservoirs

## 2.3 Construction Scenario

Silver Lake and Ivanhoe Reservoirs require an aeration and recirculation system to ensure that reasonable water quality parameters are met for visual aesthetics and controlling odors. The proposed project would include the installation of a bubble plume aeration system and a recirculation pipe system to ensure oxygenation and destratification of the reservoirs. Project components are depicted in Figure 3. Destratification allows for the mixing of the reservoir water to allow for oxygen levels to be maintained throughout the reservoir. The proposed project would be implemented in two phases as described below.

### *Phase 1 – Reservoir Aeration*

Phase 1 would include installation of an aeration system consisting of air blowers, air piping to each of the reservoirs, bubble plume system diffusers in each of the reservoirs, and aftercoolers. Two air blowers would be installed for each reservoir, including one in continuous operation and one to serve as a backup. The air blowers would be housed in an enclosure with ventilation and sound insulation. The air blower package enclosure would be located inside an existing chlorination building in the northeast portion of the SLRC between the two reservoirs. Each air blower enclosure would consist of a local control panel and electrical power to support the air blowers and appurtenant equipment. Flow rate, air content, equipment's operational status, and pressure values would be monitored for each air blower. The aftercoolers would be located adjacent to the existing chlorination building, and would remove excess heat produced by the aeration system.

The air blowers would supply air via three- and four-inch pipes to a series of diffusing equipment inside each reservoir. After leaving the manifold enclosures, one-inch air piping would be installed along the eastern edges of the reservoirs. One air pipe would run from the air blower enclosure north to the Ivanhoe Reservoir and one air pipe would run south to the Silver Lake Reservoir. Each pipe would connect with diffusing equipment within each of the reservoirs. The diffusing equipment would increase the oxygen levels at the bottom of the reservoir and locally mix the water around it. Each diffusing equipment assembly would consist of a diffuser and a manifold and would be strategically placed across the reservoirs for optimal aeration. Approximately six diffusers would be installed in Ivanhoe Reservoir and 14 diffusers would be installed in Silver Lake Reservoir. This aeration system would discourage algae growth and reduce related odors from anaerobic conditions.

### *Phase 2 –Recirculation System*

Phase 2 would include the installation of a recirculation system consisting of a recirculation pump station, recirculation piping, and inflow from Ivanhoe Reservoir to Silver Lake Reservoir via the existing overflow weir. Additionally, two concrete plugs and approximately 400 feet of new recirculation piping would be installed within Ivanhoe Reservoir. The concrete plugs would be installed at the existing Ivanhoe Bypass and Ivanhoe Inlet Tower, and would contain all recirculating water within the vicinity of the SLRC to avoid potential flooding of the Rowena-Ivanhoe pipeline. The recirculation pump equipment would be installed at the existing Gate 456 structure, which is a fenced gate structure on the northwest corner of Silver Lake Reservoir that was historically used for water bypass when both Silver Lake and Ivanhoe were connected to the potable water system. Two submersible recirculation pumps would be installed along the depths of both Silver Lake and Ivanhoe Reservoirs and within the Gate 456 structure, with one pump on duty and the other on standby during normal operations. Both pumps would have the flexibility to operate simultaneously under special conditions. Suction intake would be located at the south end of the Silver Lake Reservoir along the existing Silver Lake Bypass pipeline and discharge would occur at the north end of Ivanhoe Reservoir. The recirculation piping would be connected to the recirculation pump to transfer water from Silver Lake to Ivanhoe over a partition wall within the Gate 456 structure. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs.

## 2.4 Construction Schedule and Procedures

Construction of Phase I is anticipated to begin in November 2020 and take approximately 13 months to complete, concluding in December 2021. Construction of Phase II is anticipated to begin at the end of Phase I and take approximately 16 months to complete, concluding in December 2022. Construction activities would occur Mondays through Friday from 7 a.m. to 3 p.m. Construction vehicle access would be available via the existing driveway at the northeastern corner of the SLRC near the intersection of Tesla Avenue and Armstrong Avenue. It is anticipated that haul trucks and construction workers would travel south to the project site from Sun Valley using Interstate 5 (I-5), then travel south on Riverside Drive to Glendale Boulevard, and then west on Lakewood Avenue to Armstrong Avenue. All construction activities would occur completely within the boundaries of the SLRC. Construction staging and laydown areas would also occur within the SLRC. Construction equipment would remain at the project site for the duration of its use.

### *Phase 1 – Reservoir Aeration*

Construction activities at each reservoir would consist of construction of the aeration header at the existing chlorination building, installation of the pre-assembled air blower enclosures for the aeration system, installation of the pipeline connections, and assembly of the diffusers. As previously discussed, the air blowers for the aeration system would be housed in a sound-insulated enclosure. Site preparation for the enclosure would include demolition of existing concrete slabs, installation of 40 polyvinyl chloride (PVC) conduits, and construction and casting of concrete and equipment pads. The concrete and equipment pads would require the site to be cleared, excavated up to 3 feet, and graded. The enclosure units would be installed within the existing chlorination building behind its concrete walls.

Following construction of the air blower enclosures, air pipes would be installed from the air blowers to diffuser systems at each reservoir. The pipes would be installed underground utilizing trenching and backfilling methods, with the exception of self-weighted lines that would extend within the reservoir. Approximately 1,021 linear feet of pipeline would be required for Ivanhoe Reservoir and approximately 1,076 linear feet of pipeline would be required for Silver Lake Reservoir. As previously discussed, the diffusers would consist of a diffuser and a manifold, which would be strategically placed across the reservoirs for optimal aeration.

After installation of the pipelines and diffuser systems, the existing control panel would be moved from the existing chlorination building to the newly constructed enclosures. The air blowers and associated piping and supports and ventilation system would be installed within the enclosure. Aftercoolers would be located outside of the enclosures, and a sunshade and would be constructed to protect the equipment.

It is anticipated that approximately 1,102 cubic yards of materials would be imported to the project site, including 684 cubic yards of crushed aggregate base, 78 cubic yards of asphalt, 98 cubic yards of concrete, and 233 cubic yards of slurry. Additionally, approximately 1,045 cubic yards of materials would be excavated and exported from the project site, including 982 cubic yards of soil, 35 cubic yards of asphalt, and 28 cubic yards of concrete. Materials required for construction would be stored on site, with the exception of asphalt and concrete.

Construction activities for Phase 1 of the proposed project would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site.

***Phase 2 - Recirculation System***

Construction activities for Phase 2 include installation of pipeline in Ivanhoe Reservoir, installation of concrete plugs at the existing Ivanhoe Bypass and Ivanhoe Inlet tower, demolition of the existing equipment in the Gate 456 structure, installation of a suction intake on the existing Silver Lake bypass pipeline, and construction of the recirculation pump station within the Gate 456 structure, including a partition wall. Demolition would involve removal of existing electrical and mechanical equipment and an existing concrete slab within the Gate 456 structure.

Prior to installation of the concrete plugs, the water from Ivanhoe Reservoir would be pumped into Silver Lake Reservoir. Following draining of the water, 400 linear feet of pipeline would be placed and casted with concrete within Ivanhoe Reservoir to recirculate water within this reservoir. The concrete plugs would be formed on-site, placed in the Ivanhoe Bypass and then the Ivanhoe Tower Inlet, and finished with additional concrete.

The recirculation pump station equipment would be located within the Gate 456 structure adjacent to the equipment enclosures associated with the Silver Lake Regulating Station. Construction activities for the recirculation pump station would include excavation up to 4 feet for a 15-foot by 27-foot duct bank, construction of 40 PVC conduits, casting equipment pads and concrete slabs for a 6-foot by 3-foot sized enclosure, installation of the control system, and connecting the control panel to the equipment and pipes. The pumps would be placed below-grade within a hydraulic structure, which would be shielded from view at the property line.

Approximately 100 feet of piping would be installed within the Gate 456 structure, which would pump water from Silver Lake Reservoir over a partition wall to Ivanhoe Reservoir. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs. Following installation of the piping, Ivanhoe Reservoir would be refilled via gravity through the existing Gate Well structure.

It is anticipated that approximately 167 cubic yards of materials would be imported to the project site consisting of 21 cubic yards of crushed aggregate base, 5 cubic yards of asphalt, 141 cubic yards of concrete, and 8 cubic yards of slurry. Additionally, approximately 64 cubic yards of materials would be exported from the project site consisting of 35 cubic yards of soil, 2 cubic yards of asphalt, and 27 cubic yards of concrete. Materials required for construction, except for asphalt and concrete, would be stored on site.

Construction activities for Phase 2 of the proposed project would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site.

## 2.5 Best Management Practices

An appropriate combination of monitoring and resource impact avoidance would be employed during all phases of the proposed project, including implementation of the following Best Management Practices:

- The proposed project would implement Rule 403 dust control measures required by the South Coast Air Quality Management District (SCAQMD), which would include the following:
  - Water shall be applied to exposed surfaces at least two times per day to prevent generation of dust plumes.
  - All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).
  - Construction activity on exposed or unpaved dirt surfaces shall be suspended when wind speed exceeds 25 miles per hour (such as instantaneous gusts).
  - Ground cover in disturbed areas shall be replaced in a timely fashion when work is completed in the area.
  - Identify a community liaison concerning on-site construction activity including resolution of issues related to $PM_{10}$ generation.
  - Apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).
  - Traffic speeds on all unpaved roads to be limited to 15 mph or less.
  - Sweep streets at the end of the day if visible soil is carried onto adjacent public paved roads. If feasible, use water sweepers with reclaimed water.
- The construction contractor would develop and implement an erosion control plan and Storm Water Pollution Prevention Plan for construction activities. Erosion control and grading plans may include, but would not be limited to, the following:
  - Minimizing the extent of disturbed areas and duration of exposure;

  - Stabilizing and protecting disturbed areas;
  - Keeping runoff velocities low; and
  - Retaining sediment within the construction area.
  - Construction erosion control Best Management Practices may include the following:
    - Temporary desilting basins;
    - Silt fences;
    - Gravel bag barriers;
    - Temporary soil stabilization with mattresses and mulching;
    - Temporary drainage inlet protection; and
    - Diversion dikes and interceptor swales.
- The proposed project construction would incorporate source reduction techniques and recycling measures and maintain a recycling program to divert waste in accordance with the Citywide Construction and Demolition Debris Recycling Ordinance.

- LADWP would conduct pre-construction surveys for nesting birds and provide a biological monitor as necessary should project activities be initiated during the nesting bird season, generally February 15 through September 1.

- LADWP would coordinate with emergency response agencies, including but not limited to the Los Angeles Fire Department and Los Angeles Police Department, regarding construction schedules and worksite traffic control plans to coordinate emergency response routing and maintain emergency access.

- LADWP would ensure all construction crews have fire-suppression equipment (such as fire extinguishers) on site to respond to the accidental ignition of a fire.

## 3. METHODS FOR ASSESSING BIOLOGICAL RESOURCES

A search of relevant regional databases for special-status biological resources in the vicinity of the project area was conducted. The SLRC is located in the northeastern portion of the U.S. Geological Survey's (USGS) Hollywood, California quadrangle. A search of the Hollywood quadrangle and surrounding eight quadrangles (nine-quad search), including Van Nuys, Burbank, Pasadena, Beverly Hills, Los Angeles, Venice, Inglewood, and South Gate, as made of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) and of the California Native Plant Society's (CNPS) on-line Inventory of Rare and Endangered Plants of California. Additionally, the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) database was queried for special-status species, sensitive natural communities, and protected areas known from the project vicinity.

The project area evaluated for biological resources includes the SLRC, plus a 500-foot survey buffer around the SLRC, combined the Biological Survey Areas (BSA) (see Figures 3 and 4). A buffer around the SLRC was evaluated in order to capture potential indirect effects to biological resources from implementation of the project. Indirect effects could include

elevated noise and dust levels, soil compaction, and increased human activity within the BSA. A 500-foot survey buffer is standard for capturing potential indirect impacts from a project on biological resources. It is anticipated that indirect impacts beyond 500 feet for this project are generally diffuse and would not significantly impact biological resources.

A field survey of the SLRC, focusing on areas where the proposed project components will be installed was conducted by AECOM biologist Art Popp on January 10, 2020 to document existing biological resources that occur or have the potential to occur within and adjacent to the BSA, and to evaluate the potential for special-status plant and wildlife species to occur within the BSA. Binoculars were utilized to scan for evidence of wildlife activity in the BSA. Seasonal, species-specific botanical and wildlife surveys were not conducted as part of this evaluation; however, based on the survey conducted and an assessment of conditions in the BSA, it is apparent that special-status plant and wildlife species are not anticipated within the SLRC and surrounding urbanized environment.

## 4. EXISTING CONDITIONS

The proposed project components occur within the developed SLRC, which consists of the two reservoirs and associated structures, a landscape maintenance yard and large publicly-accessible lawn area with footpaths that occur along the east side of Silver Lake reservoir, and paved roadways, buildings, and landscaped areas with ornamental vegetation throughout. Of note are groves of mature eucalyptus trees occurring on both the east and west sides of Silver Lake Reservoir. Residential development surrounds the SLRC and includes mature ornamental trees, ornamental gardens/plantings, and lawns. Elevations within the SLRC generally range between 450-500 feet above mean sea level (AMSL) and the immediate surrounding area. Residential development along the west side of the reservoirs quickly rise up to approximately 600 feet amsl.

Photographs of the location of proposed project components are included in Attachment B.

### 4.1 Vegetation Communities and Plants

Vegetation communities are assemblages of plant species that commonly coexist. The classification of vegetation communities is based on the life form of the dominant species within that community and the associated species. Vegetation in the SLRC and surrounding BSA is described below. No native plant communities occur within the BSA and the nearest natural vegetation communities occur two plus miles northwest of the SLRC in Griffith Park.

#### *SLRC*

Vegetation in the SLRC includes mature groves of trees on both the east and west side of Silver Lake Reservoir; an approximate 5-acre green space known as Silver Lake Meadows that consists primarily of lawn on the east side of Silver Lake Reservoir; and an approximate 1-acre area along the west side of Ivanhoe Reservoir that formerly served as a staging area for work associated with the SRP, but has since been landscaped with ornamental trees, shrubs, and groundcover (Figure 3). Mature trees are also lined along fence lines around the SLRC.

The eucalyptus grove on the west side of Silver Lake Reservoir covers approximately 3 acres and contains mature blue gum (*Eucalyptus globulus*) with an understory of lawn. On the east side of Silver Lake Reservoir, mature red gum (*E. camaldulensis*) dominates, with

mature cypress (*Cupressus* sp.), pine (*Pinus* sp.), oak (*Quercus* sp.), southern silk oak (*Grevillea robusa*), and other ornamental species also present.

Vegetation in the landscaped area on the east side of Ivanhoe Reservoir includes plantings of occasional spruce (*Picea* sp.) trees, mulefat (*Baccharis salicifolia*), willow (*Salix* sp.), olive (*Olea eruopaea*), and other shrubs, with a ground cover of deer grass (*Muhlenbergia rigens*) and ornamental iris (*Iris* sp.).

***Surrounding BSA***

Residential development in the area surrounding the SLRC consists primarily of paved surfaces and residential lots which largely have only small areas of ornamental plantings or lawn, with an occasional tall mature ornamental tree occurring on an individual lot. Eucalyptus, pine, cedar, various palm tree species, African fern pine (*Afrocarpus gracilior*), and ficus (*Ficus benjamina*) trees were observed in the surrounding area.

## 4.2 Wildlife

Wildlife species observed during the field survey included bird species that are common in and adapted to urban environments, including American crow (*Corvus brachyrhynchos*), Eurasian collared dove (*Streptopelia decaocto*), house sparrow (*Passer domesticus*), black phoebe (*Sayornis nigricans*), yellow-rumped warbler (*Setophaga coronata*), and Anna's hummingbird (*Calypte anna*). Additionally, western gull (*Larus occidentalis*), mallard duck (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), Canada goose (*Branta canadensis*), bufflehead (*Bucephala albeola*), and American coot (*Fulica americana*) were detected on Silver Lake Reservoir. Overall bird activity was low and no other wildlife (i.e. mammals, reptiles) were observed within the SLRC during the site visit.

Three adult great blue heron (*Ardea herodias*) were observed in a cypress tree just outside the SLRC north of Ivanhoe Reservoir, at the intersection of Tesla Avenue and Rokeby Street. At least three large stick nests are visible in this tree; however, these herons did not exhibit signs of nesting during the field survey. A great blue heron rookery has been present within the eucalyptus grove on the west side of Silver Lake Reservoir since at least 2005 when the species was documented on-site during environmental review of the SRP.[1] More recently, AECOM documented approximately 14 nests in the rookery during regular surveys and monitoring in 2015. In 2018, herons were also observed beginning to nest in a cypress tree just outside the SLRC (AECOM unpublished data). This bird species is tracked by CDFW in the CNDDB.

AECOM conducted wildlife surveys and construction monitoring in support of the SLRC SRP and in 2015 documented all wildlife species that were observed. Approximately 130 wildlife species within and adjacent to the SLRC, including approximately 120 bird species were documented (AECOM unpublished data). In addition to great blue heron, which was generally the focus of survey and monitoring efforts, AECOM detected red-tailed hawk (*Buteo jamaicensis*), a raptor common in urban southern California, nesting in the eucalyptus grove on the west side of Silver Lake Reservoir over the past years. Other common urban bird species were also detected nesting in the SLRC during this time

[1] CH2MHILL. 2005. Silver Lake Reservoir Complex Storage Replacement Project Draft Environmental Impact Report. Prepared for City of Los Angeles Department of Water and Power. July.

period, reflecting the suitability of ornamental vegetation in the SLRC to provide nesting habitat.

The two reservoirs in the SLRC attract water fowl that would otherwise not typically be present in an urban setting. In addition to the ducks, geese, gulls, and American coots that were present on the reservoirs during the time of the field survey, other duck species, terns, grebes, and gulls have been observed on the reservoirs, and herons have been observed along its perimeter. Although these bodies of water provide a place for water fowl to rest, no emergent or submerged vegetation, significant invertebrate populations, or fish exist within the reservoirs to support a residence waterfowl population. Due to past chemical treatment of water in the reservoirs and the isolated nature of the reservoirs (from other water sources and the public), suitable food resources for foraging water fowl has not developed in the reservoirs. Herons utilizing the on-site rookery are known to forage in the Los Angeles River, which lies approximately 1 mile to the east. There is no suitable foraging habitat for herons in the reservoirs.

AECOM conducted a habitat assessment and survey for the presence of bats at the SLRC in 2015 in support of the SLRC SRP.[2] The survey indicated that the SLRC is predominantly used by foraging Mexican free-tailed bats (*Tadarida brasiliensis*) and Yuma myotis (*Myotis yumanensis*). These species commonly forage over open water. It was determined that the site is less frequently used by canyon bat (*Parastrellus hesperus*), hoary bat (*Lasiurus cinereus*), and western red bat (*L. blossevillii*). Very few calls were detected from these species indicating they might only occasionally use the SLRC for foraging or drinking. A search of existing structures and buildings within the SLRC did not identify active day-time roosting in the SLRC, although potential night-roosting was detected at the Silver Lake Reservoir outlet structure by a few individual bats.

## 4.3 Wildlife Corridors

In an urban context, a wildlife migration corridor can be defined as a linear landscape feature of sufficient width and buffer to allow animal movement between two comparatively undisturbed habitat fragments, or between a habitat fragment and some vital resource that encourages population growth and diversity. Habitat fragments are isolated patches of habitat separated by otherwise foreign or inhospitable areas, such as urban tracts or highways. Two types of wildlife migration corridors seen in urban settings are regional corridors, defined as those linking two or more large areas of natural open space, and local corridors, defined as those allowing resident wildlife to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development.

The project occurs within an urbanized area and the BSA does not occur within or intersect a recognized/established regional wildlife corridor. Ornamental trees within and adjacent to the SLRC provide opportunities for cover, foraging, resting, and nesting to localized bird populations, and most significantly have supported the heron rookery that herons have returned to for years to nest. Additionally, the two reservoirs provide resting habitat for water fowl undertaking localized or regional movements. Overall however, the BSA does not provide functions as a significant wildlife movement corridor.

[2] AECOM. 2015. Bat Survey and Habitat Assessment. Silver Lake Reservoir Complex. Prepared for Los Angeles Department of Water and Power. July 16.

## 5. SPECIAL-STATUS SPECIES

### 5.1 Special-Status Plant Species

Special-status plant species include those listed as Endangered, Threatened, Rare or those species proposed for listing by the US Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (FESA), those listed by CDFW under the California Endangered Species Act (CESA), and the CNPS.[3,4,5] The CNPS inventory is sanctioned by the CDFW and essentially serves as the list of candidate plant species for state listing. CNPS's California Rare Plant Ranks (CRPR) 1B and 2 species are considered eligible for state listing as endangered or threatened.

A total of 66 special-status plant species were identified from the CNDDB[6] and CNPS[7] nine-quad searches, and from a search of IPaC[8] for the project area, including 13 federal and/or state-listed species:

- marsh sandwort (*Arenaria paludicola*), federal and state-listed endangered
- Braunton's milk-vetch (*Astragalus brauntonii*), federal-listed endangered
- Ventura Marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*), federal and state-listed endangered
- coastal dunes milk-vetch (*Astragalus tener* var. *titi*), federal and state-listed endangered
- Nevin's barberry (*Berberis nevinii*), federal and state-listed endangered
- salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimus*), federal and state-listed endangered
- San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), federal candidate for listing and state-listed endangered
- beach spectaclepod (*Dithyrea maritima*), state-listed threatened
- slender-horned spineflower (*Dodecahema leptoceras*), federal and state-listed endangered
- San Diego button-celery (*Eryngium aristulatum* var. *parishii*), federal and state-listed endangered
- California Orcutt grass (*Orcuttia californica*), federal and state-listed endangered
- Gambel's watercress (*Rorippa gambellii*), federal-listed endangered and state-listed threatened
- spreading navarretia (*Navarretia fossalis*), federal-listed threatened

All 66 special-status plant species, their status, and habitat requirements are provided in Table A, Attachment C.

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3 Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (Title 50 Code of Federal Regulations [CFR] 17.12 [listed plants], Title 50 CFR 17.11 [listed animals] and includes notices in the Federal Register for proposed species).

4 Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (Title 14 California Code of Regulations 670.5).

5 Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900 *et seq*.).

6 California Department of Fish and Wildlife. 2020. *California Natural Diversity Data Base (CNDDB).* Full condensed report for the Hollywood and surrounding eight quadrangles. Generated January 14, 2020.

7 California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants (online edition, v8-02). Available at: http://www.rareplants.cnps.org/. Accessed January 14, 2020.

8 Information for Planning and Consultation. 2020. U.S. Fish and Wildlife Service. Available at: https://ecos.fws.gov/ipac/. Accessed January 14, 2020.

No special-status plant species were observed in the BSA during the field survey and no records of special-status plant species coincide with the BSA. The nearest occurrences of special-status plants are from 3 plus miles to the northwest in Griffith Park. The BSA does not provide natural habitats potentially suitable for special-status plants. Additionally, no USFWS-designated critical habitat for any special-status plant species coincides with the BSA. The nearest critical habitat area for any federally-listed plant species is approximately 16 miles to the west, in the Santa Monica Mountains near Topanga.

## 5.2 Special-Status Wildlife Species

Special-status wildlife species include those listed by USFWS under FESA and by CDFW under CESA. USFWS and CDFW officially list species as either threatened, endangered, or as candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act (e.g., bald eagle, golden eagle), the Migratory Bird Treaty Act (MBTA), and state protection under CEQA Section 15380(d).

All birds, except European starlings, English house sparrows, rock doves (pigeons), and non-migratory game birds such as quail, pheasant, and grouse are protected under the MBTA. However, non-migratory game birds are protected under California Fish and Game Code (CFGC) Section 3503. Many other species are considered by CDFW to be California Species of Special Concern (SSC) and others are on a CDFW Watch List (WL). The CNDDB tracks species within California for which there is conservation concern, including many that are not formally listed, and assigns them a CNDDB Rank.[9] Although CDFW SSC and WL species and species that are tracked by the CNDDB but not formally listed are afforded no official legal status, they may receive special consideration during the environmental review process. CDFW further classifies some species as "Fully Protected" (FP), indicating that the species may not be taken or possessed except for scientific purposes, under special permit from CDFW. Additionally, CFGC Sections 3503, 3505, and 3800 prohibit the take, destruction, or possession of any bird, nest, or egg of any bird except English house sparrows and European starlings unless authorization is obtained from CDFW.

A total of 54 special-status wildlife species were identified from the CNDDB[10] nine-quad search and from a search of IPaC[11] for the project vicinity, including 16 federal and/or State-listed wildlife species:

- Crotch bumble bee (*Bombus crotchii*), candidate for state-listed endangered
- El Segundo blue butterfly (*Euphilotes battoides allvni*), federally-listed endangered
- Riverside fairy shrimp (*Streptocephalus wootoni*), federally-listed endangered
- southern mountain yellow-legged frog (*Rana mucosa*), federally and state-listed endangered
- tricolored blackbird (*Agelaius tricolor*), state-listed threatened
- Swainson's hawk (*Buteo swainsoni*), state-listed threatened
- western snowy plover (*Charadrius alexandrines nivosus*), federally-listed threatened

[9] California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB). Special Animals List. August.

[10] California Department of Fish and Wildlife. *California Natural Diversity Data Base (CNDDB).* Full condensed report for the Hollywood and surrounding eight quadrangles. Generated January 14, 2020.

[11] Information for Planning and Consultation. 2020. U.S. Fish and Wildlife Service. Available at: https://ecos.fws.gov/ipac/. Accessed January 14, 2020.

- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), federally-listed threatened and state-listed endangered
- southwestern willow flycatcher (*Empidonax traillii extimus*), federally and state-listed endangered
- California black rail (*Laterallus jamaicensis coturniculus*), state-listed threatened
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), state-listed endangered
- coastal California gnatcatcher (*Polioptila californica californica*), federally-listed threatened
- bank swallow (*Riparia riparia*), state-listed threatened
- California least tern (*Sternula antillarum browni*), federally and state-listed endangered
- least Bell's vireo (*Vireo bellii pusillus*), federally and state-listed endangered
- Pacific pocket mouse (*Perognathus longimembris pacificus*), federally-listed endangered

All 54 special-status wildlife species, their status, and habitat requirements are provided in Table B, Attachment C.

No records of special-status wildlife species that coincide with the BSA were identified during the database review. A few CNDDB records are known from within one mile of the project, including for the federally and state-listed endangered least Bell's vireo, the state-threatened bank swallow, and the non-listed hoary bat, which is tracked by CDFW in the CNDDB. Records for the vireo and bank swallow are 80 plus years old and these species, as well as other special-status wildlife species listed in Table B of Attachment C are not expected in the BSA due to a lack of suitable habitat for them.

Although not conducive to supporting special-status wildlife, several such species have been documented by AECOM at the SLRC. As presented in Section 4.2, great blue heron, which is tracked by CDFW in the CNDDB, are present during the breeding season in and around the SLRC, and hoary bat was identified in the SLRC during a bat survey conducted in 2015. Additional special-status wildlife, including Peregrine falcon (*Falco peregrinus*; federally and state-delisted and FP), merlin (*F. columbarius*; WL), and California gull (*Larus californicus*; WL) were documented during surveys and monitoring efforts conducted by AECOM in 2015; however, none of these species were detected nesting within the SLRC or in the surrounding area.

## 6. SENSITIVE NATURAL COMMUNITIES

Sensitive natural communities are those that are designated as rare in the region by the CNDDB, support special-status plant or wildlife species, or receive regulatory protection (i.e., Section 404 of the Clean Water Act (CWA) and/or Sections 1600 et seq. of the CFGC). Rare communities are given the highest inventory priority.[12,13] Based on a review of the CNDDB,[14] 8 sensitive vegetative communities were identified during the nine-quad search of the CNDDB:

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12 Holland, R., *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game, The Resources Agency. 156 pp. 1986.

13 California Department of Fish and Wildlife, 2010. List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base. Natural Heritage Division. The Resources Agency. September.

14 California Department of Fish and Wildlife. *California Natural Diversity Data Base (CNDDB).* Full condensed report for the Hollywood and surrounding eight quadrangles. Generated January 14, 2020.

- California Walnut Woodland
- Riversidian Alluvial Fan Sage Scrub
- Southern Coast Live Oak Riparian Forest
- Southern Coastal Salt Marsh
- Southern Cottonwood Willow Riparian Forest
- Southern Dune Scrub
- Southern Sycamore Alder Riparian Woodland
- Walnut Forest

These sensitive communities are primarily documented in the CNDDB from Griffith Park and the Santa Monica Mountains 3 plus miles to the northwest-west, and the Verdugo Mountains 5 plus miles to the north.

No sensitive natural communities occur within the BSA. Vegetation in the project area consists of ornamental trees and shrubs that are common in urban environments. Additionally, no USFWS-designated critical habitat, or aquatic features (i.e. wetlands or other waters of the U.S.) under regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) coincide with the BSA. However, the reservoirs may be considered "waters of the State" under regulatory jurisdiction of CDFW, and the Regional Water Quality Control Board (RWQCB), and are discussed further below.

## 7. APPLICABLE REGULATIONS

### 7.1 Federal Regulations and Standards

*Federal Endangered Species Act (ESA)*

Enacted in 1973, the federal ESA provides for the conservation of threatened and endangered species and their ecosystems (United States Code [U.S.C.] Title 16, Chapter 35, Sections 1531–1544). The ESA prohibits the "take" of threatened and endangered species except under certain circumstances and only with authorization from USFWS through a permit under Section 4(d), 7 or 10(a) of the ESA. "Take" under the ESA is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Formal consultation under the ESA would be required if the project had the potential to affect a federally-listed species that has been detected within or adjacent to the BSA. No federally-listed species were detected during the field survey, and suitable habitats for such species do not occur in the BSA, or the species' known distribution does not coincide with the BSA. Therefore, formal consultation is not anticipated.

*Migratory Bird Treaty Act*

Congress passed the MBTA in 1918 to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA (U.S.C. Title 16, Chapter 7, Subchapter II, Sections 703–712). The prohibition applies to birds included in the respective international conventions between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and Russia.

No permit is issued under the MBTA; however, the project would remain in compliance with the MBTA by conducting pre-construction nesting bird surveys, and, if needed, providing a qualified biologist to monitor active nests occurring in the BSA to ensure construction does not affect species protected under the MBTA.

*Bald and Golden Eagle Protection Act*

The Bald and Golden Eagle Protection Act (the Eagle Act) amended in 1962, was originally implemented for the protection of bald eagles. In 1962, Congress amended the Eagle Act to also cover golden eagles, a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (which includes molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof.

Bald and golden eagles are not known from the project area, and habitat in the BSA is not suitable for these species. As a result, the project would not be expected to take bald or golden eagle.

*Clean Water Act*

Under Section 404 of the Clean Water Act (CWA), the USACE regulates the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 CFR 328.3 (Definitions) (U.S.C. Title 33, Chapter 26, Sections 101–607). Section 401 of the CWA requires a water quality certification from the state for all permits issued by USACE under Section 404 of the CWA. RWQCB is the state agency in charge of issuing a CWA Section 401 water quality certification or waiver.

It has been determined during coordination with USACE regarding the proposed project that the two reservoirs do not fall under regulatory jurisdiction of the USACE, and as a result permits pursuant to CWA Sections 404 and 401 are not required for the project.

## 7.2 State Regulations and Standards

### *California Fish and Game Code*

CFGC regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as impacts to natural resources such as wetlands and waters of the State. It includes the California Endangered Species Act (CESA) (Sections 2050–2115) and Lake and Streambed Alteration Agreement (LSAA) regulations (Section 1600 et seq.).

Wildlife “take” is defined by CDFW as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Protection extends to the animals, dead or alive, and all their body parts. Section 2081 of CESA allows CDFW to issue an incidental take permit for state-listed threatened or endangered species, should the proposed project have the potential to “take” a state-listed species that has been detected within or adjacent to the project. Certain criteria are required under CESA prior to the issuance of such a permit, including the requirement that impacts of the take are minimized and fully mitigated.

No state-listed species were detected during the field survey, and suitable habitats for such species does not occur in the BSA, or the species' known distribution does not coincide with the BSA. As a result, a permit under Section 2081 is not anticipated for the project.

The two reservoirs constitute aquatic features potentially falling under CDFW jurisdiction. As a result, coordination with CDFW and the subsequent issuance of a permit pursuant to the LSAA program is anticipated for the project.

*Porter-Cologne Water Quality Control Act*

Under Section 13000 et seq., of the Porter-Cologne Act, RWQCB is the agency that regulates discharges of waste and fill material within any region that could affect a water of the State (California Water Code [CWC] 13260[a]), (including wetlands and isolated waters) as defined by CWC Section 13050(e). Waters of the State are defined broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state."

Although the reservoirs are not considered waters of the U.S. falling under federal jurisdiction of the USACE, they may be considered waters of the State under RWQCB jurisdiction. Since project activities will occur within and along the reservoirs, it is anticipated that a permit pursuant to RWQCB's Waste Discharge Requirements (WDR) Program under Porter-Cologne will be required to permit dredge and fill activities associated with the reservoirs under the project.

*California Water Code Division 3. Dams and Reservoirs*

Laws pertaining to the California dam safety program were originally adopted in 1929 and are amended in the California Water Code (CWC) Division 3, Section 6000-6501, last amended in 2003. Regulations are in California Administrative Code Title 23 Chapter 2, Articles 1-301 to Articles 5-333, adopted in 1986. The code defines jurisdictional dams according to size, function and structure. A jurisdictional dam is any artificial barrier that is six feet or more in height and with a storage capacity of more than 50 acre-feet, or 25 feet in height with a storage capacity of more than 15 acre-feet (CWC 1.6002 and 1.6003). Silver Lake and Ivanhoe Reservoirs are jurisdictional dams and thus under regulation of the Department of Water Resources, Division of Safety of Dams (DSOD).

DSOD requires approval of an *Application for Approval of Plans and Specifications for the Alteration of a Dam and Reservoir* prior to the initiation of project construction that would modify or alter any dam or reservoir under their jurisdiction. As jurisdictional dams, it is anticipated that LADWP will be required to complete the application for DSOD approval for installation of aeration and recirculation components under the project.

*California Environmental Quality Act*[15]

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. CEQA does not specifically define what constitutes an "adverse effect" on a biological resource. Instead, lead agencies are charged with determining what specifically should be considered an impact. This report has been prepared for project compliance with CEQA.

[15] PRC Section 21000 et seq. and the State CEQA Guidelines, California Code of Regulations, Section 15000 et seq.

## 7.3 Local Regulations and Standards

*Significant Ecological Area Program*

Los Angeles County first began to inventory biotic resources and identify important areas of biological diversity in the 1970s. Today, the primary mechanism used by the County to conserve biological diversity is a planning overlay called Significant Ecological Areas (SEAs) designated in the County's General Plan Conservation/Open Space Element. SEAs are ecologically important land and water systems that support valuable habitat for plants and animals, often integral to the preservation of rare, threatened, or endangered species and the conservation of biological diversity in Los Angeles County. While SEAs are not preserves, they are areas where Los Angeles County deems it important to facilitate a balance between development and resource conservation.

Together, the General Plan overlays and a SEA conditional use permit (CUP) process are referred to as the SEA Program. The SEA Program, through goals and policies of the General Plan and the SEA ordinance (Title 22 Zoning Regulations, Section 22.56.215) help guide development within SEAs. The SEA ordinance establishes the permitting, design standards, and review process for development within SEAs, and permits are reviewed by the SEA Technical Advisory Committee. Development activities in the SEAs are reviewed closely in order to conserve water and biological resources such as streams, oak woodlands, and threatened or endangered species and their habitat.

The BSA does not coincide with a SEA. The Griffith Park SEA lies approximately 1.5 miles northwest of the BSA. The project is not anticipated to affect resources within this SEA, and as a result the SEA program would not be applicable to the proposed project.

*City of Los Angeles Protected Tree Ordinance*

In response to the City's declining oak tree population, the City enacted an oak tree protection ordinance in 1982. To further slow the decline of native trees, the City amended the two City Municipal Code sections pertaining to oak trees in April 2006 to include southern California black walnut (*Juglans californica*), western sycamore (*Platanus racemosa*), and California bay (*Umbellularia californica*) (Section 17.02 of City Municipal Code). Additionally, trees must be four inches or greater in diameter at 4.5 feet above ground to be considered protected. The Board of Public Works must issue a permit before any alterations to protected trees are made that could cause them to be damaged, relocated or removed. Pruning also requires a permit and must comply with the pruning standards set forth by the Western Chapter of the International Society of Arboriculture.

No trees would be removed during implementation of the project and as a result, conflict with the oak tree ordinance is not anticipated.

## 8. IMPACTS ON BIOLOGICAL RESOURCES

Biological resources may be either directly or indirectly impacted by a project. Direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below.

- **Direct**: Any alteration, physical disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Examples include clearing vegetation, encroaching into wetlands or a stream, and the loss of individual species and/or their habitats.

- **Indirect**: As a result of project-related activities, biological resources may also be affected in a manner that is ancillary to physical impacts. Examples include elevated noise and dust levels, soil compaction, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants.

- **Permanent**: All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.

- **Temporary**: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction; or removing vegetation for the preparation of stream bank stabilization activities, and either allowing the natural vegetation to recolonize or actively revegetating the impact area. Surface disturbance that removes vegetation and disturbs the soil is considered a long-term temporary impact because of slow natural recovery in arid ecosystems.

## 8.1 Construction

The anticipated impacts of proposed project construction on biological resources are described below.

### 8.1.1 Vegetation

Construction of proposed project components will primarily coincide with the existing reservoirs and associated infrastructure. Installation of the Ivanhoe Inlet Tower Plug, Air Blower Enclosure, and Recirculation Pump Station will occur within existing structures, while the Ivanhoe Recirculation Pipeline and One-Inch Air Pipes will be installed via trenching in paved areas and by self-weighted lines that will be placed along the bottom of the reservoirs. Only activities associated with installation of the Ivanhoe Bypass Pipeline Plug will occur in a vegetated area, the former staging yard utilized for the SRP which was covered by landscaping in 2017 (see Figure 3 and Photo 3).

Only ornamental landscape species would be removed during installation of the bypass plug. This does not constitute a significant direct impact and the area would be restored with similar landscaping upon completion of the project.

Indirect impacts to vegetation during project construction could include the accumulation of fugitive dust, and further colonization of nonnative, invasive plant species. Other indirect impacts could include an increase in the amount of compacted or modified surfaces that, if not controlled, could increase the potential for surface runoff, increased erosion, and sediment deposition beyond the project's footprint. Indirect impacts to ornamental vegetation surrounding project components; however, do not constitute a significant impact. Additionally, with implementation of the BMP included in Section 2.5, indirect impacts to vegetation surrounding project components are not anticipated to occur.

### 8.1.2 Special Status Plant Species

Individual special-status plant species could be damaged or destroyed from crushing or trampling during construction activities; however, no federal or state-listed plant species were identified during the field survey, and special-status plants are not expected to occur in the BSA due to a lack of potentially suitable habitat. Since no special-status plants were observed during the field survey and the BSA is not suitable for them, none are expected to occur within the BSA. As a result, significant direct effects on special-status plants are not anticipated.

Indirect impacts to special-status plant species occurring outside the Project site could result from construction-related habitat loss and modification of sensitive natural communities related to dust, noise, stormwater runoff, and through the potential spread of noxious and invasive plant species into these communities. Such impacts would be considered significant; however, suitable habitat for special-status plants is not present in the urbanized environment surrounding the project. As a result, indirect impacts to special-status plants are not anticipated.

### 8.1.3 Sensitive Natural Communities

Implementation of the proposed project would not result in direct or indirect impacts to any sensitive natural communities, as none occur within the BSA or surrounding area. The nearest natural communities occur 2 plus miles northwest of the BSA in Griffith Park. As a result, significant impacts to sensitive natural communities are not anticipated due to the distance between the project and park.

### 8.1.4 Wildlife

Elements of project construction could potentially affect common wildlife; however, the mortality or injury of individual species is not likely, as the site does not support many species with limited mobility or that occupy burrows within the construction zone that could be crushed during proposed project activities. Short-term indirect effects on wildlife, primarily urban bird species (discussed further below), would occur due to noise disturbances, increased human activity, and vibrations caused by heavy equipment. Wildlife mortality is however, unlikely and as a result significant impacts to common wildlife are not anticipated.

Ornamental vegetation in the BSA provides suitable nesting habitat for common urban bird species protected by the MBTA and by CFGC, including great blue heron, red-tailed hawk, and other common species documented nesting in the BSA during surveys and monitoring in support of projects previously implemented within the SLRC. By avoiding project construction during the nesting bird season (generally February 15 to September 1, and as early as January 1 for raptors), or by implementing and adhering to BMP included in Section 2.5 related to pre-construction surveys for nesting birds and providing a qualified biological monitor should nesting birds be present, direct impacts during project construction on nesting birds and associated nesting habitats are not anticipated.

Indirect impacts to nesting birds within the BSA could occur during construction as a result of noise, dust, increased human presence, and vibrations resulting from construction activities. Such disturbances could result in increased nestling mortality due to nest abandonment or decreased feeding frequency. Therefore, indirect impacts would be

considered significant. However, by implementing and adhering to BMP included in Section 2.5 related to pre-construction surveys and providing qualified biological monitors as necessary, indirect impacts to nesting birds protected under the MBTA and by CFGC would be reduced to less than significant.

To facilitate installation of the Ivanhoe Inlet Tower Plug and Ivanhoe Bypass Pipeline Plug, water in Ivanhoe Reservoir would be pumped into Silver Lake Reservoir. Draining of Ivanhoe Reservoir is not anticipated to impact wildlife. No food resources for wildlife exist in Ivanhoe Reservoir and Silver Lake Reservoir will not be drained, providing ample resting space immediately adjacent.

### 8.1.5 Special-Status Wildlife Species

Individual special-status wildlife species could be directly and indirectly affected during construction in the same manner as described above; however, no federal or State-listed wildlife species have been identified in the BSA, and potentially suitable habitat for such species is absent from the BSA. As a result, direct and indirect impacts to a federally and/or State-listed wildlife species is not anticipated and impacts to such would not be significant.

As described in Section 4.2, non-listed special-status wildlife including great blue heron, Peregrine falcon, merlin, California gull, and hoary bat have been detected in the BSA. Since these are mobile species and the removal of bird nesting (mature trees) and bat roosting (structures/buildings within the SLRC) habitats would not occur, direct impacts to non-listed special-status species would not occur. However, indirect impacts to non-listed special-status bird species within the vicinity of the project could occur as a result of noise, increased human presence, and vibrations resulting from construction activities. Such disturbances could result in increased nestling mortality due to nest abandonment or decreased feeding frequency. Therefore, indirect impacts would be considered significant. However, by implementing and adhering to the BMP included in Section 2.5 related to pre-construction surveys and providing qualified biological monitors as necessary, indirect impacts to non-listed special-status birds nesting in the BSA would be reduced to less than significant.

Indirect impacts to non-listed special-status bats roosting within the vicinity of the project could occur as a result of noise, increased human presence, and vibrations resulting from construction activities. Disturbances related to construction could result in displacement from daytime roosts. However, as presented in Section 4.2, day-time roosting by bats in the SLRC has not been observed and is unlikely. Additionally, disruption of night-time roosts is not anticipated as construction would not occur during dusk or evening hours. As a result, significant direct and indirect impacts to special-status bats are not anticipated.

### 8.1.6 Wildlife Movement Corridor

The BSA does not serve as a regional wildlife corridor and as a result, direct impacts to a regional wildlife movement corridor would not occur. Project construction activities (i.e., increased noise, human presence, vibration) would likely result in bird species traveling through the area avoiding the immediate project vicinity, or in increased nestling mortality due to nest abandonment or decreased feeding frequency in the event that active bird nests are present. Such indirect effects would be temporary in nature, restricted to the project construction time period. By implementing and adhering to the BMP included in Section 2.5

related to pre-construction surveys and providing qualified biological monitors as necessary, indirect impacts to localized bird movement and nesting are not anticipated.

### 8.1.7 Potential Jurisdictional Features

To facilitate installation of the Ivanhoe Inlet Tower Plug and Ivanhoe Bypass Pipeline Plug, water in Ivanhoe Reservoir would be pumped into Silver Lake Reservoir. Draining of Ivanhoe Reservoir, work at the inlet tower within Ivanhoe, and installation of the air pipes along and within the reservoirs may constitute an impact to waters of the State. As a result, permits under CDFW's LSAA program and RWQCB's WDR program may be required for the project. By coordinating with CDFW and RWQCB regarding permits under their respective programs, potential impacts to waters of the State would be less than significant.

Indirect impacts to the reservoirs may result from stormwater runoff during construction activities where a reduction in water quality resulting from increased sedimentation or other contaminants could occur. These water quality changes could potentially reduce the quality of the reservoirs. To avoid impacts to water quality, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented, and will include BMP to minimize downstream effects of stormwater runoff or conveyance of sediment or other contaminants into the reservoirs. By implementing a SWPPP and obtaining permits pursuant to CDFW's LSAA program and RWQCB's WDR program, the potential for indirect impacts to the jurisdictional reservoirs would be less than significant.

## 8.2 Operation

Significant impacts to vegetation, special-status plant species, and sensitive natural communities during operations and routine maintenance of the project are not anticipated as only ornamental vegetation occurs in the BSA, and special-status plants are not expected to occur in the BSA due to a lack of suitable habitat. As a result, significant impacts to vegetation, special-status plants, and sensitive natural communities during operation and routine maintenance of the pump station and pipeline alignment are not anticipated.

Impacts to common wildlife, special-status wildlife species, and wildlife movement are not anticipated. Activities would be conducted within previously disturbed and developed surfaces containing only ornamental vegetation, and would generally not change conditions from those present prior to and after project construction. As a result, operation and maintenance activities of the project are not anticipated to significantly affect common wildlife, special-status wildlife species, or wildlife movement.

Should operation or maintenance activities beyond what would normally be expected following installation of project components be required during the bird breeding season and these activities could generate indirect impacts due to noise, human presence, and vibrations, implementation and adherence to the BMP included in Section 2.5 related to pre-construction surveys and providing qualified biological monitors as necessary, would reduce potential indirect impacts to nesting birds to a level less than significant. Further, should it be determined that operation or maintenance activities may constitute an impact to waters of the State, permits pursuant to CDFW's LSAA program and RWQCB's WDR program would ensure impacts to potentially jurisdictional features (the reservoirs) would be less than significant.

## 9. AVOIDANCE, MINIMIZATION, AND STANDARD CONSTRUCTION MEASURES

With the potential for nesting birds protected under the MBTA and CFGC to occur in ornamental trees within the BSA, implementation of pre-construction surveys and providing a qualified biological monitor per the BMP presented in Section 2.5 would ensure potential impacts to nesting birds are avoided. Impacts to potential jurisdictional features would be avoided by obtaining the necessary agency permits discussed above.

## 10. CONCLUSIONS

Based on the analysis presented above regarding anticipated effects of the proposed project, significant impacts to non-listed special-status nesting birds (i.e. great blue heron) and those protected under the MBTA and by CFGC could occur. However, by conducting pre-construction surveys and subsequent biological monitoring efforts as described in the BMP presented in Section 2.5, significant impacts to biological resources would be reduced to a level below significance.

Should you have any questions or comments regarding this memo, or if additional information is required, please feel free to contact me.

Sincerely,

Arthur Popp
Senior Biologist

Enc:

Attachment A: Project Figures
Attachment B: Project Photographs
Attachment C: Special-Status Plant and Wildlife Species and Natural Communities Tables

# ATTACHMENT A

# PROJECT FIGURES


Source: Esri Maps & Data, 2019.

**Figure 1**
**Regional Map**

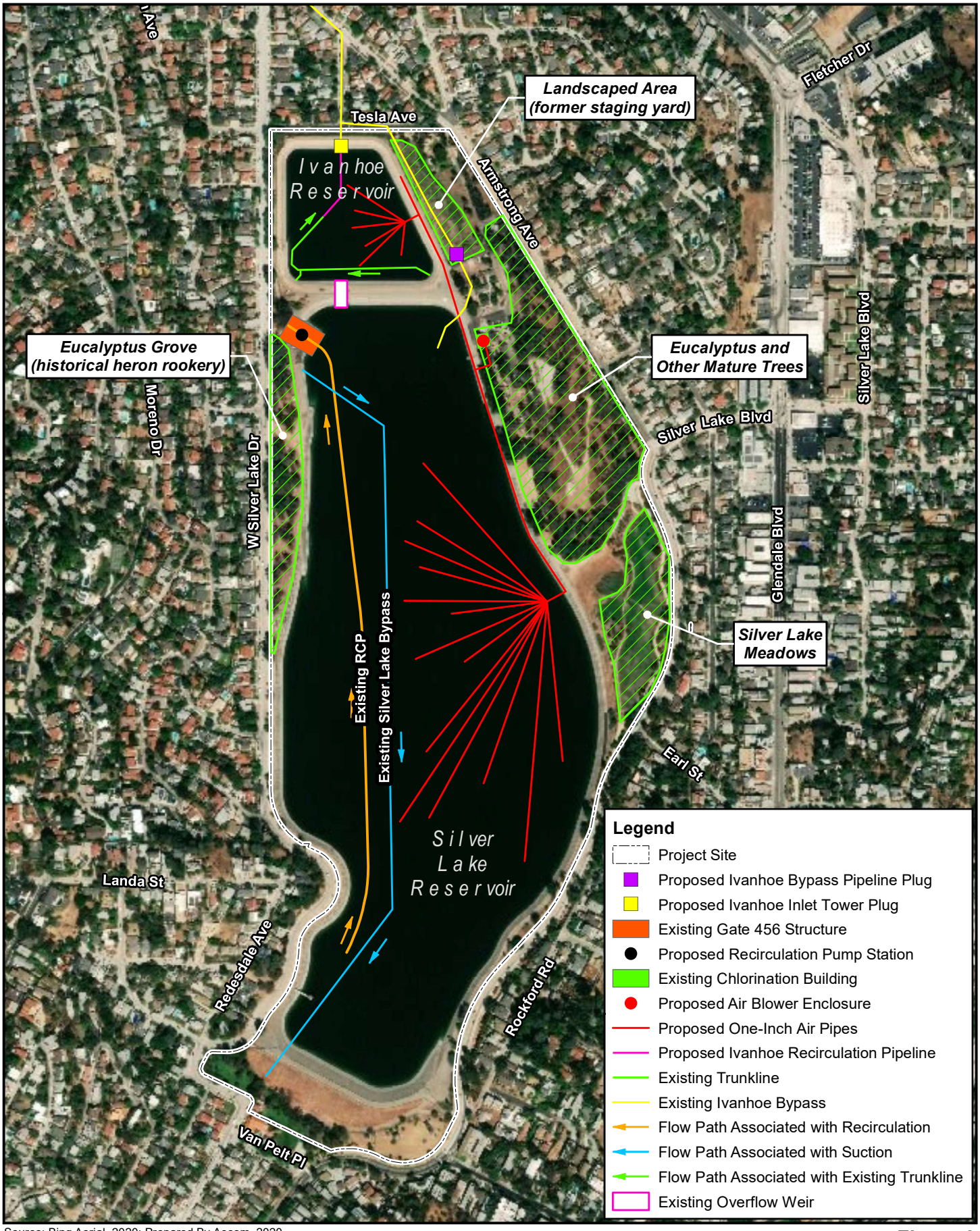

Source: Esri, 2020; Prepared By AECOM, 2020.

0 250 500 1,000 Feet

SLRC Boundary

Project Site

**Figure 2**
**Project Location Map**




Source: Bing Aerial, 2020; Prepared By Aecom, 2020.

0 250 500 1,000 Feet

**Figure 3**

**Proposed Project**
**Aeration and Recirculation System**

# ATTACHMENT B

# PROJECT PHOTOGRAPHS


**Photo 1.** Southwest-facing view of the Ivanhoe Inlet Tower at the north end of Ivanhoe Reservoir.

**Photo 2.** West-facing view of Gate 456 Structure (red arrow)
at northwest corner of Silver Lake Reservoir.

**Photo 3.** North-facing view of former staging yard area on the east side of Ivanhoe Reservoir that is now landscaped and where installation of the Ivanhoe Bypass Pipeline Plug will occur. The bypass pipeline lies beneath this landscaped area.

**Photo 4.** Southeast-facing view of the chlorination station on the east side of Silver Lake Reservoir, where the Air Blower Closure will be installed.

**Photo 5.** North-facing view across Ivanhoe Reservoir.

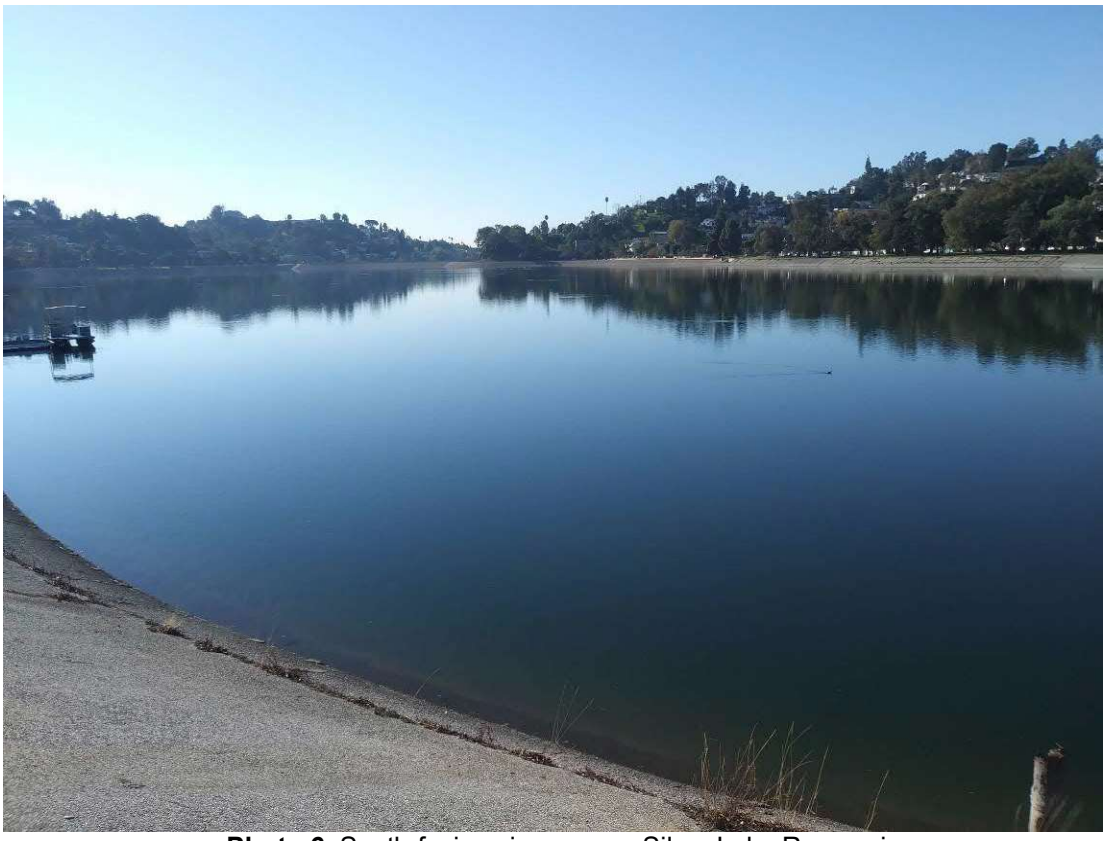


**Photo 6.** South-facing view across Silver Lake Reservoir.

# ATTACHMENT C

**Table A. Special-Status Plant Species and Natural Vegetation Communities**
**Table B. Special-Status Wildlife Species**

## TABLE A. SPECIAL-STATUS PLANT SPECIES AND NATURAL VEGETATION COMMUNITIES[1]

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| **Plants** | | |
| red sand-verbena<br>*Abronia maritima* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in coastal dune habitats. Occurs between 0 and 328 feet (0 to 100 meters). Blooms February to November. |
| marsh sandwort<br>*Arenaria paludicola* | Federal: FE<br>State: SE<br>CRPR: 1B.1 | Prefers sandy areas in freshwater brackish marshes and swamps. Occurs between 10 and 560 feet (3 to 170 meters). Blooms May to August. |
| western spleenwort<br>*Asplenium vespertinum* | Federal: None<br>State: None<br>CRPR: 4.2 | Prefers rocky areas in chaparral, cismontane woodland, and coastal scrub habitats. Occurs between 590 to 3,280 feet (180 to 1,000 meters). Blooms February to June. |
| Braunton's milk- vetch<br>*Astragalus brauntonii* | Federal: FE<br>State: None<br>CRPR: 1B.1 | Found in closed-cone coniferous forest, chaparral, coastal scrub, and valley and foothill grassland. Prefers recent burns or disturbed areas, in stiff gravelly clay soils overlying granite or limestone. Occurs between 13 and 2,100 feet (4 to 640 meters). Blooms January to August. |
| Ventura marsh milk- vetch<br>*Astragalus pycnostachyus* var. *lanosissimus* | Federal: FE<br>State: SE<br>CRPR: 1B.1 | Found in coastal dune and coastal scrub habitats; also occurs in coastal salt or brackish marshes and swamps. Occurs between 3 and 115 feet (1 to 35 meters). Blooms (June) August to October. |
| coastal dunes milk- vetch<br>*Astragalus tener* var. *titi* | Federal: FE<br>State: SE<br>CRPR: 1B.1 | Found in sandy or vernally mesic areas in coastal bluff scrub, coastal dune, and coastal prairie habitats. Occurs between 3 and 165 feet (1 to 50 meters). Blooms March to May. |
| Coulter's saltbush<br>*Atriplex coulteri* | Federal: None<br>State: None<br>CRPR: 1B.2 | Found in alkaline or clay soils in coastal bluff scrub, coastal dune, coastal scrub, and valley and foothill grassland habitats. Occurs between 9 and 1,510 feet (3 to 460 meters). Blooms March to October. |
| south coast saltscale<br>*Atriplex pacifica* | Federal: None<br>State: None<br>CRPR: 1B.2 | Found in coastal bluff scrub, coastal dunes, coastal scrub, and playas. Occurs between 0 and 460 feet (0 to 140 meters). Blooms March to October. |
| Parish's brittlescale<br>*Atriplex parishii* | Federal: None<br>State: None<br>CRPR: 1B.1 | Alkaline chenopod scrub, playas, and vernal pools. Occurs between 80-6,230 feet (25-1,900 meters). Blooms June to October. |
| Davidson's saltscale<br>*Atriplex serenana* var. *davidsonii* | Federal: None<br>State: None<br>CRPR: 1B.2 | Found in alkaline habitats, including coastal scrub and coastal bluff scrub. Occurs between 30 and 650 feet (10 to 200 meters). Blooms April to October. |
| Nevin's barberry<br>*Berberis nevinii* | Federal: FE<br>State: SE<br>CRPR: 1B.1 | Chaparral, cismontane woodland, coastal scrub, riparian scrub. Occurs between 230 and 2,700 feet (70 to 825 meters). Blooms (February) March to June. |

| **Common Name**<br>***Scientific Name*[2]** | **Status[3]** | **General Habitat Description[4]** |
|---|---|---|
| Catalina mariposa lily<br>*Calochortus catalinae* | Federal: None<br>State: None<br>CRPR: 4.2 | Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Occurs between 50 and 2,300 feet (15 to 700 meters). Blooms February to June. |
| slender mariposa lily<br>*Calochortus clavatus var. gracilis* | Federal: None<br>State: None<br>CRPR: 1B.2 | Chaparral, coastal scrub, valley and foothill grassland. Occurs between 1,050 and 3,250 feet (320 to 1,000 meters). Blooms March to June (November). |
| Plummer's mariposa-lily<br>*Calochortus plummerae* | Federal: None<br>State: None<br>CRPR: 4.2 | Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest, on rocky and sandy sites (granitic or alluvial material). Occurs between 330 and 5,580 feet (100 to 1,700 meters). Blooms May to July. |
| lucky morning-glory<br>*Calystegia felix* | Federal: None<br>State: None<br>CRPR: 1B.1 | Usually found in wetland and marsh habitats, occasionally in drier habitats, including meadows and seeps and riparian scrub. May inhabit areas with silty loam and alkaline soils. Occurs between 98 and 700 feet (30 to 215 meters). Blooms March to September. |
| Lewis' evening primrose<br>*Camissoniopsis lewisii* | Federal: None<br>State: None<br>CRPR 3 | Sandy or clay sites in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grasslands. Occurs between 0 and 980 feet (0 to 300 meters). Blooms March to June. |
| southern tarplant<br>*Centromadia parryi* ssp. *australis* | Federal: None<br>State: None<br>CRPR: 1B.1 | Marshes and swamps (margins), valley and foothill grassland. Often in disturbed sites near the coast at marsh edges; also, in alkaline soils sometimes with saltgrass. Occurs between 0 and 1,570 feet (0 to 480 meters). Blooms May to November. |
| smooth tarplant<br>*Centromadia pungens* ssp. *laevis* | Federal: None<br>State: None<br>CRPR: 1B.1 | Found in vernal pools, vernally mesic valley and foothill grasslands, and around margins of marshes and swamps. Occurs between 0 and 1575 feet (0 to 480 meters). Blooms May to November. |
| Orcutt's pincushion<br>*Chaenactis glabriuscula* var. *orcuttiana* | Federal: None<br>State: None<br>CRPR: 1B.1 | Prefers sandy soils in coastal bluff scrub and coastal dune habitats. Occurs between 0 and 328 feet (1 to 100 meters). Blooms January to August. |
| coastal goosefoot<br>*Chenopodium littoreum* | Federal: None<br>State: None<br>CRPR: 1B.2 | Found in coastal dune habitats. Occurs between 32 and 100 feet (10 to 30 meters). Blooms April to August. |
| salt marsh bird's-beak<br>*Chloropyron maritimum* ssp. *maritimum* | Federal: FE<br>State: SE<br>CRPR: 1B.2 | Found in coastal dunes and coastal salt marshes and swamps. Occurs between 0 and 98 feet (0 to 30 meters). Blooms May to October (November). |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| San Fernando Valley spineflower<br>*Chorizanthe parryi var. fernandina* | Federal: FC<br>State: SE<br>CRPR: 1B.1 | Preferred habitat includes sandy coastal scrub, valley and foothill grasslands. Occurs between 495 and 4000 feet (150 to 1,220 meters). Blooms April to July. |
| Parry's spineflower<br>*Chorizanthe parryi* var. *parryi* | Federal: None<br>State: None<br>CRPR: 1B.1 | Prefers sandy or rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Occurs between 900 and 4,005 feet (275 to 1,220 meters). Blooms April to June. |
| monkey-flower savory<br>*Clinopodium mimuloides* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in mesic areas or on streambanks in chaparral and North Coast coniferous forest habitats. Occurs between 1,000 and 5,905 feet (305 to 1,800 meters). Blooms June to October. |
| small-flowered morning-glory<br>*Convolvulus simulans* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in clay, serpentine seeps in chaparral, coastal scrub, and valley and foothill grassland habitats. Occurs between 98 and 2,430 feet (30 to 740 meters). Blooms March to July |
| paniculate tarplant<br>*Deinandra paniculata* | Federal: None<br>State: None<br>CRPR: 4.2 | Usually prefers vernally mesic, sometimes sandy coastal scrub, valley foothill grassland, and vernal pool habitats. Occurs between 80 to 3085 feet (25 to 940 meters). Blooms (March) April to November. |
| western dichondra<br>*Dichondra occidentalis* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Occurs between 165 and 1,640 feet (50 to 500 meters). Blooms (January) March to July. |
| beach spectaclepod<br>*Dithyrea maritima* | Federal: None<br>State: ST<br>CRPR: 1B.1 | Prefers sandy soils in coastal dunes and coastal scrub habitats. Occurs between 9 and 165 feet (3 to 50 meters). Blooms March to May. |
| slender-horned spineflower<br>*Dodecahema leptoceras* | Federal: FE<br>State: SE<br>CRPR: 1B.1 | Sandy chaparral, cismontane woodland, and alluvial fan coastal scrub. Occurs between 890 and 2,510 feet (200 to760 meters). Blooms April to June. |
| many-stemmed dudleya<br>*multicaulis* | Federal: None<br>State: None<br>CRPR: 1B.2 | Chaparral, coastal scrub, valley and foothill grassland. Often in clay soils. Occurs between 50 and 2,520 feet (15 to 790 meters). Blooms April to July. |
| San Diego button-celery<br>*Eryngium aristulatum* var. *parishii* | Federal: FE<br>State: SE<br>CRPR: 1B.1 | Found in mesic areas in coastal scrub, valley and foothill grassland, and vernal pool habitats. Occurs between 65 and 2,035 feet (20 to 620 meters). Blooms April to June. |
| suffrutescent wallflower<br>*Erysimum suffrutescens* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in coastal bluff scrub, maritime chaparral, coastal dune, and coastal scrub habitats. Occurs between 0 and 495 feet (0 to 150 meters). Blooms January to July (August). |
| Los Angeles sunflower<br>*Helianthus nuttallii* ssp. *parishii* | Federal: None<br>State: None<br>CRPR: 1A | Found in coastal salt and freshwater marshes and swamps. Occurs between 32 and 5,005 feet (10 to 1,525 meters). Blooms August to October. |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| vernal barley<br>*Hordeum intercedens* | Federal: None<br>State: None<br>CRPR: 3.2 | Found in coastal dune, coastal scrub, valley and foothill grassland, and vernal pool habitats. Occurs between 16 and 3,280 feet (5 to 1,000 meters). Blooms March to June. |
| mesa horkelia<br>*Horkelia cuneata* ssp. *puperula* | Federal: None<br>State: None<br>CRPR: 1B.1 | Prefers sandy or gravelly sites in chaparral, cismontane woodland, and coastal scrub habitats. Occurs between 230 to 2,660 feet (70 to 810 meters). Blooms February to September. |
| southern California black walnut<br>*Juglans californica* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in alluvial sites in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Occurs between 164 and 2,955 feet (50 to 900 meters). Blooms March to August. |
| southwestern spiny rush<br>*Juncus acutus* ssp. *leopoldii* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in mesic coastal dunes, alkaline meadows and seeps, and coastal salt marshes and swamps. Occurs between 9 and 2,950 feet (3 to 900 meters). Blooms (March) May to June. |
| Coulter's goldfields<br>*Lasthenia glabrata* ssp. coulteri | Federal: None<br>State: None<br>CRPR: 1B.1 | Found in coastal salt marshes and swamps, playas, and vernal pools. Occurs between 3 and 4005 feet (1 to 1,220 meters). Blooms February to June. |
| fragrant pitcher sage<br>*Lepechinia fragrans* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in chaparral habitats. Occurs between 65 and 4,300 feet (20 to 1,310 meters). Blooms March to October. |
| Robinson's pepper- grass<br>*Lepidium virginicum* var. *robinsonii* | Federal: None<br>State: None<br>CRPR: 4.3 | Chaparral or coastal scrub habitats. Occurs between 5 to 2,905 feet (1 to 885 meters). Blooms January to July. |
| ocellated Humboldt lily<br>*Lilium humboldtii spp. ocellatum* | Federal: None<br>State: None<br>CRPR: 4.2 | Openings. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland. Occurs between 100 and 6,000 feet (30 to 1,800 meters). Blooms March to July (August). |
| San Gabriel linanthus<br>*Linanthus concinnus* | Federal: None<br>State: None<br>CRPR: 1B.2 | Prefers rocky openings in chaparral, lower montane coniferous forest, and upper montane coniferous forest. Occurs between 4,990 and 9,180 feet (1,520 to 2,800 meters). Blooms April to July. |
| Davidson's bush-mallow<br>*Malacothamnus davidsonii* | Federal: None<br>State: None<br>CRPR: 1B.2 | Chaparral, cismontane woodland, coastal scrub, and riparian woodland. Occurs between 610 and 2,800 feet (185 to 855 meters). Blooms June to January. |
| mud nama<br>*Nama stenocarpa* | Federal: None<br>State: None<br>CRPR: 2B.2 | Found in marshes, swamps, lake margins, and riverbanks. Occurs between 15 and 1645 feet (5 to 500 meters). Blooms January to July |
| Gambel's watercress<br>*Nasturtium gambellii* | Federal: FE<br>State: ST<br>CRPR: 1B.1 | Found in freshwater or brackish marshes and swamps. Occurs between 15 and 1085 feet (5 to 330 meters). Blooms April to October. |
| spreading navarretia<br>*Navarretia fossalis* | Federal: FT<br>State: None<br>CRPR: 1B.1 | Found in chenopod scrub, freshwater marshes and swamps, playas, and vernal pools. Occurs between 98 and 2,150 feet (30 to 655 meters). Blooms April to June. |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| prostrate vernal pool navarretia<br>*Navarretia prostrata* | Federal: None<br>State: None<br>CRPR: 1B.1 | Found in mesic habitats, including coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Occurs between 9 and 3970 feet (3 to 1,210 meters). Blooms April to July. |
| California Orcutt grass<br>*Orcuttia californica* | Federal: FE<br>State: SE<br>CRPR: 1B.1 | Found in vernal pools. Occurs between 145 and 7105 feet (45 to 2,165 meters). Blooms April to August. |
| Hubby's phacelia<br>*Phacelia hubbyi* | Federal: None<br>State: None<br>CRPR: 4.2 | Prefers gravelly, rocky, or talus sites in chaparral, coastal scrub, and valley and foothill grassland habitats. Occurs between 0 and 3280 feet (0 to 1,000 meters). Blooms April to July. |
| south coast branching phacelia<br>*Phacelia ramosissima* var. *austrolitoralis* | Federal: None<br>State: None<br>CRPR: 3.2 | Prefers sandy or rocky areas in chaparral, coastal dune, coastal scrub, and coastal salt marsh and swamp habitats. Occurs between 15 and 985 feet (5 to 300 meters). Blooms March to August. |
| Brand's star phacelia<br>*Phacelia stellaris* | Federal: None<br>State: None<br>CRPR: 1B.1 | Inhabits coastal dune and coastal scrub habitats. Occurs between 3 and 1,315 feet (1 to 400 meters). Blooms March to June |
| Ballona cinquefoil<br>*Potentilla multijuga* | Federal: None<br>State: None<br>CRPR: 1A | Found in brackish meadows and seeps. Occurs between 0 and 7 feet (0 to 2 meters). Blooms June to August. |
| white rabbit-tobacco<br>*Pseudognaphalium leucocephalum* | Federal: None<br>State: None<br>CRPR: 2B.2 | Prefers sandy, gravelly areas in chaparral, cismontane woodland, coastal scrub, or riparian woodland habitats. Occurs between 0 to 6890 feet (0 to 2,100 meters). Blooms (July) August to November (December). |
| Nuttall's scrub oak<br>*Quercus dumosa* | Federal: None<br>State: None<br>CRPR: 1B.1 | Prefers sandy and clay loam soils in closed-cone coniferous forest, chaparral, and coastal scrub habitats. Occurs between 49 and 1,310 feet (15 to 400 meters). Blooms February to April (May to August). |
| San Gabriel oak<br>*Quercus durata* var. *gabrielensis* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in chaparral and cismontane woodland habitat. Occurs between 1,475 and 3,280 feet (450 to 1,000 meters). Blooms April to May. |
| Engelmann oak<br>*Quercus engelmannii* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland habitats. Occurs between 165 and 4,265 feet (50 to 1,300 meters). Blooms March to June. |
| Parish's gooseberry<br>*Ribes divaricatum* var. *parishii* | Federal: None<br>State: None<br>CRPR: 1A | Inhabits riparian woodland habitats. Occurs between 210 and 985 feet (65 to 300 meters). Blooms February to April. |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| Coulter's matilija poppy<br>*Romneya coulteri* | Federal: None<br>State: None<br>CRPR: 4.2 | Often found in burns in chaparral or coastal scrub habitats. Occurs between 65 to 3940 feet (20 to 1,200 meters). Blooms March to July (August). |
| Parish's rupertia<br>*Rupertia rigida* | Federal: None<br>State: None<br>CRPR: 4.3 | Found in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble plain, and valley and foothill grassland habitats. Occurs between 2,296 to 8,202 feet (700 to 2,500 meters). Blooms June to August. |
| salt spring checkerbloom<br>*Sildalcea neomexicana* | Federal: None<br>State: None<br>CRPR: 2B.2 | Prefers alkaline or mesic areas in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playa habitats. Occurs between 45 and 5020 feet (15 to 1530 meters). Blooms March to June. |
| western bristly scaleseed<br>*Spermolepis lateriflora* | Federal: None<br>State: None<br>CRPR: 2A | Found in rocky or sandy soils in Sonoran desert scrub habitat. Occurs between 1,205 and 2,210 feet (365 to 670 meters). Blooms March to April. |
| estuary seablite<br>*Suaeda esteroa* | Federal: None<br>State: None<br>CRPR: 1B.2 | Found in coastal salt marshes and swamps. Occurs between 0 and 20 feet (0 to 5 meters). Blooms (May) June to October (January). |
| woolly seablite<br>*Suaeda taxifolia* | Federal: None<br>State: None<br>CRPR: 4.2 | Found in coastal bluff scrub, coastal dunes, and coastal salt marshes and swamps. Occurs between 0 and 165 feet (0 to 50 meters). Blooms January to December. |
| San Bernadino aster<br>*Symphyotrichum defoliatum* | Federal: None<br>State: None<br>CRPR: 1B.2 | Found near ditches, streams, and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernally mesic valley and foothill grassland habitats. Occurs between 6 and 6700 feet (2 to 2040 meters). Blooms July to November (December). |
| Greata's aster<br>*Symphyotrichum greatae* | Federal: None<br>State: None<br>CRPR: 1B.3 | Mesic sites in broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and riparian woodland. Occurs between 980 and 6,590 feet (300 to 2,010 meters). Blooms June to October. |
| Sonoran maiden fern<br>*Thelypteris puberula* var. *sonorensis* | Federal: None<br>State: None<br>CRPR: 2B.2 | Found in meadows and seeps. Occurs between 165 and 2,001 feet (50 to 610 meters). Blooms January to September. |
| **Natural Vegetation Communities** | | |
| California Walnut Woodland | CNDDB | |
| Riversidian Alluvial Fan Sage Scrub | CNDDB | |
| Southern Coast Live Oak Riparian Forest | CNDDB | |
| Southern Coastal Salt Marsh | CNDDB | |
| Southern Cottonwood Willow Riparian Forest | CNDDB | |
| Southern Dune Scrub | CNDDB | |
| Southern Sycamore Alder Riparian Woodland | CNDDB | |
| Walnut Forest | CNDDB | |

[1] Special-status plant species and natural vegetation communities known from the CNDDB and CNPS to occur on the Hollywood and surrounding eight quadrangles.

[2] Nomenclature for special-status plant species conforms to CNPS.

[3] Sensitivity Status Codes

| | |
|---|---|
| Federal | **FT** - Federally Threatened under the Federal Endangered Species Act |
| | **FE** - Federally Endangered under the Federal Endangered Species Act |
| | **FC** – A Federal Candidate for listing under the Federal Endangered Species Act |
| State | **ST** - State Threatened under the California Endangered Species Act |
| | **SE** - State Endangered under the California Endangered Species Act |
| CRPR | California Rare Plant Rank (CRPR) |
| | **1A:** Plants presumed extinct in California |
| | **1B**: Plants rare, threatened, or endangered in California and elsewhere |
| | **2**: Plants rare, threatened, or endangered in California, but more common elsewhere |
| | **3**: Plants more information is needed for |
| | **4**: Plants of limited distribution – a watch list |
| | **0.1**: Seriously threatened in California |
| | **0.2**: Fairly endangered in California |
| | **0.3**: Not very endangered in California |
| | California Department of Fish and Wildlife (CDFW) |
| CNDDB | Tracked by CDFW in the CNDDB |

[4] General Habitat Descriptions from CNDDB and CNPS.

## TABLE B. SPECIAL-STATUS WILDLIFE SPECIES

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| **Invertebrates** | | |
| Crotch bumble bee<br>*Bombus crotchii* | Federal: None<br>State: SC<br>Other: CNDDB | Inhabit open grassland and scrub habitats. Utilize a wide variety of flowering plants. |
| Belkin's dune tabanid fly<br>*Brennania belkini* | Federal: None<br>State: None<br>Other: CNDDB | Occurs in salt marsh habitats. |
| Busck's gallmoth<br>*Carolella busckana* | Federal: None<br>State: None<br>Other: CNDDB | Inhabits sand dunes habitats. Requires California brittlebush (*Encelia californica*) as larval food source. |
| sandy beach tiger beetle<br>*Cicindela hirticollis gravida* | Federal: None<br>State: None<br>Other: CNDDB | Burrow in moist sand in coastal habitats, including sand dunes and beaches. |
| senile tiger beetle<br>*Cicindela senilis frosti* | Federal: None<br>State: None<br>Other: CNDDB | Inhabit coastal mud flats, salt flats, salt marshes, and inland alkali mud flats. |
| globose dune beetle<br>*Coelus globosus* | Federal: None<br>State: None<br>Other: CNDDB | Found in coastal dune habitats. |
| monarch-California overwintering population<br>*Danaus plexippus* pop. 1 | Federal: None<br>State: None<br>Other: CNDDB | Roost in groves of eucalyptus (*Eucalyptus* sp.), Monterey cypress (*Hesperocyparis macrocarpa*), and Monterey pines (*Pinus radiata*). |
| Henne's eucosman moth<br>*Eucosma hennei* | Federal: None<br>State: None<br>Other: CNDDB | Inhabits undisturbed sand dunes, including open to moderately vegetated areas. Requires *Phacelia* sp. as larval food source. |
| El Segundo blue butterfly<br>*Euphilotes battoides allyni* | Federal: FE<br>State: None | Found in sand dunes or areas with sandy soils. Requires coast buckwheat (*Eriogonum parvifolium*) as its obligate host plant. Distribution is limited to several isolated populations in Los Angeles and Santa Barbara Counties. |
| Lange's El Segundo Dune weevil<br>*Onychobaris langei* | Federal: None<br>State: None<br>Other: CNDDB | Occurs in El Segundo dunes in Los Angeles County. |
| saltmarsh skipper<br>*Panoquina errans* | Federal: None<br>State: None<br>Other: CNDDB | Inhabits salt marshes and other wetland habitats; occasionally found in sand dunes. Requires saltgrass (*Distichlis spicata*) as larval food source. |
| Gertsch's socalchemmis spider<br>*Socalchemmis gertschi* | Federal: None<br>State: None<br>Other: CNDDB | Occurs in coastal sage scrub habitat. |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| Riverside fairy shrimp<br>*Streptocephalus wootoni* | Federal: FE<br>State: None | Inhabits vernal pools, ponds, and other ephemeral pool-like bodies of water. |
| Dorothy's El Segundo dune weevil<br>*Trigonoscuta dorothea dorothea* | Federal: None<br>State: None<br>Other: CNDDB | Found in coastal sand dunes. |
| California brackishwater snail<br>*Tryonia imitator* | Federal: None<br>State: None<br>Other: CNDDB | Occurs in brackish salt marshes. |
| **Amphibians** | | |
| southern mountain yellow-legged frog<br>*Rana muscosa* | Federal: FE<br>State: SE<br>Other: WL | In the Sierra Nevada, occurs near streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats. In southern California, inhabits streams in ponderosa pine, montane hardwood-conifer, and montane riparian habitats. |
| western spadefoot<br>*Spea hammondii* | Federal: None<br>State: None<br>Other: SSC | Inhabits grassland, oak woodland, coastal sage scrub, and chaparral vegetation in washes, floodplains, alluvial fans, playas, and alkali flats. |
| Coast Range newt<br>*Taricha torosa* | Federal: None<br>State: None<br>Other: SSC | Prefers valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, and mixed chaparral habitats. Occasionally found in annual grassland and mixed conifer habitats. Require ponds, reservoirs, or stream pools for breeding. Occurs between 0 and 6,000 feet (0 to 1,830 meters). |
| **Reptiles** | | |
| California legless lizard<br>*Anniella* spp. | Federal: None<br>State: None<br>Other: SSC | Occurs in moist warm loose soils in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Often under leaf litter or other surface objects. |
| southern California legless lizard<br>*Anniella stebbinsi* | Federal: None<br>State: None<br>Other: SSC | Occurs in moist warm loose soils in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Often under leaf litter or other surface objects. |
| California glossy snake<br>*Arizona elegans occidentalis* | Federal: None<br>State: None<br>Other: SSC | Most common is desert habitats but also occur in chaparral, sagebrush, valley-foothill hardwood, pine-juniper, and annual grassland. |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| coastal whiptail<br>*Aspidoscelis tigris stejnegeri* | Federal: None<br>State: None<br>Other: SSC | Occurs in coastal sage scrub, chaparral, riparian areas, woodlands, and rocky areas. |
| western pond turtle<br>*Emys marmorata* | Federal: None<br>State: None<br>Other: SSC | Occurs in aquatic water bodies including flowing rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes and other wetlands. Semi- permanent water bodies such as stock ponds, vernal pools and seasonal wetlands can also be utilized on a temporary basis. |
| coast horned lizard<br>*Phrynosoma blainvillii* | Federal: None<br>State: None<br>Other: SSC | Inhabits coastal sage scrub and chaparral in arid and semiarid climates. Prefers friable, rocky, or shallow sandy soils. |
| **Birds** | | |
| tricolored blackbird<br>*Agelaius tricolor* | Federal: None<br>State: ST<br>Other: SSC | Inhabits annual grasslands, wet and dry vernal pools, seasonal wetlands. Frequently found in and around agricultural areas. |
| southern California rufous-crowned sparrow<br>*Aimophila ruficeps canescens* | Federal: None<br>State: None<br>Other: WL | Inhabits broken sage scrub and scrub-grassland habitats. |
| burrowing owl<br>*Athene cunicularia* | Federal: None<br>State: None<br>Other: SSC | Inhabits open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, California ground squirrel (*Otospermophilus beecheyi).* |
| Swainson's hawk<br>*Buteo swainsoni* | Federal: None<br>State: ST | Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. |
| western snowy plover<br>*Charadrius alexandrinus nivosus* | Federal: FT<br>State: None<br>Other: SSC | Typically breeds above the high tide line on coastal beaches, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Non-breeding habitat includes bluff-backed beaches, salt pond levees, dry salt ponds, river bars, and dredged material disposal sites. cor |

| **Common Name**<br>***Scientific Name*[2]** | **Status[3]** | **General Habitat Description[4]** |
|---|---|---|
| western yellow-billed cuckoo<br>*Coccyzus americanus occidentalis* | Federal: FT<br>State: SE | Occurs in valley foothill and desert riparian habitats. |
| yellow rail<br>*Coturnicops noveboracensis* | Federal: None<br>State: None<br>Other: SSC | Requires sedge marshes or meadows with moist soil or shallow standing water for breeding. Non-breeding populations occupy wet meadows and coastal tidal marshes. |
| southwestern willow flycatcher<br>*Empidonax traillii extimus* | Federal: FE<br>State: SE | Inhabits riparian woodlands in southern California. Nests in extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters, between 2,000 and 8,000 feet (610 to 2,440 meters). Dense willow thickets are required for nesting and roosting. Low, exposed branches are used for singing posts/hunting perches. |
| American peregrine falcon<br>*Falco peregrinus anatum* | Federal: Delisted<br>State: Delisted<br>Other: FP | Frequents bodies of water in open areas with cliffs and canyons nearby for cover and nesting. Also nests in urban areas atop tall structures. |
| California black rail<br>*Laterallus jamaicensis coturniculus* | Federal: None<br>State: ST<br>Other: FP | Inhabits saline, brackish, and fresh emergent wetlands. |
| Belding's savannah sparrow<br>*Passerculus sandwichensis beldingi* | Federal: None<br>State: SE | Inhabits southern coastal wetlands. |
| California brown pelican<br>*Pelecanus occidentalis californicus* | Federal: Delisted<br>State: Delisted<br>Other: FP | Found in estuarine, marine subtidal, and marine pelagic waters along the California coast. Primarily roosts on water or inaccessible rocks, though also known to utilize mudflats, sandy beaches, wharfs, and jetties. |
| coastal California gnatcatcher<br>*Polioptila californica californica* | Federal: FT<br>State: None<br>Other: SSC | Obligate, permanent resident of coastal sage scrub below 2.500 feet (760 meters) in southern California. Inhabits low, coastal sage scrub in arid washes, on mesas and slopes. |
| bank swallow<br>*Riparia riparia* | Federal: None<br>State: ST | Found in riparian and other lowland habitats during spring and fall. Occupy riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils during summer, where they dig nesting holes. |
| California least tern<br>*Sternula antillarum browni* | Federal: FE<br>State: SE<br>Other: FP | During summer, breed along marine and estuarine shores and feed in nearby shallow, estuarine waters. After breeding, found at lacustrine waters near coast. |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| least Bell's vireo<br>*Vireo bellii pusillus* | Federal: FE<br>State: SE | Summer resident of southern California in low riparian habitat in vicinity of water or in dry river bottoms, below 2,000 feet (610 meters). |
| **Mammals** | | |
| pallid bat<br>*Antrozous pallidus* | Federal: None<br>State: None<br>Other: SSC, WBWG-H | Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rock areas for roosting. Roosts must protect bats from high temperatures; very sensitive to disturbance of roosting sites. |
| western mastiff bat<br>*Eumops perotis californicus* | Federal: None<br>State: None<br>Other: SSC, WBWG-H | Known from open semiarid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grassland, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels. Roost locations are generally high above the ground providing a 3-meter minimum clearance below the entrance for flight. Requires large open-water drinking sites. |
| silver-haired bat<br>*Lasionycteris noctivagans* | Federal: None<br>State: None<br>Other: CNDDB, WBWG-M | Common, but erratic in abundance. During spring and fall migrations the silver-haired bat may be found anywhere in California. Primarily a coastal and montane forest dweller feeding over streams, ponds, and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water. |
| hoary bat<br>*Lasiurus cinereus* | Federal: None<br>State: None<br>Other: CNDDB, WBWG-M | May be found at any location in California. Winters along the coast and in southern California, breeding inland and north of the winter range. During migration, may be found at locations far from the normal range. Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees, feeds primarily on moths; requires water. |
| western yellow bat<br>*Lasiurus xanthinus* | Federal: None<br>State: None<br>Other: SSC, WBWG-H | Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in dead palm fronds and other trees, sometimes in urban areas. |
| south coast marsh vole<br>*Microtus californicus stephensi* | Federal: None<br>State: None<br>Other: SSC | Occurs in wetland habitats and associated grasslands along the coast. |
| San Diego desert woodrat<br>*Neotoma lepida intermedia* | Federal: None<br>State: None<br>Other: SSC | Coastal scrub of southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops and rocky cliffs and slopes. |

| Common Name<br>*Scientific Name*[2] | Status[3] | General Habitat Description[4] |
|---|---|---|
| pocketed free-tailed bat<br>*Nyctinomops femorosaccus* | Federal: None<br>State: None<br>Other: SSC, WBWG-M | Occurs in pinyon-juniper woodlands, desert scrub, desert succulent scrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis habitats. Roost in rock crevices, caverns, or buildings. |
| big free-tailed bat<br>*Nyctinomops macrotis* | Federal: None<br>State: None<br>Other: SSC, WBWG-MH | Low-lying arid hilly areas in Southern California to about 6,000 feet. Roosts in crevices and cliffs, buildings, and cavities in trees. |
| southern grasshopper mouse<br>*Onychomys torridus ramona* | Federal: None<br>State: None<br>Other: SSC | Common in arid desert habitats of the Mojave Desert and southern Central Valley of California. Alkali desert scrub and desert scrub habitats are preferred, with somewhat lower densities expected in other desert habitats, including succulent shrub, wash, and riparian areas. Also occurs in coastal scrub, mixed chaparral, sagebrush, low sage, and bitterbrush habitats. Uncommon in valley foothill and montane riparian, and in a variety of other habitats. |
| Los Angeles pocket mouse<br>*Perognathus longimembris brevinasus* | Federal: None<br>State: None<br>Other: SSC | Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin; open ground with fine sandy soils; may not dig extensive burrows, instead may be found hiding under weeds and dead leaves. |
| Pacific pocket mouse<br>*Perognathus longimembris pacificus* | Federal: FE<br>State: None<br>Other: SSC | Occurs in coastal strand, coastal dune, river alluvium, and coastal sage scrub habitats on marine terraces. Often occur in areas with fine-grain, sandy, or gravelly soils. |
| southern California saltmarsh shrew<br>*Sorex ornatus salicornius* | Federal: None<br>State: None<br>Other: SSC | Inhabits salt marshes and other wetland habitats. Prefers areas dominated by pickleweed (*Salicornia* sp.). |
| American badger<br>*Taxidea taxus* | Federal: None<br>State: None<br>Other: SSC | Uncommon, permanent resident found throughout most of the state, except in the northern North Coast area. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. |

[1] Special-status species known from the CNDDB to occur on the Hollywood and surrounding eight quadrangles.

[2] Nomenclature for special-status wildlife conforms to CNDDB.

[3] Sensitivity Status Codes

Federal **FT** - Federally Threatened under Federal Endangered Species Act (FESA)
**FE** - Federally Endangered under FESA
State **ST** - State Threatened under California Endangered Species Act (CESA)

**SE** - State Endangered under CESA
**SC** – State Candidate for listing under CESA
Other **SSC** – Designated as a Species of Special Concern by CDFW
**WL** – Designated as a Watch List species by CDFW
**CNDDB** - Tracked by CDFW in the California Natural Diversity Data Base or considered locally sensitive
**WBWG-H** - Designated by the Western Bat Working Group (WBWG 2017) as High Priority - species that are imperiled or are at high risk of imperilment
**WBWG-M** - Designated by the WBWG (2017) as Medium Priority – a level of concern that should warrant closer evaluation, more research, and conservation actions of both species and possible threats.

[4] General Habitat Descriptions from CNDDB.

# APPENDIX C

# Cultural, Paleontological, and Tribal Cultural Resources Technical Memorandum

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# Cultural, Paleontological, and Tribal Cultural Resources Technical Memorandum

| | |
|---|---|
| To | Los Angeles Department of Water Power<br>Water Engineering & Technical Services<br>Water Master Planning |
| Subject | Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project |
| From | Bradley Peacock, M.A.<br>Monica Mello, M.A.<br>Marc A. Beherec, Ph.D., RPA |
| Date | February 17, 2020 |

Attachment 1 – Project Area Map
Attachment 2 – Sacred Lands File Search
Attachment 3 – DPR 523 Forms

## Introduction

This technical memorandum describes the potential impact to cultural and tribal cultural resources associated with the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project (proposed project) to be located in the Silver Lake neighborhood of the City of Los Angeles (Council District 13), Los Angeles County, California. The proposed project consists of installations of an aeration and recirculation system to manage algae formation and the associated odors to ensure compliance with the 2006 Silver Lake Reservoir Complex Storage Replacement Project Environmental Impact Report (CH2M Hill 2006). The project site consists of concrete pad for the aeration system south of the chlorination station and recirculation system to be located by the Silver Lake outlet tower. The Silver Lake Reservoir Complex (SLRC) is recommended eligible for listing in the California Register of Historical Resources (CRHR) as a Historic District in 2004 (Greenwood and Associates 2004). The SLRC Historic District includes 15 contributing features with a period of significance spanning 1906 to 1953. As discussed in this memorandum, the proposed project will have no significant adverse impacts related to cultural resources or tribal cultural resources.

## Cultural Setting

As a framework for discussing the types of cultural resources that might be encountered in the vicinity of the proposed project, the following section summarizes our current understanding of major prehistoric and historic developments in and around Los Angeles.

*Prehistoric Overview*

The earliest occupation of Southern California may be associated with the peoples who first colonized North America in the terminal Pleistocene and earliest Holocene (Arnold et al. 2004). These cultures are characterized by fluted points. Among Southern California's fluted points is a fluted obsidian point found in a stratified deposit beside an ancient lake bed in the mountains of eastern San Diego County (Kline and Kline 2007). Other fluted points have been reported at other locations in Santa Barbara and San Diego Counties (Rondeau 2009). Closest to the project area, the Farpoint Site (CA-LAN-451) in Malibu, Los Angeles County, has yielded a fluted point, and its excavator argues the site should be associated with the Clovis culture (Stickel 2008). Clovis is the

earliest universally recognized material culture in North America, and dates to approximately 11,500 radiocarbon years before present (B.P.).

However, scholarly consensus holds that the earliest unambiguous evidence of human occupation in the Los Angeles area dates to at least 9000 B.P. and is associated with a period known as the Millingstone Cultural Horizon (Wallace 1955; Warren 1968). Millingstone populations established permanent settlements that 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 5000 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 3500 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). Increasing population size necessitated the intensification of existing terrestrial and marine resources (Erlandson 1994). This was accomplished in part through use of new technological innovations such as the circular shell fishhook on the coast, and in inland areas through use of the mortar and pestle to process an important new vegetal food staple (acorns), and the dart and atlatal resulting in a more diverse hunting capability. Evidence for shifts in settlement patterns has been noted as well 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 nonutilitarian materials were acquired, and travel routes were extended.

The Late Prehistoric period, spanning from approximately 1500 years B.P. to the Spanish mission era, is the period associated with the florescence of contemporary Native American groups. The group occupying the southern Channel Islands and adjacent mainland areas of Los Angeles and Orange Counties came to be known as the Gabrielino, after Mission San Gabriel. They 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 boundary between these two groups is commonly believed to be in the area by Topanga Canyon, with the Chumash living along the beaches of Malibu up to the area of Paso Robles and the Gabrielino residing along the coastal stretches to the south. The Gabrielino are estimated to have numbered around 5,000 in the pre-contact period (Kroeber 1925). Maps produced by early explorers indicate the existence of at least 40 Gabrielino villages, but as many as 100 may have existed prior to contact with Europeans (Bean and Smith 1978; McCawley 1996; Reid 1939 [1852]). Groups in the San Fernando Valley were typically referred to by the Spanish as the *Fernadeño*, whose name was derived from nearby Mission San Fernando. The *Fernadeño* spoke a dialect of the Gabrielino tongue and were otherwise culturally identical to the Gabrielino (Bean and Smith 1978; Shipley 1978).

Prehistoric subsistence consisted of hunting, fishing, and gathering. Small terrestrial game was hunted with deadfalls and 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 acorns gathered in the fall and processed with 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*

Spanish explorers made brief visits to Gabrielino territory in 1542 and 1602, and on both occasions the two groups exchanged trade items (McCawley 1996). Sustained contact with Europeans did not commence until the onset of 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.

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 river's various outlets into the sea. Among those villages north of downtown were *Maawnga* near Griffith Park; *Totongna* and *Kawengna* in the San Fernando Valley; *Hahamongna*, northeast of Glendale; and the village of *Yangna*, under present-day downtown Los Angeles. At the time of Portola's visit, the village of *Yangna* is reported to have

supported a population of at least 200 (Gumprecht 1999) and was later reported to have contained anywhere from 500 to 1,500 huts, implying an even greater population (Reid 1939 [1852]). The community of *Yangna* was located somewhere in the vicinity of the Los Angeles Civic Center, and, as McCawley notes, “is popularly regarded as the Indian precursor of modern Los Angeles” (McCawley 1996:57).

By the early 1800s, the majority of the surviving Gabrielino population had entered the mission system, either at Mission San Gabriel, founded in 1771, or at Mission San Fernando Ray de Espana, established in 1797. Other Native Americans worked at *El Pueblo de la Reyna de Los Angeles,* a secular community founded by colonists in 1781. Over time, the missions became self-sufficient through farming and selling cattle hides, tallow, and various fruit crops to the nearby Pueblo (Paddison 1999; Wright 1992). Mission life was utilized by the Spanish in a time when Native American traditional trade and political alliances were failing, and epidemics and subsistence instabilities were increasing. This lifestyle change brought significant negative consequences for Gabrielino health and cultural integrity (Jackson 1999).

The growth of the *El Pueblo de la Reyna de Los Angeles* became established after the Mexican empire gained independence and formed what would become the state of Alta California in 1821. The authority of the California missions gradually declined, culminating with their secularization in 1834. Although the Mexican government directed that each mission’s lands, livestock, and equipment be divided among its converts, the majority of these holdings quickly fell into non-Indigenous hands. Mission buildings were abandoned and quickly fell into decay. If mission life was difficult for Native Americans, secularization was typically worse. After two generations of dependence on the missions, they were suddenly disenfranchised. After secularization, “nearly all of the Gabrielinos went north while those of San Diego, San Luis, and San Juan overran this county, filling the Angeles and surrounding ranchos with more servants than were required” (Reid 1977 [1851]:104).

The first party of U.S. immigrants arrived in Los Angeles in 1841, although surreptitious commerce had previously been conducted between Mexican California and residents of the United States and its territories. As the possibility of a takeover of California by the United States loomed large, the Mexican government increased the number of land grants in an effort to keep the land in the hands of upper-class *Californios* like the Domínguez, Lugo, and Sepúlveda families (Wilkman and Wilkman 2006:14–17). Governor Pío Pico and his predecessors made more than 600 rancho grants between 1833 and 1846, putting most of the state’s lands into private ownership for the first time (Gumprecht 1999).

The United States took control of California after the Mexican–American War of 1846, and seized Monterey, San Francisco, San Diego, and Los Angeles (then the state capital) with little resistance. Local unrest soon bubbled to the surface, however, and Los Angeles slipped from U.S. control in 1847. Hostilities officially ended with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for the conquered territory, which included California, Nevada, and Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. The conquered territory represented nearly half of Mexico’s pre-1846 holdings. California joined the United States in 1850 as the 31st state (Wilkman and Wilkman 2006:15).

The discovery of gold in northern California led to an enormous influx of American citizens in the 1850s and 1860s, and these settlers rapidly displaced the old rancho families. In 1873, the U.S. government confirmed legal title to old Rancho ex-Mission San Fernando at 116,858.43 acres, the largest private land parcel in California. The Southern Pacific Railroad extended its line from San Francisco to Los Angeles in 1876, passing through the San Fernando Valley thanks to a new tunnel through Newhall Pass. Newcomers continued to pour 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. The city’s population rose from 11,000 in 1880 to 50,000 by 1890 (Meyer 1981:45).

In the mid-nineteenth century, the San Fernando Valley was filled with growing and dwindling cattle ranches due to unpredictable weather. This started to subside into the late nineteenth century but was not negated until pumping units and aqueducts were later utilized (Jorgensen 1988). During this time, a new route, known as the Santa Susana Pass was opened up to the east to bypass the older Devil’s Slide, linking San Fernando, Simi Valley, and the greater Los Angeles Basin together and becoming not only a well-traveled wagon route but the first automobile route to link the valleys. This opened the flood gates of an urban population boom within the San Fernando Valley in conjunction with what was already occurring within the greater Los Angeles Basin to the east (Bevill 2007). The creation of these passes was followed by a push of the San Fernando Valley to bring water from the Owens Valley to the north. Construction began in 1908, linking the Los Angeles Aqueduct into the San

Fernando Valley. This was to avoid depleting underground resources that were starting to plague the area due to this population explosion. Liquid fuel-powered well water pumps located throughout the area fell out of favor as water from the Los Angeles Aqueduct started to flow (Jorgensen 1988:121).

The beginning of the twentieth century saw the florescence of a uniquely suburban metropolis, where a vast network of residential communities overshadowed city centers, where the single-family home was valued over the high-rise, and where private space took precedence over public space (Hawthorne 2006). This landscape demanded an innovative transportation solution, and Los Angeles embraced automobiles and freeways like no other city had. The first homemade car puttered down city streets in 1897. Seven years later, the first grand theft auto was reported by Los Angeles Police (Wilkman and Wilkman 2006:50). Inexpensive automobiles gained popularity in the 1920s, soon creating tremendous congestion in the centers of cities and necessitating alternate transportation routes. Dozens of freeways were constructed in the post-World War II years, radically altering the character of Los Angeles by simultaneously dividing local neighborhoods and connecting outlying communities.

To ensure water supply to new developments, the city expanded its reservoir capacity in the first decade of the twentieth century. Ivanhoe Reservoir was completed in 1906; followed by the larger Silver Lake Reservoir in 1907 (Gumprecht 2001:98–99). As a result, the Silver Lake district witnessed a period of rapid growth due to the development of the reservoirs with its aesthetically pleasing and natural look of planted trees and lush native vegetation around the perimeter of the reservoir. The development attracted many of the city's elite during the 1920s and 1930s. The small district boosts a high concentration of Period Revivals representative of the architecture of the period.

*Silver Lake Reservoir Complex History*
The following historic context regarding the history of Silver Lake and the development of SLRC is excerpted from the *Silver Lake Reservoir Complex Storage Replacement Project Cultural Resources Assessment Report* (Greenwood and Associates 2004).

The southern portion of the SLRC site lies within the 4 square leagues of land set aside by the Spanish crown for establishment of the Pueblo de Los Angeles in 1781, while the northern half is within the historic boundaries of Rancho Los Feliz. The 1½-square-league rancho was granted to Vicente Feliz by the Spanish government in 1802. Juan Diego acquired the property prior to the American takeover, and received a patent for the 6,647 acres in April 1871. In 1882, J. Griffith, donor of Griffith Park, purchased Rancho Los Feliz.

An open ditch that was a part of the Rancho Los Feliz water supply system passed through the canyon now occupied by Silver Lake Reservoir by the mid-1800s. The ditch was acquired by the Los Angeles Canal and Reservoir Co which in turn, became part of the city's system in 1868 (Layne 1957:24, 39).

The Silver Lake area was known as "Ivanhoe" before the turn of the twentieth century. Reminded of the rolling green hills of his homeland, Scottish developer Hugo Reid named the area after the famous novel by Sir Walter Scott. Many of the streets in Silver Lake have Scottish names, or names that are related to characters from the novel, such as Herkimer, Rowena, Hawick, Kenilworth, and Ben Lomond. The Ivanhoe community, northwest of the SLRC site, included around a dozen homes when it was mapped in 1894 (United States Geological Survey 1894).

In the late 1800s, hunters journeyed to the area to seek game that was attracted to the natural ponding condition in Ivanhoe Canyon. Recognizing the value of the land, the Water Department began acquiring land for the SLRC in the 1880s when the surrounding area was primarily undeveloped. By the time the last parcel was acquired in 1904, the area was still largely uninhabited. With the addition of the reservoirs, this quickly changed.

Construction of Ivanhoe Reservoir was completed in 1906. Silver Lake Reservoir, named for Herman Silver, a member of Los Angeles' first Board of Water Commissioners, was finished the following year.

City planners soon recognized the potential of a uniquely situated residential development overlooking the reservoirs and made substantial investment in underground utilities and concrete streets. In the 1920s and 1930s private developers were encouraged by the City to build and they were attracted by the rolling hills and blue water views of the focal point that is Silver Lake and Ivanhoe Reservoirs. Probably the most well-known developer was silent film star Antonio Moreno. He modeled his development (the Moreno Highlands) after a Mediterranean village he had visited. His landmark home, the Canfield-Moreno Estate, set the architectural theme for many of the homes in the hills on the west side of the reservoir.

Silver Lake and adjacent Edendale and Echo Park areas were home to many early motion picture studios. The Mack Sennett Studios, and Tom Mix, Disney, Monogram, and Talmadge Studios were located there and drew creative people to the area. Many locations in Silver Lake appeared in early motion pictures. For example, the famous Laurel and Hardy short film "The Music Box" was filmed here, and many of the Keystone Cops chase scenes were shot along Glendale Boulevard. Not only was the area home to many of the early studios, numerous film makers, actors, and directors also lived in Silver Lake. These included Gloria Swanson, Laurel and Hardy, Antonio Moreno, and many others.

“From the mid-1920s through the early 60s, Silver Lake was a showcase for some of California’s best known and most innovative and influential architects” (LAT 1984). The area has been noted as having the greatest density of high-style historic residences of any in the city. The neighborhood’s distinctive character is established by its rich mixture of area residences designed in Mediterranean and other Revival styles of the1920s and 1930s, integrated with important works by major figures in the Modern movement, including Richard Neutra, Rudolf Schindler, Rafael Soriano, Gregory Ain, and John Lautner.

Planning for reservoirs at Ivanhoe was one of the first projects undertaken by the newly named Los Angeles Department of Water Superintendent, William Mulholland. Conceived in 1903, Ivanhoe and Silver Lake Reservoirs were to hold 1 billion gallons of surplus water collected during wet months. In September 1905, City voters approved a $1.5 million bond measure to finance the Los Angeles-Owens River Aqueduct project by an overwhelming popular mandate. “From that date on the Water Department bent every effort, both in planning and building within the city limits, for the accommodation and use of the additional water to be received from its new source of supply” (Layne 1957:75). Excavation work began on Ivanhoe Reservoir in November 1905. It was to occupy the upper (northern) end of the site planned for the larger Silver Lake Reservoir. Ivanhoe Reservoir was completed in May 1906, and in August of that year, work was begun on Silver Lake Reservoir just below it.

The method employed to construct Silver Lake Reservoir was unique. Under Superintendent Mulholland’s plans and supervision, an innovative hydraulic sluicing technique adapted from the mining industry was used to dredge soil from what would become the lake bed and move the material to form the earthen dam to create the reservoir. This was the first time the method had ever been used in the United States. The process proved so successful that engineers came from all parts of the country to study the method. Mulholland served as a consultant on numerous hydraulic fill dams built between 1910 and 1930, including the enormous Gatun Dam in the Panama Canal (Rogers 1995:23). Until 1923, all of the Los Angeles Bureau of Water Works and Supply reservoirs were earthen embankments, built using Mulholland’s hydraulic sluicing techniques. Silver Lake Reservoir was completed in 1907 with a capacity of 773,000,000 gallons (Layne 1957:85).

Regular improvements to the reservoir complex continued into the 1940s. As part of their water conservation efforts following Owens Valley Aqueduct approval, the Water Department constructed a wooden roof over the new Ivanhoe Reservoir to decrease evaporation in 1911. The concrete pile-supported roof required 800 barrels of cement and 750,000 feet of lumber. It remained until 1938, when it was removed “for health and maintenance reasons” (Layne 1957:87; supt. ltr.). Silver Lake has always been an open reservoir.

Prior to 1921, the reservoirs were used for reserve supply only, but the surrounding area’s rapid growth through 1913 through 1919 necessitated its improvement for use as a domestic supply distribution reservoir (Layne 1957:184). Historically, water is supplied to the reservoir from the river supply conduit through a 60-inch inlet line to Ivanhoe Reservoir, and then into Silver Lake.

Beginning in 1922, fences were placed around the reservoirs, principally to keep out violators of the City’s Fishing, Bathing, Boating, and Hunting ordinance. Besides a fence, a diversion ditch, later replaced by a wall, was constructed around Silver Lake Reservoir, which had received drainage from the surrounding hills that were fast becoming covered with residences (Layne 1957:185).

An outlet gate tower was added to Silver Lake in 1937. Located on the site of the present tower, the Classical Revival style structure complemented the existing chlorine plant below the dam. In 1944, work commenced on a new river supply conduit. Formed of some 41,260 feet of reinforced concrete pipe, the conduit delivered aqueduct water from the North Hollywood Pumping Plant to the Silver Lake reservoirs. It was put into service in March 1949. In 1945, the reservoirs were drained, the earth-filled dams improved, and the Ivanhoe Inlet Tower constructed (Layne 1957:299).

Between 1950 and 1953, a $1.5 million program of improvements was undertaken at Silver Lake and Ivanhoe Reservoirs. Far more extensive than any previous effort, the reservoirs were drained and deepened, their sides were regraded and surfaced with asphaltic cement to reduce plant growth and erosion from wave action, and the dams were raised 2 feet. A 60-inch bypass pipeline was added at the bottom of the reservoirs, and a new 66-inch outlet line was built from the Silver Lake dam south along West Silver Lake Drive. Additionally, a portion of Silver Lake Reservoir known as the "East Cove," where water historically tended to stagnate, was filled in. That area, as well as areas nearest the reservoirs affected by construction, was re-landscaped to restore their natural appearance. The reservoirs were refilled and returned to service in December 1953 (LADWP 1950; 1952; 1953).

Most recently in 1976, after a dam of similar design suffered severe damage in the 1971 Sylmar earthquake, Silver Lake dam was reconstructed and seismically strengthened. The outlet tower control house and bridge were renovated at that time as well (Greenwood and Associates 2004).

## Archival Research

Archival research of the project site was conducted by AECOM archaeologist Alec Stevenson, M.A., RPA, at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton, on July 18, 2018. The research focused on the identification of previously recorded cultural resources within a 0.5-mile radius of the proposed project footprint. The archival research included review of previously recorded archaeological site records and reports, historic site and property inventories, and historic maps. Inventories of the National Register of Historic Places (NRHP), the CRHR, the California State Historic Resources Inventory (HRI), California Historical Landmarks and Points of Interest, and the list of City of Los Angeles Historic-Cultural Monuments (LAHCMs) were also reviewed to identify cultural resources within a 0.5-mile radius of the project area.

Research at the SCCIC was supplemented with additional research in other archives, appropriate online repositories, and AECOM's holdings. Archival research included a Sacred Lands File (SLF) search and Native American contact program. Finally, geologic maps and the results of past paleontological work in the vicinity were consulted to establish the area's paleontological sensitivity.

*Previous Cultural Resources Investigations Reports*

A total of 20 previous cultural resources investigations documented at the SCCIC have been conducted within 0.5 mile of the project area (Table 1). These investigations include surveys, records searches, and submissions. One of these studies overlapped 100% of the planned project area.

**Table 1. Previous Investigations Conducted within 0.5 Mile of the Project Area**

| Author | Report # | Description | Date |
|---|---|---|---|
| Brown, Joan C. | LA-02099* | Cultural Resources Reconnaissance of Nine Reservoirs for the City of Los Angeles, Los Angeles County, California | 1990 |
| Brechbiel, Brant A. | LA-04326 | Cultural Resources Records Search and Literature Review Report for a Pacific Bell Mobile Services Telecommunications Facility: LA 327-21 in the City of Los Angeles, California | 1998 |
| Duke, Curt | LA-04708 | Cultural Resource Assessment for Pacific Bell Mobile Services Facility La 434-01, in the County of Los Angeles, California | 1999 |
| Duke, Curt | LA-05353 | Cultural Resource Assessment for Pacific Bell Wireless Facility Sm 005-01, County of Los Angeles, California | 2000 |
| Smith, Philomene C. | LA-05414 | Negative Archaeological Survey Report:07-LA-2 Kp22.5/36.7-170-21370k | 2000 |
| Bonner, Wayne H. | LA-07341 | Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate LA-327-01 (el-030-01) Pension Building, 2220 Hyperion Avenue, Los Angeles, Los Angeles County, California | 2005 |
| Foster, John M. | LA-07347 | Archaeological Investigation for Silver Lake Branch Library City of Los Angeles (w.o. E1700474) | 2005 |

| Author | Report # | Description | Date |
|---|---|---|---|
| Bonner, Wayne H. | LA-07356 | Records Search Results for Cingular Wireless Site Sm-005-01 (the North Silverlake/DWP Site), Located at 2485 1/2 Armstrong Ave. Los Angeles, Los Angeles County, California | 2002 |
| Allen, Kathleen C. | LA-07374 | Archaeological Records Search for Bechtel Project (#950014088b), St. Theresa Church of Avila Fargo, Los Angeles, California | 2003 |
| Alexandrowicz, John S. | LA-07392 | An Historical Resources Investigation at St. Teresa of Avila Church, 2210 Fargo Street, Los Angeles County, California | 2003 |
| McKenna, Jeanette A. | LA-08254 | Results of a Phase 1 Cultural Resources Investigation of the Proposed Los Angeles Department of Water and Power River Supply Conduit, Los Angeles County, California | 2004 |
| Bonner, Wayne H. | LA-09200 | Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate SV11419D (Von Pelt Place R.O.W. #22849), 2910-2921 Von Pelt Place, Los Angeles, Los Angeles County, California | 2007 |
| Bonner, Wayne H. | LA-09204 | Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate SV11423A (St. Teresa of Avila), 2210 Fargo Street, Los Angeles, Los Angeles County, California | 2007 |
| Wlodarski, Robert J. | LA-09315 | Submittal of Form 621 for Section 106 Review | 2006 |
| Bonner, Wayne | LA-11587 | Cultural Resources Records Search and Site Visit Results for AT&T Mobility, LLC Candidate LA0292-01, USID 46332 (Fitzpatrick Realty), 1639 Silver Lake Boulevard, Los Angeles, Los Angeles County, California | 2011 |
| Billat, Lorna | LA-11904 | New Tower Submission Packet, PROW Glendale | 2012 |
| Bonner, Wayne | LA-11938 | Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SV11423A (11423 St. Teresa Avila LAARCH), 2210 Fargo Street, Los Angeles, Los Angeles County, California | 2012 |
| Unknown | LA-12399 | Echo Park, Historical & Cultural Resources Survey | 1981 |
| Bonner, Wayne, and Crawford, Kathleen | LA-12413 | Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SV11062C (Griffith Park Cleaners) 2619 Hyperion Avenue, Los Angeles, Los Angeles County, California | 2013 |
| Anderson, Katherine, and Gonzalez, Matthew | LA-12800 | Los Angeles Department of Public Works Stairway and Walkway Lighting Unit 7 Project (W.O. L1350078) City of Los Angeles, California, Historic and Archaeological Resources Survey and Evaluation | 2014 |

*Indicates a study that overlaps the project area.

In addition to the reports reviewed at the SCCIC, the Los Angeles Department of Water Power (LADWP) provided AECOM with an additional cultural resources study, *Silver Lake Reservoir Complex Storage Replacement Project Cultural Resources Assessment Report* (Greenwood and Associates 2004). That report details the results of a cultural resources survey which examined 100% of the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project area. The investigation did not identify any archaeological resources, but documented Silver Lake and Ivanhoe Reservoirs. This study found the SLRC, composed of both Ivanhoe Reservoir and Silver Lake Reservoir and surrounding City-owned property, eligible for listing in the CRHR as a historic district.

*Previously Recorded Cultural Resources*

The SCCIC records search identified eight previously recorded cultural resources mapped within 0.5 mile of the project area (Table 2). Of the resources, six are historic buildings and two are stairways. No prehistoric sites or resources of Native American origin are documented within 0.5 mile of the project area. None of the resources are located within the project area itself.

**Table 2. Previously Recorded Cultural Resource Sites within 0.5 Mile of the Project Area**

| Primary Number (P-19-) | Historic Name/Description | Time Period | Eligibility Evaluation |
|---|---|---|---|
| 19-166820 | Garbutt Residence, 1809 Apex Avenue | 1926–1928 | Listed in NRHP |
| 19-173327 | St Teresa of Avila Church, 2210 Fargo Street | 1920–1930 | Recommended eligible for listing in NRHP |
| 19-187000 | Neutra Office Building, 2379 Glendale Boulevard | 1950 | Listed in NRHP |
| 19-188203 | Bechtel Telecommunications, 1639 Silver Lake Boulevard | 1930–1940 | Recommended not eligible for CRHR and NRHP |
| 19-188871 | Richard and Dion Neutra VDL Research House, 2300 Silver Lake Boulevard | 1932 | Recommended eligible for CRHR and NRHP |
| 19-190628 | T-Mobile West LLC SV11062C/Griffith Park Cleaners, 2615-2619 Hyperion Avenue | 1975 | Recommended not eligible for NRHP; unevaluated for CRHR |
| 19-190943 | Kenilworth and Moreno to West Silver Lake Drive Stairway | 1926 | Recommended not eligible for CRHR and NRHP |
| 19-190944 | Linda Stairway | 1919 | Listed in CRHR and NRHP |

*California State Historic Resources Inventory*

Study of the California Office of Historic Preservation (OHP)'s HRI focused on properties within 0.5 mile of the project area that faced streets bordering the project area. The HRI lists 4 historic resources within 0.5 mile of the project site (Table 3). Two are single-family residences dating to the first half of the twentieth century. One is the Silver Lake recreation facility.

**Table 3. Properties on the OHP HRI Bordering Streets Facing the Project Area within 0.5 Mile of the Project Area**

| Primary Number (P-19-) | Historic Address | Time Period | Eligibility Evaluation |
|---|---|---|---|
| | 1639 Silver Lake Boulevard | | Found ineligible for NRHP, not evaluated for CRHR |
| | 2300 Silver Lake Boulevard | 1932 | Found ineligible for NRHP, not evaluated for CRHR |
| 175302 | 1850 Silver Lake Boulevard | | Found eligible for NRHP, listed in CRHR |
| 167080 | 2323 Micheltorena Street | 1940 | Revaluation needed |

*California Historical Landmarks*

California Historical Landmarks are buildings, structures, sites, or places that have been determined to have statewide historical interest. A search of the California Historical Landmarks list revealed no California Historic Landmarks within 0.5 mile of the project area.

*Los Angeles Historic-Cultural Monuments*

LAHCMs are sites in Los Angeles that have been designated by the Los Angeles Cultural Heritage Commission as worthy of preservation based on their architectural, historic, and cultural merits. A search of the LAHCMs found 12 monuments within 0.5 mile of the project area (Table 4). These include nine residential houses, one fire station, one mixed-use office/shop/studio/living space complex, and one structure. One LAHCM is located within the project area. LAHCM 422 is Silver Lake and Ivanhoe Reservoirs themselves.

**Table 4. Los Angeles Historic-Cultural Monuments within 0.5 Mile of the Project Area**

| LAHCM Number | Historic Name/Description |
|---|---|
| 124 | Tierman House |
| 337 | Engine Company No. 56 |
| 391 | Canfield-Moreno Estate |
| 422 | Silver Lake and Ivanhoe Reservoirs |
| 640 | Richard and Dion Neutra VDL Research House |
| 676 | Neutra Office Building |
| 704 | John R. Hunt House |
| 837 | Droste House |
| 892 | Nin-Pole Residence |
| 922 | Edward A. “Tink” Adams House |
| 965 | Wilson House |
| 967 | Lipetz House |

*Historic Maps and Aerial Photographs*

Relevant historic and ethnographic maps and aerial photographs at the SCCIC, online, and in AECOM’s possession were consulted to understand past land use and disturbance and to identify possible locations of archaeological sensitivity within the project area. U.S. Geological Survey (USGS) topographic maps, Baist Fire Insurance Atlases, Sanborn Fire Insurance maps, and historic aerials posted by Nationwide Environmental Title Research, LLC (NETR) were all consulted in this analysis.

Maps prepared by anthropologists or at the direction of local tribes were consulted. These include maps published by A.L. Kroeber and William McCawley (Kroeber 1925; McCawley 1996); *Tongva Villages: Gabrieleno-Fernandeno of the Los Angeles Basin,* prepared by Keepers of Indigenous Ways (Sutimiv-Pa’alat 2010); *Kizh Tribal Territory (Gabrieleno Indian Lands),* prepared by archaeologist Gary Stickel for the Gabrieleno Band of Mission Indians-Kizh Nation (Flaherty 2016); and *Native California: Los Angeles County* (Fernandeno Tataviam Band of Mission Indians 2014). The closest villages shown on these maps to the project area are *Yangna*, located somewhere in the vicinity of today’s Civic Center, and *Maungna*, located in the vicinity of Los Feliz. *Maungna* does not appear on all the maps, but is a well-documented village (McCawley 1996). These maps do not show any tribal villages within or adjacent to the project area of potential effects.

The project area is shown in the 1921 Santa Monica 1:62500 USGS topographic map. The major streets include Armstrong Avenue, Rockford Road, and West Silver Lake Boulevard, which are laid out with Ivanhoe as the name of the neighborhood. The project area and its immediate surroundings are undeveloped with some development of residential homes to the southwest. The Los Angeles River is depicted north of the project site.

In the 1910 Baist Atlas, the project area is not shown. In the 1914 and 1921 Baist Atlases, the property is labeled Tract 903, Lot A (Baist 1914: Plate 42; Baist 1921: Plate 42). In the 1914 Baist Atlas, a structure exists west of Ivanhoe Reservoir. This structure possibly is the caretaker’s house. In the 1921 Baist Atlas, two structures exist west of Silver Lake Reservoir.

A 1948 aerial photograph shows Ivanhoe Reservoir extending farther east along Silver Lake Boulevard in the area known today as the Silver Lake Meadow. The caretaker's house and Landscape Building are shown in the 1948 aerial photograph. The project area is heavily wooded between 1948 and 1972 but is noticeably thinner by 1980. Sometime between 1948 and 1952, the reservoir was reshaped to its present-day appearance (NETR 2018).

*Sacred Lands File Search and Native American Consultation*

As part of this investigation, an SLF search of the project area and vicinity was requested from the Native American Heritage Commission (NAHC). A letter was prepared and mailed to the NAHC on July 5, 2018. The letter described the project and requested that an SLF check be conducted for the proposed project and that contact information be provided for Native American groups or individuals that may have concerns about cultural resources in the project site. The NAHC responded with a letter dated August 6, 2018. The letter stated that an SLF had been conducted for the project area, and that the results were negative. However, the letter noted "the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area." The letter also included a list of 16 Native American representatives culturally affiliated with the project area who may have information about the project area. The contact information was provided to LADWP, and all Native American contact and consultation will be conducted by LADWP.

## Archaeological Survey

An archaeological field survey of the project area was conducted on August 9, 2018, by AECOM archaeologist Bradley Peacock, M.A. Mr. Peacock meets the Secretary of the Interior's Professional Qualification Standards in Archaeology. The purpose of the survey was to identify and record cultural resources that are at least 45 years old and evaluate any discovered resources for historical significance based on criteria for listing in the CRHR.

The site consists of the LADWP-owned Silver Lake and Ivanhoe Reservoirs and related facilities. Approximately 95% of the project area is currently paved over. The archaeological survey focused on those areas where soil was visible, such as landscaped areas and unpaved areas adjacent to paving; 100% of these areas were inspected. Throughout the surveyed areas, the soil is predominantly densely packed light brown, fine-grained silt. Previous ground disturbance has impacted 100% of the project area due to paving and prior construction.

In the course of the field survey, no archaeological resources meeting the age criterion of 45 years or more were identified.

## Built Environment Survey

On August 9, 2018, architectural historian Monica Mello conducted an architectural history survey of the project area. Ms. Mello meets Secretary of the Interior's Professional Qualification Standards in Architectural History and History. During the intensive-level survey, one resource was revisited, the SLRC Historic District. Ms. Mello made notations regarding the historic integrity of the property, and collected information on visible alterations based on background information.

The SLRC Historic District was evaluated and recommended eligible for listing in the CRHR as a Historic District in 2004 (Greenwood and Associates 2004). The SLRC Historic District includes 15 contributing features with a period of significance spanning 1906 to 1953. The SLRC Historic District is significant under CRHR Criteria 1, 2, and 3 significant for its contribution to water infrastructure development history, association with William Mulholland, and for its design and engineering. Changes to the district since its original recording in 2004 were recorded on Department of Parks and Recreation (DPR) 523 forms and are included in Attachment 3. The district appears to meet CRHR eligibility Criteria 1, 2, and 3 and retains the principal character-defining exterior features and aspects of integrity necessary to convey its significance.

## Recommendations

The following sections present recommendations for further action regarding archaeological resources, historical resources, and potential tribal cultural resources within the project area. These recommendations are based on information collected from archival research, which examined records kept at the SCCIC, local cultural resource listings, County Assessors' parcel records, historic maps, contemporary archaeological literature, local

prehistoric land use patterns and resource availability, information provided by Native American representatives, and the results of the field survey. All of these investigations and resource documentation serve to inform the recommendations provided for cultural resources in the project area.

*ARCHAEOLOGICAL RECOMMENDATIONS*

Based on the results of the archival research and field survey, there is low potential that archaeological resources will be encountered during ground-disturbing activities for the proposed project. Ground disturbance required for the proposed project will not exceed 4 feet in depth. Soils at this shallow depth can reasonably be assumed to have been disturbed in the recent past, in particular by utilities excavations and by the construction and demolition of the commercial building, which occupied most of the project footprint until the late 1980s or early 1990s. If archaeological resources are encountered during ground-disturbing activities, work will be temporarily halted in the vicinity of the find and LADWP will contact a qualified archaeologist to evaluate and determine appropriate treatment for the resource in accordance with Public Resources Code (PRC) Section 21083.2(i).

*ARCHITECTURAL HISTORY RECOMMENDATIONS*

One LAHCM, LAHCM 422, is located within the project site and is Silver Lake and Ivanhoe Reservoirs themselves. The proposed project would not adversely affect LAHCM 422, and its eligibility status would be maintained. The proposed project would not have an obtrusive appearance or form, and the finish materials would be compatible with the historic setting of the project site while also being easily distinguished as modern construction so as not to be interpreted as an original part of the SLRC. The proposed project would not destroy or change any features which are important to defining the character of the SLRC, and the property's historic and contextual setting would be retained.

The SLRC Historic District is a historical resource. The following assesses the potential improvements to determine if a significant impact would occur to the historical resource.

As a historical resource, to minimize any impacts to a level less than significant, this analysis finds that any proposed alterations planned for the SLRC Historic District should be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, particularly the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Per the National Park Service, rehabilitation is defined as the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property that are significant to its historic, architectural, and cultural values. Rehabilitation assumes that at least some repair or alteration of the historic building will be needed to provide for an efficient contemporary use; however, these repairs and alterations must not damage or destroy materials, features, or finishes that are important in defining the building's historic character. Any proposed alterations shall be designed under the guidance of a Secretary of the Interior qualified architectural historian in order to comply with the Secretary of the Interior's Standards for Rehabilitation. The Standards for Rehabilitation include the following, taking into consideration economic and technical feasibility of the repairs to the historic resource:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in

design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

In conclusion, as a property that qualifies as a historical resource for purposes of the California Environmental Quality Act that is eligible for listing in the CRHR, any improvements planned for the property should be consistent with the Secretary of the Interior's Standards for Rehabilitation, in order for the project to have a less than significant impact on the SLRC Historic District.

*TRIBAL CULTURAL RESOURCE RECOMMENDATIONS*

The sensitivity of the project area for tribal cultural resources appears low. The NAHC conducted an SLF search, which was negative. No potential tribal cultural resources were identified during the archival research or the field survey. However, if any Native American cultural material is encountered within the project site, interested Native American parties established through consultation with the lead agency will be notified. LADWP should determine during consultation if the resources constitute tribal cultural resources and solicit any comments the Native American parties may have regarding appropriate treatment and disposition of the resources.

Human remains are not expected to be encountered as soils at the project site have been disturbed in the recent past. Although not expected to occur, in the event that human remains are discovered, such resources would be treated in accordance with all applicable regulations. In accordance with the provisions of the California Health and Safety Code Section 7050.5, in the event that human remains are discovered during project construction, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains would occur, and the Los Angeles County Coroner would be notified. The coroner would provide recommendations concerning the treatment and disposition of the human remains within two working days. If the remains and/or related resources, such as funerary objects, are determined to be of Native American origin, the coroner would contact the Native American Heritage Commission within 24 hours. In accordance with California Public Resources Code Section 5097.98, the Native American Heritage Commission would immediately notify the person it believes to be most likely descended from the deceased Native American. The most likely descendent would be given access to the site where the remains were discovered and may make recommendations for the treatment and disposition of the remains, and related resources, and the potential for other remains. Work at the discovery site may commence only after consultation with the most likely descendent and treatment of the remains and any associated resources have been concluded. Work may continue on other parts of the project site while consultation and treatment are conducted.

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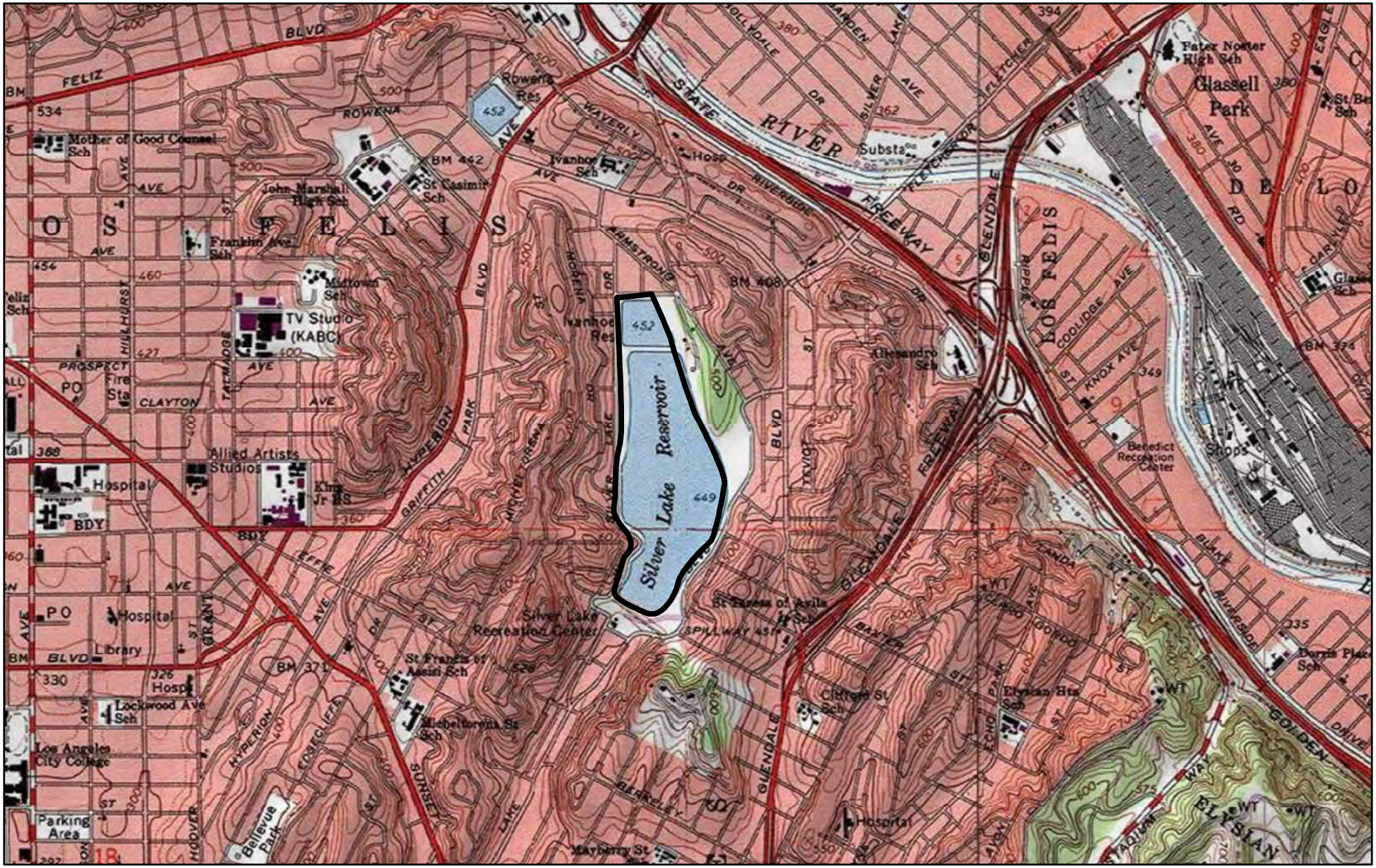
**Attachment 1**
**Project Area Maps**

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**Scale:** 1:24,000
1 in = 2,000 ft

Date: 7/5/2018
Projection: NAD 83 UTM Zone 10N

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AECOM

Silver Lake
Aeration and Recirculation

NAHC Project Area Map

**Legend:**

Project Area


Path: C:\GIS Data\Projects\SL Aeration and Recirculation\MXD\NAHC Map - SL_Aeration_Recirculation.mxd

**Attachment 2**
**Sacred Lands File Search**

**AECOM Inc**
300 S. Grand Ave., Suite 200, Los Angeles, CA 90071
T 213.593.7700 www.AECOM.com

July 5, 2018

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

**Subject: Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project**

Dear Commissioners:

AECOM was retained by Los Angeles Department of Water and Power (LADWP) to conduct a Phase I cultural resources investigation to identify potential impacts to cultural resources in compliance with the California Environmental Quality Act for the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project. LADWP proposes to control algal growth and associated odors at Silver Lake and Ivanhoe Reservoirs by installing an aeration and recirculation system to properly mix and destratify the water body and ensure full water transfer between both basins. The project will require the installation of pumps and pipelines at the existing Silver Lake and Ivanhoe Reservoirs in the City of Los Angeles.

The project is located in Unsectioned Township 1S, Range 13W and in Section 9 of Township 1S, Range 13W on the Hollywood 1966 USGS topographic 1:24000 maps.

The goal of this letter, in addition to acquainting you with this project, is to request that you check the Sacred Lands File records to identify any previously recorded tribal cultural resources in the project area. In addition, please provide a CEQA Tribal Consultation List, which we will use for contact and LACDPW will use for tribal consultation.

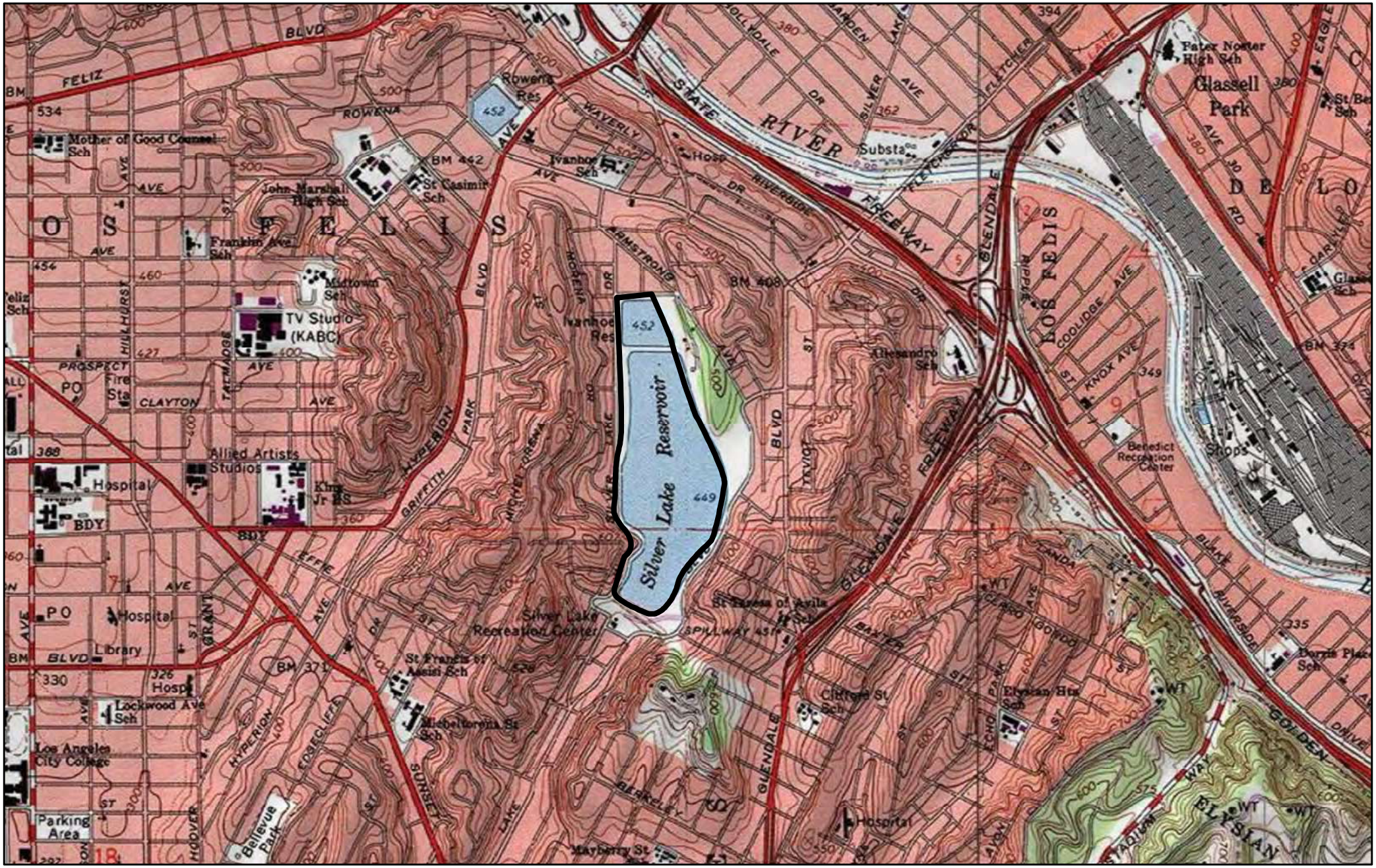
Our Agency contact is as follows:

Nadia Parker
LADWP - Environmental Planning and Assessment
111 N. Hope Street, Room 1044
Los Angeles, CA 90012
213-367-1745
Nadia.Parker@ladwp.com

Thank you for your assistance. Please feel free to contact me if you have any questions about this project.

Sincerely,

**Marc A. Beherec, Ph.D., RPA**
Archaeologist
D 213.593.8481
marc.beherec@aecom.com




0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

**Scale:** 1:24,000
1 in = 2,000 ft

Date: 7/5/2018
Projection: NAD 83 UTM Zone 10N

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AECOM

Silver Lake
Aeration and Recirculation

NAHC Project Area Map

**Legend:**

Project Area


Path: C:\GIS Data\Projects\SL Aeration and Recirculation\MXD\NAHC Map - SL_Aeration_Recirculation.mxd

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

**NATIVE AMERICAN HERITAGE COMMISSION**
**Environmental and Cultural Department**
**1550 Harbor Blvd., ROOM 100**
**West SACRAMENTO, CA 95691**
**(916) 373-3710**
**Fax (916) 373-5471**

August 6, 2018

Marc Beherec

AECOM

Sent by Email: marc.beherec@aecom.com

Re: Silver Lake and Ivanhoe Resevoirs project, Los Angeles County

Dear Mr. Beherec,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

**Native American Heritage Commission**
**Native American Contacts**
**August 6, 2018**

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Santa Ynez , CA 93460
kkahn@santaynezchumash.org
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(805) 686-9578 Fax

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Rudy Ortega Jr.. Tribal President
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(818) 837-0796 Fax

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Barbareno/Ventureno Band of Mission Indians
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Gabrieleno/Tongva San Gabriel Band of Mission Indians
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Gabrielino /Tongva Nation
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Lee Clauss. Director-CRM Dept.
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Highland , CA 92346
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(909) 864-3370 Fax

Kern Valley Indian Community
Robert Robinson. Chairperson
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(760) 378-2915 Cell

Gabrielino-Tongva Tribe
Linda Candelaria. Chairperson
No Current Address on File — Gabrielino

**This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.**

**Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.**

**This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed Silver Lake and Ivanhoe Resevoirs project, Los Angeles County**

**Native American Heritage Commission**
**Native American Contacts**
**August 6, 2018**

Soboba Band of Luiseno Indians
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iontiveros@soboba-nsn.gov
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(951) 654-5544, ext 4137
(951) 654-4198 Fax

San Manuel Band of Mission Indians
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Gabrieleno Band of Mission Indians - Kizh Nation
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**This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.**

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**This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed Silver Lake and Ivanhoe Resevoirs project, Los Angeles County**

**Attachment 3**
**Department of Parks and Recreation (DPR) Forms**

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

# UPDATE SHEET

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 3CD



*Resource Name or #: (Assigned by recorder) Silver Lake Reservoir Complex Historic District

☐ Continuation ☒ Update

**P1. Other Identifier:** Silver Lake Reservoir, Ivanhoe Reservoir

***P2 e.Other Locational Data:** The SLRC is located in the community of Silver Lake and consists of LADWP-owned Silver Lake and Ivanhoe Reservoirs and related facilities. Silver Lake is five miles northwest of downtown Los Angeles and just east of Griffith Park (APN:5439032900, 5439033901).

***P3a. Description:**

The Silver Lake Reservoir Complex (SLRC) Historic District was found eligible for listing in the CRHR as a Historic District in 2004 (Greenwood and Associates 2004). The SLRC Historic District includes 15 contributing features with a period of significance spanning 1906 to 1953 (**Photographs 1 through 16**). The SLRC Historic District is significant under CRHR Criteria 1, 2, and 3 significant for its contribution to water infrastructure development history, association with William Mulholland, and for its design and engineering. Ultimately, the district appears to meet CRHR eligibility criteria 1, 2, and 3 and retains the principal character-defining exterior features and aspects of integrity necessary to convey its significance.

***P3b. Resource Attributes:** HP2 – Single Family Property; HP4 – Ancillary Building; HP9 – Public Utility Building; HP11 – Engineering Structure; HP22 – Reservoir; HP46 –Walls/gates/fences

**P5a. Photograph:**

**Photograph 1.** Silver Lake Reservoir, camera facing north, August 9, 2018.

***P8. Recorded by:** M. Mello, AECOM, 401 West A Street, Suite 1200, San Diego, CA 92101

***P9. Date Recorded:** August 2018

***P10. Survey Type:** Reconnaissance

***P11. Report Citation**: AECOM. Memorandum, "Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project." Prepared for the Los Angeles Department of Water Power, 2018.

***P3a. Description (continued)**

Since 2004, minor elements of the district have changed and it appears one contributing element has been demolished. One of the two sheds located within the district has been removed from the property. The Silver Lake Reservoir and Ivanhoe Reservoir appear unchanged since their last recordation. Other alterations observed include: New windows and doors, and alteration to chimney located at the Caretaker's building (2018); new landscape elements and fencing installed (2018); Garage building's exterior cladding replaced (in-kind) (2018); and door replacement at Landscape Building (2018). The table below summarizes the elements of the SLRC Historic District and identifies the status of the various features.

| Element | Contributing | Noncontributing |
|---|---|---|
| Silver Lake Reservoir | X | |
| Silver Lake Dam | X | |
| Silver Lake Outlet Tower | | X |
| Ivanhoe Reservoir | X | |
| Ivanhoe Dam | X | |
| Ivanhoe Inlet Tower | X | |
| Silver Lake South Outlet Chlorination Station | X | |
| Silver Lake Meter House | X | |
| Chemical/Chlorine Plant | X | |
| Caretaker's House | X | |
| Garage | X | |
| Bathroom Building | X | |
| Shed | X | |
| Landscape Building | X | |
| Chlorination Station (Ivanhoe) | X | |
| Laboratory Building | | X |
| Nursery School (temporary buildings) | | X |
| Landscape elements, including stone and concrete retaining walls, perimeter road, trees, shrubs, and other vegetation | X | |

***B10. Significance: Theme** Water Infrastructure **Area** Los Angeles
**Period of Significance** 1906-1953 **Property Type** Engineering Structure
**Applicable Criteria** CRHR Criterion 1, 2, and 3
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Greenwood and Associates inventoried and evaluated this property in 2004 for the report titled *Silver Lake Reservoir Complex Storage Replacement Project Cultural Resources Assessment Report*.

Evaluation

Greenwood and Associates concluded that the property was eligible for the California Register of Historical Resources (CRHR) as a historic district, significant for its contribution to water infrastructure development history, association with William Mulholland, and for its design and engineering (Criteria 1, 2, and 3). Despite minor alterations, including the removal of a contributing element (one shed), and alterations to the Caretaker's Building and Garage the overall historic integrity of the SLRC Historic District remains intact. The property retains integrity of location, design, setting, materials, workmanship, feeling, and association. After review of the previous recordation and current field check and research, the present evaluation concludes that the property appears to meet the criteria for listing in the CRHR and the property is considered an historical resource for the purpose of the California Environmental Quality Act (CEQA). The property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. The boundary for the historic district is its legal parcels (APN:5439032900, 5439033901).

***B14. Evaluator:** M. Mello, AECOM ***Date of Evaluation:** August 2018

***B12. References:**

AECOM
2018 Memorandum, "Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project." Prepared for the Los Angeles Department of Water Power, 2018.

Greenwood and Associates
2004 *Silver Lake Reservoir Complex Storage Replacement Project Cultural Resources Assessment Report*. Document prepared by Greenwood and Associates for LADWP.

**P5a. Photographs (continued);**

**Photograph 2.** Silver Lake Reservoir, camera facing southwest, August 9, 2018

**Photograph 3.** Silver Lake Dam, camera facing south, August 9, 2018

**Photograph 4.** Silver Lake Outlet Tower, camera facing southeast, August 9, 2018

**Photograph 5.** Ivanhoe Reservoir, camera facing north, August 9, 2018

**Photograph 6.** Ivanhoe Dam, camera facing west, August 9, 2018

**Photograph 7.** Chlorination Station (Ivanhoe), camera facing northeast, August 9, 2018

**Photograph 8.** Caretaker's House, camera facing north, August 9, 2018

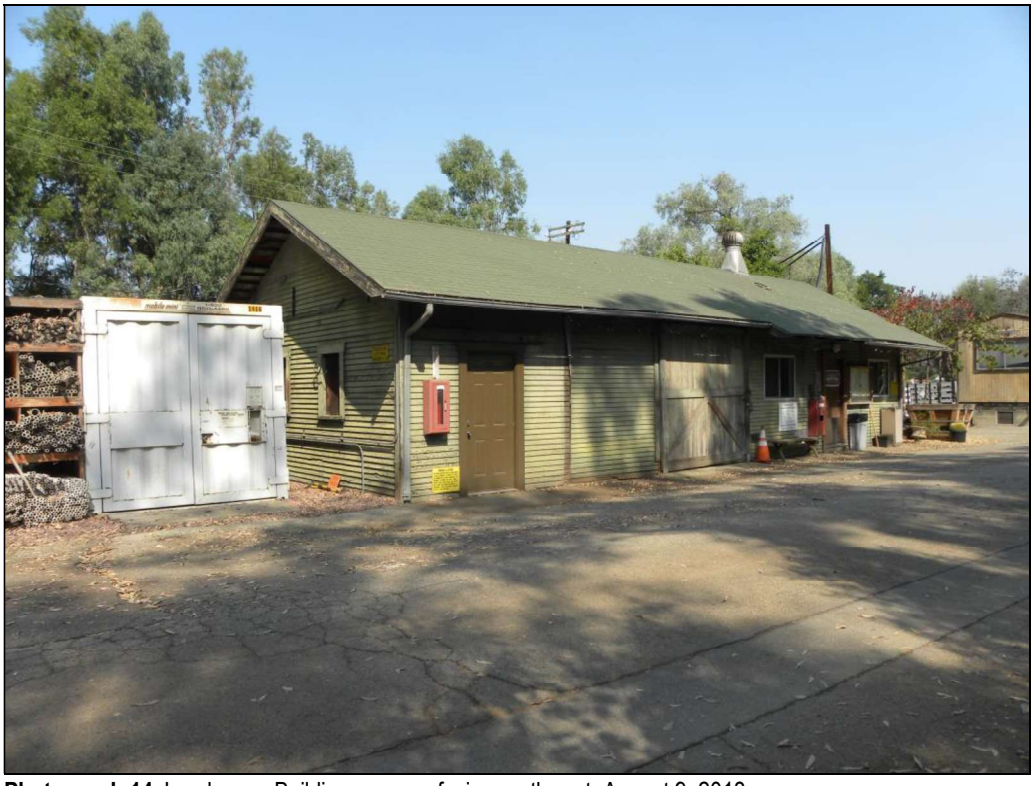
**Photograph 9.** Caretaker's House, camera facing west, August 9, 2018

**Photograph 10.** New Landscaping near Caretaker's House, camera facing south, August 9, 2018

**Photograph 11.** Garage, camera facing west, August 9, 2018

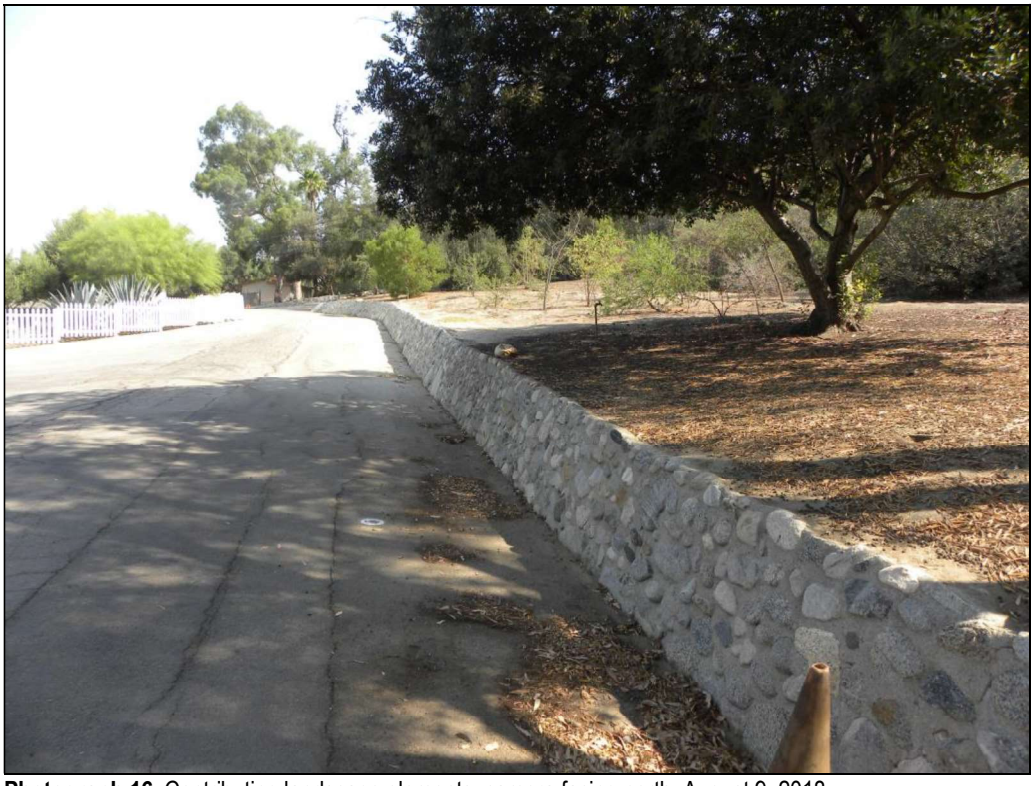
**Photograph 12.** Bathroom Building, note shed located behind bathroom building, camera facing southwest, August 9, 2018

**Photograph 13.** Shed (left) and Garage (right), camera facing north, August 9, 2018



**Photograph 14.** Landscape Building, camera facing northwest, August 9, 2018

**Photograph 15.** Laboratory Building, camera facing north, August 9, 2018



**Photograph 16.** Contributing landscape elements, camera facing north, August 9, 2018

# APPENDIX D
# Energy Resources Assessment

# Technical Memorandum

TO: Cristina Lowery
AECOM

FROM: Terry A. Hayes Associates Inc.

DATE: March 18, 2020

**RE: Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project – Energy Resources Assessment**

## Introduction

Terry A. Hayes Associates Inc. (TAHA) has completed a Energy Resources Assessment for the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project (proposed project) in accordance with the provisions of the California Environmental Quality Act (CEQA) Statutes and Guidelines. The Energy Resources Assessment is organized as follows:

- Project Description
- Energy Topical Information
- Regulatory Framework
- Existing Setting
- Significance Thresholds
- Methodology
- Impact Assessment
- References

## Project Description

The Los Angeles Department of Water and Power (LADWP) proposes to implement the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project (proposed project) within its Silver Lake Reservoir Complex (SLRC), which comprises the Silver Lake and Ivanhoe Reservoirs (the reservoirs).

The proposed project would be located in the Silver Lake community of the City of Los Angeles, approximately five miles north of downtown Los Angeles. **Figure 1** shows the regional vicinity of the project site. **Figure 2** shows the project location. The reservoirs require an aeration and recirculation system to ensure that reasonable water quality parameters are met for visual aesthetics and controlling odors. The proposed project would include the installation of a bubble plume aeration system and a recirculation pipe system to ensure oxygenation and destratification of the reservoirs. Destratification allows for the mixing of the reservoir water to allow for oxygen levels to be maintained throughout the reservoir. **Figure 3** shows the aeration and recirculation systems proposed to be installed in the reservoirs. The proposed project would be implemented in two phases as described below.

Terry A. Hayes Associates Inc.
3535 Hayden Avenue, Suite 350
Culver City, California 90232
310.839.4200 fax 310.839.4201


Source: Esri Maps & Data, 2019.

**Figure 1**
**Regional Map**

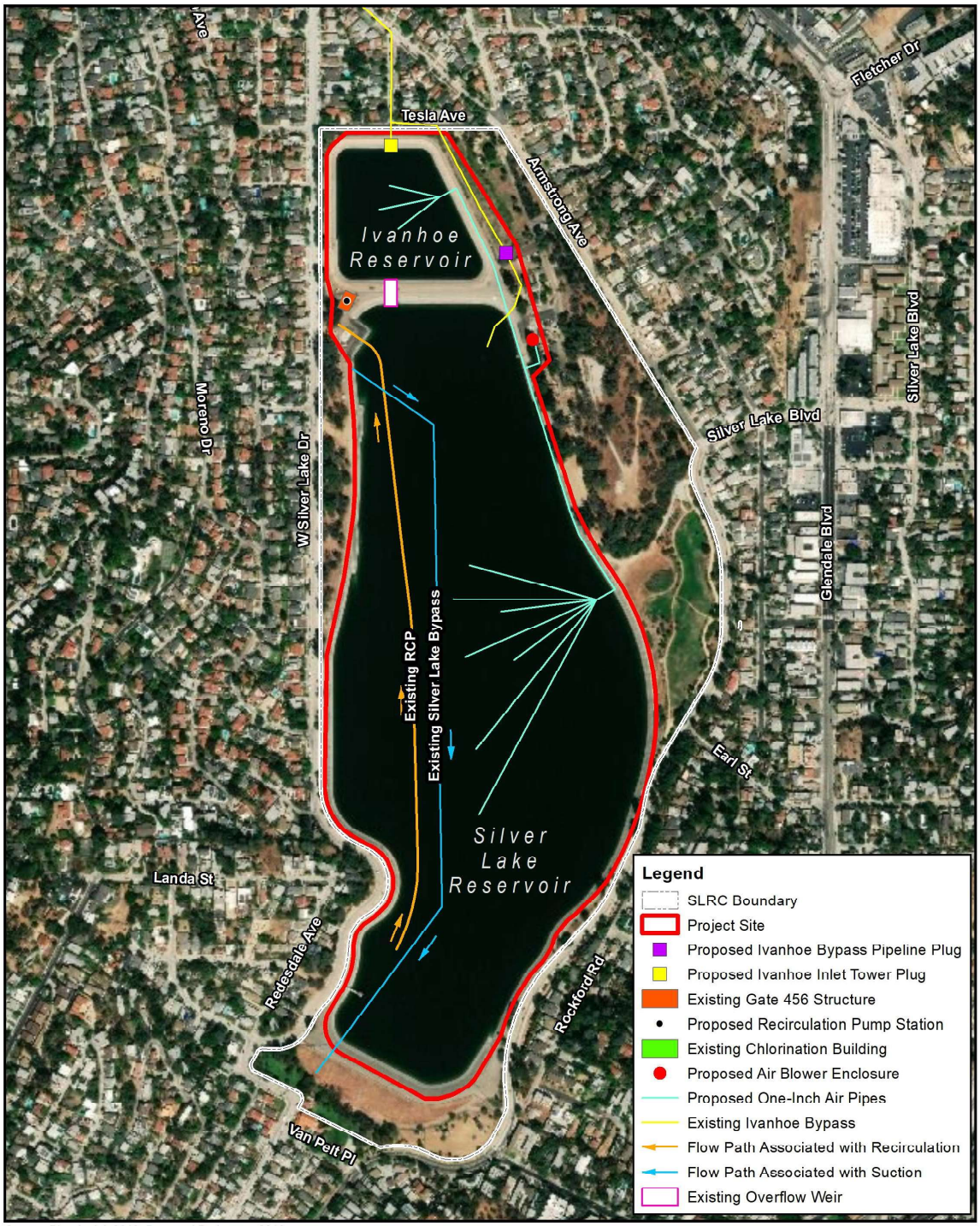

Source: Esri, 2020; Prepared By AECOM, 2020.

0 250 500 1,000 Feet

SLRC Boundary

Project Site

**Figure 2**
**Project Location Map**




Source: Bing Aerial, 2019; Prepared By Aecom, 2019.

0 250 500 1,000 Feet

**Figure 3**
**Proposed Project**
**Aeration and Recirculation System**

Phase 1 would include installation of an aeration system consisting of air blowers, air piping to each of the reservoirs, bubble plume system diffusers in each of the reservoirs, and aftercoolers. Two air blowers would be installed for each reservoir, including one in continuous operation and one to serve as a backup. The air blowers would be housed in an enclosure with ventilation and sound insulation. The air blower package enclosure would be located inside an existing chlorination building in the northeast portion of the SLRC between the two reservoirs.

Phase 2 would include the installation of a recirculation system consisting of a recirculation pump station, recirculation piping, and inflow from Ivanhoe Reservoir to Silver Lake Reservoir via the existing overflow weir. Additionally, two concrete plugs and approximately 400 feet of new recirculation piping would be installed within Ivanhoe Reservoir. The concrete plugs would be installed at the existing Ivanhoe Bypass and Ivanhoe Inlet Tower. The recirculation pump equipment would be installed at the existing Gate 456 structure, which is a fenced gate structure on the northwest corner of Silver Lake Reservoir that was historically used for water bypass when both Silver Lake and Ivanhoe Reservoirs were connected to the potable water system. Two submersible recirculation pumps would be installed along the depths of both Silver Lake and Ivanhoe Reservoirs and within the Gate 456 structure, with one pump on duty and the other on standby during normal operations. Both pumps would have the flexibility to operate simultaneously under special conditions. Suction intake would be located at the south end of the Silver Lake Reservoir along the existing Silver Lake Bypass pipeline and discharge would occur at the north end of Ivanhoe Reservoir. The recirculation piping would be connected to the recirculation pump to transfer water from Silver Lake Reservoir to Ivanhoe Reservoir over a partition wall within the Gate 456 structure. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs.

***Construction Activities and Schedule***

Construction of Phase 1 is anticipated to begin in November 2020 and take approximately 13 months to complete, concluding in December 2021. Construction of Phase 2 is anticipated to begin at the end of Phase 1 and take approximately 16 months to complete. Construction activities would occur Mondays through Friday from 7:00 a.m. to 3:00 p.m. Construction vehicle access would be available via the existing driveway at the northeastern corner of the SLRC near the intersection of Tesla Avenue and Armstrong Avenue. It is anticipated that haul trucks and construction workers would travel south to the project site from Sun Valley using Interstate 5 (I-5), then travel south on Riverside Drive to Glendale Boulevard, and then west on Lakewood Avenue to Armstrong Avenue. All construction activities would occur completely within the boundaries of the SLRC. Construction staging and laydown areas would also occur within the SLRC.

***Phase 1 – Reservoir Aeration***. Construction activities at each reservoir would consist of construction of the aeration header at the existing chlorination building, installation of the pre-assembled air blower enclosures for the aeration system, installation of the pipeline connections, and assembly of the diffusers. As previously discussed, the air blowers for the aeration system would be housed in a sound-insulated enclosure. Site preparation for the enclosure would include demolition of existing concrete slabs, installation of 40 polyvinyl chloride (PVC) conduits, and construction and casting of concrete and equipment pads. The concrete and equipment pads would require the site to be cleared, excavated up to three feet, and graded. The enclosure units would be installed within the existing chlorination building behind its concrete walls.

Following construction of the air blower enclosures, air pipes would be installed from the air blowers to diffuser systems at each reservoir. The pipes would be installed underground utilizing trenching and backfilling methods, with the exception of self-weighted lines that would extend within the reservoir.

Approximately 1,021 linear feet of pipeline would be required for Ivanhoe Reservoir and approximately 1,076 linear feet of pipeline would be required for Silver Lake Reservoir. As previously discussed, the diffusers would consist of a diffuser and a manifold, which would be strategically placed across the reservoirs for optimal aeration. After installation of the pipelines and diffuser systems, the existing control panel would be moved from the existing chlorination building to the newly constructed enclosures. The air blowers and associated piping and supports and ventilation system would be installed within the enclosure. Aftercoolers would be located outside of the enclosures, and a sunshade and would be constructed to protect the equipment. It is estimated that a total of 120 megawatt-hours (MWh) of energy would be used by the recirculation network during Phase 1.

It is anticipated that approximately 1,102 cubic yards of materials would be imported to the project site, including 684 cubic yards of crushed aggregate base, 78 cubic yards of asphalt, 98 cubic yards of concrete, and 233 cubic yards of slurry. Additionally, approximately 1,045 cubic yards of materials would be excavated and exported from the project site, including 982 cubic yards of soil, 35 cubic yards of asphalt, and 28 cubic yards of concrete. Materials required for construction would be stored on site, with the exception of asphalt and concrete. Construction of Phase 1 of the proposed project would require a total of approximately 277 truck trips consisting of 101 trips for imported materials, 88 trips for exported materials, and 88 additional haul truck trips.

The estimated daily average of on-site workers would consist of a peak of 29 workers per day. Construction worker vehicle trips would account for approximately 277 roundtrips for the duration of 13 months, with an average of approximately 22 roundtrips per month.

Construction activities for Phase 2 of the proposed project would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site. The estimated daily peak number of equipment on-site would be three pieces with an average of two pieces. The estimated daily peak number of trucks on-site would be six trucks with a daily average of three trucks on-site for the entire duration of Phase 2.

***Phase 2 - Recirculation System***. Construction activities for Phase 2 include installation of pipeline in Ivanhoe Reservoir, installation of concrete plugs at the existing Ivanhoe Bypass and Ivanhoe Inlet tower, demolition of the existing equipment in the Gate 456 structure, installation of a suction intake on the existing Silver Lake bypass pipeline, and construction of the recirculation pump station within the Gate 456 structure, including a partition wall. Demolition would involve removal of existing electrical and mechanical equipment and an existing concrete slab within the Gate 456 structure.

Prior to installation of the concrete plugs, the water from Ivanhoe Reservoir would be pumped into Silver Lake Reservoir. Following draining of the water, 400 linear feet of pipeline would be placed and casted with concrete within Ivanhoe Reservoir to recirculate water within this reservoir. The concrete plugs would be formed on-site, placed in the Ivanhoe Bypass and then the Ivanhoe Tower Inlet, and finished with additional concrete.

The recirculation pump station equipment would be located within the Gate 456 structure adjacent to the equipment enclosures associated with the Silver Lake Regulating Station. Construction activities for the recirculation pump station would include excavation up to four feet for a 6-foot by 3-foot duct bank, construction of 40 PVC conduits, casting equipment pads and concrete slabs for a 50-foot by 60-foot sized enclosure, installation of the control system, and connecting the control panel to the equipment and pipes. The pumps would be placed below-grade within a hydraulic structure, which would be shielded from view at the

property line. It is estimated that 97 MWh of energy per year would be used by the recirculation network during Phase 2. This would result in total annual energy us of 217 MWh.

Approximately 100 feet of piping would be installed within the Gate 456 structure, which would pump water from Silver Lake Reservoir over a partition wall to Ivanhoe Reservoir. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs. Following installation of the piping, Ivanhoe Reservoir would be refilled via gravity through the existing Gate 456 structure.

It is anticipated that approximately 167 cubic yards of materials would be imported to the project site consisting of 21 cubic yards of crushed aggregate base, 5 cubic yards of asphalt, 141 cubic yards of concrete, and 8 cubic yards of slurry. Additionally, approximately 64 cubic yards of materials would be exported from the project site consisting of 35 cubic yards of soil, 2 cubic yards of asphalt, and 27 cubic yards of concrete. Materials required for construction, except for asphalt and concrete, would be stored on site. Construction of Phase 2 of the proposed project would require a total of approximately 81 truck trips consisting of 45 trips for imported materials, 8 trips for exported materials, and 28 additional haul truck trips. The estimated daily peak number of on-site workers would be 22 workers. Construction worker vehicle trips would account for approximately 278 roundtrips for the duration of 16 months, with an average of approximately 18 roundtrips per month.

Construction activities for Phase 2 of the proposed project would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site. The estimated daily peak number of equipment on site would be 3 pieces with an average of 2 pieces. The estimated daily peak number of trucks on site would be 6 trucks with a daily average of 3 trucks on site for the entire duration of Phase 2.

## Energy Topical Information

### Transportation Fuels

In California approximately 15.1 billion gallons of gasoline and 4.2 gallons of diesel, including off-road diesel were sold and consumed in 2015. Approximately 97 percent of all gasoline consumed in California is utilized by light-duty cars, pickup trucks, and sport utility vehicles. Nearly all heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction, and heavy-duty military vehicles have diesel engines.[1]

### Electricity Supply

Electricity in the Project area is provided by the Los Angeles Department of Water and Power (LADWP). LADWP's power system supplies more than 26 million MWh of electricity a year for the City of Los Angeles' 1.5 million residential and business customers as well as over 5,000 customers in Owens Valley. Typical residential energy use per customer is approximately 500 kilowatt-hours (kWh) per month. Business and industry consume approximately 70 percent of the electricity in Los Angeles. LADWP has a generation capacity of 7,880 megawatts from a mix of energy sources. Approximately 29 percent of electricity is generated

[1]California Energy Commission, *Energy Almanac*, https://www.energy.ca.gov/data-reports/energy-almanac, accessed February 10, 2020.

from renewable energy, 34 percent from natural gas, 9 percent from nuclear, 3 percent from hydroelectric, 19 percent from coal, and 6 percent from purchased power.[2]

### Natural Gas

Natural gas is provided and distributed to residents and businesses in the City of Los Angeles by the Southern California Gas Company (SoCalGas). According to the 2018 California Gas Report, SoCalGas is expected to provide an average of 2,519,000,000 thousand British Thermal Unit per day by 2022. SoCalGas projects total gas demand to decline at an annual rate of 0.74 percent from 2018 to 2035. The decline in throughput demand is due to modest economic growth, California Public Utilities Commission mandates energy efficiency standards and programs, tighter standards created by revised Title 24 Codes and Standards, renewable electricity goals, the decline in commercial and industrial demand, and conservation savings linked to Advanced Metering Infrastructure.[3]

## Regulatory Framework

The following provides a brief summary of energy regulations and policies. This is a not an exhaustive list of all regulations and policies.

### Federal

On August 8, 2005, President George W. Bush signed the Energy Policy Act of 2005 into law. This comprehensive energy legislation contains several electricity related provisions that aim to:

- Help ensure that consumers receive electricity over a dependable, modern infrastructure;
- Remove outdated obstacles to investment in electricity transmission lines;
- Make electric reliability standards mandatory instead of optional; and
- Give federal officials the authority to site new power lines in Department of Energy designated national corridors in certain circumstances.

### State

CEQA Guidelines Appendix F provides a goal of conserving energy in the state of California. The appendix indicates the following methods to achieve this goal: (1) decreasing overall per capita energy consumption, (2) decreasing reliance on natural gas and oil, and (3) increasing reliance on renewable energy sources.

The California Renewables Portfolio Standard (RPS) Program, which was established in 2002 under Senate Bill (SB) 1078, accelerated in 2006 under SB 107, expanded in 2011 under SB 2 and further expanded in 2015 under SB 350, California's RPS is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. On September 12, 2002, then-Governor Gray Davis signed SB 1078. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of

[2]Los Angeles Department of Water and Power, *2017 Power Strategic Long-Term Resource Plan*, December 31, 2017.
[3]California Gas and Electric Utilities, *2018 California Gas Report*, 2018.

2006) changed the target date to 2010. In November 2008, then-Governor Arnold Schwarzenegger signed Executive Order S-14-08, which expands the state's RPS to 33 percent renewable power by 2020. In September 2009, Governor Schwarzenegger continued California's commitment to the RPS by signing Executive Order S-21-09, which directs the California Air Resources Board (CARB) under its AB 32 authority to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020. The 33 percent by 2020 goal was codified in April 2011 with SB X1-2, which was signed by Governor Edmund G. Brown, Jr. This RPS preempts the CARB 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. These entities must adopt the new RPS goals of 20 percent of retail sales from renewables by the end of 2013 and 25 percent by the end of 2016, with the 33 percent requirement being met by the end of 2020.

The Clean Energy and Pollution Reduction Act of 2015, SB 350 (Chapter 547, Statutes of 2015) was approved by Governor Edmund G. Brown, Jr. on October 7, 2015. SB 350 does the following: (1) increases the standards of the RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation (SB 350, Clean Energy and Pollution Reduction Act 2015).

Title 24 of the California Code of Regulations comprises the State Building Standards Code. Part 6 of Title 24 is the California Energy Code that includes the building energy efficiency standards. The standards include provisions applicable to all buildings, residential and non-residential, and describe the requirements for documentation to certify that building designs meets the standards.

Executive Order S-06-06 establishes targets for the use and production of bio-fuels and bio-power and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bio-energy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its bio-fuels within California by 2010, 40 percent by 2020, and 75 percent by 2050.

On April 29, 2015, Governor Edmund G. Brown Jr. signed Executive Order B-30-15, establishing a new statewide goal to reduce greenhouse gas emissions 40 percent below 1990 levels by 2030. Senate Bill 1389 requires the California Energy Commission to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety.

**Local**

On May 15, 2007, Los Angeles Mayor Antonio Villaraigosa released the "GREEN LA – An Action Plan to Lead the Nation in Fighting Global Warming" (GREEN LA Plan) that has an overall goal of reducing the City of Los Angeles' greenhouse gas (GHG) emissions by 35 percent below 1990 levels by 2030. This goal exceeds the targets set by both California and the Kyoto Protocol, and is the greatest reduction target of any large United States city. The cornerstone of the GREEN LA Plan is increasing the City's use of renewable energy to 35 percent by 2020.

On April 8, 2015, Mayor Eric Garcetti released the pLAn, a roadmap to achieve back to basics short-term results while setting the path to strengthen and transform the City. The pLAn is made up of short-term (by 2017) and longer-term (by 2025 and 2035) targets in 14 categories to advance the City's environment, economy and equity. The pLAn provides strategies to create a more sustainable and livable city by: improving land use planning to promote neighborhood quality of life; conserving energy and water; mitigating and adapting to climate change; building transit options for an accessible future; promoting affordability and environmental justice; and restoring and reinventing the Los Angeles River. In 2019, Mayor Eric Garcetti released an update to the pLAn which accelerates previous sustainability targets and looks even further out to 2050.

The 2017 LADWP Power Strategic Long-Term Resource Plan (SLTRP) is a 20-year roadmap that guides the LADWP power system in its efforts to supply reliable electricity in an environmentally responsible and cost-effective manner. One of the main focuses of the SLTRP is to reduce greenhouse gas emissions, while maintaining cost competitive rates and reliable electric service. The SLTRP examines multiple strategies to reduce GHG emissions, including early coal replacement, accelerated renewable portfolio standard, energy efficiency, local solar, energy storage, and transportation electrification. As LADWP starts the process to investigate, study, and determine the investments needed for a 100 percent clean energy portfolio, the 2017 SLTRP provides a path towards this goal with a combination of GHG reduction strategies, including early coal replacement two years ahead of schedule by 2025, accelerating renewable portfolio standard to 50 percent by 2025, 55 percent by 2030, and 65 percent by 2036, doubling of energy efficiency from 2017 through 2027, repowering coastal in-basin generating units with new, highly efficient potential clean energy projects by 2029 to provide grid reliability and critical ramping capability, accelerating electric transportation to absorb GHG emissions from the transportation sector, and investing in the Power System Reliability Program to maintain a robust and reliable Power System.[4]

## Existing Setting

California contains abundant sources of nonrenewable and renewable energy. Nonrenewable resources include large crude oil and natural gas deposits that are located within six geological basins in the Central Valley and along the coast. Much of these reserves are concentrated in the southern San Joaquin Basin. Regarding renewable resources, the State leads the nation in net electricity generation from solar, geothermal, and biomass. California has considerable solar potential, especially in the southeastern deserts and several of the world's largest solar thermal plants are located in California's Mojave Desert. Although California's wind power potential is widespread, especially along the eastern and southern mountain ranges, much of the State is excluded from development of this resource because it is in wilderness areas, parks, or urban areas. The transportation sector is responsible for the most energy consumption of any sector within the State. More motor

[4]Los Angeles Department of Water and Power, *2017 Power Strategic Long-Term Resource Plan*, December 31, 2017.

vehicles are registered in California than in any other state, and commute times in California rank among some of the longest in the country.

The SLRC includes the Silver Lake and Ivanhoe Reservoirs, dams, buildings, water and stormwater infrastructure, interior roads, and public recreational facilities. The proposed facilities would be installed within the reservoirs and the area adjacent to the edges of the reservoir within the SLRC in the areas that currently contain other LADWP facilities. The area surrounding the SLRC is characterized by low-rise single and multi-family residential structures with various commercial uses located along busier roadways in the neighborhood. No electricity or natural gas facilities have been identified that may be affected by the project.

## Significance Thresholds

This Assessment was undertaken to determine whether construction or operation of the proposed project would have the potential to result in significant environmental impacts related to Energy Resources in the context of the Appendix G Environmental Checklist criteria of the CEQA Statute and Guidelines. Implementation of the proposed project may result in a significant environmental impact related to Energy Resources if the proposed project would:

a) Result in potentially significant environment impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; and/or
b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

## Methodology

Appendix F of the CEQA Guidelines states that the goal of conserving energy implies the wise and efficient use of energy, to be achieved by decreasing overall per capita energy consumption; decreasing reliance on natural gas and oil; and increasing reliance on renewable energy resources. To assure energy implications are considered in project decisions, CEQA requires that environmental impact reports include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

The air quality analysis prepared for the proposed project, included in the appendix for the environmental documentation, includes a quantification of construction-related carbon dioxide ($CO_2$) emissions using the California Emissions Estimator Model. These emissions were used to estimate construction energy from $CO_2$ emission factors derived for the CARB GHG emissions inventory. The 2018 Climate Registry indicates that for gasoline fuel, approximately 8.78 kilograms of $CO_2$ are generated per gallon combusted, and for diesel fuel, approximately 10.21 kilograms of $CO_2$ are generated per gallon combusted. The fuel consumption was estimated from the equipment and vehicles that would be employed in construction activities. Diesel engines are installed in heavy-duty off-road construction equipment and on-road haul trucks. Gasoline engines are typically found in passenger vehicles that would be used for construction worker daily commutes.

# Impact Assessment

***a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? (Less-than-Significant Impact)***

The following analysis discusses short-term (construction) and long-term (operational) use of electricity, natural gas, and petroleum.

**Electricity**

**Construction**. Construction of the proposed project would require electricity for lighting, construction trailers, and operation of electrically powered hands tools. Electricity to the site would be provided by LADWP and it is likely that most electrically powered equipment would connect to the grid. Consumption of electricity for construction would be minimal and would cease after completion of the proposed project. Electricity use would be minimized to the extent feasible through incorporation of sustainability features and best management practices. Therefore, construction of the proposed project would result in a less than significant impact related to wasteful, inefficient, or unnecessary consumption of electricity.

**Operation**. Electricity would be needed to continuously operate the air blower units. The estimated energy consumption of the recirculation network is 120 MWh for Phase 1 and 97 MWh annually for Phase 2, totaling 217 MWh. The aeration and recirculation system would ensure that water quality parameters are met for visual aesthetics and controlling odors. The proposed project would allow the reservoirs to revert to a more natural state, maintained as view lakes, and to remain consistent with the community values that were set forth in the Silver Lake Master Plan. Using electricity to achieve the objectives would not be wasteful, inefficient, or unnecessary. Therefore, operation of the proposed project would result in a less than significant impact related to the consumption of electricity.

**Natural Gas**

**Construction**. Construction activities typically do not require the consumption of natural gas to power equipment or heavy machinery. Natural gas that would be consumed during construction would be negligible and would not result in a significant drain on natural gas resources. Therefore, construction of the proposed project would result in a less than significant impact related to wasteful, inefficient, or unnecessary consumption of natural gas.

**Operation**. The proposed project would not use natural gas. Therefore, operation of the proposed project would not result in a significant impact related to wasteful, inefficient, or unnecessary consumption of natural gas.

**Petroleum**

**Construction**. Petroleum would be consumed during the demolition, excavation, and construction phases of the proposed project by heavy-duty equipment, which is usually diesel powered. Construction of the proposed project would result in an increased consumption of gasoline and diesel fuels associated with haul trucks, deliveries, and worker commute trips. **Table 1** shows that a one-time expenditure of approximately 3,541 gallons of diesel fuel and 896 gallons of gasoline would be needed to construct the proposed project.

| TABLE 1: CONSTRUCTION PETROLEUM DEMAND | | | |
|---|---|---|---|
| **Source** | **$CO_2$ (Metric Tons)** | **kg/$CO_2$/Gallon** | **Gallons** |
| **DIESEL** | | | |
| Equipment – Phase 1 | 247 | 10.21 | 2,522 |
| Equipment – Phase 2 | 97 | 10.21 | 990 |
| Trucks – Phase 1 | 3.4 | 10.21 | 35 |
| Trucks – Phase 2 | 0.4 | 10.21 | 4.1 |
| | | Total Diesel Consumption | 3,551 |
| **GASOLINE** | | | |
| Worker Vehicles – Phase 1 | 79 | 8.78 | 694 |
| Worker Vehicles – Phase 2 | 23 | 8.78 | 202 |
| | | Total Gasoline Consumption | 896 |
| **SOURCE:** The Climate Registry, 2018; TAHA, 2020. | | | |

The proposed project would use best practices to eliminate the potential for the wasteful consumption of petroleum. Exported materials (e.g., demolition debris and soil hauling) would be disposed of at the closest facility that accepts such materials, and the proposed project would be required to comply with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to five minutes. Therefore, because petroleum use would be minimized to the extent feasible and represents a relatively small amount of fuel consumption, construction of the proposed project would result in a less than significant impact related to wasteful, inefficient, or unnecessary consumption of petroleum.

**Operation**. Petroleum consumption during operation of the proposed project would be related to vehicle trips for periodic maintenance. Maintenance would require one daily trip up to three times per week. This minimal vehicle use would have a negligible effect on petroleum supplies. Therefore, operation of the proposed project would not result in a significant impact related to wasteful, inefficient, or unnecessary consumption of petroleum.

**Mitigation Measure**

No mitigation measures are required.

***b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (Less-than-Significant Impact)***

There is no potential for the water aeration and recirculation system to conflict with renewable energy or energy efficiency plans. A review of plans and policies described in the Regulatory Framework did not identify plans or policies relevant to an aeration and recirculation systems project. Electricity will be provided from the LADWP system, and LADWP has a long-term plan to provide 100 percent of the City's electrical power through renewable resources by 2045. The electricity needed to operate the proposed project, 120 MWh for Phase 1 and 97 MWh annually for Phase 2, will not interfere with this long-term plan for renewable energy. Regarding energy efficiency, the proposed project will comply with Title 24, Part 6, of the California Code of Regulations and construction activities would use best practices to eliminate the potential for the wasteful

consumption of energy (e.g., compliance with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to five minutes). Therefore, the proposed project would result in a less than significant impact related to energy plans and energy efficiency.

**Mitigation Measures**

No mitigation measures are required.

## References

42 United States Code, *Section 13201 et seq. Energy Policy Act*, 2005.

California Code of Regulations, *Title 24 Building Energy Efficiency Standards*, 2019.

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