APPENDIX B

BIOLOGICAL TECHNICAL REPORT

BonTerra PSOMAS

Biological Technical Report

Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California

Prepared for
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1.0 INTRODUCTION

This Biological Technical Report has been prepared to support California Environmental Quality Act (CEQA) documentation for the proposed actions relating to the Santa Anita Stormwater Flood Management and Seismic Strengthening (Project). This information has been reported in accordance with accepted scientific and technical standards that are consistent with the requirements of the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW).[1]

1.1 PROJECT LOCATION AND PHYSICAL ENVIRONMENTAL SETTING

The study area is located in Los Angeles County at the northeast edge of the City of Arcadia, the northwest edge of the City of Monrovia, and the Angeles National Forest (Exhibit 1). It is located on the U.S. Geological Survey's (USGS') Mt. Wilson 7.5-minute quadrangle map (Exhibit 2). Elevations in the study area range from 725 to 1,850 feet above mean sea level (msl). The study area is approximately 115.50 acres and includes habitat from the Santa Anita Reservoir downstream along Santa Anita Wash to the Santa Anita Debris Dam. Private residences occur along the western boundary of the debris dam along Highland Oaks Boulevard. Open spaces in the City of Arcadia's Wilderness Park (Wilderness Park) and the Angeles National Forest occur north and east of the study area (Exhibit 3). Additional County of Los Angeles Department of Public Works (LACDPW) flood-control facilities are located south of the study area.

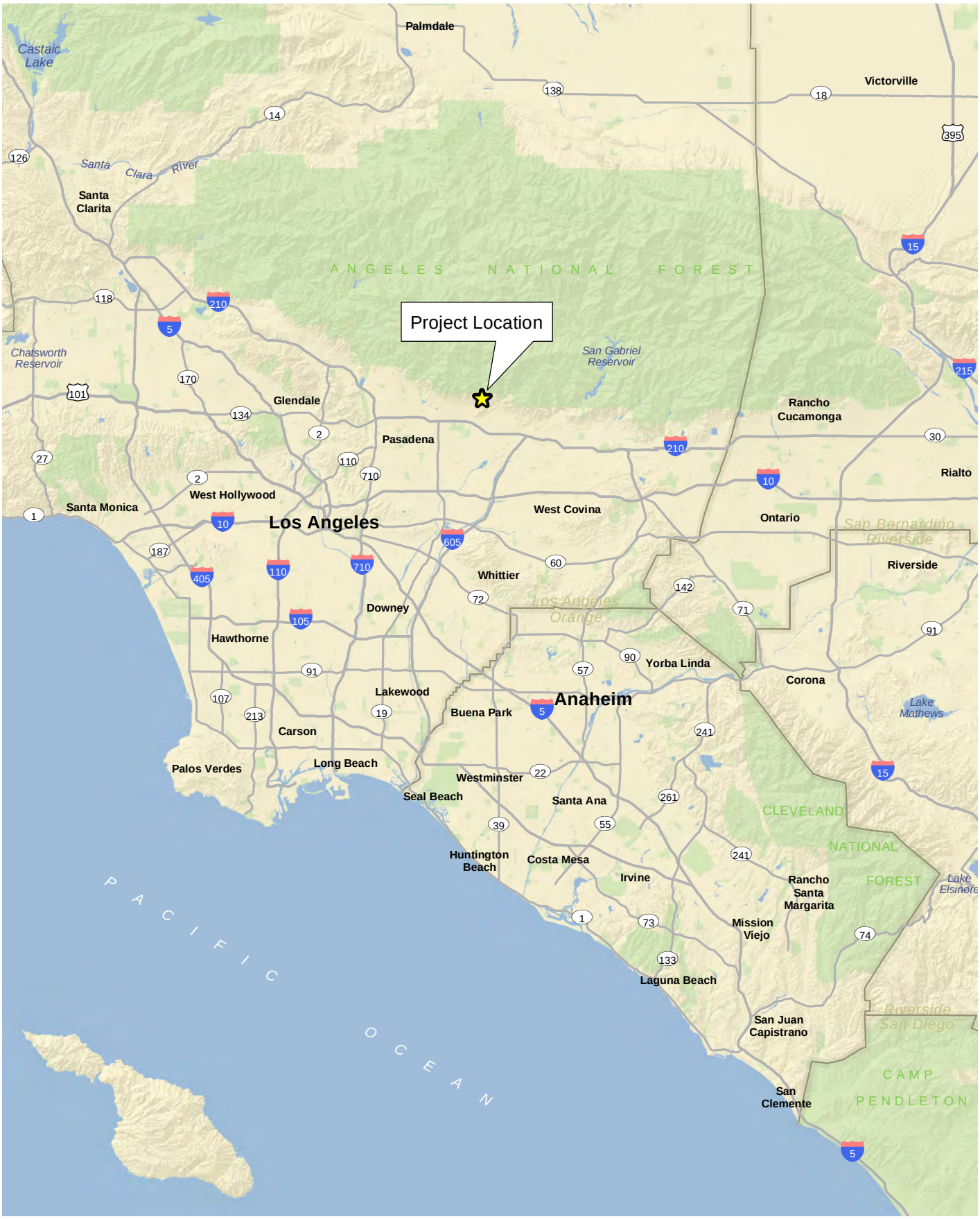
Soil types in the study area generally consist of the Trigo family soils, which have a granitic substratum on 60 to 90 percent slopes in the northern portion of the study area. No data is available for the soils in the southern portion of the study area (USDA NRCS 2012).

1.1.1 Regional Environmental Setting

Santa Anita Canyon is located in the San Gabriel Mountains in and adjacent to the Angeles National Forest. The Angeles National Forest includes over 650,000 acres of open space that are managed for flood control, water conservation, and recreation (USFS 2012). The study area is located on the south side of Angeles Crest Highway (within the Los Angeles River Ranger District), approximately 1.5 miles southeast of Mt. Wilson. It is located approximately 2.5 miles southwest of the Cogswell Reservoir and approximately 10 miles southeast of Big Tujunga Reservoir. Habitat in the Angeles National Forest is composed primarily of chaparral, with pine and fir forests at higher elevations (USFS 2012).

The region experiences a Mediterranean climate characterized by mild, rainy winters and hot, dry summers. The temperature is moderated by the coastal influence of the Pacific Ocean, which creates mild conditions throughout most of the year. The most distinguishing characteristic of a Mediterranean climate is its seasonal precipitation. In Southern California, precipitation is characterized by brief, intense storms between November and March. It is not unusual for a majority of the annual precipitation to fall during a few storms over a short span of time. Rainfall patterns in the region are subject to extreme variations from year to year and longer-term wet and dry cycles. The average annual rainfall for the area is approximately 16.29 inches based on 1939–2012 averages (WRCC 2012).

[1] As of January 1, 2013, the California Department of Fish and Game (CDFG) changed its name to the California Department of Fish and Wildlife (CDFW). Please note that references to previous publications use the name under which the document was published (i.e., CDFG), while discussions relating to the agency refer to the current name (i.e., CDFW).



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Regional Location

Exhibit 1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

10 5 0 10 Miles

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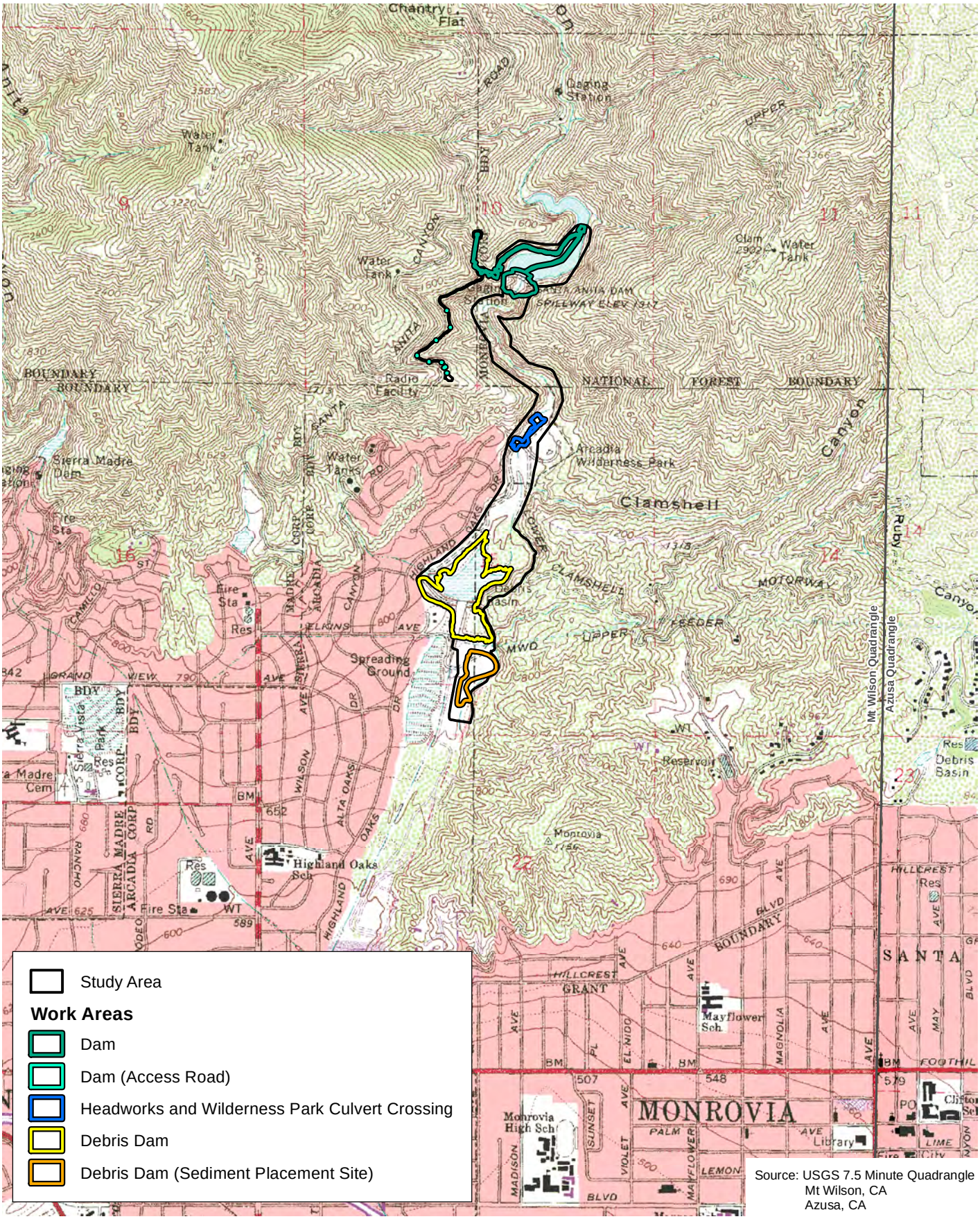

Source: USGS 7.5 Minute Quadrangle
Mt Wilson, CA
Azusa, CA

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Local Vicinity

Exhibit 2

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
W E
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2,000 1,000 0 2,000
Feet

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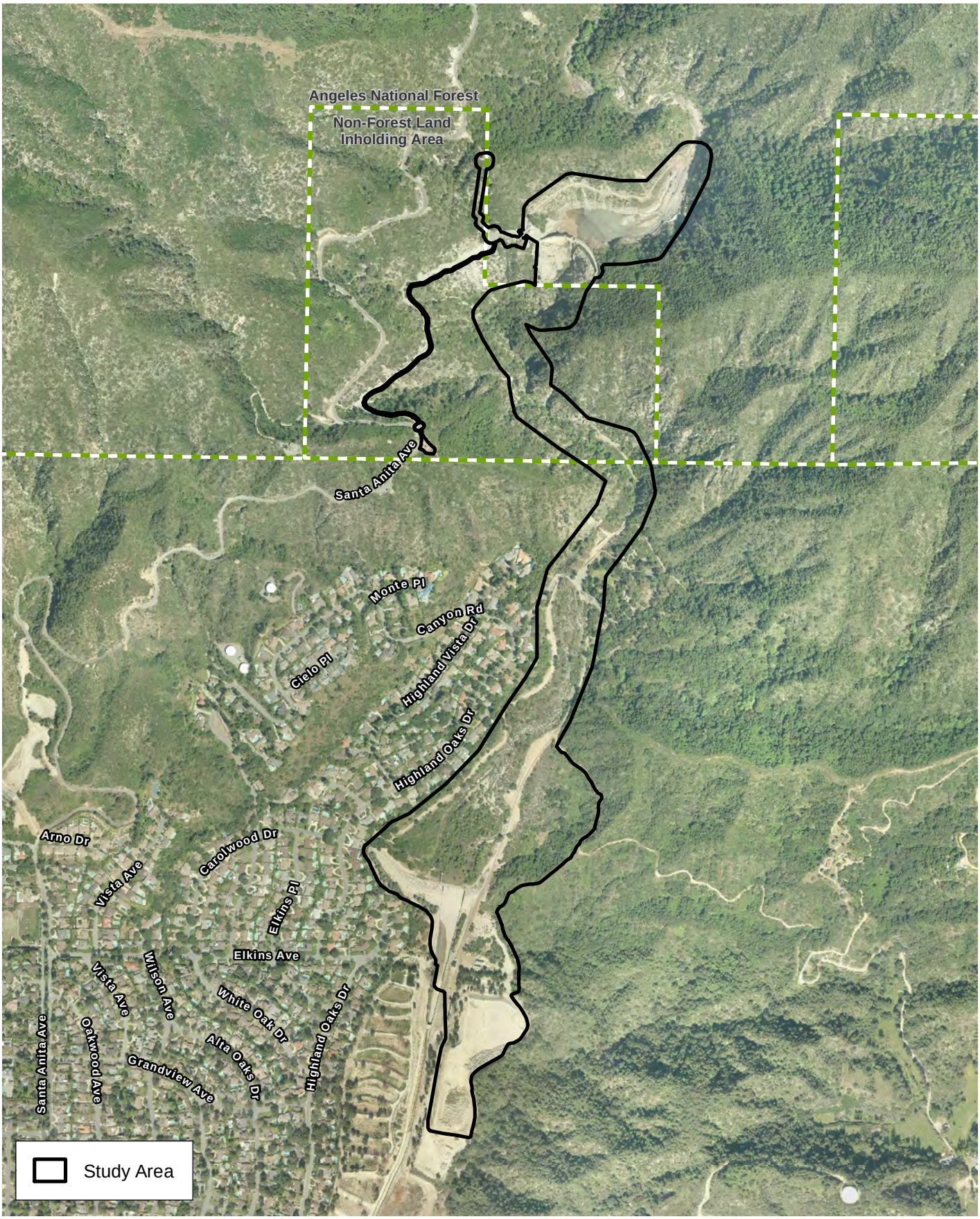

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Study Area

Exhibit 3

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
W E
S

1,000 500 0 1,000

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1.2 PROJECT DESCRIPTION AND BACKGROUND

The Project would modify existing flood management and water conservation facilities along the Santa Anita Canyon Watershed: the Santa Anita Dam (Dam), the Santa Anita Headworks (Headworks), Wilderness Park Culvert Crossing, and the Santa Anita Debris Dam (Debris Dam). These facilities, which are described in further detail below, are operated and maintained by the Los Angeles County Flood Control District (LACFCD) and serve to control and conserve the floodwaters of the Santa Anita Canyon Watershed. In 1985, the responsibilities and authority vested to the LACFCD were transferred to the LACDPW. The Watershed Management Division is the planning and policy arm of the LACFCD. The Flood Maintenance and Water Resources Divisions, respectively, oversee LACFCD's maintenance and operational efforts.

The Santa Anita Canyon Watershed is mostly undeveloped; the majority of it is located in the Angeles National Forest within the San Gabriel Mountains, which are very steep and among the most highly erosive mountains in the world. This watershed is also susceptible to wildfires, which can result in substantial debris flows during subsequent storm events. The Project's facilities are located within 1 mile of the Sierra Madre Fault, which is capable of a producing a maximum credible earthquake (MCE) of magnitude 7.5.

The Project would improve the LACFCD's facilities to better reduce flood risk to downstream communities by modifying the Dam spillway to safely pass the Probable Maximum Flood (PMF) and remediate seismic safety issues at the Dam and Debris Dam. It would also enhance the sustainability of the local water supply and increase recharge to the groundwater basin by over 500 acre feet per year (afy) by restoring storage capacity at the Debris Dam, rehabilitate the Headworks for more reliable diversion of stormwater runoff to the spreading grounds, and modernize facilities and implement new monitoring and control systems. The Project would also improve all-weather access to the Arcadia Wilderness Park by constructing a new culvert crossing. The Project would be partially funded by a State of California Proposition 1E Stormwater Flood Management Grant, as well as assistance from the City of Arcadia, the City of Sierra Madre, and the Raymond Basin Management Board.

In addition to improving infrastructure for flood protection, the Project would contribute to regional efforts to reduce dependence on imported water supplies by providing increased opportunities to recharge storm flows emanating from the Santa Anita Canyon Watershed into the groundwater basin. The Metropolitan Water District of Southern California has estimated that Southern California could face a potential gap between water demand and supply of up to 1,300,000 afy by the year 2025 if new water supply projects are not developed (LACFCD 2011).

The Greater Los Angeles County Integrated Regional Water Management Plan (IRWMP) includes regional objectives to promote an integrated, multi-benefit, inter-regional approach to water management and planning. Objectives of the IRWMP include (1) sustaining infrastructure for local communities to maintain and enhance public infrastructure related to flood protection, water resources, and water quality and (2) improving water supply to optimize local water resources to reduce the Greater Los Angeles Region's reliance on imported water. The Project had been identified in the IRWMP as one of the regional-level projects that could help to increase recharge of the local groundwater basin and thereby increase local water supplies (Leadership Committee 2006).

1.2.1 Project Description

The Project has multiple components, including the Dam, Headworks and Wilderness Park Culvert Crossing, and Debris Dam. The following describes each of the Project's components.

Dam

The Dam would be structurally altered to accommodate a new spillway with sufficient capacity to pass the probable maximum flood (PMF) of 26,100 cubic feet per second (cfs) in order to reduce the risk of Dam failure from uncontrolled overtopping during major storm events. The proposed improvements to the Dam would not result in changes to the existing maximum water surface elevation restrictions; therefore, the reservoir's capacity to retain water would not be altered by Project implementation.

The spillway modification would consist of cutting a "notch" in the Dam crest to allow the PMF to overtop in a controlled manner. The existing auxiliary spillway bowl and trash rack and existing emergency crest spillway would be removed. The proposed notch would be centered on the crest of the Dam, similar to the existing emergency crest spillway, and would require concrete removal from the Dam. An existing spillway on the far western edge of the Dam would remain and be unaltered by the Project; however, the existing auxiliary orifice spillway beneath the proposed new spillway would be removed.

A new pedestrian bridge would be constructed over the notch, and the existing hoist system would be upgraded to have a higher load capacity and re-aligned to accommodate the new spillway, including relocation of the lower hoist tower along the Dam crest (and potentially cantilevered of the back side, if necessary. The proposed improvements would not change the height of the Dam; the crest of the Dam will remain at an elevation of 1,325 feet above msl and the parapet wall would remain at an elevation of 1,328 feet above msl.

To better manage stormwater runoff and to ensure reliability and efficiency of operations, six of the existing valves will be replaced (three control valves and three backup valves), along with new electrical and control systems. The Dam's structural concrete would be repaired to ensure that it meets acceptable standards consistent with the required seismic performance of the Dam.

The downstream canyon walls and the toe of the Dam would be re-armored with additional reinforced gunite or equivalent concrete erosion protection to dissipate the energy from the overtopping water as the flow cascades through the spillway notch and the orifice spillway or sluiceway. The flow would be directed onto the downstream armoring before flowing into the channel downstream of the Dam. The new re-amoring would reinforce the existing armoring that extends approximately 100 feet downstream from the toe of the Dam. The re-armoring would be held in position with tie-back anchors to be drilled and grouted into the bedrock. The tie-ins for the re-armoring may include superficial rock excavation, grading, and subsurface pressure grouting. The color of the material used for re-armoring would be the same as the existing concrete.

The Project would also include improvements to ancillary facilities of the Dam. The existing garage/storage shed would be demolished and replaced with a new three-bay garage (the third bay would house a new back-up generator). Additionally, the existing Dam Operator's house would be removed and replaced with a helipad to provide aerial access to the Dam in the event of an emergency. It is anticipated that the helipad would only be used one or two times per year. The addition of a helipad would allow for improved emergency access to the Dam, as well as the other facilities downstream, especially if access roads get obstructed. The existing relief quarters and control house would remain to serve as an office. Although the Dam Operator would no longer

reside at the Dam, he/she would still be on-site daily and available on-call after hours. The Project would include remote control capabilities that provide redundant control options from multiple off-site locations. The Dam also has a built-in safety mechanism to automatically pass water through the Dam once the reservoir surface level reaches the DSOD restriction.

The existing potable water system that serves the Dam site would be replaced. The water system currently consists of a 60,000 gallon upper tank located off Chantry Flats Road that connects to two 5,000 gallon lower tanks located near the Dam access road via a pipeline that runs down the mountainside. The slope adjacent to the upper tank has erosion damage and would be repaired as part of the Project. To repair the slope, an approximately 216 square foot eroded gully located near the tank's foundation would be grubbed and stabilized with engineered fill and geotextile fabric, or the installation of support piles. The exposed portions of the existing water pipeline would be removed while any underground portions would be capped and abandoned in place. The replacement pipeline would run along the same general alignment as the existing pipeline. The two lower tanks would be removed and would not require replacement.

The existing manual swing gate at Chantry Flats Road that provides secured entry to the Dam access road would be replaced with a new electric slide gate. In order to provide electricity to the gate and new lighting/intercom systems, a power line would be strung on up to seven new power poles to be installed along the outer edge of the Dam's access road, or where possible, in conduit along the inner slope of the access road.

Headworks and Wilderness Park Culvert Crossing

Headworks

The Headworks structure would be replaced and the associated earthen levee would be partially reconstructed to better manage the diversion of flows to the downstream spreading grounds and the downstream Debris Dam. A rehabilitation of the Headworks is needed to protect facilities from stormwater damage and to direct stormwater runoff to the spreading grounds for groundwater recharge.

Redevelopment of the Headworks would include reconstruction of the levee to ensure it can withstand flows produced by a 25-year storm event and replacement of the existing tainter gate (used to divert flows) with a new rubber diversion structure. The new rubber diversion structure would be a pneumatically operated (through the use of compressed air or compressed gas), bottom hinged, spillway gate system.

The majority of the existing Headworks structure would be demolished and removed, including the tainter gate, supporting walls, catwalk, and keys. The new facility would increase the width of the structure by approximately 20 feet in order to house the 34-foot rubber diversion structure. Operation of the rubber diversion structure would result in the retention of waters behind the levee to allow for the diversion of flows through the intake gates and into the existing 30-inch reinforced concrete pipe (RCP) leading to the Santa Anita Spreading Grounds and/or Sierra Madre Spreading Grounds. The pool created by the new rubber diversion structure would remain the same as under existing conditions. Construction of the new diversion structure would require work in the creekbed extending approximately 25 feet downstream of the Headworks, including the placement of new riprap on the downstream side.

The rehabilitation of the Headworks would also include a new control system, including remote operation capabilities, to increase efficiency of water conservation operations. Currently, the response time required for County personnel to drive to the Headworks and manually operate the tainter gate, along with the limited flow rates that can be bypassed, results in the loss of a water conservation opportunity. A new control system integrated with the control system of the other

Project components would optimize water conservation. A control house for the rubber diversion structure would be constructed on the other side of the channel next to the access road.

The earthen levee would be reinforced and raised approximately five feet higher to match the height of the Headworks structure by removing and under-excavating the existing levee and rebuilding the new levee using a combination of imported fill and suitable material from the existing levee. It would then be recompacted to the proposed height. The access road leading to the facility would be modified to match the height of the reinforced earthen levee. The existing riprap on the upstream side of the levee would be reinforced. A subsurface conduit would be installed along the length of the levee to connect the rubber diversion structure to the control house on the other side.

Wilderness Park Culvert Crossing

In addition to the improvements at the Headworks, armoring of the roadway and construction of a replacement culvert crossing to the Wilderness Park is needed to ensure that the structure can withstand flows produced by a larger storm event. The existing culvert crossing located approximately 450 feet downstream of the Headworks, including the concrete slab and corrugated metal culverts, would be removed and replaced with a new crossing structure.

The new culvert crossing may be wider than the existing structure by up to approximately ten feet. The new culvert crossing would be built on top of a new abutment and would be designed with a permanent guard rail and flexible pavement driving surface adequate for emergency vehicles. The new roadway elevation of the culvert crossing would be raised above the existing roadway elevation by approximately 4.5 feet to accommodate higher flows. Approximately 1,800 square feet of the roadways leading to and from the Culvert Crossing would be repaved and sloped to join the existing grade.

Approximately 30 feet of the channel upstream and downstream of the existing Culvert Crossing would be grubbed and graded to accommodate the new Culvert Crossing. It is anticipated that adequate vehicular and pedestrian access could be provided to the Arcadia Wilderness Park for the majority of the construction period for the Culvert Crossing, with only occasional closures required for periods of about a week or less at any given time during construction. Notification of any temporary closures would be posted at the entrance to the Wilderness Park. Those brief closures would avoid important events at the Wilderness Park, such as the overnight Boy Scout campouts every Friday and Saturday and youth day camps every weekday between mid-June to late-August. However, in order to provide a conservative analysis for impacts to Biological Resources (see Section 4.4 of this MND), the assembly of a temporary bypass crossing located north of the existing Culvert Crossing, which would require removal of a sycamore tree, has been assumed and assessed, to account for the event that the temporary crossing is used. Therefore, access to the Wilderness Park would be maintained throughout construction with minimal interruption to access. Two existing sycamore trees located adjacent to the crossing on the eastern shore of the Wash, south of the culvert crossing, would need to be removed. One sycamore located on the eastern shore of the Wash, north of the culvert crossing, may need to be removed, depending on whether or not the temporary bypass crossing is installed. In order to provide a conservative analysis, this technical report assumes that all three of the upstream and downstream sycamore trees would be removed.

The LACFCD may transplant the root ball(s) of the sycamores to a suitable riparian location, and/or utilize the woody debris from the sycamore to enhance habitat value at another nearby location, if determined to be feasible and if approved by the County and other appropriate parties. In addition, new sycamore trees would be planted within a 100-foot radius of the original location of any removed existing trees.

New riprap would be installed upstream and downstream of the culvert crossing. The roadways leading to and from the culvert crossing would be armored, 36 feet on the upstream side and 84 feet on the downstream side, to withstand flows and sloped to join the existing grade. The existing water and sewer lines that run through the current culvert crossing would need to be relocated to the new height of the structure. The sewer force main is on the downstream surface of the Culvert Crossing and the water line is on the upstream surface of the Culvert Crossing. Additionally, the fire hydrant, vault, water valve and standpipe would be demolished and relocated approximately 15 feet to the north in the case that the temporary bypass crossing is utilized. All utility trenching and relocations would remain within the area anticipated for impacts by the culvert crossing construction activities, and there would be no changes in water/sewer quantities or demands as a result of the Project.

Debris Dam

Remediation of the seismic deficiencies at the Debris Dam would involve minor improvements to the existing structures, including the intake tower and embankment. As a result of the loss of water conservation capacity from the California Department of Water Resources, Division of Safety of Dams (DSOD) restrictions on the Dam, there is an increased need to capture as much stormwater runoff as possible in facilities below the Dam. As a result, the Debris Dam would also be enlarged by raising the existing spillway by 4 feet. Remediating the seismic deficiencies at the Debris Dam would result in the DSOD removing the operational restrictions on the facility, thereby restoring 119 acre-feet of water conservation capacity. Enlarging the Debris Dam would create an additional 40 acre-feet of additional storage capacity, for a total of 159 acre-feet. When captured stormwater is released from the Dam to the spreading grounds for groundwater recharge, the Debris Dam can then capture more runoff, which would allow for water storage capacity multiple times in a single season depending on the frequency, duration, and intensity of storm events.

The intake tower located in the Debris Dam is unable to resist seismic loading and would be strengthened or replaced. The improved intake tower would be connected to the existing 48-inch outlet pipe (being lined as part of this project). The outlet pipe has an existing junction box which is used to deliver water either into the spillway channel or into the spreading grounds. The upstream and downstream portions of the Debris Dam embankment and alluvial foundation material that are subject to potential liquefaction would be reinforced with structural buttressing. Currently, a cross-section of the Debris Dam resembles a triangle (e.g. sloped sides on the upstream and downstream sides of the dam) with a flat top (e.g. flattened to accommodate vehicular access). The top of the embankment ranges from an elevation of 796 feet above msl at its center to an elevation of 811 feet above msl at the western edge. The construction activities would involve the removal of the existing rip-rap exterior surface on portions of both the upstream (approximately 0.69 acres) and downstream (approximately 0.89) slopes. Engineered fill materials beneath the riprap would be excavated and removed, and an engineered buttress would be constructed. Upon completion of construction activities, the sloped upstream and downstream surfaces of the Debris Dam would be reconfigured into a single stair-stepped terrace. The surface of the Debris Dam would be completed with a rip-rap similar to the existing condition.

As part of the improvements, six non-native deodar cedar trees (*Cedrus deodara*) located at the downstream toe of the embankment would be removed as mandated by DSOD to ensure the structural integrity of the Debris Dam.

A new automated outlet gate and control system would be constructed to modernize operations and to ensure compatibility with other Project components. Upon completion of these improvements, DSOD would issue a new certificate for the facility and remove the current

operating restriction on the Debris Dam, which would increase the Debris Dam's available and allowable water conservation storage capacity from 0 acre-feet to 159 acre-feet.

In addition to the DSOD design approval requirements, the modification of the Debris Dam requires approval under 33 USC 408 (hereafter referred to as Section 408), which requires obtaining a permit from the U.S. Army Corps of Engineers (USACE). Under the terms of Section 408, any proposed modification to a USACE facility requires a determination that the proposed alterations is not injurious to the public interest and will not impair the usefulness of the facility. Consultation with the USACE will be required to determine whether the modifications would be considered a "Minor" (Minor 408) or "Major" (Major 408) Modification.

An existing disturbed area south of the Debris Dam would be used as a Sediment Placement Site.

1.2.2 Project Construction Phasing and Schedule

Project construction would include several components that would occur in phases with some overlap in schedules. Each component of the Project is not dependent on the implementation of other components. Each component can operate on a fully functional stand-alone basis. While each component has its own benefits, the overall Project is designed to maximize those benefits by integrating the operation and functioning of the components so they work together more efficiently.

In compliance with the County Code and consistent with the City of Arcadia Municipal Code, all construction activity must be limited to the hours of 7:00 AM to 7:00 PM Monday through Saturday. However, in order to reduce construction-related impacts to nearby residences, the Project will only be under construction during the weekdays (Monday through Friday) and work would not occur on Saturdays.

The projected construction start dates and duration for the various Project components are shown in Table 1. Construction of the Project is anticipated to commence in the summer of 2015 and end in the fall of 2016. Certain elements of each Project component would likely not be performed during the wet season (October to April) in order to ensure flood control and water conservation efforts can proceed satisfactorily. While the schedule may be modified due to the date of Project approval and receipt of required permits, this table illustrates the approximate duration of major Project activities. As shown, it is anticipated that work would proceed at multiple facilities at one time.

It is possible that the Debris Dam construction would require longer than the 6-month time period shown in Table 1. If the construction period of the Debris Dam were to be extended, this would spread out the construction activities over a longer period of time, resulting in less "intensity" of impacts. All Project-related impacts (e.g., air quality and noise) would be less than significant (some requiring mitigation), and extending the duration of construction activities at the Debris Dam would not increase the level of significance. Decreasing the intensity and spreading out construction activities would generally reduce impacts to the topical sections listed above. Therefore, in order to provide a more conservative impact analysis, the more condensed construction period for the Debris Dam, as shown in Table 1, has been assumed.

TABLE 1
PROJECT CONSTRUCTION SCHEDULE

Construction Phase	Estimated Construction Start	Anticipated Duration
Dam	**December 2015**	**10 months**
Armor Canyon/Dam	December 2015	2 weeks
Garage, Helipad, Water System	December 2015	6 weeks
Remove/Replace Jib Crane	February 2016	2 weeks
Repair Concrete	February 2016	2 weeks
Hoist	March 2016	4 weeks
Construct New Spillway	April 2016	6 months
Install Valves	April 2016	2 weeks
Electrical	April 2016	4 weeks
Headworks and Wilderness Park Culvert Crossing	**March 2016**	**6 months**
Headworks Demolition	March 2016	1 week
Rubber Dam	March 2016	1 week
Construct Levee	March 2016	2 weeks
Culvert Crossing Demolition	April 2016	2 weeks
Site Clear/Grub	April 2016	4 weeks
Grading/ Implement Temporary Access	May 2016	2 weeks
Abutments and Wing Walls	June 2016	4 weeks
Construct Culvert Crossing Deck	July 2016	6 weeks
Paving Culvert Crossing	August 2016	2 weeks
Debris Dam	**April 2016**	**6 months**
Modify Spillway	April 2016	2 months
Construct Buttresses	June 2016	2.5 months
Construct New Subdrain	August 2016	1 month
Remove/Construct Outlet Tower(s)	September 2016	2 weeks

Dam

Improvements at the Dam would include construction of a new spillway; removal and relocation of the jib crane and hoist; installation of new valves; installation of new electrical and control systems; reinforcement of the existing armoring at the toe of the Dam and downstream canyon walls; construction of the helipad; repair of concrete; improvements to the water distribution system; and installation of a new secured access gate and associated electrical connection. For the notch option, including demolition of the Dam Operations house and garage, site preparation and demolition would result in approximately 894 cubic yards of concrete export. Construction of the notch option and the helipad would require approximately 4,130 cubic yards of concrete import.[2] The majority of the work on the actual Dam structure would be performed during the dry season (i.e., April 16 through October 15) when the water level is at the lowest, but dewatering of the reservoir is anticipated. A small cofferdam would be constructed within the Reservoir, where a temporary plastic bypass pipeline (sized to accommodate a certain flow dependent on the time of year) would carry water around the work and into the sluiceway tunnel so that it can proceed downstream. The coffer dam would be approximately 50 feet wide, 8 feet high, and would span from bank to bank. If any construction activity coincides with rain events, small collection points

[2] The "notch" spillway would require cutting and removal of concrete from the Dam; therefore, for the purposes of this technical report, the "notch" option will be analyzed as it is the more construction-intensive option.

may be required within the reservoir area footprint to ensure all water is diverted around the Dam during construction activities.

Headworks and Wilderness Park Culvert Crossing

Construction activities for the Headworks improvements would include demolition and removal of the existing facilities (i.e., concrete slab, wall, keys, catwalk, and tainter gate); installation of the rubber diversion structure; and reconstruction of the levee. Demolition of the existing facilities would result in approximately 73 cubic yards of concrete export. Approximately five cubic yards of metal would need to be removed as well. Reconstruction of the Headworks and installation of the new rubber diversion structure would require approximately 155 cubic yards of concrete import. Construction of the Wilderness Park Culvert Crossing would generate approximately 215 cubic yards of export materials and would require approximately 508 cubic yards of import material. While work at the Headworks would occur during the dry season, dewatering is anticipated. A small cofferdam would be constructed at the uppermost bounds of the existing impact area and a temporary plastic bypass pipeline (sized to accommodate a certain flow dependent on the time of year) would carry water either into the permanent diversion pipes or around the site to be discharged at the downstream limits of the Wilderness Park Culvert Crossing work area.

Debris Dam

Rehabilitation of the Debris Dam would include repair or replacement of the outlet tower; construction of new structural buttresses on both upstream and downstream sides of the embankment; and installation of a new outlet pipe under the new spillway. Site preparation would include demolition of the existing outlet tower and removal of the existing riprap exterior surface on portions of both the upstream and downstream slopes, as well as the underlying engineered fill. Removal of the existing outlet tower would result in 80 cubic yards of concrete export, but most of the concrete from the tower would be reused on-site. Approximately 65,000 cubic yards of import material would be required for the new structural buttressing, as well as 1,000 cubic yards of concrete import for the new spillway buttress and outlet tower, and 2,500 cubic yards of base material import for the new subdrain system. Due to the proximity of residential homes, dust, erosion, and noise mitigation measures would be implemented to minimize adverse impacts. While the majority of work at the Debris Dam would occur during the dry season, dewatering is anticipated. A small cofferdam would be constructed within the Debris Basin and a temporary plastic bypass pipeline (sized to accommodate a certain flow dependent on the time of year) would carry water around the work to be discharged into the outlet pipe so that it can proceed downstream.

No construction activities are expected to occur within the City of Monrovia. However, temporary access/impact areas would be located within the City of Monrovia, including areas that may be subject to traversing vehicles or other mobile equipment, staging of equipment, placing stockpiles of soil, and excavating soil from the Sediment Placement Site for use in the buttressing backfill for the Debris Dam. No vegetation or tree removal would occur within the City of Monrovia. All of these activities would be limited to the LACFCD fee-owned right-of-way.

Construction Equipment and Workforce

Trip generation for employees and delivery trucks would vary depending on the phase of construction. During the peak of construction, a typical day would include the transportation of workers; movement of heavy equipment; and transportation of materials. Detailed construction equipment and trip generation estimates are shown in Table 2.

TABLE 2
PROJECT CONSTRUCTION EQUIPMENT AND TRIP GENERATION

Construction Phase	Off-Road Equipment	Worker Trips[a]	Truck Trips[a]
Dam			
Armor Canyon/Dam	1 Concrete Pump	3	500
Garage, Helipad, Water System	1 Concrete Pump, 1 Loader/Backhoe	5	10
Remove/Replace Jib Crane	1 Crane	3	5
Repair Concrete	1 Concrete Pump	3	5
Hoist	1 Crane	3	10
Construct New Spillway	1 Backhoe, 1 Concrete Pump, 1, Crane, 1 Loader, 1 Concrete Saw	8	56
Install Valves	1 Crane	3	5
Electrical	1 Crane	3	10
Headworks and Wilderness Park Culvert Crossing			
Headworks Demolition	1 Concrete Saw, 1 Excavator, 1 Backhoe	5	10
Rubber Dam	2 Backhoes	3	3
Construct Levee	1 Backhoe, 1 Concrete Pump	3	19
Culvert Crossing Demolition	1 Concrete Saw, 1 Excavator, 1 Backhoe	5	14
Site Clear/Grub	1 Backhoe	3	210
Grading/ Implement Temporary Access	2 Backhoes	5	--
Abutments and Wing Walls	2 Concrete Pumps	4	46
Construct Culvert Crossing Deck	1 Concrete Pump	3	18
Paving Culvert Crossing	1 Roller	3	15
Debris Dam			
Modify Spillway	1 Concrete Pump, 1 Concrete Saw, 1 Drilling Rig	4	63
Construct Buttresses[b]	1 Excavator, 1 Dozer, 1 Backhoe, 1 Loader, 1 Water Truck	5	4,063
Construct New Subdrain	2 Loaders	3	157
Remove Outlet Tower	2 Backhoes, 1 Water Truck	3	5

[a] All trips are round trips.

[b] The 4,063 number of trips was estimated based on 65,000 cubic yards of material required for the buttressing, assuming use of 16 cubic yard trucks occurring over 55 workdays (i.e. 2.5 months). Approximately half of this material (32,500 cubic yards) is estimated to be harvested from the adjacent Sediment Placement Site (SPS); therefore, the first 27 workdays (i.e. 5 weeks) of the sediment/fill truck trips would occur on-site between the SPS and the Debris Dam, and would not affect local residential roadways. Once fill from the SPS is exhausted, the remaining fill amount would be imported to the Debris Dam site, requiring off-site trucking for approximately 5 weeks.

Project Operations and Maintenance

Once the Project is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Dam, Headworks, or Debris Dam.

1.3 REGULATORY SETTING

1.3.1 Federal

Federal Endangered Species Act

The Federal Endangered Species Act of 1973 (FESA, 16 *United States Code* [USC] 153 et seq.) protects plants and animals that are listed by the federal government as "Endangered" or "Threatened". The FESA is implemented by enforcing Sections 7 and 9 of the Act. A federally listed species is protected from unauthorized "take" pursuant to Section 9 of the FESA. "Take", as defined by the FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt to engage in any such conduct". All persons are presently prohibited from taking a federally listed species unless and until (1) the appropriate Section 10(a) permit has been issued by the USFWS or (2) an Incidental Take Statement is obtained as a result of formal consultation between a federal agency and the USFWS pursuant to Section 7 of the FESA and the implementing regulations that pertain to it (50 *Code of Federal Regulations* [CFR] 402). It should be noted that the proposed project must have a federal nexus in order to request "take" pursuant to Section 7. If there is no federal nexus and there are impacts to federally listed species, preparation of a Habitat Conservation Plan will likely be required. "Person" is defined in the FESA as "an individual, corporation, partnership, trust, association, or any private entity; any officer, employee, agent, department or instrument of the federal government; any State, Municipality, or political subdivision of the state; or any other entity subject to the jurisdiction of the United States". The Project Applicant is a "person" for purposes of the FESA.

Section 404 and 401 of the Clean Water Act of 1972

Section 404 of the Clean Water Act (CWA, 33 USC 1251 et seq.) regulates the discharge of dredged or filled material into "Waters of the U.S.", including wetlands. "Waters of the U.S." include navigable coastal and inland waters, lakes, rivers, streams, and their tributaries; interstate waters and their tributaries; wetlands adjacent to such waters; intermittent streams; and other waters that could affect interstate commerce. The USACE is the designated regulatory agency responsible for administering the 404 permit program and for making jurisdictional determinations. This permitting authority applies to all "Waters of the U.S." where the material has the effect of (1) replacing any portion of "Waters of the U.S." with dry land or (2) changing the bottom elevation of any portion of "Waters of the U.S.". These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in the "Waters of the U.S.". Dredge and fill activities are typically associated with development projects; water-resource related projects; infrastructure development and wetland conversion to farming; forestry; and urban development.

Under Section 401 of the CWA, an activity requiring a USACE Section 404 permit must obtain a State Water Quality Certification (or waiver thereof) to ensure that the activity will not violate established State water quality standards. The U.S. Environmental Protection Agency (USEPA) is the federal regulatory agency responsible for implementing the CWA. However, the State Water Resources Control Board (SWRCB), in conjunction with the 9 California Regional Water Quality Control Boards (RWQCBs), has been delegated the responsibility for administering the Section 401 water quality certification program.

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act. The RWQCB's jurisdiction extends to all "Waters of the State" and to all "Waters of the U.S.", including wetlands (isolated and non-isolated). Section 401 requires the RWQCB to provide "certification that there is reasonable assurance that an activity which may

result in the discharge to 'waters of the U.S.' will not violate water quality standards". Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the 9 Regional Boards' Basin Plans.

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act of 1918 (MBTA), as amended in 1972 (MBTA, 16 USC 703–711), makes it unlawful, unless permitted by regulations, to "pursue; hunt; take; capture; kill; attempt to take, capture or kill; possess; offer for sale; sell; offer to purchase; purchase; deliver for shipment; ship; cause to be shipped; deliver for transportation; transport; cause to be transported; carry or cause to be carried by any means whatever; receive for shipment, transportation, or carriage; or export, at any time, or in any manner, any migratory bird…for the protection of migratory birds…or any part, nest, or egg of any such bird" (16 USC 703).

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). The following 6 families of raptors that occur in North America were included in the amendment: *Accipitridae* (kites, hawks, and eagles), *Cathartidae* (New World vultures), *Falconidae* (falcons and caracaras), *Pandionidae* (ospreys), *Strigidae* (typical owls), and *Tytonidae* (barn owls). The provisions of the 1972 amendment to the MBTA protect all species and subspecies of these families.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668) provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting—except under certain specified conditions—the taking, possession, and commerce of these 2 bird species. The 1972 amendments increased penalties for violating provisions of the Act and strengthened other enforcement measures. A 1978 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. A 1994 Memorandum (59 CFR 22953, April 29, 1994) from President William J. Clinton to the heads of Executive Agencies and Departments sets out the policy concerning collection and distribution of eagle feathers for Native American religious purposes.

1.3.2 State

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA, *California Fish and Game Code,* Section 2050 et seq.) and Section 2081 of the *California Fish and Game Code,* an Incidental Take Permit from the CDFW is required for projects that could result in the take of a State-listed Threatened or Endangered species. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass", as the federal act does. As a result, the threshold for take under the CESA is higher than that under the FESA. A CDFW-authorized Incidental Take Permit would be required where a project could result in the take of a State-listed Threatened or Endangered Species. The application for an Incidental Take Permit under Section 2081(b) has a number of requirements, including the preparation of a conservation plan, generally referred to as a Habitat Conservation Plan.

The State of California considers an Endangered Species to be one whose prospects of survival and reproduction are in immediate jeopardy; a Threatened Species as one present in such small numbers throughout its range that it is likely to become an Endangered Species in the near future

in the absence of special protection or management; and a Rare Species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. The Rare Species designation applies only to California native plants. The CESA authorizes the CDFW to issue permits authorizing incidental take of Threatened and Endangered Species. A California Species of Special Concern is an informal designation that the CDFW uses for some declining wildlife species that are not State Candidates for listing. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFW.

California Environmental Quality Act

State law (*California Fish and Game Code,* Section 1802) confers upon the CDFW the trustee responsibility and authority for the public trust resource of wildlife in California. The CDFW may play various roles under the CEQA process. By State law, the CDFW has jurisdiction over the conservation, protection, and management of the wildlife, native plants, and habitat necessary to maintain biologically sustainable populations. The CDFW is responsible for consulting with CEQA lead and responsible agencies and provides the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities.

As a trustee agency, the CDFW has jurisdiction over certain resources held in trust for the people of California. Trustee agencies are generally required to be notified of CEQA documents relevant to their jurisdiction, whether or not these agencies have actual permitting authority or approval power over aspects of the underlying project (14 *California Code of Regulations* [CCR], Section 15386). The CDFW, as a trustee agency, must be notified of CEQA documents regarding projects involving fish and wildlife of the state, as well as Rare and Endangered native plants, wildlife areas, and ecological reserves. Although, the CDFW, as a trustee agency, cannot approve or disapprove a project, CEQA lead and responsible agencies are required to consult with the CDFW. The CDFW, as the trustee agency, has the authority to make recommendations regarding those resources held in trust for the people of California (*California Fish and Game Code,* Section 1802).

Lake and Streambed Alteration Program

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that support wildlife resources and/or riparian vegetation are subject to CDFW regulations, pursuant to Sections 1600 through 1616 of the *California Fish and Game Code.* Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream, or lake designated by CDFW as waters within their jurisdiction without first notifying CDFW of such activity. Additionally, a person cannot use any material from the streambeds without first notifying the CDFW of such activity. For a project that may affect stream channels and/or riparian vegetation regulated under Sections 1600 through 1616 of the *California Fish and Game Code,* CDFW authorization is required in the form of a Streambed Alteration Agreement.

Native Plant Protection Act

The Native Plant Protection Act (*California Fish and Game Code,* Section 1900 et seq.) provides for the preservation, protection, and enhancement of Endangered or Rare native plants in California. These sections also allow for the adoption of regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any Endangered or Rare native plants.

California Fully Protected Species

Bird, mammal, reptile, amphibian, and fish species are defined as California Fully Protected Species in Sections 3511, 4700, 5050, and 5515 of the *California Fish and Game Code*. Fully protected animals may not be harmed, taken, or possessed.

Nesting Bird Protection

Nesting birds are protected in Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code.* These sections state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by or any regulation made pursuant to this code. Section 3503.5 explicitly provides protection for all birds of prey, including their eggs and nests. Section 3513 makes it unlawful to take or possess any migratory non-game bird as designated in the MBTA.

Threatened and Endangered Species

The *California Code of Regulations* (Sections 670.2 and 670.5) lists species, subspecies, and varieties of plants (Section 670.2) and animals (Section 670.5) that are designated as Threatened or Endangered (as defined by Section 2067 of the *California Fish and Game Code*) or Rare (as defined by Section 1901 of the *California Fish and Game Code*) in California.

California Porter-Cologne Water Quality Control Act

Pursuant to the California Porter-Cologne Water Quality Control Act, the SWRCB and the 9 RWQCBs may require permits (known as “Waste Discharge Requirements” or “WDRs”) for the fill or alteration of the “Waters of the State”. The term “Waters of the State” is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (*California Water Code,* Section 13050[e]). The State and Regional Boards have interpreted their authority to require WDRs to extend to any proposal to fill or alter “Waters of the State”, even if those same waters are not under USACE jurisdiction. Pursuant to this authority, the State and Regional Boards may require the submission of a “report of waste discharge” under Section 13260 of the *California Water Code*, which is treated as an application for WDRs.

2.0 SURVEY METHODOLOGIES

This section describes the methodology used to conduct a literature review; perform general and focused biological surveys; and assess the potential for each portion of the study area to support special status species.

2.1 LITERATURE REVIEW

A literature review was performed prior to the initiation of surveys to identify special status plants, wildlife, and habitats known to occur (or that historically occurred) in the vicinity of the study area. These searches included a review of the USGS' Mt. Wilson, Azusa, El Monte, Pasadena, and Baldwin Park 7.5-minute quadrangles[3] in the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2012, 2013, 2014) and the CDFW's California Natural Diversity Database (CNDDB) (CDFG 2012; CDFW 2013a, 2014a). A review of FESA critical habitat documents was used to identify any portions of the study area occurring within proposed or designated critical habitat. The literature review also included a review of the Angeles National Forest Threatened, Endangered, Proposed, Candidate, and Forest Service Sensitive Plants and Animals (USFS 2014). Additionally, all previous biological documentation for the study area including a Biological Technical Report (UltraSystems 2007), an Environmental Impact Report (EDAW 2009), and various focused survey reports (BonTerra Consulting 2009a, 2009b, 2009c, 2009d, 2010, 2011, 2012a, 2012b, 2012c, 2012d, 2012e) were reviewed prior to field surveys.

2.2 VEGETATION MAPPING AND GENERAL BIOLOGICAL SURVEYS

General biological surveys were conducted by Senior Botanist Sandy Leatherman and Senior Biologist Amber Oneal on April 25, 2012, to describe and map vegetation in the study area. A small additional area southeast of the Debris Dam was mapped by Ms. Leatherman and Biologist Nathan Moffett on January 30, 2013; a small additional area east of the Debris Dam was mapped by Mr. Moffett on April 16, 2014; and a small additional area west of the Dam was mapped by Ms. Leatherman and Allison Rudalevige on May 5, 2014. The surveys also included an evaluation of the potential of habitats to support special status plant and wildlife species. Vegetation was mapped in the field on an aerial photograph at a scale of 1 inch equals 200 feet (1″=200′). Nomenclature for vegetation types generally follows that of *The Vegetation Classification and Mapping Program: List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (CDFG 2010); the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) was also used to provide a more descriptive characterization of the habitat for some of the vegetation types. Representative photographs of the study area are included as Attachment A.

Plant species were identified in the field or collected for subsequent identification using keys in Jepson Flora Project (2012), Munz (1974), Abrams (1923, 1944 1951), and Abrams and Ferris (1960). Taxonomy follows Baldwin et al. (2012) and current scientific data (e.g., scientific journals) for scientific and common names. A list of plant species observed is included as Attachment B-1.

Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic sign, including scat, footprints, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows American Fisheries Society (1991) for fish, Crother (2008) for amphibians and reptiles,

[3] These quadrangles were selected based on their proximity and topographic similarity to the project study area. Additional quadrangles were not considered necessary as they would provide minimal additional value.

American Ornithologists' Union (AOU 2011) for birds, and Baker et al. (2003) for mammals. All species observed were recorded in field notes. A list of wildlife species observed is included as Attachment B-2.

2.3 FOCUSED BIOLOGICAL SURVEYS

BonTerra conducted focused biological surveys in 2012. These included focused surveys for special status plant species, Santa Ana sucker (*Catostomus santaanae*), Santa Ana speckled dace (*Rhinichthys osculus* ssp. 3), arroyo chub (*Gila orcutti*), Pacific [western] pond turtle (*Actinemys* [*Emys*] *marmorata*), Coast Range newt (*Taricha torosa torosa*), two-striped garter snake (*Thamnophis hammondii*), silvery legless lizard (*Aniella pulchra*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). A native tree survey and a pre-construction bat roost survey were conducted in late summer 2014. Focused survey reports are attached in their entirety in Attachments C through I.

Focused biological surveys for special status plants and wildlife species were previously conducted between 2007 and 2011 (UltraSystems 2007–2009; EDAW 2009–2011; BonTerra Consulting 2009–2011) for various projects at the Debris Dam. Although the survey areas for the previous surveys generally overlap with the current study area, the boundaries of each study vary depending on the focal area for each additional project. This report focuses on the most current focused survey results (2012) and survey results related to geotechnical investigations (2013), but incorporates previous survey results where available.

2.3.1 Special Status Plant Species

Special status plant surveys were floristic in nature and conducted following the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009).

Prior to conducting the field surveys, reference populations were monitored for annual and difficult-to-detect target species with potential to occur in the study area to ensure that the scheduled surveys were comprehensive and conducted during the appropriate blooming period for the species. Reference populations with a California Rare Plant Rank (CRPR) of 3 and 4 and perennial species that are readily observable were not monitored. A summary of reference population checks is provided in Table 3; reference plants were observed in bloom on the date of the reference population check.

According to the National Weather Service, Burbank Valley Pump Plant (located about 20 miles from of the study area) received 10.37 inches of precipitation over the survey year (July 1, 2011–July 1, 2012), which is about 61 percent of the normal 16.29 inches based on 1939–2012 averages (WRCC 2012). Rainfall for the survey year appeared to be adequate to support blooming of special status plant species; based on the reference population monitoring, target plant species were observable at the time the surveys were conducted.

Consulting Botanist Sandra Leatherman conducted special status plant surveys on April 25; May 2, 16, and 30; June 4; and August 8 and 24, 2012. Ms. Leatherman was assisted by Consulting Biologists Brian Leatherman, James Huelsman, and Adam DeLuna. Ms. Leatherman and Ms. Rudalevige surveyed a small additional area west of the Dam on May 5, 2014 concurrently with vegetation mapping. A systematic walking survey was conducted, and all plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they were a special status species. Special status species locations were recorded using a

handheld Global Positioning System (GPS). Any voucher specimens collected were deposited with the herbarium at Rancho Santa Ana Botanic Gardens in Claremont, California. The Special Status Plant Species Report is included in Attachment C.

TABLE 3
SPECIAL STATUS SPECIES REFERENCE POPULATIONS CHECKED PRIOR TO FOCUSED SURVEYS

Species	Date and Location
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	April 10, 2012 Las Virgenes Canyon (flowering)
Dodecahema leptoceras slender-horned spineflower	April 20, 2012 Lake Elsinore Area (flowering)
Calochortus clavatus var. *gracilis* slender mariposa lily	May 18, 2012 Santa Clarita Area (flowering)
Calochortus plummerae Plummer's mariposa lily	June 8, 2012 Big Tujunga Dam (flowering)
Centromadia parryi ssp. *australis* southern tarplant	June 12, 2012 Riverside Area (flowering)
Pseudognaphalium leucocephalum rabbit-tobacco	August 13, 2012 San Juan Capistrano Area (flowering)

2.3.2 Native Tree Survey

Native trees within 50 feet of Project Work Areas were included within the tree survey area. BonTerra Psomas Certified Arborists David Hughes (International Society of Arboriculture [ISA] Certificate Number WE-7752A) and Trevor Bristle (ISA Certificate Number WE-10233A) surveyed trees within the tree survey area on August 28, 2014, and by Mr. Hughes on September 2 and 15, 2014. All trees within the tree survey area boundaries that are subject to regulation by a city/county tree ordinance and/or the California Fish and Game Code were identified and mapped in the field. During the survey, each tree was tagged and the following data were collected: diameter at breast height (dbh), tree height, and canopy width, as well as qualitative ratings on aesthetics and overall health. Each tree that was surveyed was mapped on a 100-scale (1 inch = 100 feet) aerial photograph in the field and each location was recorded using a hand-held global positioning system (GPS) device. Using a diameter tape, measurements were taken at four and one-half feet above mean natural grade (two feet above grade for trees within the City of Monrovia boundaries); multiple trunks were measured separately. The diameter of the largest two trunks was combined to determine the total diameter of each tree. In addition, the total number of trunks was recorded. The diameter was estimated for trees that were not accessible (e.g., surrounded by poison oak (*Toxicodendron diversilobum*) or located on a steep slope). The height of each tree was estimated from mean natural grade to the highest branch. Also, the diameter of each tree's canopy was estimated at its widest point. Each tree assessed was inspected and compared to an archetype tree (considered excellent on all points mentioned below) of the same species. Tree aesthetics were evaluated with respect to overall form and symmetry, crown balance, branching pattern, and broken branches. The health of each tree was assessed based on visual evidence of vigor, such as the amount of foliage; leaf color and size; presence of branch or twig dieback; severity of insect infestation; the presence of disease; heart rot; fire damage; mechanical damage; amount of new growth; appearance of bark; and rate of callous development over wounds. The

tree's structural integrity was also evaluated with respect to branch attachment, branch placement, root health, and stability. In addition, the health assessment considered such elements as the presence of decay, weak branch attachments, and the presence of exposed roots due to soil erosion. The Tree Survey Report is included in Attachment D.

2.3.3 Special Status Fish

Surveys for Santa Ana sucker, Santa Ana speckled dace, and arroyo chub were conducted by Consulting Fisheries Biologists Justin Wood (TE-37481A-0) and Cynthia Hitchcock from Aspen Environmental Group with BonTerra Senior Fisheries Biologist Dr. Carl Demetropoulos. Prior to the surveys, Mr. Wood consulted John O'Brien from the CDFW for approval to conduct the surveys for special status fish species in the study area. Survey methods included underwater video recording, dip netting, seining, and snorkeling depending on the location/stream morphology within the study area. All fish observed during the surveys were recorded in field notes.

Surveys followed the current presence/absence protocol for the Santa Ana sucker and were conducted on August 23 and August 30, 2012, from Dam downstream to the upper end of Debris Dam. During the first survey, all accessible areas of the creek between the Dam and the Headworks facility were surveyed using dip nets, seine nets, and underwater videography. During the second survey, dip nets were used along with snorkel surveys of 2 large pools: 1 below the Headworks and 1 below the Wilderness Park Culvert Crossing. While using underwater video and seining, care was taken to avoid algal mats and dense vegetation in the creek to avoid impacts on refugia for potential young fish.

Netting

Dip netting and seining methods were used in shallow water down to depths of approximately 3 feet. Seining was conducted using a 20-foot-long by 4-foot-deep nylon knotless delta weave bagged seine with ¼-inch mesh. Captured fishes were immediately transferred into a container of clean water taken from the creek and were visually identified. Native fishes were released unharmed at the point of capture. Non-native fish and invertebrates were not returned to Santa Anita Wash.

Underwater Videography

For the purpose of this study, deep creek habitat was defined as portions of the creek where depth was greater than what could effectively be surveyed using dip or seine nets (approximately 3 feet) and where underwater cameras would be more effective at determining presence/absence of fish species. Depending on the habitat type, the 2 following underwater cameras with high lumen light-emitting diode (LED) lighting systems and weighted platforms were used to observe pool and deep creek habitat: (1) high definition remote underwater color video camera (Aqua Vu, Inc AV760cz Color Underwater Video Camera) providing depth, temperature, and time on an underwater video monitor and (2) a high definition 360-degree view camera (Aqua Vu, Inc AV360 Black/White Underwater Video Camera) with a selectable 4-way split screen.

Surveyors viewed the creek in real time and could simultaneously record targets for later review on a Digital Video Recorder (DVR) output from the video camera. The location of the image (in Universal Transverse Mercator [UTM]) could be correlated to the GPS location by a time stamp. After the survey and in order to validate and map the location of fish that may not have been seen during the survey, video targets were analyzed on a computer at 0.25 real time speed.

Snorkel/Swim Surveys Transects

To establish in visual identification and assessment of fish species and description of habitat preferences in large pools (e.g., 15 feet wide by 30 feet long by approximately 6 feet deep), snorkel surveys were conducted by a single person (Permitted Biologist, Justin Wood) swimming zigzag transects and taking underwater photographs of any suspect fish targets.

The Special Status Fish Report is included in Attachment E.

2.3.4 Special Status Herpetofauna

BonTerra Senior Herpetologist Samuel Stewart (CDFG Scientific Collecting Permit SC-004421) and Herpetologist Jason Mintzer conducted focused surveys for Pacific [western] pond turtle, Coast Range newt, two-striped garter snake, and silvery legless lizard from June 19, 2012 to June 23, 2012. Mr. Stewart has experience with all 4 species and has the appropriate CDFG authorization for trapping and handling.

The Pacific pond turtle survey methodology was based on survey and census recommendations made by Holland (1991) and survey protocols developed by Reese and Welsh (1988) and Goodman (1999). Surveys incorporated both visual encounter and live-trapping. Live trapping consists of placing live-catch turtle traps (i.e., floating net mesh box traps) at 4 trapping stations in Santa Anita Wash for a total of 4 trapping periods lasting up to 24 hours each. Net mesh box traps are 24-inch (in) by 18-in by 8-in framed, $^{5}/_{16}$-in mesh in square mesh boxes with two 1-way funnel entrances. Floats were placed inside the traps to allow submergence of 1 trap entrance and flotation of approximately 4 inches of trap enclosure. All 4 net mesh box traps were firmly secured to banks or exposed vegetation within larger pools in the stream using nylon rope. The traps were baited with fresh mackerel. Turtles attracted by the scent of the bait would enter the submerged entrance and surface within the enclosure to breathe. All traps were fitted with tags listing the Scientific Collecting Permit number under which live trapping was being conducted. Trap station locations were recorded with a handheld GPS unit.

Mr. Stewart and Mr. Mintzer conducted 5 diurnal visual encounter surveys for Pacific pond turtle, two-striped garter snake, and Coast Range newt during setting and checking/removal of traps. Additionally, 2 nocturnal visual encounter surveys for Coast Range newt and two-striped garter snake were conducted. Biologists conducted “visual encounter” surveys during weather conditions most conducive to Pacific pond turtle, two-striped garter snake, and Coast Range newt activity and avoided adverse conditions that may inhibit activity, including high winds (greater than 16 miles per hour), heavy precipitation, and temperature extremes less than 50 degrees Fahrenheit (°F) or greater than 90°F. The visual encounter methodology involved walking along the creek banks checking the stream and pools for Pacific pond turtle, two-striped garter snake, and Coast Range newt; periodically scanning upstream and downstream using binoculars to detect two-striped garter snakes and Pacific pond turtles that may be basking or actively foraging; and inspecting crevices and under ledges for two-striped garter snakes at rest. Surveyors wore polarized sunglasses during diurnal surveys to reduce glare and to improve visibility in the stream and pools.

The survey methodology for silvery legless lizard was based on an approach previously approved by the CDFG in a Memorandum of Understanding for a silvery-legless lizard focused survey and translocation effort (BonTerra Consulting 2004). Methods included flipping rocks/debris, gently raking, and actively searching duff below oaks and western sycamores in areas with sandy substrate. The survey effort focused on areas with deeper sandy deposits and leaf litter beneath oaks and sycamores in, and adjacent to, the Debris Dam.

The Special Status Herpetofauna Report is included as Attachment F.

2.3.5 Coastal California Gnatcatcher

Surveys for the California gnatcatcher followed the current presence/absence protocol (USFWS 1997). Between March 15 and June 30, 6 surveys were conducted in suitable habitat at least 7 days apart. Surveys were conducted between dawn and noon under suitable weather conditions. Focused surveys were conducted by James Huelsman (USFWS permit No. TE 827493-7) on May 16 and 25 and June 1, 11, 18, and 25, 2012. The protocol allows coverage of 80 acres of suitable habitat per survey day; 1 field day was sufficient to survey all potentially suitable habitat in the study area. Surveys were conducted by walking slowly within and along the perimeter of coastal sage scrub stands while watching and listening for California gnatcatcher activity. Recorded vocalizations were used conservatively to solicit a response from any gnatcatcher's potential presence. The frequency of recorded playback used varied with site conditions such as habitat patch size, topography, and ambient noise levels. The purpose of the surveys was to detect and identify the California gnatcatcher, but all wildlife incidentally observed or detected in the study area was recorded. Locations of special status species observed incidentally were recorded using a handheld GPS unit.

The Focused Gnatcatcher Survey Report is included in Attachment G.

2.3.6 Least Bell's Vireo/Southwestern Willow Flycatcher

The USFWS protocol for the least Bell's vireo requires that at least 8 surveys be conducted from April 10 to July 31 with a 10-day interval between each site visit. The USFWS protocol for the southwestern willow flycatcher requires a total of 5 surveys, with the first survey conducted between May 15 and May 31; the second and third surveys between June 1 and June 24; and the fourth and fifth surveys between June 25 and July 17. Due to similar ecological requirements, surveys for these 2 species can be conducted concurrently. A total of 8 surveys were conducted to satisfy the survey requirements of both species. BonTerra Senior Biologist Brian Daniels (Permit No. TE 821401-4) conducted the 5 southwestern willow flycatcher surveys on May 24; June 4, 14, and 25; and July 6, 2012. BonTerra Senior Biologist Amber Oneal (Permit No. TE 148554-2) conducted the first 2 least Bell's vireo surveys on May 2 and 14, 2012, and Mr. Daniels conducted the remaining surveys on May 24; June 4, 14, and 25; and July 6 and 16, 2012.

All riparian habitats from the Debris Dam upstream to the outlet of the sediment transport tunnel were surveyed. The approximate 4,000 foot length of riparian habitats was systematically surveyed by walking slowly and methodically along the margins of riparian habitat or by using meandering transects through riparian habitat at the Debris Dam. Following the willow flycatcher protocol, recorded vocalizations were used to elicit a response from any potentially territorial southwestern willow flycatchers. If no southwestern willow flycatchers were detected after the initial playing of the recorded vocalization, the recording was replayed at least once, but often multiple times. The least Bell's vireo survey protocol does not require the playback of least Bell's vireo vocalizations; therefore, recorded least Bell's vireo vocalizations were not used during the surveys.

All surveys were conducted under optimal weather conditions (i.e., between 55°F and 95°F with wind speeds between 0 and 15 miles per hour) and during the early morning hours when bird activity is at a peak.

The Focused Least Bell's Vireo/Southwestern Willow Flycatcher Survey Report is included in Attachment H.

2.3.7 Roosting Bat Survey

The roosting bat survey area focused on areas within the proposed Project Work Areas. At the Dam, the survey focused on the Dam structure, gunite slopes adjacent to the Dam, and facility structures associated with the Dam. At the Headworks, the survey focused on the facility structure. At the Wilderness Park Culvert Crossing, the survey focused on the culverts and wing walls associated with the bridge. At the Debris Dam, the survey focused on the inlet structure and ornamental vegetation adjacent to the Debris Dam.

The focused daytime survey involved inspecting all proposed impact areas for sign of bat roosting. Signs of roosting include audible social calls; observation of individuals roosting; and presence of guano, urine staining, or Lepidopteron (moth) wings. The absence of sign does not preclude potential roosting features from additional survey efforts, but rather aids in final determinations. The focused daytime survey is also used to identify suitable roosting features in the survey area, including natural and artificial crevices in rocks and buildings. Various factors contribute to suitable day-roost sites, including structural opportunities (e.g., crevices), microclimate, thermal conductivity (the roost's ability to passively regulate temperature), protection from predators, and proximity to resources such as open water for drinking. The daytime survey was conducted by BonTerra Psomas biologist Steve Norton on July 31, 2014 from 8:30 AM to 5:00 PM.

The emergence survey (also known as the exit or evening survey) involved visually monitoring all potential roost sites for evening emergence. The evening emergence surveys were conducted on July 31 and August 6, 7, and 12, 2014, by BonTerra Psomas Biologists Steve Norton, Dani Henning, Jonathan Aguayo, and Jason Mintzer. Just before dusk, Biologists were staged at different locations near each Project Work Area with suitable roost features. Many of the suitable features along the canyon walls at the Dam were inaccessible and visibility was limited; monitoring of these features was conducted at remote distances and the findings were accompanied by monitoring bat activity entering and leaving the downstream Dam area. This effort was achieved by stationing two biologists at the top of the Dam and two biologists at the bottom of the Dam.

Visual monitoring and bat exit counts extended from 30 minutes before sunset to approximately 1 hour after sunset, for a duration of approximately 90 minutes, depending on the amount of ambient light available. When environmental conditions (such as previously existing artificial light or moonlight) allowed for additional visual survey times, the visual survey window was extended. Alternatively, when environmental conditions were not favorable due to significant shading from dense canopy cover or canyon walls, the visual survey time was reduced. Surveys were scheduled to accommodate favorable emergence conditions, which include wind speeds less than 10 miles per hour, moderate day and evening temperatures, no rain, and avoiding the full moon.

The emergence survey also included stationing an ultrasonic acoustic recording device at locations likely to aid in determining roost occupancy. An acoustic recording device adds further useful data by (1) recording individuals that may have not been visually observed; (2) allowing passive species identification to associate roosting preferences with habitat present in the survey area; and (3) documenting the time of arrival of a species in the survey area. The purpose of conducting ultrasonic acoustic recording in this effort is not to provide a comprehensive inventory of all bat species utilizing the survey area, but rather to identify the potential for bats to utilize the survey area (i.e., project impact areas) for day-roosting. The acoustic recording occurred during each evening survey and extended for approximately 3.5 hours (30 minutes before sunset to 3 hours after sunset).

A Wildlife Acoustics EchoMeter 3+ unit was used to collect acoustic data. The acoustic data collected was recorded in full spectrum .wav files and segregated into regular files and noise files by the acoustic recording unit. The files not disqualified as "noise" were analyzed using SonoBat 3.2.1 software using the "United States West Region" classifier. These files were analyzed using the SonoBatch process, then visually verified using Echolocation Call Characteristics of Western US Bats (Humboldt State University 2011). Any recordings potentially classified as a sensitive species—specifically Townsend's big-eared bat (*Corynorhinus townsendii*) or fringed myotis (*Myotis thysanodes*)—received additional analysis by Senior Biologist Ed West, an expert bat biologist with a specialty in acoustic monitoring.

The Roosting Bat Survey Report is included in Attachment I.

2.4 REGULATORY SURVEYS

2.4.1 Jurisdictional Delineation

A jurisdictional delineation was conducted by BonTerra Regulatory Technicians David Hughes and Allison Rudalevige on April 23, 2013, and by Mr. Hughes and BonTerra Regulatory Specialist Gary Medeiros on April 25, 2013, to describe and map the extent of resources under the jurisdiction of the USACE, the RWQCB, and the CDFW. The delineation followed guidelines presented in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). This regional supplement is designed for use with the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Both the 1987 Wetlands Manual and the Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of "Waters of the U.S." and wetland resources. A 3-parameter approach—which requires evidence of wetland hydrology, hydrophytic vegetation, and hydric soils—was used to identify wetlands in the study area. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within the 3 parameters. However, problem areas may periodically or permanently lack certain indicators due to seasonal or annual variability of the nature of the soils or plant species in a study area. Atypical wetlands lack certain indicators due to recent human activities or natural events. Guidance for determining the presence of wetlands in these situations is presented in the regional supplement. Non-wetland "Waters of the U.S." are delineated based on the limits of the Ordinary High Water Mark (OHWM), which can be determined by a number of factors including erosion, the deposition of vegetation or debris, and changes in vegetation.

It should be noted that the RWQCB shares the USACE jurisdiction unless isolated conditions are present. If isolated waters conditions are present, the RWQCB takes jurisdiction using the USACE's definition of the OHWM and/or the 3-parameter wetlands methodology pursuant to the 1987 Wetlands Manual. The CDFW's jurisdiction is defined as the top of the bank of the stream, channel, or basin or the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake.

A complete description of the survey methodology is included in the Jurisdictional Delineation, which is Attachment J of this document.

3.0 EXISTING BIOLOGICAL RESOURCES

This section describes the biological resources that occur or potentially occur in the study area based on the surveys discussed in Section 2. Vegetation types, wildlife populations and movement patterns, special status vegetation types, and special status plant and wildlife species that are either known to occur or have the potential to occur in the study area are discussed below.

3.1 VEGETATION TYPES AND OTHER AREAS

Twenty vegetation types and other areas (i.e., unvegetated areas that were mapped) occur in the study area: mixed coastal sage scrub, disturbed mixed coastal sage scrub, southern mixed chaparral, southern mixed chaparral/mixed coastal sage scrub, disturbed southern mixed chaparral/mixed coastal sage scrub, southern mixed chaparral/rock outcroppings, southern cottonwood willow riparian forest, sycamore alluvial woodland/southern riparian forest, southern sycamore alder riparian woodland, mule fat scrub, coast live oak woodland, mixed woodland, oak woodland/southern mixed chaparral, ornamental, ornamental/coast live oak woodland, ruderal, disturbed, developed, open water, and rock outcroppings (Exhibit 4, Table 4). Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the areas was mapped according to the uppermost canopy of vegetation.

TABLE 4
VEGETATION TYPES AND OTHER AREAS MAPPED WITHIN THE STUDY AREA

Vegetation Types or Other Areas	Amount (Acres)
Mixed Coastal Sage Scrub	14.09
Disturbed Mixed Coastal Sage Scrub	4.99
Southern Mixed Chaparral	9.08
Southern Mixed Chaparral/Mixed Coastal Sage Scrub	12.72
Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub	0.50
Southern Mixed Chaparral/Rock Outcroppings	1.15
Southern Cottonwood Willow Riparian Forest	6.36
Sycamore Alluvial Woodland/Southern Riparian Forest	1.80
Southern Sycamore Alder Riparian Woodland	3.83
Mule Fat Scrub	5.99
Coast Live Oak Woodland	2.61
Mixed Woodland	0.55
Oak Woodland/Southern Mixed Chaparral	6.03
Ornamental	3.86
Ornamental/Coast Live Oak Woodland	3.38
Ruderal	0.63
Disturbed	23.87
Developed	8.90
Open Water	4.99
Rock Outcroppings	0.17
Total	**115.50**

Map Zoom

See Map Zoom

Angeles National Forest
Non-Forest Land
Inholding Area

Study Area

Vegetation Type and Other Areas

- Mixed Coastal Sage Scrub
- Disturbed Mixed Coastal Sage Scrub
- Southern Mixed Chaparral
- Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Southern Mixed Chaparral/Rock Outcroppings
- Southern Cottonwood Willow Riparian Forest
- Sycamore Alluvial Woodland/Southern Riparian Forest
- Southern Sycamore Alder Riparian Woodland
- Mule Fat Scrub
- Coast Live Oak Woodland
- Mixed Woodland
- Oak Woodland/Southern Mixed Chaparral
- Ornamental
- Ornamental/ Coast Live Oak Woodland
- Ruderal
- Disturbed
- Developed
- Open Water
- Rock Outcroppings

Aerial Source: LAR-IAC 2011

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Biological Resources

Exhibit 4

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

550 275 0 550

Feet

BonTerra PSOMAS

(9-17-2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\BioTech\ex4_Veg.pdf

3.1.1 Mixed Coastal Sage Scrub

Mixed coastal sage scrub occurs in the northern portion of the study area above the Dam, in the upper portion of the Debris Dam, and east of the Debris Dam. This vegetation type is dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*) in most areas with a diversity of shrub species varying from the northern portion of the study area to the southern portion of the study area. The variation is due to the elevation range and steepness of the slopes in which the vegetation is growing. Other common shrub species include black sage (*Salvia mellifera*), white sage (*Salvia apiana*), Our Lord's candle (*Hesperoyucca whipplei* [*Yucca whipplei*]), deerweed (*Acmispon glaber* [*Lotus scoparius*]), laurel sumac (*Malosma laurina*), and California bricklebush (*Brickellia californica*). Annual species present include truncate-leaved lupine (*Lupinus truncatus*), wild Canterbury bells (*Phacelia minor*), windmill pink (*Silene gallica*), and golden-yarrow (*Eriophyllum confertiflorum*). In the large wash area below the Arcadia Wilderness Park, the mixed sage scrub also contains components that could fit in an alluvial sage scrub category and includes western sycamore and scale-broom (*Lepidospartum squamatum*). A few non-native species are also present in this vegetation type and include wild oat (*Avena* sp.) and crimson fountain grass (*Pennisetum setaceum*). Per the CDFG (2010), this vegetation type would be considered *Artemisia californica – Eriogonum fasciculatum* (California sagebrush – California buckwheat scrub) Alliance.

3.1.2 Disturbed Mixed Coastal Sage Scrub

Disturbed mixed coastal sage scrub occurs in the northern portion of the study area along the spur road to the Dam, downslope of the spur road, and along the dirt road south of Wilderness Park. These areas have been disturbed by their proximity to the road (e.g., non-native species are sometimes spread by vehicles, or non-native species become established at the disturbed edge of the roadway and spread into the adjacent vegetation). These areas are dominated by shrub species similar to those described above under mixed coastal sage scrub; however there is a large percentage of non-native species present, including crimson fountain grass, shortpod mustard (*Hirschfeldia incana*) and ripgut brome (*Bromus diandrus*). Per the CDFG (2010), this vegetation type would be considered Disturbed *Artemisia californica – Eriogonum fasciculatum* (California sagebrush – California buckwheat scrub) Alliance.

3.1.3 Southern Mixed Chaparral

Southern mixed chaparral occurs throughout the steep slopes of the study area mostly north of the Headworks facility and Wilderness Park; it also occurs east of the Debris Dam. This vegetation is dominated by larger evergreen native shrubs, including laurel sumac, sugar bush (*Rhus ovata*), birch-leaved mountain mahogany (*Cercocarpus betuloides*), holly-leaved redberry (*Rhamnus crocea*), blue elderberry (*Sambucus nigra* ssp. *caerulea* [*S. mexicana*]), holly-leaved cherry (*Prunus ilicifolia*), Our Lord's candle, toyon (*Heteromeles arbutifolia*), and heart-leaved penstemmon (*Keckiella cordifolia*). A few areas also contain chamise (*Adenostoma fasciculatum*), coast live oak (*Quercus agrifolia*), and canyon live oak (*Quercus chrysolepis*). Per the CDFG (2010), this vegetation type would be the *Malosma laurina* (laurel sumac scrub) Shrubland Alliance.

3.1.4 Southern Mixed Chaparral/Mixed Coastal Sage Scrub

Southern mixed chaparral/mixed coastal sage scrub occurs primarily on the steep slopes along Santa Anita Canyon between the Dam and the Headworks facility, and east of the Debris Dam. This vegetation type is a mixture of native species described above in southern mixed chaparral and mixed coastal sage scrub. The dominant species include laurel sumac, California sagebrush, sugar bush, California buckwheat, black sage, white sage, and Our Lord's candle. Annual species

present include truncate-leaved lupine, wild Canterbury bells, windmill pink, and golden-yarrow. Per the CDFG (2010), this vegetation type would be the *Malosma laurina* (laurel sumac scrub) Shrubland Alliance/*Artemisia californica – Eriogonum fasciculatum* (California sagebrush – California buckwheat scrub) Alliance.

3.1.5 Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub

Disturbed southern mixed chaparral/mixed coastal sage scrub occurs in an area just south of the Headworks facility. This area is dominated by shrub species similar to those mentioned for southern mixed chaparral/mixed coastal sage scrub, including laurel sumac, California sagebrush, California buckwheat, black sage, and white sage. However, there is a large percentage of non-native species present, including crimson fountain grass, shortpod mustard, and ripgut grass. Per the CDFG (2010), this vegetation type would be the *Malosma laurina* (Laurel sumac scrub) Shrubland Alliance/*Artemisia californica – Eriogonum fasciculatum* (California sagebrush – California buckwheat scrub) Alliance.

3.1.6 Southern Mixed Chaparral/Rock Outcroppings

The southern mixed chaparral/rock outcroppings vegetation type occurs in an area just downstream of the Dam along Santa Anita Canyon. These areas are very steep with large rock outcroppings and cliff faces and contain an open mixed chaparral comprised of toyon, sugar bush, and chamise. There are club mosses and dudleyas (*Dudleya* spp.) present on these cliff faces. Per the CDFG (2010), this vegetation type would be the *Heteromeles arbutifolia* (toyon chaparral) Alliance/rock outcroppings.

3.1.7 Southern Cottonwood Willow Riparian Forest

The southern cottonwood willow riparian forest occurs downstream of the Headworks facility and in the Debris Dam. This vegetation type is dominated by a mix of arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*) with an understory containing tree tobacco (*Nicotiana glauca*), ripgut brome, and chaparral nightshade (*Solanum xanti*). A few scattered white alder (*Alnus rhombifolia*) and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) are also present. The understory is basically bare in this area due to the high volume of water; however, fumitory (*Fumaria officinalis*), a non-native species, dominates the slope on the eastern side of the Debris Dam. Per the CDFG (2010), this vegetation type would be the *Salix gooddignii* (black willow thickets) Alliance.

3.1.8 Sycamore Alluvial Woodland/Southern Riparian Forest

Sycamore alluvial woodland/southern riparian forest occurs in the southern portion of the study area south of the Wilderness Park and on the northeastern edge of the Debris Dam. These areas are fed by the creek, but are drier and more upland in composition. The species present include large western sycamore, mule fat (*Baccharis salicifolia*), California buckwheat, and California sagebrush. Other species present include chia (*Salvia columbariae*) and phacelia (*Phacelia* spp.). Per the CDFG (2010), this vegetation type would be the *Platanus racemosa* (California sycamore woodlands) Alliance.

3.1.9 Southern Sycamore Alder Riparian Woodland

Southern sycamore alder riparian woodland is the dominant riparian vegetation type along Santa Anita Canyon between the Dam and the Headworks facility. This area is dominated by a mix of mature trees, including California sycamore and white alder. Understory species include California blackberry (*Rubus ursinus*) and western poison oak; however, the understory is

dominated by crofton weed (*Ageratina adenophora*), a non-native weed species. Per the CDFG (2010), this vegetation type would be the *Alnus rhombifolia* (white alder groves) Alliance.

3.1.10 Mule Fat Scrub

Mule fat scrub occurs primarily along the active channel in the upper and middle portions of the Debris Dam, at the lower end of the basin, and on the terrace east of the Debris Dam. Large boulders are present within this vegetation type along the upper portion of the basin. There is very little understory likely because of the large flow of water during the wet season. Per the CDFG (2010), this vegetation type would be the *Baccharis salicifolia* (mule fat thickets) Alliance.

3.1.11 Coast Live Oak Woodland

Stands of coast live oak and Engelmann oak (*Quercus engelmannii*) individuals occur in on the outer edges of the Debris Dam in the study area. The majority of these oak trees are relatively large trees, with a few scattered seedlings also occurring. The understory is comprised of oak leaf litter. Per the CDFG (2010), this vegetation type would be the *Quercus agrifolia* (coast live oak woodland) Alliance.

3.1.12 Mixed Woodland

Mixed woodland occurs north of the Dam on a steep east-facing slope. This area is comprised of large native trees including California bay (*Umbellularia californica*) and big-leafed maple (*Acer macrophyllum*), with a chaparral species in the understory. There is no corresponding vegetation type in the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).

3.1.13 Oak Woodland/Southern Mixed Chaparral

Oak woodland/southern mixed chaparral occurs on the northwest (adjacent to the homes) and southeast sides of the Debris Dam. This vegetation type consists of coast live oak, Engelmann oak, and scrub oak (*Quercus berberidifolia*) trees with a diverse mix of species in the understory. Chaparral species present in the understory commonly include laurel sumac, blue elderberry, and toyon. There is no corresponding vegetation type in the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).

3.1.14 Ornamental

Ornamental vegetation occurs primarily near the Headworks facility and adjacent to the residential areas and maintenance facilities in Wilderness Park. These areas contain non-native species planted for aesthetic or erosion-control purposes. Dominant species in this vegetation type include oleander (*Nerium oleander*), gum (*Eucalyptu*s sp.), and Canary Island pine (*Pinus canariensis).* Per the CDFG (2010), this vegetation type would be semi-natural stands.

3.1.15 Ornamental/Coast Live Oak Woodland

Ornamental/coast live oak woodland occurs in Wilderness Park, along the residences west of the Debris Dam, and north and west of the Sediment Placement Site. In these areas, ornamental species (e.g., Canary Island pine) are planted among the existing native coast live oak. Per the CDFG (2010), this vegetation type would be the semi-natural stands/*Quercus agrifolia* (coast live oak woodland) Alliance.

3.1.16 Ruderal

Ruderal vegetation occurs in a few small areas north of the Santa Anita Reservoir and in the upland areas east and west of the Debris Dam. These areas are dominated by non-native vegetation, predominantly comprised of short-pod mustard with scattered non-native grasses including ripgut grass. There is no corresponding vegetation type in the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).

3.1.17 Disturbed

Disturbed areas occur throughout the study area and consist of dirt roads around the Dam, Headworks facility, Debris Dam, and Sediment Placement Site. These areas also include the area that recently underwent sediment removal within the upper portion of Santa Anita Reservoir. Disturbed areas consist of bare ground and contain little to no vegetation. Because this area contains no vegetation, it is considered an "other area" rather than a vegetation type, and there is no corresponding vegetation type in the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).

3.1.18 Developed

Developed areas occur at the Dam, Headworks facility, and Debris Dam. These areas include paved roads, residential areas, dams, and other structures. These areas do not contain vegetation or other landscaping (developed areas that contain landscaping were mapped as "ornamental"). Because this area contains no vegetation, it is considered an "other area" rather than a vegetation type, and there is no corresponding vegetation type in the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).

3.1.19 Open Water

Open water is mapped within Santa Anita Reservoir, at the base of the Dam and adjacent to the Headworks facility. It should be noted that open water also occurs along Santa Anita Canyon, but is a component of the other riparian vegetation types mapped along the canyon. Open water is mapped in areas that do not contain emergent vegetation or a tree canopy. The extent of open water varies based on the rainfall conditions of the year, time of year, and (in the lower portions of the study area) the amount of water being released from the Dam. The mapping represents the extent on the day of the vegetation mapping in 2012; the extent of open water in recent years is less than shown on the map since the area has received lower than average rainfall in 2013 and 2014. Because these areas contain no vegetation, open water is considered an "other area" rather than a vegetation type, and there is no corresponding vegetation type in the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).

3.1.20 Rock Outcroppings

Rock outcroppings occur in an area along Santa Anita Canyon, upstream of the Headworks facility. The rock outcroppings are on cliff faces or are at the base of the cliffs. They generally lack vegetation, likely due to the steep cliff slopes and continuous erosion of the rock faces; however, a few of the rock outcroppings contain dudleyas. Because this area generally contains no vegetation, it is considered an "other area" rather than a vegetation type, and there is no corresponding vegetation type in the *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).

3.2 COMMON WILDLIFE

The study area is comprised primarily of native habitats and provides suitable habitat for several wildlife species. Common wildlife species observed or expected to occur in the study area are discussed below.

3.2.1 Fish

Two fish species were observed in the study area during the surveys: rainbow trout (*Onocorhynchus mykiss*), a native game fish, and green sunfish (*Lepomis cyanellus*), a non-native species. Four rainbow trout, averaging approximately 6 inches in length, were observed in the large pool (15 feet wide by 30 feet long by 6 feet deep) below the Headworks facility. Rainbow trout were stocked in this stream system from 1930 to 1945 (CDFG 1945, 1952), and likely continue to reproduce when conditions are favorable. Approximately 10 green sunfish were also observed in the pool below the Headworks facility; a range of size classes were observed, indicating that the species is actively reproducing.

3.2.2 Amphibians

Amphibians require moisture for at least a portion of their lifecycle, and many require standing or flowing water for reproduction. Terrestrial species may or may not require standing water for reproduction; they survive in dry areas by aestivating (i.e., remaining beneath the soil in burrows or under logs and leaf litter, and emerging only when temperatures are low and humidity is high). Many of these species' habitats are associated with water and they emerge to breed once the rainy season begins. Soil moisture conditions can remain high throughout the year in some habitat types depending on factors such as amount of vegetation cover, elevation, and slope aspect.

Suitable habitat for amphibians is present throughout the study area. Three native amphibian species were observed during the surveys, including California [western] toad (*Anaxyrus boreas halophilus* [*Bufo boreas*]), California treefrog (*Pseudacris* [*Hyla*] *cadaverina*), and Baja California treefrog (*Pseudacris hypochondriaca* [*Hyla regilla*]).

3.2.3 Reptiles

Reptilian diversity and abundance typically vary with vegetation type. Some species prefer only one or two vegetation types, while others forage in a variety of habitats. Most reptile species that occur in open areas use rodent burrows for cover, protection from predators, and refuge during extreme weather conditions.

Reptile species observed in the study area include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), western whiptail (*Cnemidophorus tigris*), southern alligator lizard (*Elgaria multicarinata*), two-striped garter snake, gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus viridis*).

3.2.4 Birds

A variety of bird species are expected to be residents in the study area and to use the habitats throughout the year while other species are present only during certain seasons. For example, the white-crowned sparrow (*Zonotrichia leucophrys*) is expected to occur in the study area during the winter and migrate to the northern forests for breeding in the spring.

The following resident bird species were observed: great blue heron (*Ardea herodias*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*),

Nuttall's woodpecker (*Picoides nuttallii*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), common yellowthroat (*Geothlypis trichas*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone* [*Pipilo*] *crissalis*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), and lesser goldfinch (*Spinus* [*Carduelis*] *psaltria*).

Species that are present in the region during the nesting season include black-chinned hummingbird (*Archilochus alexandri*), Pacific-slope flycatcher (*Empidonax difficilis*), ash-throated flycatcher (*Myiarchus cinerascens*), phainopepla (*Phainopepla nitens*), western tanager (*Piranga ludoviciana*), black-headed grosbeak (*Pheucticus melanocephalus*), hooded oriole (*Icterus cucullatus*), and Bullock's oriole (*Icterus bullockii*). Wintering species that would be expected to occur include ruby-crowned kinglet (*Regulus calendula*), cedar waxwing (*Bombycilla cedrorum*), yellow-rumped warbler (*Setophaga coronata* [*Dendroica coronata*]), Townsend's warbler (*Setophaga townsendi* [*Dendroica townsendi*]), and white-crowned sparrow.

Raptors (birds of prey) observed in the study area include Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), barn owl (*Tyto alba*), and great horned owl (*Bubo virginianus*). The turkey vulture (*Cathartes aura*), a scavenger, was observed in the study area. These raptor species are expected to nest in large oak or sycamore trees, or on rocky cliff ledges. A red-tailed hawk was observed nesting on the cliff face east of Santa Anita Reservoir during the surveys.

3.2.5 Mammals

Small-sized mammals observed in the study area include western gray squirrel (*Sciurus griseus*), California ground squirrel (*Spermophilus beecheyi*), Merriam's chipmunk (*Neotamius* [*Tamias*] *merriami*), and Botta's pocket gopher (*Thomomys bottae*). Medium-sized mammals observed in the study area include desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), and striped skunk (*Mephitis mephitis*). Large-sized mammals observed or detected in the study area include black bear (*Ursus americanus*) and mule deer (*Odocoileus hemionus*); mountain lion (*Puma concolour*) would also be expected.

Bats occur throughout most of Southern California and may use any portion of the study area as foraging habitat. Most of the bats that could potentially occur in the study area are inactive during the winter and either hibernate or migrate, depending on the species. An acoustical survey was conducted to determine which bats occur within or adjacent to Project Work Areas (Attachment I). The following common bat species were observed: big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), canyon bat (*Parastrellus hesperus*), hoary bat (*Lasiurus cinereus*), yuma myotis (*Myotis yumanensis*), little brown bat (*Myotis lucifigus*), and California myotis (*Myotis californicus*). Bats may roost in the rocky outcroppings along Santa Anita Canyon, in crevices of structures, or in large oak or sycamore trees in the study area. Acoustical surveys are initiated before dusk and record sonar calls of bats as they emerge from their roosts; it is assumed that bats that are recorded within the first hour are roosting in or around the recording site while those that first appear over an hour into the recording are assumed to have traveled to the area to forage from a roost site out of the immediate area. Based on the acoustical recordings, the big brown bat, Brazilian free-tailed bat, canyon bat, yuma myotis, little brown bat, and California myotis have a moderate to high potential to roost in crevices and structures in and around Project Work Areas.

3.2.6 Wildlife Movement

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990). Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing routes for wildlife to escape from fire, predators and human disturbances, thus reducing the risk that catastrophic events (such as fire or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move in their home ranges in search of food, water, mates, and other necessary resources (Noss 1983; Fahrig and Merriam 1985; Simberloff and Cox 1987; Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (e.g., foraging for food or water, defending territories or searching for mates, breeding areas, or cover). A number of terms such as "wildlife corridor", "travel route", "habitat linkage", and "wildlife crossing" have been used in various wildlife movement studies to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and to facilitate the discussion on wildlife movement in this analysis, these terms are defined as follows:

- **Travel Route –** a landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and to provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another. It contains adequate food, water, and/or cover while moving between habitat areas and it provides a relatively direct link between target habitat areas.
- **Wildlife Corridor –** a piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bound by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and to facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat linkages" or "landscape linkages") can provide both transitory and resident habitat for a variety of species.
- **Wildlife Crossing –** a small, narrow area, relatively short in length and generally constricted in nature that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are man-made and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These often represent "choke points" along a movement corridor, which may impede wildlife movement and increase the risk of predation.

It is important to note that, in a large open space area where there are few or no man-made or naturally occurring physical constraints to wildlife movement, wildlife corridors (as defined above) may not yet exist. Given an open space area that is both large enough to maintain viable

populations of species and to provide a variety of travel routes (e.g., canyons, ridgelines, trails, riverbeds, and others), wildlife will use these "local" routes while searching for food, water, shelter, and mates and will not need to cross into other large open space areas. Based on their size, location, vegetative composition and availability of food, some of these movement areas (e.g., large drainages and canyons) are used for longer lengths of time and serve as source areas for food, water and cover, particularly for small- and medium-sized animals. This is especially true if the travel route is within a larger open space area. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles (such as roads and highways), the remaining landscape features or travel routes that connect the larger open space areas become corridors as long as they provide adequate space, cover, food and water, and do not contain obstacles or distractions (e.g., man-made noise, lighting) that would generally hinder wildlife movement.

In general, animals discussed within the context of movement corridors typically include larger, more mobile species (such as mule deer, black bear, mountain lion, fox [*Urocyon* sp.], and coyote). Most of these species have relatively large home ranges through which they move to find adequate food, water, and breeding and wintering habitat. It is assumed that corridors that serve larger, more vagile species (those that can move freely, such as birds) also serve as corridors for many smaller, less mobile species, such as reptiles, amphibians, and rodents (generally discussed within the context of local movement). For smaller species, these local movements are compared to "stepping stones" as individuals move between populations; this facilitated gene flow on the regional scale.

The availability of open space corridors is generally considered less important for bird species. Most bird species are believed to fly in more or less direct paths to desired locations; however, some habitat-specific species may not move great distances from their preferred habitat types, and are believed to be less inclined to travel across unsuitable areas.

Ideally, an open space corridor should encompass a heterogeneous mix of vegetation types to accommodate the ecological requirements of a wide variety of resident species in any particular region. Most species typically prefer adequate vegetation cover during movement, which can serve as both a food source and as protection from weather and predators. Drainages, riparian areas, and forested canyon bottoms typically serve as natural movement corridors because these features provide cover, food, and often water for a variety of species. Very few species will move across large expanses of open, uncovered habitat unless it is the only option available to them. For some species, landscape linkages must be able to support animals for sustained periods, not just for travel. Smaller or less mobile animals (such as rodents and reptiles) require long periods to traverse a corridor, so the corridor must contain adequate food and cover for survival.

The study area is located at the southern edge of the Angeles National Forest. Development is located to the west and south of the Debris Dam, and Santa Anita Wash is channelized downstream of the study area. Therefore wildlife is expected to move relatively freely between the study area and open space areas to the north, but are not expected to move into the developed areas south of the study area (with exception of urban-tolerant species such as coyotes and striped skunks).

Santa Anita Canyon is naturally very steep sided and restricts many species to traveling either up the canyon bottom or along the ridgelines. For species that travel along riparian corridors, the Dam is a barrier to movement between the Reservoir and Santa Anita Canyon below. However, the ridgelines adjacent to the Dam are undeveloped and would allow species to move around the Dam if they could travel in upland habitats. Aquatic species would either be restricted to Santa Anita Reservoir or Santa Anita Canyon from below the Dam to the northern end of Debris Dam (where the stream dries).

3.3 SPECIAL STATUS BIOLOGICAL RESOURCES

The following section addresses special status biological resources reported from the region. These resources include plant and wildlife species that have been afforded special status and/or are recognized by federal and State resource agencies, as well as private conservation organizations. In general, the principal reason an individual taxon (i.e., species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitations of its population size, geographic range, and/or distribution resulting in most cases from habitat loss. This list includes species reported by the CNDDB, CNPS, and U.S. Forest Service (USFS) and is supplemented with species from the author's experience that could occur based on the presence of suitable habitat. In addition, special status biological resources include vegetation types and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. These resources have been defined by federal, State, and local government conservation programs. Sources used to determine the special status of biological resources are listed below.

- **Habitats** – the CNDDB (CDFG 2012; CDFW 2013a) and the CDFG's *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010).
- **Plants** – the Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2012, 2013); the CNDDB (CDFG 2012; CDFW 2013a); various USFWS *Federal Register* notices regarding listing status of plant species; the CDFG's *List of Special Vascular Plants, Bryophytes, and Lichens* (CDFW 2013c); and the USFS' Regional Forester's Sensitive Plant Species List (USFS 2014).
- **Wildlife** – the CNDDB (CDFG 2012; CDFW 2013a); various USFWS *Federal Register* notices regarding listing status of wildlife species; the CDFG's *List of Special Animals* (CDFG 2011); and the USFS' Sensitive Animal Species by Forest list (USFS 2013b).

3.3.1 Special Status Vegetation Types

In addition to providing an inventory of special status plant and wildlife species, the CNDDB also provides an inventory of vegetation types that are considered special status by the State and federal resource agencies, academic institutions, and various conservation groups (such as the CNPS). Determination of the level of imperilment is based on the NatureServe Heritage Program Status Ranks that rank both species and vegetation types on a global (**G**) and statewide (**S**) basis according to their rarity; trend in population size or area; and recognized threats (e.g., proposed developments, habitat degradation, and non-native species invasion). The ranks are scaled from 1 to 5. NatureServe considers **G1 or S1** communities to be critically imperiled and at a very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors; **G2 or S2** communities to be imperiled and at high risk of extinction or elimination due to very restricted range, very few populations or occurrences, steep declines, or other factors; **G3 or S3** communities to be vulnerable and at moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors; **G4 or S4** communities to be apparently secure and uncommon but not rare with some cause for long-term concern due to declines or other factors; and **G5 or S5** communities to be secure (Faber-Langendoen et al. 2009).

All vegetation alliances[4] that have State ranks of S1 to S3 are considered to be highly imperiled. Currently, association ranks are not provided, but associations ranked as S3 or rarer are noted. Three vegetation types in the study area would be considered special status: southern mixed chaparral/rock outcroppings, southern cottonwood willow riparian forest, and sycamore alluvial woodland/southern riparian forest (Table 5). These vegetation types should be avoided to the extent practicable.

TABLE 5
VEGETATION TYPES AND OTHER AREAS MAPPED WITHIN THE STUDY AREA

Vegetation Types or Other Areas	Amount (Acres)	Threat Ranking
Mixed Coastal Sage Scrub	14.09	G4, S4
Disturbed Mixed Coastal Sage Scrub	4.99	G4, S4
Southern Mixed Chaparral	9.08	G4, S4
Southern Mixed Chaparral/Mixed Coastal Sage Scrub	12.72	G4, S4
Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub	0.50	G4, S4
Southern Mixed Chaparral/Rock Outcroppings	**1.15**	**G5, S3**
Southern Cottonwood Willow Riparian Forest	**6.36**	**G4, S3**
Sycamore Alluvial Woodland/Southern Riparian Forest	**1.80**	**G3, S3**
Southern Sycamore Alder Riparian Woodland	3.83	G4, S4
Mule Fat Scrub	5.99	G5, S4
Coast Live Oak Woodland	2.61	G5, S4
Mixed Woodland	0.55	–
Oak Woodland/Southern Mixed Chaparral	6.03	G5, S4/G4, S4
Ornamental	3.86	–
Ornamental/Coast Live Oak Woodland	3.38	–/G5, S4
Ruderal	0.63	–
Disturbed	23.87	–
Developed	8.90	–
Open Water	4.99	–
Rock Outcroppings	0.17	–
Total	**115.50**	

Vegetation types in **boldface type** are considered "special status".

[4] A vegetation alliance is "a classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species, often of high cover, in the uppermost layer or the layer with the highest canopy cover" (Sawyer et al. 2009).

3.3.2 Definitions of Special Status Species

A federally **Endangered** species is one facing extinction throughout all or a significant portion of its geographic range. A federally **Threatened** species is one likely to become Endangered within the foreseeable future throughout all or a significant portion of its range. The presence of any federally Threatened or Endangered species within a project impact area generally imposes severe constraints on development, particularly if an action would result in "take" of the species or its habitat. The FESA defines the term "take" as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct. Harm, in this sense, can include any disturbance of habitats used by the species during any portion of its life history.

Proposed species or **Candidate** species are those officially proposed by the USFWS for addition to the federal Threatened and Endangered species list. Because proposed species may soon be listed as Threatened or Endangered, the presence of a Proposed or Candidate species may impose constraints on development if they are listed prior to an action, particularly if the action would result in "take" of the species or its habitat.

The State of California considers an Endangered species as one whose prospects of survival and reproduction are in immediate jeopardy; a Threatened species as one present in such small numbers throughout its range that it is likely to become an Endangered species in the near future in the absence of special protection or management; and a Rare species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. Rare species applies only to California native plants; these species are treated as State-listed species. State-listed Threatened and Endangered species are fully protected against take unless an Incidental Take Permit is obtained from the resource agencies. The presence of any State-listed Rare, Threatened, or Endangered species generally imposes constraints on proposed actions, particularly if the action would result in "take" of the species or its habitat.

California Species of Special Concern is an informal designation used by the CDFW for some declining wildlife species that are not State Candidates. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFW.

Species that are **California Fully Protected** and **Protected** include those protected by special legislation for various reasons, such as the mountain lion and white tailed kite (*Elanus leucurus*). Fully Protected species may not be taken or possessed at any time. California Protected species include those species that may not be taken or possessed at any time except under special permit from the CDFW issued pursuant to the *California Code of Regulations* (Title 14, Sections 650, 670.7) or Section 2081 of the *California Fish and Game Code*.

The California Rare Plant Rank (CRPR), formerly known as CNPS List, is a ranking system by the Rare Plant Status Review group[5] and managed by the CNPS and the CDFW. A CRPR summarizes information on the distribution, rarity, and endangerment of California's vascular plants. Plants with a CRPR of **1A** are presumed extinct in California because they have not been seen in the wild for many years. Plants with a CRPR of **1B** are Rare, Threatened, or Endangered throughout their range. Plants with a CRPR of **2A** are presumed extirpated from California, but are more common elsewhere. Plants with a CRPR of **2B** are considered Rare, Threatened, or Endangered in California, but are more common elsewhere. Plants with a CRPR of **3** require more information before they can be assigned to another rank or rejected; this is a "review" list. Plants with a CRPR of **4** are of limited distribution or infrequent throughout a broader area in California; this is a "watch" list. The Threat Rank is an extension added onto the CRPR to designate the level

[5] A group of over 300 botanical experts from the government, academia, non-governmental organizations, and the private sector.

of endangerment by a 1 to 3 ranking. An extension of **.1** is assigned to plants that are considered to be "seriously threatened" in California (i.e., over 80 percent of the occurrences are threatened or having a high degree and immediacy of threat). Extension **.2** indicates the plant is "fairly threatened" in California (i.e., between 20 and 80 percent of the occurrences are threatened or have a moderate degree and immediacy of threat). Extension **.3** is assigned to plants that are considered "not very threatened" in California (i.e., less than 20 percent of occurrences are threatened or have a low degree and immediacy of threat or no current threats known). The absence of a threat code extension indicates plants lacking any threat information.

3.3.3 Special Status Plant Species

Based on the results of the literature review described above, 96 special status plant species have been reported from the Project area. Table 6 provides a list of these species; their listing status; their potential to occur in each portion of the study area; and whether or not they were observed during focused surveys. Species that were observed during the 2009–2012 focused surveys are included in Exhibit 5 (BonTerra Consulting 2009a, 2010, 2012a). Note that they are grouped alphabetically according to their scientific name.

Survey Area

Special Status Species

- Engelmann oak (2012, 2014)
- Coulter's matilija poppy (2012)
- unidentified turtle* (2011)
- coastal western whiptail (2009)
- two-striped garter snake (2012)
- yellow warbler (2009, 2012)
- yellow-breasted chat (2009)
- Southern California rufous-crowned sparrow (2009, 2012)
- Acoustic Recordings of Bat Species (2014)
  Townsend's big-eared bat
  hoary bat
  fringed myotis
  western mastiff bat

* A turtle (*Emydidae*) was observed during turtle trapping in 2011. Although not positively identified, it had characteristics consistent with a Pacific pond turtle.

Santa Anita Canyon Rd
Santa Anita Ave
Monte Pl
Canyon Rd
Cielo Pl
Highland Vista Dr
Topaz Pl
Angelo Pl
Marilynn Pl
Highland Oaks Dr
Hillgreen Pl
Carolwood Dr
Elkins Pl
Oaks Pl
Elkins Ave
White Oak Dr
Highland Oaks Dr

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Special Status Species Observed

Exhibit 5

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

600 300 0 600 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\BioTech\Ex5_SSSpecies.pdf

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Acanthoscyphus parishii var. *abramsii* Abrams' oxytheca	Occurs in sandy soils between 5,577 and 6,562 feet above msl. Known from the San Rafael Mountains, Topatopa Mountains, and Mount Pinos.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range.
Acanthoscyphus parishii var. *parishii* Parish's oxytheca	Occurs in dry granite slopes and flats, mostly in yellow pine forest between 6,200 feet and 8,500 feet above msl. Known from the San Gabriel and San Bernardino Mountains.	–	–	4.2	–	–	Not expected to occur; study area is outside elevation range.
Androsace elongata ssp. *acuta* California androsace	Occurs in dry grassy slopes, chaparral, and cismontane woodland between sea level and 4,000 feet above msl. Known from the Western Transverse Ranges, the San Bernardino Mountains, and the Peninsular Ranges.	–	–	4.2	WL	–	Not expected to occur; potentially suitable habitat; not observed during 2012 focused surveys.
Arctostaphylos glandulosa ssp. *gabrielensis* San Gabriel manzanita	Occurs in rocky outcrops and chaparral at approximately 3,000 to 6,500 feet above msl. Known from the San Gabriel Mountains and the Mill Creek Summit area.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range.
Arctostaphylos parryana ssp. tumescens interior manzanita	Occurs in montane chaparral between 6,890 and 7,546 feet above msl. Known from the San Gabriel and San Bernardino mountains.	–	–	4.3	FSS	–	Not expected to occur; study area is outside elevation range.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Astragalus bicristatus crested milk-vetch	Occurs in rocky or sandy places between 5,500 and 9,000 feet above msl. Known from the montane coniferous forests in the Eastern San Gabriel Mountains and the San Bernardino Mountains.	–	–	4.3	FSS	–	Not expected to occur; study area is outside elevation range.
Astragalus brauntonii Braunton's milk-vetch	Occurs in brushy habitats, along fire-breaks, or in disturbed areas (e.g., landslides, road clearings). Occurs in sandstone soils with carbonate layers between sea level and 2,100 feet above msl. Known from the hills bordering the Los Angeles Basin.	FE	–	1B.1	–	No; however, study area is immediately adjacent to critical habitat.	May occur; potentially suitable habitat; species is not observable except after fires or other disturbances. Not expected to occur within Santa Anita Reservoir or Debris Dam in areas disturbed repeatedly for sediment removal. Not observed during 2012 focused surveys; not observed during previous surveys in 2007, 2008, 2009, or 2010.
Astragalus lentiginosus var. *antonius* San Antonio milk-vetch	Occurs in open slopes in yellow pine forest between 5,000 and 8,500 feet above msl. Known from the Eastern San Gabriel Mountains.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Astragalus lentiginosus var. *sierrae* Bear Valley woollypod	Occurs in openings in sandy woods and stony lake-shores in the mountains overlooking the desert, yellow pine forest, and sagebrush scrub between 5,500 and 10,500 feet above msl. Known from the Eastern San Gabriel, San Bernardino and Santa Rosa Mountains.	–	–	1B.2	–	–	Not expected to occur; study area is outside elevation range for this species.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Berberis nevinii Nevin's barberry	Occurs in coastal sage scrub with sandy or gravelly soils between sea level and 4,000 feet above msl. Known from Northern Los Angeles County in San Francisquito Canyon; in the San Fernando Valley and Arroyo Seco; in San Timoteo Canyon near Redlands; and near Vail Lake in Riverside County.	FE	SE	1B.1	–	No	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys.
Botrychium crenulatum scalloped moonwort	Occurs in saturated hard water seeps and stream margins between 5,000 and 12,000 feet above msl. Known from the High North Coast Ranges, the High Cascade Range, the High Sierra Nevada, the San Gabriel and San Bernardino Mountains, the Warner Mountains, and East of Sierra Nevada to Washington, Montana, Utah.	–	–	2B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Brodiaea filifolia thread-leaved brodiaea	Occurs in valley grassland, foothill woodland, coastal sage scrub, freshwater wetlands, and wetland-riparian habitats between 80 and 2,800 feet above msl.	FT	SE	1B.1	–	No	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys.
California macrophylla round-leaved filaree	Occurs in valley grasslands and foothill woodlands between sea level and 4,000 feet above msl.	–	–	1B.1	–	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Calochortus clavatus var. *clavatus* club-haired mariposa lily	Occurs in serpentine soils between sea level and 4,265 feet above msl. Known from the southern Outer South Coast Ranges, northern Inner South Coast Ranges, Western Transverse Ranges, and San Gabriel Mountains.	–	–	4.3	FSS	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys.
Calochortus clavatus var. *gracilis* slender mariposa lily	Occurs in canyons, chaparral, and slopes between sea level and 3,200 feet above msl. Known from the south base of the San Gabriel Mountains.	–	–	1B.2	FSS	–	Not expected to occur; potentially suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2007, 2008, 2009, or 2010.
Calochortus fimbriatus [*Calochortus weedii* var. *vestus*] late-flowered mariposa lily	Occurs in dry, open coastal woodland, chaparral between sea level and 3,000 feet above msl. Known from the Outer South Coast Ranges and Western Transverse Ranges.	–	–	1B.3	FSS	–	Not expected to occur; limited suitable habitat present; not observed during 2012 focused surveys.
Calochortus palmeri var. *palmeri* Palmer's mariposa lily	Occurs in meadows and places that are moist in early spring. Also occurs in chaparral and yellow pine forest between 3,900 and 7,200 feet above msl.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Calochortus plummerae Plummer's mariposa lily	Occurs in dry rocky places, often in brush, coastal sage scrub, and yellow pine forest between sea level and 5,500 feet above msl. Known from the Santa Monica Mountains to the south face of the San Gabriel and San Bernardino Mountains, to San Jacinto Mountains.	–	–	4.2	–	–	Not expected to occur; potentially suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2007, 2008, 2009, or 2010.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Calochortus striatus alkali mariposa lily	Occurs in alkaline meadows and springs and creosote bush scrub between 2,500 and 4,500 feet above msl. Known from the Western Mojave Desert and western Nevada.	–	–	1B.2	FSS	–	Not expected to occur; no suitable habitat for this species.
Calochortus weedii var. *intermedius* intermediate mariposa lily	Occurs in coastal sage scrub and grassland on dry, rocky, open slopes between sea level and approximately 2,200 feet above msl.	–	–	1B.2	–	–	Not expected to occur; limited suitable habitat present; not observed during 2012 focused surveys; not observed during previous focused surveys in 2010.
Canbya candida pygmy poppy	Occurs in sandy flats, creosote bush scrub, and Joshua tree woodland between 1,900 and 4,400 feet above msl.	–	–	4.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Castilleja gleasoni Mount Gleason paintbrush	Occurs in rocky places and yellow pine forest between 5,000 and 7,100 feet above msl. Known from Mt. Gleason and the San Gabriel Mountains.	–	SR	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Castilleja plagiotoma Mojave Indian paintbrush	Occurs in dry flats and ridges, sagebrush scrub, Joshua tree woodland, yellow pine woodland, and pinyon-juniper woodland between 1,500 and 8,200 feet above msl. Known from the northern base of the San Bernardino and San Gabriel Mountains to Piute Mountains and into San Luis Obispo County.	–	–	4.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Centromadia parryi ssp. *australis* southern tarplant	Occurs in saline, seasonally moist grasslands between sea level and 600 feet above msl,	–	–	1B.1	–	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	Occurs in coastal sage scrub with sandy soils between 300 and 1,600 feet above msl. Known from the Western Transverse Ranges.	FC	SE	1B.1	FSS	No	Not expected to occur; limited suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Chorizanthe parryi var. *parryi* Parry's spineflower	Occurs in sand between 300 and 2,600 feet above msl. Known from the central and eastern South Coast, the eastern Transverse Ranges, and the northwestern edge of the Sonoran Desert.	–	–	1B.1	FSS	–	Not expected to occur; limited suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2007, 2008, 2009, or 2010.
Cladium californicum California saw-grass	Occurs in alkaline marshes and swamps between sea level and 7,000 feet above msl.	–	–	2B.2	FSS	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Claytonia lanceolata var. *peirsonii* Peirson's spring beauty	Occurs in dry ridges and lodgepole pine forest between 4,900 and 8,500 feet above msl. Known from the slopes of the San Gabriel Mountains' eastern peaks.	–	–	3.1	FSS	–	Not expected to occur; study area is outside elevation range for this species.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Clinopodium mimuloides monkey-flower savory	Occurs in moist places, stream banks, and chaparral woodland between 1,200 and 6,000 feet above msl. San Gabriel Mountains the Transverse Ranges.	–	–	4.2	–	–	Not expected to occur; limited suitable habitat on edge of elevational range; not observed during 2012 focused surveys.
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	Occurs in freshwater marshes and swamps between sea level and 1,500 feet above msl.	–	–	2B.2	–	–	Not expected to occur; limited suitable habitat; not observed during 2012 focused surveys.
Deinandra mohavensis Mojave tarweed	Occurs on moist sites in openings in chaparral, desert scrub, and woodland habitats between 1,500 and 5,250 feet above msl. Known from the Southern High Sierra Nevada, the North San Bernardino Mountains (extirpated), the Peninsular Ranges, and the west edge Mojave Desert.	–	SE	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Dodecahema leptoceras slender-horned spineflower	Occurs in chaparral and coastal sage scrub in alluvial fans between 600 and 2,300 feet above msl.	FE	SE	1B.1	–	No	Not expected to occur; potentially suitable habitat present, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2007, 2008, 2009, or 2010.
Drymocallis cuneifolia var. ewanii [*Potentilla glandulosa* ssp. *ewanii*] Ewan's cinquefoil	Occurs in steep slopes and yellow pine forest from 6,200 to 8,000 feet above msl. Known from the Mt. Islip area and the San Gabriel Mountains.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Dudleya cymosa ssp. *crebrifolia* San Gabriel River dudleya	Occurs in granitic slopes at approximately 1,300 feet above msl. Known from Fish Canyon and the San Gabriel Mountains.	–	–	1B.2	FSS	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Dudleya densiflora San Gabriel Mountains dudleya	Occurs in steep canyon walls, rocky cliffs, and chaparral between 980 and 1,700 feet above msl. Known from the San Gabriel Mountains.	–	–	1B.1	FSS	–	Not expected to occur; potentially suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2007, 2008, 2009, or 2010.
Dudleya multicaulis many-stemmed dudleya	Occurs in dry, stony places on heavy clay soils, coastal sage scrub, and chaparral habitats between sea level and 2,000 feet above msl. Known from Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties.	–	–	1B.2	FSS	–	Not expected to occur; limited suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Eremogone macradenia var. *arcuifolia* [*Arenaria macradenia* var. *kuschei*] Forest Camp sandwort	Occurs in dry, gravelly canyon slopes, dry yellow-pine, and oak forests, ridges, and summits between 2,100 and 7,900 feet above msl. Known from the Western Transverse Ranges and the San Gabriel Mountains.	–	–	–	FSS	–	Not expected to occur; study area is outside elevation range.
Eriogonum kennedyi var. *alpigenum* southern alpine buckwheat	Occurs in dry granitic slopes and ridges between 8,200 and 11,500 feet above msl. Known from Mt. Pinos and the San Gabriel and the San Bernardino Mountains.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Eriogonum microthecum var. *johnstonii* Johnston's buckwheat	Occurs in dry, rocky places and montane coniferous forest between 8,500 and 9,500 feet above msl. Known from the San Gabriel and San Bernardino Mountains.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Galium angustifolium ssp. *gabrielense* San Antonio Canyon bedstraw	Occurs in dry rocky places, slopes, ridges, canyons, and montane coniferous forest between 3,937 and 8,694 feet above msl. Known from the San Gabriel Mountains (near San Antonio Canyon).	–	–	4.3	–	–	Not expected to occur; study area is outside the elevation range.
Galium grande San Gabriel bedstraw	Occurs in chaparral and oak woodland between 1,300 and 4,000 feet above msl. Known from the San Gabriel Mountains.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside the elevation range.
Galium johnstonii Johnston's bedstraw	Occurs in lower montane coniferous forest, partial shade beneath conifers, and dry slopes between 5,400 and 7,500 feet above msl. Known from the San Gabriel, San Bernardino, and San Jacinto Mountains.	–	–	4.3	–	–	Not expected to occur; study area is outside the elevation range.
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	Occurs in marshes; historically occurred in Los Angeles, San Bernardino, and Orange Counties between sea level and 1,600 feet above msl.	–	–	1A	–	–	Not expected to occur; presumed extinct; potentially suitable habitat, but not observed during 2012 focused surveys.
Heuchera abramsii Abram's alumroot	Occurs in upper montane coniferous forest between 9,100 and 11,400 feet above msl. Known from the San Gabriel Mountains.	–	–	4.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Heuchera caespitosa [*Heuchera elegans*] urn-flowered alumroot	Occurs in rocky areas between 6,200 and 7,500 feet above msl. Known from the San Gabriel Mountains.	–	–	4.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Hordeum intercedens vernal barley	Occurs in saline flats and depressions in grasslands or within vernal pool basins between sea level and 1,600 feet above msl.	–	–	3.2	–	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Horkelia cuneata var. *puberula* mesa horkelia	Occurs in dry, sandy, coastal chaparral between 230 and 2,850 feet above msl. Known from the Outer South Coast Ranges, the South Coast (especially foothill edge of Los Angeles Basin), and Peninsular Ranges.	–	–	1B.1	FSS	–	Not expected to occur; limited suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2007, 2008, 2009, or 2010.
Hulsea vestita ssp. *gabrielensis* San Gabriel Mountains sunflower	Occurs in montane forest between 4,900 and 8,200 feet above msl. Known from Mt. Pinos and the San Gabriel Mountains.	–	–	4.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Hulsea vestita ssp. *pygmaea* pygmy hulsea	Occurs in open gravel, talus slopes, subalpine forest, and alpine barrens between 10,500 and 12,800 feet above msl. Known from the Southern High Sierra Nevada and San Bernardino Mountains.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.

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Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Imperata brevifolia California satintail	Occurs in wet springs, meadows, stream banks, and floodplains between sea level and 1,640 feet above msl. Known from the Outer North Coast Ranges, the Cascade Range Foothills, the southern Sierra Nevada Foothills, the San Joaquin Valley, the South Coast, the Transverse Ranges, and the Desert to Utah, Texas, and Mexico.	–	–	2B.1	FSS	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Juglans californica [*Juglans californica* var. *californica*] Southern California black walnut	Occurs in hillsides and canyons between 100 and 3,000 feet above msl. Known from the Outer South Coast Ranges and Southwestern California (except Channel Islands and the San Bernardino Mountains).	–	–	4.2	WL	–	Not expected to occur; not observed during 2012 focused surveys.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	Occurs in salt marshes, vernal pools, and wet places between sea level and 3,300 feet above msl.	–	–	1B.1	–	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Lepechinia fragrans fragrant pitcher sage	Occurs in canyons and chaparral between sea level and 4,200 feet above msl. Known from the San Gabriel and Santa Monica Mountains and the Santa Cruz, Santa Rosa, and Santa Catalina Islands.	–	–	4.2	FSS	–	Not expected to occur; potentially suitable habitat present, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2007 or 2008.

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Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Lepechinia rossii Ross' pitcher sage	Occurs in chaparral between 1,542 and 3,937 feet above msl. Known from the Liebre and Topatopa mountains.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside known range of the species.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	Occurs in dry soils in shrublands of southwestern California and Baja California, Mexico between sea level and 9,100 feet above msl.	–	–	4.3[d]	–	–	Not expected to occur; limited suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Lewisia brachycalyx short-sepaled lewisia	Occurs in sandy, wet meadows and seeps in open conifer forest between 4,495 and 8,038 feet above msl. Known from the San Bernardino Mountains and Peninsular Ranges to Utah, Arizona, and northern Baja California, Mexico.	–	–	2B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Lilium humboldtii ssp. *ocellatum* ocellated Humboldt lily	Occurs in gravelly soil, gullies and canyons, and chaparral between sea level and 5,900 feet above msl. Known from the San Gabriel, San Bernardino, San Jacinto and Santa Ana Mountains and from Santa Cruz Island.	–	–	4.2	WL	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys.
Lilium parryi lemon lily	Occurs in springy places, wet banks, and montane coniferous forests between 4,200 and 8,500 feet above msl. Known from the San Gabriel Mountains to San Diego County and Arizona.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.

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Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Linanthus concinnus San Gabriel linanthus	Occurs in dry, rocky slopes and montane coniferous forest between 5,500 and 9,100 feet above msl. Known from the San Gabriel Mountains.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Linanthus orcuttii Orcutt's linanthus	Occurs in montane chaparral and lower montane coniferous forest between 3,600 and 7,050 feet above msl.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Lupinus peirsonii Peirson's lupine	Occurs in loose, gravelly and rocky slopes, pinyon-juniper, Joshua tree, yellow pine woodlands, and desert slopes between 3,200 and 6,500 feet above msl. Known from the San Gabriel and Tehachapi Mountains.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Malacothamnus davidsonii Davidson's bush-mallow	Occurs in chaparral, coastal sage scrub, and riparian areas between 1,600 and 2,300 feet above msl.	–	–	1B.2	–	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys.
Mimulus johnstonii Johnston's monkey flower	Occurs in dry gravelly slopes, roadbanks, disturbed areas, scree, and mostly yellow pine forest between 3,200 and 9,500 feet above msl. Known from the San Gabriel Mountains to Kern, Santa Barbara, and San Diego Counties	–	–	4.3	–	–	Not expected to occur; study area is outside the elevation range.
Monardella australis ssp. *jokerstii* Jokerst's monardella	Occurs on steep scree or talus, stony benches on canyon bottoms in montane forests between 4,429 and 5,741 feet above msl. Known from the eastern San Gabriel Mountains.	–	–	1B.1	FSS	–	Not expected to occur; study area is outside known range of the species.

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Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Monardella macrantha ssp. *hallii* Hall's monardella	Occurs in dry slopes and ridges, chaparral, and yellow pine forest between 1,900 and 6,500 feet above msl. Known from the San Gabriel and San Bernardino Mountains and Peninsular Ranges.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Monardella saxicola [*Mondardella viridis* ssp.*saxicola*] rock monardella	Occurs in dry, rocky places, chaparral, and yellow pine forest between 1,400 and 6,000 feet above msl. Known from the San Gabriel Mountains.	–	–	4.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Muhlenbergia californica California muhly	Occurs in chaparral, yellow pine forest, coastal sage scrub, wetland-riparian, riparian, stream banks, and seeps and meadows between 300 and 6,500 feet above msl.	–	–	4.3	–	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Navarretia peninsularis Baja navarretia	Occurs in wet areas in open forest between 4,500 and 7,500 feet above msl. Known from the Tehachapi Mountain Area, Transverse Ranges, Peninsular Ranges, Arizona, and Baja California.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Nemacladus secundiflorus var. *robbinsii* Robbins' nemacladus	Occurs on dry, gravelly slopes between 1,148 and 5,577 feet above msl. Known from the southern High Sierra Nevadas, Inner South Coast Ranges, and Western Transverse Ranges.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside known range for this species.

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Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Opuntia basilaris var. *brachyclada* short-joint beavertail	Occurs in dry slopes, Joshua tree woodland, and pinyon juniper woodland between 4,000 and 5,900 feet above msl. Known from the San Gabriel and eastern San Bernardino Mountains.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Oreonana vestita woolly mountain-parsley	Occurs in dry or gravel talus and upper montane coniferous forest between 5,400 and 11,400 feet above msl. Known from the San Gabriel and San Bernardino Mountains.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Orobanche valida ssp. *valida* Rock Creek broomrape	Occurs in gravelly granitic talus, chaparral, and yellow pine forests between 4,000 and 6,500 feet above msl. Known from the San Gabriel Mountains.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range and this species.
Oxytropis oreophila var. *oreophila* rock-loving oxytrope	Occurs on open gravelly or rocky ground and talus at or above the treeline between 8,858 and 12,467 feet above msl. Known from the San Bernardino Mountains to Utah and Arizona.	–	–	2B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Parnassia cirrata var. *cirrata* fringed grass-of-Parnassus	Occurs in wet places between 2,300 and 8,200 feet above msl. Known from the San Gabriel Mountains and San Bernardino Mountains and Mexico.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.

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Perideridia gairdneri ssp. *gairdneri* California Gairdner's yampah	Occurs in the moist soil of flats, meadows, streamsides, grasslands, and pine groves between sea level and 8,200 feet above msl. Known from the Southern North Coast, the Klamath Ranges, the High North Coast Ranges, the Central Coast, the South Coast, and the Warner Mountains.	–	–	4.2	WL	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys.
Phacelia exilis Transverse Range phacelia	Occurs in sandy or rocky slopes, flats, and meadows between 3,600 and 8,900 feet above msl. Known from the Southern Sierra Nevada, the Western Transverse Ranges, the San Gabriel Mountains, and the San Bernardino Mountains.	–	–	4.3	–	–	Not expected to occur; study area is outside elevation range for this species.
Phacelia stellaris Brand's star phacelia	Occurs in coastal sage scrub and coastal dunes between sea level and 1,300 feet above msl.	FC	–	1B.1	–	No	Not expected to occur; limited suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
Pickeringia montana var. *tomentosa* woolly chaparral-pea	Occurs in chaparral and washes from sea level to 5,500 feet above msl. Known from the San Bernardino Mountains, the Peninsular Ranges, and from San Diego County, south to Baja California, Mexico.	–	–	4.3	–	–	Not expected to occur; limited suitable habitat, but not observed during 2012 focused surveys.

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Pseudognaphalium leucocephalum white rabbit-tobacco	Occurs in sandy soils near creek banks between sea level and 1,600 feet above msl.	–	–	2B.2	–	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.
***Quercus engelmannii* Engelmann oak**	**Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands in Los Angeles, Orange, and Riverside counties and in Baja California, Mexico between sea level and 4,200 feet above msl.**	**–**	**–**	**4.2**	**–**	**–**	**Engelmann oaks were observed during the 2012 focused plant surveys and 2014 tree survey. 2 trees were recorded near the Dam Work Area, 6 trees were recorded near the Debris Dam Work Area.**
Ribes divaricatum var. *parishii* Parish's gooseberry	Occurs in coastal sage scrub and wetland-riparian between 200 and 1,000 feet above msl.	–	–	1A	–	–	Not expected to occur; species presumed extinct; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.

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Romneya coulteri **Coulter's matilija poppy**	**Inhabits dry washes and canyons in coastal sage scrub and chaparral away from the immediate coast between sea level and 4,000 feet above msl.**	**–**	**–**	**4.2**	**–**	**–**	**17 clumps of poppy were observed during the 2012 focused plant surveys. The species was observed west of the western Debris Dam access road in the southern portion of the study area. This species spreads by rhizomes and it is difficult to identify individual plants.**
Rupertia rigida Parish's rupertia	Occurs in lower montane coniferous forest and montane chaparral; grows in semi-shade beneath a coniferous canopy at the edge of montane meadows between sea level and 8,200 feet above msl.	–	–	4.3	–	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys.
Scutellaria bolanderi ssp. *austromontana* southern mountains skullcap	Occurs in gravelly soils, stream banks, oak or pine woodland between 2,000 and 6,500 feet above msl. Known from the San Bernardino Mountains, the Peninsular Ranges, and the southern Mojave Desert.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Senecio astephanus San Gabriel ragwort	Known only from the rocky slopes of the Transverse Ranges and adjacent Coast Ranges between 1,300 and 5,000 feet above msl.	–	–	4.3	–	–	Not expected to occur; limited suitable habitat present, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.

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Sidalcea hickmanii ssp. *parishii* Parish's checkerbloom	Occurs in chaparral, woodland and open conifer forest between 3,200 and 7,200 feet above msl. Known from the outer South Coast Ranges, the Western Transverse Ranges (Santa Barbara County), and the San Bernardino Mountains.	–	SR	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Sidalcea neomexicana Salt Spring checkerbloom	Occurs in alkaline springs and marshes between sea level and 4,921 feet above msl. Known from the South Coast, Western Transverse Ranges, San Gabriel Mountains, San Bernardino Mountains, Peninsular Ranges, and southwestern Mojave Desert to New Mexico and northern Mexico.	–	–	2B.2	FSS	–	Not expected to occur; no suitable habitat; not observed during 2012 focused surveys.
Sidotheca caryophylloides [*Oxytheca caryophylloides*] chickweed oxytheca	Occurs in yellow pine forest between 4,200 and 8,500 feet above msl. Known from Ventura County, the San Gabriel Mountains, and the San Jacinto Mountains.	–	–	4.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Streptanthus bernardinus Laguna Mountains jewelflower	Occurs in dry slopes and yellow pine forest between 4,000 and 8,500 feet above msl. Known from the Eastern San Gabriel Mountains and the Laguna Mountains.	–	–	4.3	–	–	Not expected to occur; study area is outside elevation range for this species.

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Streptanthus campestris southern jewelflower	Occurs in open, rocky conifer forest, chaparral, and woodland between 3,000 and 7,500 feet above msl. Known from the Transverse Ranges, the Peninsular Ranges, and northern Baja California, Mexico.	–	–	1B.3	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Stylocline masonii Mason's neststraw	Occurs in open, loose sand of washes and flats between 328 and 3,937 feet above msl. Known from the southern Sierra Nevada Foothills, southern San Joaquin Valley, Outer South Coast Ranges, and Western Transverse Ranges.	–	–	1B.1	FSS	–	Not expected to occur; study area is outside known range range for this species.
Symphyotrichum defoliatum San Bernardino aster	Occurs in grassland and disturbed places between sea level and 6,700 feet above msl. Known from the San Gabriel Mountains, the San Bernardino Mountains, and the Peninsular Ranges.	–	–	1B.2	FSS	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2010.
Symphyotrichum greatae Greata's aster	Occurs in damp soils in canyons between sea level and 6,500 feet above msl. Known from the San Gabriel Mountains.	–	–	1B.3	–	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Syntrichopappus lemmonii Lemon's syntrichopappus	Occurs in sandy places, chaparral, Joshua tree woodland, and pinyon juniper woodland between 3,000 and 5,000 feet above msl. Known from the Transmontane San Gabriel Mountains.	–	–	4.3	WL	–	Not expected to occur; study area is outside elevation range for this species.
Thelypteris puberula var. *sonorensis* Sonoran maiden fern	Occurs along streams and in seepage areas from sea level to 2,600 feet above msl. Known from the South coast, the western Transverse Ranges, the San Gabriel Mountains, and the San Jacinto Mountains, into Arizona and Mexico.	–	–	2B.2	FSS	–	Not expected to occur; potentially suitable habitat, but not observed during 2012 focused surveys; not observed during previous focused surveys in 2007, 2008, 2009, or 2010.
Thysanocarpus rigidus rigid fringepod	Occurs on rocky slopes of oak or pine woodlands between 1,968 and 7,218 feet above msl. Known from the Peninsular Ranges, southwest desert, and Baja California, Mexico.	–	–	1B.2	FSS	–	Not expected to occur; study area is outside elevation range for this species.

TABLE 6
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]

USFWS: United States Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank; USFS: United States Forest Service; –: no status for this agency; msl: mean sea level.

Status Definitions

Federal (USFWS)		State (CDFW)		Federal (USFS)	
FE	Endangered	SE	Endangered	FSS	Forest Service Sensitive
FC	Candidate	SR	Rare	WL	Watch List
FT	Threatened				

CRPR List Categories

List 1A	Plants Presumed Extinct in California
List 1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2B	Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 3	Plants that require more information before they can be assigned to another rank or rejected
List 4	Plants of Limited Distribution – A Watch List

CRPR Threat Code Extensions

None	Plants lacking any threat information
.1	Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2	Fairly Endangered in California (20–80% of occurrences threatened)
.3	Not Very Threatened in California (less than 20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

Note: Species that were observed on site are shown in **boldface type.**

[a] Source for General Habitat/Range Descriptions: Allen et al.1995 and Baldwin et al. 2012.

[b] Critical Habitat only applies to USFWS-listed species. As such, any species without a USFWS listing, will have a "–".

[c] All previous biological documentation for the study area including a Biological Technical Report (UltraSystems 2007), an Environmental Impact Report (EDAW 2009), and various focused survey reports (BonTerra Consulting 2009a, 2010, 2012e) were reviewed to compile this table. Results of previous surveys are only listed for species for which the respective report specifically mentioned that species. The targets of each survey may vary based on the habitats present in each respective survey area. Also, the CRPR ranking changes with time and these surveys typically focus on the species with the highest rankings at the time of the survey. Additionally, it should be noted that while the survey areas for previous surveys partially overlapped with the study area for this report, the boundaries varied from project to project. Repeated negative survey results contribute to increasing the strength of an absence finding.

[d] Though not currently recognized by Baldwin et al. (2012), this variety is still tracked by the CNDDB.

3.3.4 Special Status Wildlife

Based on the results of the literature review described above, 64 special status wildlife species have been reported from the Project area. Table 7 provides a list of these species; their listing status; their potential to occur in each portion of the study area; and whether or not they were observed during focused surveys. Species that have been observed during 2009–2014 focused surveys are included in Exhibit 5. Note that they are grouped by type and listed in taxonomic order.

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Invertebrates						
Plebejus saepiolus aureolus San Gabriel Mountains blue butterfly	Wet meadows and seeps in yellow pine forest with hostplant of clover (*Trifolium* spp.). Known from only one location in the Angeles National Forest.	–	–	FSS	–	Not expected to occur; believed to be extinct. Formerly known from only one location (now developed).
Plebulina emigdionis San Emigdio blue butterfly	Occurs in the montane desert regions of southern California from Inyo County southwest through the Mojave Desert and Southern Sierra Nevada to Los Angeles County. It is found only in desert canyons with its host plant, shadscale (*Atriplex canescens*).	–	–	FSS	–	Not expected to occur; no suitable habitat.
Fish						
Gila orcuttii arroyo chub	Occurs in coastal freshwater streams and rivers with sustained flows and emergent vegetation with substrates consisting primarily of sand or mud.	–	SSC	FSS	–	Suitable habitat, but not observed during 2011 (reservoir) or 2012 (creek below the reservoir) focused surveys.
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	Occurs in perennial streams with riffle habitats in clean, rocky-bottomed streams and rivers.	—	SSC	FSS	–	Suitable habitat, but not observed during 2011 (reservoir) or 2012 (creek below reservoir) focused surveys.
Catostomus santaanae Santa Ana sucker	Occurs in shallow streams with flows that run from slow to swift. Stream substrates consist of boulders, gravel, and cobble where there are growths of filamentous algae. This species is occasionally found on sandy or muddy substrates.	FT	SSC	—	No	Marginally suitable habitat, but not observed during 2011 (reservoir) or 2012 (creek below reservoir) focused surveys.
Gasterosteus aculeatus williamsoni unarmored threespine stickleback	Occurs in weedy, permanent pools or backwaters and in slow moving water along the margins of a stream. This species primarily occurs in cool and clear water with muddy or sandy substrates.	FE	SE	—	No	Not expected to occur; study area is outside the range for this species.

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Amphibians						
Taricha torosa Coast Range newt	Found in wet forests, oak forests, chaparral, and rolling grasslands. In Southern California, drier chaparral, oak woodland, and grasslands are used.	–	SSC	–	–	Potentially suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2009 or 2010. Previously observed upstream of the study area, ½ mile upstream of the reservoir, along Santa Anita Wash in 2009.
Batrachoseps gabrieli San Gabriel Mountain slender salamander	Closely associated with extensive rock talus on forested slopes, often near a stream at elevations between 2,800 and 7,800 feet above msl.	–	–	FSS	–	Not expected to occur; study area is outside elevation range for this species.
Ensatina eschscholtzii croceater yellow-blotched salamander	Occurs in evergreen and deciduous forests; under rocks, logs, and other surface debris; and near creeks or streams. It is most common where there is a lot of woody debris on the forest floor. Known from lower Kern River Canyon, the Paiute Mountains, Breckenridge Mountain, the Tehachapi Mountains, on Mt. Pinos, near Fort Tejon, and near Frazier-Alamo Mountain.	–	SSC	FSS	–	Not expected to occur; outside the range for this species.
Anaxyrus [*Bufo*] *californicus* arroyo toad	Occurs in semi-arid regions near washes or intermittent streams. Streams must be of low velocity with sand or gravel substrate.	FE	SSC	–	No	Not expected to occur; no suitable habitat.
Rana boylii foothill yellow-legged frog	Frequents rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools. Occurs in areas between sea level and 6,700 feet above msl.	–	SSC	–	–	Not expected to occur; outside the range for this species.

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Rana draytonii California red-legged frog	Occurs in deep ponds and slow-moving streams with emergent vegetation in forests, woodlands, grasslands, streams, wetlands, ponds, and lakes from sea level to 8,000 feet above msl.	FT	SSC	–	No	Not expected to occur; no suitable habitat.
Rana muscosa Sierra Madre yellow-legged frog	Occurs in small, isolated populations in the San Gabriel, San Bernardino, and San Jacinto Mountains in narrow, rock-walled rivers, perennial creeks, and permanent plunge pools with intermittent creeks and pools in montane riparian and/or chaparral between 1,200 and 7,500 feet above msl.	FE	SSC	–	No	Not expected to occur; outside the range for this species.
Reptiles						
Emys [*Actinemys*] *marmorata* [*pallida*] Pacific [western] pond turtle	Occurs in ponds, lakes, marshes, rivers, streams, and irrigation ditches with a rocky or muddy bottom and aquatic vegetation at elevations from sea level to approximately 6,696 feet above msl.	–	SSC	FSS	–	Not expected to occur along Santa Anita Canyon because not observed during 2012 focused turtle trapping; previously observed in Santa Anita Reservoir during focused turtle trapping in 2011.
Gopherus agassizii desert tortoise	Occurs in desert scrub with soils ranging from sand to sandy-gravel and scattered shrubs with abundant inter-shrub space.	FT	ST	–	No	Not expected to occur; study area is outside species known range.
Phrynosoma blainvillii coast horned lizard	Occurs in scrubland, grassland, coniferous forests, and broadleaf woodland vegetation types.	–	SSC	–	–	May occur; suitable habitat; not observed during 2007 or 2012 focused surveys.
Aspidoscelis tigris stejnegeri **coastal western whiptail**	**Occurs in hot and dry areas with sparse foliage and open areas. Found in forests, woodland, chaparral, and riparian areas.**	**–**	**–**	**–**	**–**	**Observed, suitable habitat; incidentally observed during 2012 surveys; previously observed during 2009 surveys.**

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Anniella pulchra pulchra silvery [California] legless lizard	Requires areas with loose sandy soil, moisture, warmth, and plant cover. Occurs in chaparral, pine-oak woodland, beach, and riparian vegetation types at elevations between sea level and approximately 5,100 feet above msl.	–	SSC	FSS	–	Not expected to occur; suitable habitat, but not observed during 2012 focused surveys; not observed during previous surveys in 2007.
Charina umbratica southern rubber boa	Inhabits oak-conifer and mixed-conifer forests at elevations between approximately 5,000 to 8,200 feet above msl where rocks and logs or other debris provide shelter.	–	ST	–	–	Not expected to occur; study area is outside elevation range for this species.
Diadophis punctatus modestus [San Bernardino] ringneck snake	Occurs in moist habitats, including wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, and woodlands.	–	–	FSS	–	May occur; potentially suitable habitat.
Lampropeltis zonata parvirubra San Bernardino Mountain kingsnake	Occurs in diverse habitats including coniferous forest, oak-pine woodlands, riparian woodland, chaparral, manzanita, and coastal sage scrub from 800 to 9,000 feet above msl.	–	–	FSS	–	May occur; potentially suitable habitat.
Lichanura orcutti [*Charina trivirgata roseofusca]* northern three-lined boa [coastal rosy boa]	Inhabits arid scrublands, semi-arid shrublands, rocky shrublands, rocky deserts, canyons, and other rocky areas. May be common in riparian areas, but does not require permanent water.	–	–	FSS	–	May occur; potentially suitable habitat.
Salvadora hexalepis virgultea coast patch-nosed snake	Occurs in semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains at elevations from sea level to around 7,000 feet above msl.	–	SSC	–	–	May occur; potentially suitable habitat.
***Thamnophis hammondii* two-striped garter snake**	**Occurs in wetlands, freshwater marsh, and riparian habitats with perennial water.**	**–**	**SSC**	**FSS**	**–**	**Observed during 2012 focused surveys; suitable habitat.**

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Birds						
Gymnogyps californianus California condor	Occurs in mountainous country at low to moderate elevations, especially rocky and brushy areas with cliffs available for nest sites. Foraging habitat includes grasslands, oak savannas, mountain plateaus, ridges, and canyons. In lower elevation mountains, they require areas where wind conditions are suitable for take-offs.	FE	SE	–	No	Not expected to occur; no suitable habitat.
Accipiter cooperii **Cooper's hawk (nesting)**	**Preferred nesting habitats are oak and riparian woodlands dominated by sycamores and willows.**	**–**	**WL**	**–**	**–**	**Observed foraging during 2012 focused surveys; previously observed foraging during 2009 focused surveys; suitable nesting habitat.**
Accipiter gentilis northern goshawk	Nests in deciduous, old growth, coniferous, and mixed forests dominated by aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), or willow.	–	SSC	FSS	–	Not expected to occur; no suitable habitat.
Buteo swainsoni Swainson's hawk	Forages in savanna, open pine-oak woodland, and agricultural lands with scattered trees.	–	ST	–	–	Not expected to occur; no suitable habitat.
Elanus leucurus white-tailed kite (nesting)	Occurs in savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields.	–	FP	–	–	Limited potential to occur; not observed during focused bird surveys in 2012 or in 2009; marginally suitable foraging and nesting habitat.
Haliaeetus leucocephalus bald eagle	Nests in areas close to rivers, lakes, and reservoirs, near food sources including fish and waterfowl.	Delisted	SE	FSS	–	Not expected to occur; limited suitable foraging habitat.
Falco columbarius merlin (wintering)	Winters in open woodland, grasslands, open cultivated fields, marshes, estuaries, and seacoasts. Does not breed locally; breeds in the boreal forests.	–	WL	–	–	Limited potential to occur in winter; marginally suitable foraging habitat.

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Falco mexicanus prairie falcon	Occurs in grasslands, shrub-steppe, deserts, and other open areas up to about 10,000 feet above msl. In the winter, they also occur in cultivated fields, lakeshores, and desert scrub.	–	WL	–	–	Limited potential to occur; limited suitable foraging habitat; potentially suitable nesting habitat.
Falco peregrinus anatum American peregrine falcon (nesting)	Nests in inaccessible areas such as cliffs, high building ledges, bridges, or other such structures.	Delisted	Delisted/ FP	–	–	May occur; limited suitable foraging and nesting habitat.
Coccyzus americanus occidentalis western yellow-billed cuckoo	Requires broad areas of old-growth riparian habitats dominated by willows and cottonwoods with dense understory vegetation.	FC	SE	FSS	No	Not expected to occur; limited suitable habitat.
Asio otus long-eared owl	Occurs in dense vegetation adjacent to open grassland or shrubland, and open forests.	–	SSC	–	–	May occur; suitable foraging and nesting habitat.
Athene cunicularia burrowing owl (burrow sites; wintering in northern counties)	Breeds and forages in grasslands and prefers flat to low, rolling hills in treeless terrain. Nests in burrows, typically in open habitats, most often along banks and roadsides.	–	SSC	–	–	Not expected to occur; no suitable habitat.
Strix occidentalis occidentalis California spotted owl	Occurs in mature dense, multi-layered evergreen forests with a diversity of tree species, size, and tree health with open areas under canopy.	–	SSC	FSS	–	Not expected to occur; no suitable habitat.
Cypseloides niger black swift	Nesting typically occurs in a moist crevice or cave on a sea cliff above the surf or on cliffs behind or adjacent to waterfalls in deep canyons.	–	SSC	–	–	May occur for foraging only; no suitable nesting habitat.
Empidonax traillii extimus southwestern willow flycatcher (nesting)	Occurs in riparian habitats along rivers, streams, or other wetlands where dense growth of willows, mule fat, arrow-weed (*Pluchea sericea*), tamarisk (*Tamarix* sp.), or other plants are present, often with a scattered overstory of cottonwood	FE	SE	–	No	Not expected to occur; not observed during 2012 focused surveys; not observed during previous focused surveys in 2007 or 2009.

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Lanius ludovicianus loggerhead shrike	Occurs in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground.	–	SSC	–	–	May occur; suitable habitat.
Vireo bellii pusillus least Bell's vireo (nesting)	Riparian habitats dominated by willows with dense understory vegetation between sea level and 1,500 feet above msl.	FE	SE	–	No	Not expected to occur; not observed during 2012 focused surveys; not observed during previous focused surveys in 2007 or 2009.
Vireo vicinior gray vireo (nesting)	Occurs in shrublands such as chaparral, sagebrush, or pinyon-juniper woodland; closely associated with littleleaf elephant tree (*Bursera microphylla*) in the winter.	–	SSC	FSS	–	Not expected to occur; no suitable habitat.
Riparia riparia bank swallow	Breeds in riparian areas with vertical cliffs and banks with fine-textured sandy soil in which it digs nesting holes.	–	ST	–	–	Not expected to occur; no suitable habitat.
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren (San Diego and Orange Counties)	Coastal sage scrub and alluvial sage scrub with sufficient amounts of coastal prickly-pear (*Opuntia littoralis*) and/or coastal cholla (*Cylindropuntia* [*Opuntia*] *prolifera*).	–	SSC	FSS	–	Not expected to occur; no suitable habitat.
Polioptila californica californica coastal California gnatcatcher	Coastal sage scrub between sea level and 2,000 feet above msl.	FT	SSC	–	No	Not expected to occur, limited suitable habitat; not observed during 2012 focused surveys; not observed during previous focused surveys in 2008–2009.
***Setophaga petechia* [*Dendroica petechia*] yellow warbler**	**Riparian habitats dominated by willows with dense understory vegetation between sea level and 9,000 feet above msl.**	**–**	**SSC**	**–**	**–**	**Observed during 2012 focused surveys; previously observed during 2009 focused surveys; suitable habitat.**
***Icteria virens* yellow-breasted chat**	**For nesting, this species requires dense, brushy tangles near water and riparian woodlands that support a thick understory.**	**–**	**SSC**	**–**	**–**	**May occur; not observed during 2012 surveys; previously observed during 2009 focused surveys; suitable habitat.**

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Aimophila ruficeps canescens **Southern California rufous-crowned sparrow**	**Occurs in shrublands on hillsides and in canyons with rocky, dry slopes.**	**–**	**WL**	**–**	**–**	**Observed during 2012 focused surveys; previously observed during 2009 focused surveys; suitable habitat.**
Mammals						
Antrozous pallidus pallid bat	Occurs in grasslands, shrublands, and woodlands and in open habitats with rocky areas for roosting.	–	SSC	FSS	–	May occur; potentially suitable foraging and roosting habitat; one unidentified acoustical recording may have been pallid bat.
Corynorhinus townsendii **Townsend's big-eared bat**	**Occurs in oak woodlands, arid deserts, grasslands, and high-elevation forests and meadows. Roosts in limestone caves, lava tubes, and man-made structures.**	**–**	**SC/SSC**	**FSS**	**–**	**Observed foraging at the Dam (acoustical analysis results); not expected to roost at the Dam (first observation recorded over an hour into the survey so bat likely traveled to the Dam from its roosting location); potentially suitable foraging and roosting habitat (prefers caves; would not be expected to roost on the structures).**
Lasionycteris noctivagans silver-haired bat	Typically hibernates in small tree hollows, beneath sections of tree bark, in buildings, rock crevices, in wood piles, and on cliff faces. Occasionally will hibernate in the entrances to caves, especially in northern regions of their range.	–	SA	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.
Lasiurus blossevillii western red bat	Occurs in riparian habitats dominated by cottonwoods, oaks, sycamores, and walnuts.	–	SSC	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Lasiurus cinereus **hoary bat**	**Occurs in open habitats or habitat mosaics with access to trees for cover and roosts in dense foliage of medium to large trees. Also uses trees in urban areas several miles away from undeveloped habitat.**	**–**	**SA**	**–**	**–**	**Observed foraging at the Dam (acoustical analysis results); not expected to roost at the Dam (tree roosting species); potentially suitable foraging and roosting habitat.**
Lasiurus xamtjomis western yellow bat	Little is known about its habitat, but it is known to roost in leafy vegetation. This species is associated with dry thorny vegetation in the deserts of the southwestern U.S., the Mexican Plateau, and coastal western Mexico.	–	SSC	–	–	Not expected to occur; study area is outside the range of this species; not observed during acoustical surveys.
Myotis thysanodes **fringed myotis**	**Occurs in a variety of habitats including desert scrub, mesic coniferous forest, grassland, and sage-grass steppe, but mostly commonly in drier woodlands (i.e., oak, pinyon-juniper, and ponderosa pine). Forages in forest interior and along forest edges. Roosts in crevices in buildings, underground mines, rocks, cliff faces, bridges, decadent trees, and snags.**	**–**	**–**	**FSS**	**–**	**Observed foraging at the Dam (acoustical survey results); expected to roost in the Dam (crevices); potentially suitable foraging and roosting habitat.**
Eumops perotis californicus **western mastiff bat**	**Found in many open semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas. Typically forages in open areas with high cliffs and roosts in small colonies in crevices on cliff faces.**	**–**	**SSC**	**–**	**–**	**Observed foraging at the Dam (acoustical survey results); limited potential to roost in the Dam (first observation recorded over an hour into the survey so bat likely traveled to the Dam from its roosting location); potentially suitable foraging and roosting habitat.**

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Nyctinomops femorosaccus pocketed free-tailed bat	Occurs in areas with ponds or streams or in arid deserts that provide suitable foraging habitat. It primarily roosts in crevices in rugged cliffs, slopes, and tall rocky outcrops.	–	SSC	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.
Nyctinomops macrotis big free-tailed bat	Feeds primarily on moths caught while flying over water sources in suitable habitat in the southwestern U.S. This species prefers rugged, rocky terrain and roosts in crevices in high cliffs or rocky outcrops.	–	SSC	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.
Lepus californicus bennettii San Diego black-tailed jackrabbit	Occurs in herbaceous and desert-shrub areas and open, early stages of forest and chaparral habitats	–	SSC	–	–	Not expected to occur; no suitable habitat.
Perognathus alicolus alticolus white-eared pocket mouse	Occurs in grassy flats with an overstory of yellow pine forest, in sagebrush scrub, and in pinyon-juniper woodland between 5,400 and 6,000 feet above msl. Known from Strawberry Peak in the western San Gabriel Mountains.	–	SSC	–	–	Not expected to occur; study area is outside the elevation range for this species.
Perognathus alticolus inexpectatus Tehachapi pocket mouse	Occurs in chaparral and sage scrub between 3,400 and 6,000 feet above msl. Known from Tehachapi Pass to Elizabeth Lake along San Gabriel Mountains.	–	SSC	FSS	–	Not expected to occur; study area is outside the elevation range for this species.
Onychomys torridus ramona southern grasshopper mouse	Occurs in grassland and sparse scrub vegetation types and prefers sandy soils.	–	SSC	–	–	Limited potential to occur; potentially suitable habitat.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Occurs in lower elevation grasslands and coastal sage scrub vegetation with open ground and fine sandy soils between 550 and 2,650 feet above msl.	–	SSC	–	–	May occur; potentially suitable habitat.

TABLE 7
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Ovis canadensis nelsoni San Gabriel Mountains bighorn sheep	Occurs in suitable escape terrain (e.g., cliffs, talus slopes) with Chaparral for foraging between 4,000 and 6,000 feet above msl.	–	–	FSS	–	Not expected to occur; study area is outside the elevation range for this species.

USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; USFS: U.S. Forest Service; msl: mean sea level

Status Definitions

Federal (USFWS) Status
- FE Endangered
- FT Threatened
- FC Candidate

State (CDFW) Status
- SE Endangered
- ST Threatened
- SC Candidate
- SSC Species of Special Concern
- FP California Fully Protected
- WL Watch List
- SA Special Animal

USFS Status
- FSS Forest Service Sensitive Species

Species that were observed on site are shown in **boldface type.**

[a] Critical Habitat only applies to USFWS-listed species. As such, any species without a USFWS listing, will have a "–".

[b] All previous biological documentation for the study area including a Biological Technical Report (UltraSystems 2007), an Environmental Impact Report (EDAW 2009), and various focused survey reports (BonTerra Consulting 2009b, 2009c, 2009d, 2011, 2012a, 2012b, 2012c, 2012d, 2014) were reviewed to compile this table. Results of previous surveys are only listed for species for which the respective report specifically mentioned that species. It should be noted that while the survey areas for previous surveys partially overlapped with the study area for this report, the boundaries varied from project to project. Repeated negative survey results contribute to increasing the strength of an absence finding.

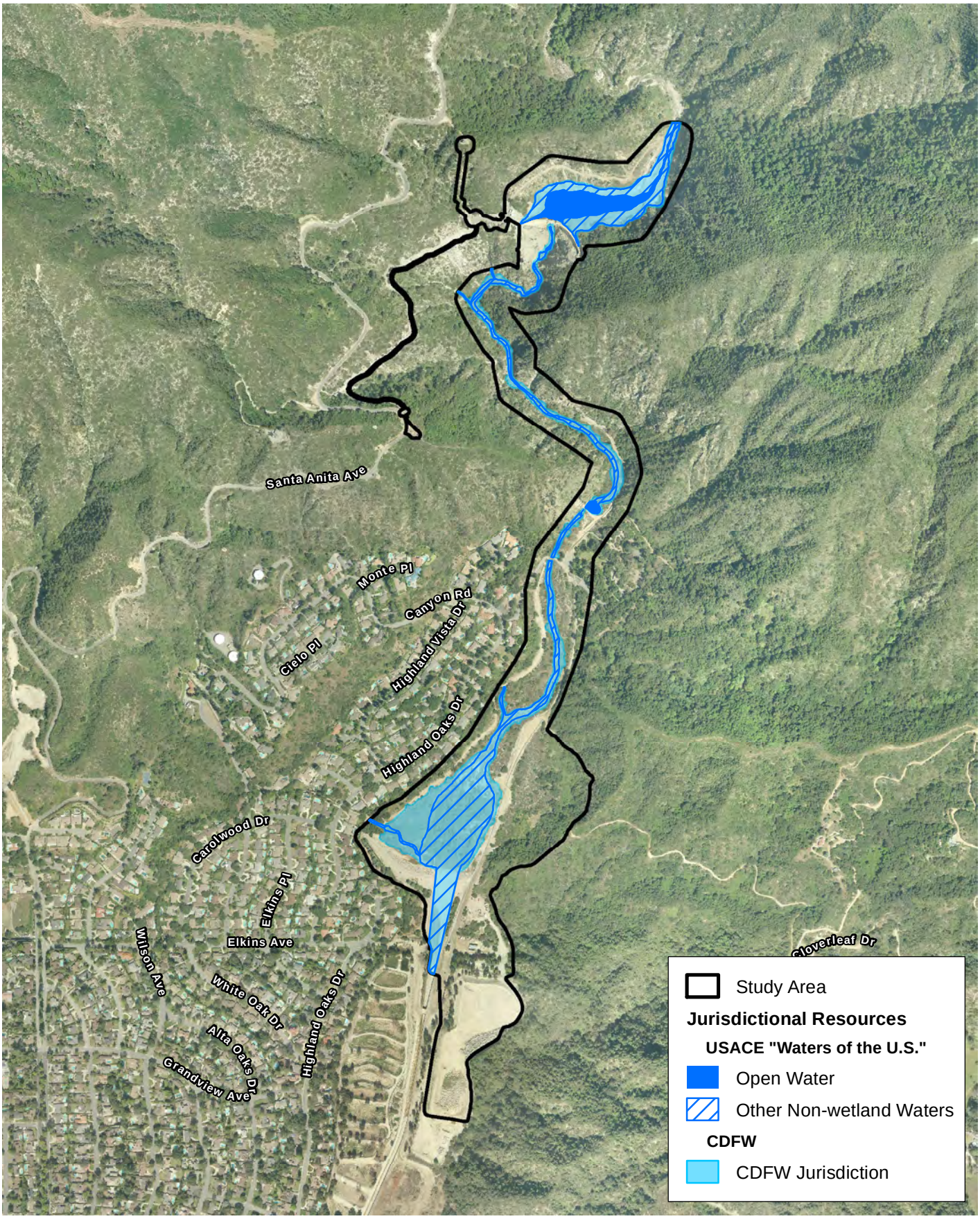
3.3.5 Jurisdictional Resources

Riparian habitats in the study area include southern cottonwood willow riparian forest, southern sycamore alder riparian woodland, mule fat scrub, and open water. Riparian habitats are often under the jurisdiction of the USACE, the RWQCB, and/or the CDFW due to their association with wetlands, "Waters of the U.S.", or streambeds. However, it should be noted that the riparian habitats described above are not equivalent to delineated areas subject to the jurisdiction of the USACE, the RWQCB, and/or the CDFW. Only the portion of these habitats associated within a discernible streambed and/or adjacent wetlands that meet certain criteria are within the jurisdiction of these regulatory agencies. Similarly, upland habitat types (e.g., mixed coastal sage scrub and mixed chaparral) or disturbed and developed areas may be within the jurisdiction of these agencies if they occur within a discernible streambed.

Multiple features in the study area are under the jurisdiction of the USACE, the RWQCB, and/or the CDFW. These features include Santa Anita Reservoir, Wash, Headworks, and Debris Dam. The delineation of the study area identified a total of 19.421 acres of "Waters of the U.S." (3.003 acres of open water, 16.418 acres of non-wetland waters) under the jurisdiction of the USACE and the RWQCB and 26.985 acres under the jurisdiction of the CDFW present in the study area (Exhibit 6, Table 8, Attachment H). No wetlands were determined to be present in the study area.

TABLE 8
SUMMARY OF EXISTING JURISDICTIONAL RESOURCES IN THE STUDY AREA

Jurisdiction	Existing Resources (Acres)
Total USACE Jurisdiction	**19.421**
Open Water	3.003
Other Non-wetland "Waters of the U.S."	16.418
Total RWQCB Jurisdiction	**19.421**
Total CDFW Jurisdiction	**26.985**
Source: BonTerra Consulting 2014b.	



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Jurisdictional Resources

Exhibit 6

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
W E
S

1,000 500 0 1,000

Feet

Bonterra PSOMAS

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4.0 PROJECT WORK AREAS

4.1 INTRODUCTION

This section presents a general impact analysis of the Project. The determination of impacts in this analysis is based on a comparison of maps depicting Project Work Areas and maps of biological resources in the study area. All construction activities, including equipment areas, are assumed to be within the permanent and temporary impact areas (called "Project Work Areas") identified on Exhibits 7A–C. Permanent impact areas are defined as changes to or removal of an existing vegetation type or "other areas," including disturbed or developed (e.g. paved) that are permanent as a result of Project implementation. These impact areas are labeled with a red boundary on relevant graphics. Temporary access/impact areas are defined as areas that may be subject to traversing vehicles or other mobile equipment, staging of equipment, stockpiles of soil, minor soil disturbance where there is no permanent alteration to the existing grade (e.g. no permanent holes, trenches, or berms), and no vegetation or tree removal. These impact areas are labeled with a yellow boundary on relevant graphics.

Both direct and indirect impacts on biological resources have been evaluated. Direct impacts are those that involve the initial loss of habitats due to grading, construction, and construction-related activities. Indirect impacts are those that would be related to impacts on the adjacent remaining habitat due to construction activities (e.g., noise, dust) or operation of the Project (e.g., human activity, operational noise, indirect lighting).

Biological impacts associated with the Project were evaluated with respect to the following special status biological issues:

- Federally or State-listed Endangered or Threatened plant or wildlife species;
- Non-listed species that meet the criteria in the definition of "Rare" or "Endangered" in the CEQA Guidelines (i.e., 14 *California Code of Regulations,* Section 15380)[6];
- Species designated as California Species of Special Concern;
- Species designated as Forest Service Sensitive Species;
- Streambeds, wetlands, and their associated vegetation;
- Habitats suitable to support a federally or State-listed Endangered or Threatened plant or wildlife species;
- Habitats, other than wetlands, considered special status by regulatory agencies (e.g., the USFWS, the CDFW) or resource conservation organizations;
- Other species or issues of concern to regulatory agencies or conservation organizations.

The actual and potential occurrence of these resources in the Project Work Areas was correlated with the significance criteria listed in the next section in order to determine whether Project impacts on these resources would be considered significant.

[6] Section 15380 of the CEQA Guidelines indicates that a lead agency can consider a non-listed species (e.g., CNPS List 1B plants) to be Endangered, Rare, or Threatened if the species can be shown to meet the criteria in the definition of Rare or Endangered. For the purposes of this discussion, the current scientific knowledge on the population size and distribution for each special status species was considered in determining if a non-listed species meets the definitions for Rare and Endangered according to Section 15380 of the CEQA Guidelines.

Angeles National Forest

Non-Forest Land Inholding Area

Proposed Helipad Location

Santa Anita Dam

City of Monrovia

Unincorporated County

Angeles National Forest

Non-Forest Land Inholding Area

LACFCD Right of Way

City Boundary

Angeles National Forest Boundary

Work Areas

Permanent

Temporary Access

Vegetation Types and Other Areas

Mixed Coastal Sage Scrub

Disturbed Mixed Coastal Sage Scrub

Southern Mixed Chaparral

Southern Mixed Chaparral/Mixed Coastal Sage Scrub

Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub

Southern Mixed Chaparral/Rock Outcroppings

Southern Cottonwood Willow Riparian Forest

Sycamore Alluvial Woodland/Southern Riparian Forest

Southern Sycamore Alder Riparian Woodland

Mule Fat Scrub

Coast Live Oak Woodland

Mixed Woodland

Oak Woodland/Southern Mixed Chaparral

Ornamental

Ornamental/ Coast Live Oak Woodland

Ruderal

Disturbed

Developed

Open Water

Rock Outcroppings

Aerial Source: LAR-IAC 2011

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Project Work Areas - Dam

Exhibit 7A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 CJS) H:\PAS\Projects\CoLADPW\J166\Graphics\BioTech\Ex7_impacts_veg.pdf

Proposed Helipad Location

Angeles National Forest

Non-Forest Land Inholding Area

Access Road

Chantry Flats Rd

Non-Forest Land Inholding Area

Unincorporated County

City of Monrovia

City of Arcadia

- LACFCD Right of Way
- City Boundary
- Angeles National Forest Boundary

Work Areas

- Permanent
- Temporary Access

Vegetation Types and Other Areas

- Mixed Coastal Sage Scrub
- Disturbed Mixed Coastal Sage Scrub
- Southern Mixed Chaparral
- Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Southern Mixed Chaparral/Rock Outcroppings
- Southern Cottonwood Willow Riparian Forest
- Sycamore Alluvial Woodland/Southern Riparian Forest
- Southern Sycamore Alder Riparian Woodland
- Mule Fat Scrub
- Coast Live Oak Woodland
- Mixed Woodland
- Oak Woodland/Southern Mixed Chaparral
- Ornamental
- Ornamental/ Coast Live Oak Woodland
- Ruderal
- Disturbed
- Developed
- Open Water
- Rock Outcroppings

Aerial Source: LAR-IAC 2011

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Project Work Areas – Dam (Access Road)

Exhibit 7B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

150 75 0 150 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 CJS) H:\PAS\Projects\CoLADPW\J166\Graphics\BioTech\Ex7_impacts_veg.pdf

Angeles National Forest
Non-Forest Land
Inholding Area

Unincorporated County
City of Monrovia
City of Arcadia

Headworks Facility

Wilderness Park Culvert Crossing

Canyon Rd
Highland Vista Dr
Oaks Dr
Unnamed Street
Lower CL Shell Truck
City of Arcadia
City of Monrovia

- LACFCD Right of Way
- City Boundary
- Angeles National Forest Boundary

Work Areas

- Permanent
- Temporary Access

Vegetation Types and Other Areas

- Mixed Coastal Sage Scrub
- Disturbed Mixed Coastal Sage Scrub
- Southern Mixed Chaparral
- Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Southern Mixed Chaparral/Rock Outcroppings
- Southern Cottonwood Willow Riparian Forest
- Sycamore Alluvial Woodland/Southern Riparian Forest
- Southern Sycamore Alder Riparian Woodland
- Mule Fat Scrub
- Coast Live Oak Woodland
- Mixed Woodland
- Oak Woodland/Southern Mixed Chaparral
- Ornamental
- Ornamental/ Coast Live Oak Woodland
- Ruderal
- Disturbed
- Developed
- Open Water
- Rock Outcroppings

Aerial Source: LAR-IAC 2011

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Project Work Areas – Headworks and Wilderness Park Culvert Crossing

Exhibit 7C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
W E
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200 100 0 200
Feet

BonTerra PSOMAS

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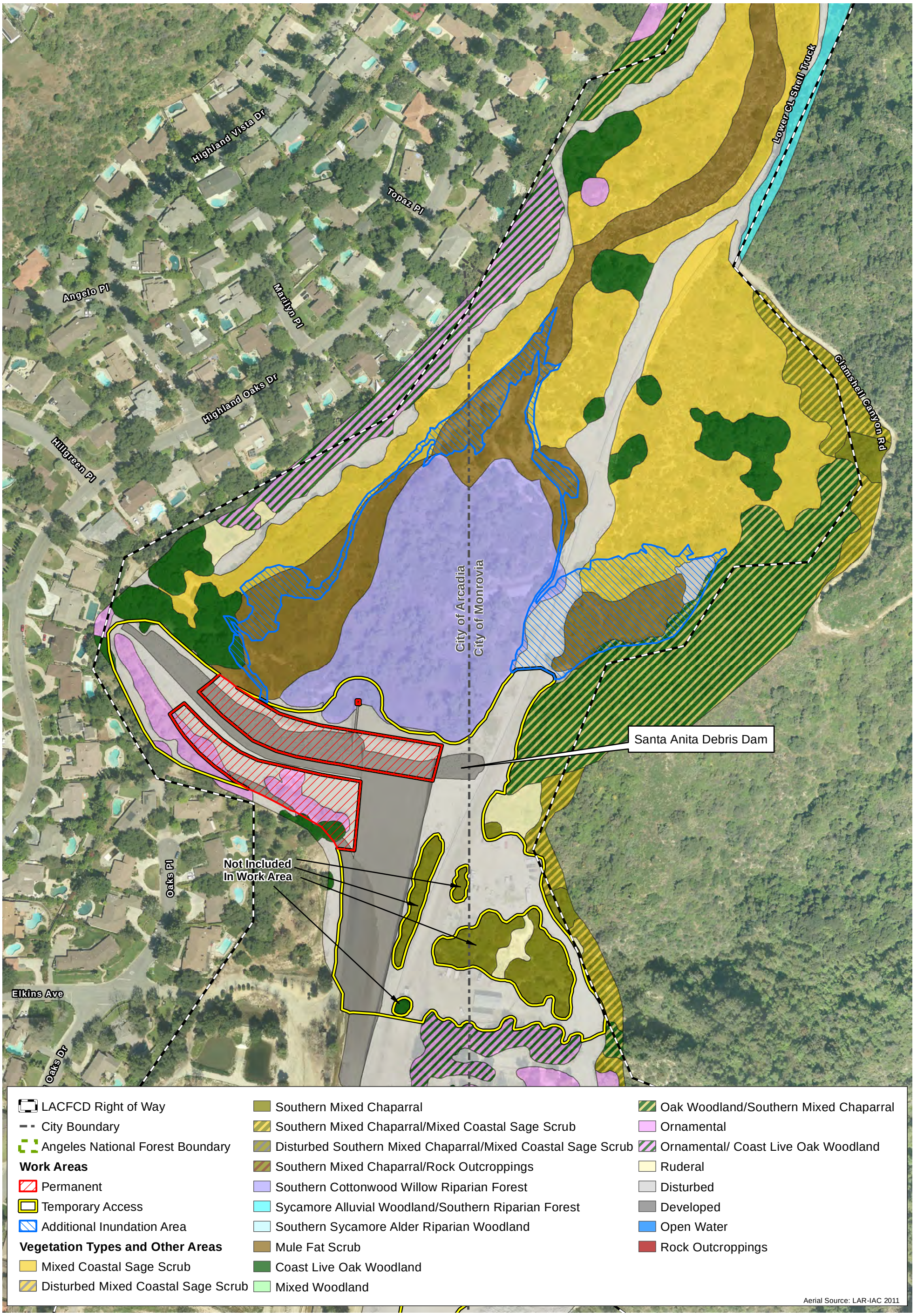

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Project Work Areas – Debris Dam

Exhibit 7D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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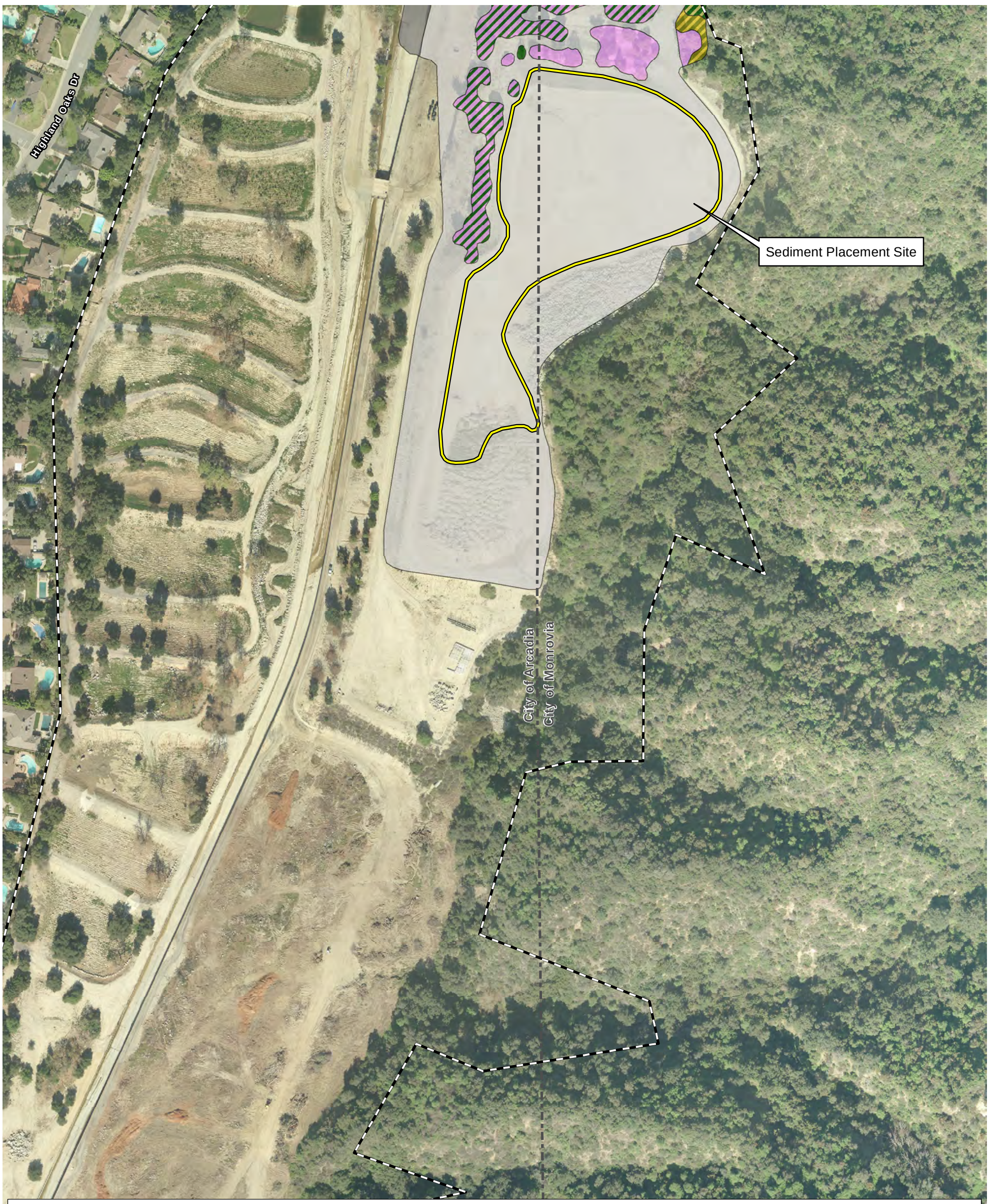

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Project Work Areas – Debris Dam (Sediment Placement Site)

Exhibit 7E

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 CJS) H:\PAS\Projects\CoLADPW\J166\Graphics\BioTech\Ex7_impacts_veg.pdf

4.2 SIGNIFICANCE CRITERIA

The environmental impacts relative to biological resources are assessed using impact significance criteria that mirror the policy contained in CEQA (*California Public Resources Code* Section21001[c]). Accordingly, the State Legislature has established it to be the policy of the State to:

> Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities.

Determining whether or not a project may have a significant effect or impact plays a critical role in the CEQA process. According to Section 15064.7 of the CEQA Guidelines (Thresholds of Significance), each public agency is encouraged to develop and adopt—by ordinance, resolution, rule or regulation—their own significance thresholds that the agency would use in determining the impact of environmental effects. A significance threshold defines the quantitative, qualitative, or performance limits of a particular environmental effect. If these thresholds are exceeded, the agency would consider it to be significant.

In the development of significance thresholds for impacts to biological resources, CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and Appendix G, the Environmental Checklist Form, of the CEQA Guidelines. Section 15065(a) states that a project may have a significant effect where:

> The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species.

Appendix G of the CEQA Guidelines is more specific in addressing biological resources and encompasses a broader range of resources to be considered, including candidate, sensitive, or special status species; riparian habitat or other special status natural communities; federally protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and adopted habitat conservation plans. These factors are considered through the checklist of questions answered during the Initial Study process used to determine a Project's appropriate environmental documentation (i.e., Negative Declaration, Mitigated Negative Declaration [MND], or Environmental Impact Report [EIR]). Because these questions are derived from standards employed in other laws, regulations and commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an MND. For each of the thresholds identified below, the section of the CEQA Guidelines upon which the threshold is based has been provided. For the purpose of this analysis, impacts to biological resources are considered significant (before calculating the offsetting impacts of mitigation measures [MMs]) if 1 or more of the following conditions would result from implementation of the Project:

1. The project has the potential to substantially degrade the quality of the environment (Section 15065[a]).
2. The project has the potential to substantially reduce the habitat of any fish or wildlife species (Section 15065[a]).

3. The project will cause fish or wildlife populations to drop below self-sustaining levels (Section 15065[a]).
4. The project will threaten to eliminate a plant or animal community (Section 15065[a]).
5. The project will reduce the number or restrict the range of an Endangered, Rare, or Threatened species (Section 15065[a]).[7]
6. The project has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a Candidate or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (Appendix G, IV[a]).
7. The project has a substantial adverse effect on any riparian habitat or other special status natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (Appendix G, IV[b]).
8. The project has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (Appendix G, IV[c]).
9. The project interferes substantially with the movement of any native or migratory fish or wildlife species; inhibits established native resident or migratory wildlife corridors; or impedes the use of native wildlife nursery sites (Appendix G, IV[d]).
10. The project conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Appendix G, IV[e]).
11. The project conflicts with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan (Appendix G, IV[f]).

In order to evaluate whether an impact on biological resources would result in a "substantial adverse effect", both the resource itself and how that resource fits into a regional context must be considered. The Project's regional setting includes the Angeles National Forest (ANF), the northeast edge of the City of Arcadia, and the northwest edge of the City of Monrovia. For impact analysis purposes, a "substantial adverse effect" is defined as the loss or harm of a magnitude which, based on current scientific data and knowledge, would (1) substantially diminish population numbers of a species or distribution of a habitat type within the region or (2) eliminate the functions and values of a biological resource in the region.

4.3 DIRECT IMPACTS

The actual and potential occurrence of biological resources in the Project Work Areas was correlated with the significance criteria described above to determine whether impacts from the Project on these resources would be significant. Potential direct impacts are described below.

[7] "Endangered" and "Threatened" species, as used in this threshold, are those listed by the USFWS and/or CDFW as Threatened or Endangered. Section 15380 of the CEQA Guidelines indicates that a lead agency can consider a non-listed species (e.g., CNPS List 1B plants) to be Endangered, Rare, or Threatened for the purposes of CEQA if the species can be shown to meet the criteria in the definition of "Rare" or "Endangered". For the purposes of this discussion, the current scientific knowledge on the population size and distribution for each special status species was considered in determining if a non-listed species met the definitions for "Rare" and "Endangered" according to Section 15380 of the CEQA Guidelines.

4.3.1 Vegetation Types and Other Areas

The vegetation types and other areas that are within Project Work Areas are shown in Table 9 and illustrated on Exhibits 7A–7C. The following vegetation types and other areas would be affected by the Project: mixed coastal sage scrub, southern mixed chaparral/mixed coastal sage scrub, disturbed southern mixed chaparral/mixed coastal sage scrub, southern cottonwood willow riparian forest, sycamore alluvial woodland/southern riparian forest, mule fat scrub, coast live oak woodland, oak woodland/southern mixed chaparral, ornamental, ruderal, disturbed, developed, and open water. Each vegetation type that would be affected is discussed further below.

The following vegetation types and other areas occur within the study area but are outside of Project Work Areas: disturbed mixed coastal sage scrub, southern mixed chaparral, southern mixed chaparral/rock outcroppings, southern sycamore alder riparian woodland, mixed woodland, ornamental/coast live oak woodland, and rock outcroppings. These vegetation types and other areas are not discussed further.

Potential impacts on special status vegetation types were evaluated by considering the CEQA Guidelines checklist (at IV[b]) for vegetation types of special concern (i.e., S1–S3 rank). The amount and quality of the vegetation type to be impacted relative to extent of this vegetation type in the region was considered. The highest quality vegetation types are expected to lack invasive non-native species; have no evidence of human-caused disturbance such as roads or excessive livestock grazing; show evidence of reproduction (e.g., sprouts, seedlings, adults of reproductive age); and have no significant insect or disease damage. Small impacts on low quality habitat, when it lacks an associated special status species, are unlikely to be considered significant (CDFW 2013b).

TABLE 9
VEGETATION TYPES AND OTHER AREAS WITHIN PROJECT WORK AREAS

Vegetation Types and Other Areas	Existing Vegetation in the Study Area (acres)	Dam		Headworks[a]		Debris Dam			Total Permanent Structure (acres)	Total Temporary Access (acres)	Total Additional Inundation Area (acres)	Total (acres)
		Permanent Structure (acres)	Temporary Access (acres)	Permanent Structure Headworks (acres)	Temporary Access (acres)	Permanent Structure (acres)	Temporary Access (acres)	Additional Inundation Area (acres)				
Mixed Coastal Sage Scrub	14.09	0.00	0.00	0.01	0.02	0.00	0.00	0.58	**0.01**	**0.02**	**0.58**	**0.61**
Disturbed Mixed Coastal Sage Scrub	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Southern Mixed Chaparral	9.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Southern Mixed Chaparral/ Mixed Coastal Sage Scrub	12.72	0.01	0.12	0.00	0.02	0.00	0.00	0.00	**0.01**	**0.14**	**0.00**	**0.15**
Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub	0.50	0.00	0.00	0.00	0.01	0.00	0.00	0.00	**0.00**	**0.01**	**0.00**	**0.01**
Southern Mixed Chaparral/Rock Outcroppings	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Southern Cottonwood Willow Riparian Forest	6.36	0.00	0.00	0.06	0.14	0.00	0.20	0.08	**0.06**	**0.34**	**0.08**	**0.48**
Sycamore Alluvial Woodland/Southern Riparian Forest	1.80	0.00	0.00	0.10	0.03	0.00	0.00	0.00	**0.10**	**0.03**	**0.00**	**0.13**
Southern Sycamore Alder Riparian Woodland	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Mule Fat Scrub	5.99	0.00	0.00	0.00	0.00	0.00	0.00	1.78	**0.00**	**0.00**	**1.78**	**1.78**
Coast Live Oak Woodland	2.61	0.00	0.00	0.00	0.00	0.04	0.03	0.05	**0.04**	**0.03**	**0.05**	**0.12**
Mixed Woodland	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Oak Woodland/Southern Mixed Chaparral	6.03	0.00	0.00	0.00	0.01	0.00	0.00	0.12	**0.00**	**0.01**	**0.12**	**0.13**
Ornamental	3.86	0.00	0.02	0.01	0.03	0.31	0.38	0.00	**0.32**	**0.43**	**0.00**	**0.75**
Ornamental/ Coast Live Oak Woodland	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Ruderal	0.63	0.01	0.00	0.00	0.00	0.00	0.00	0.00	**0.01**	**0.00**	**0.00**	**0.01**
Disturbed	23.87	0.01	0.97	0.03	0.13	0.81	8.70	0.49	**0.85**	**9.80**	**0.49**	**11.14**
Developed	8.90	0.11	3.22	0.04	0.49	0.73	2.23	0.00	**0.88**	**5.94**	**0.00**	**6.82**
Open Water	4.99	0.00	0.76*	0.04*	0.09*	0.00	0.00	0.00	**0.04**	**0.85**	**0.00**	**0.89***
Rock Outcroppings	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Total Work Area Acreages	**115.50**	**0.14**	**5.09**	**0.29**	**0.97**	**1.89**	**11.54**	**3.10**	**2.32**	**17.60**	**3.10**	**23.02**

[a] The Headworks column includes impacts for construction of both the Headworks facility and the Wilderness Park Culvert Crossing. As these facilities are close together, they share a temporary access footprint.

*Although shown on the graphic and in this table as an impact, the work area would be dewatered during construction but would be allowed to refill this area following construction; therefore, this impact is an artifact of mapping and is described as such in the text below.

Coastal Sage Scrub

A total of 0.61 acre of mixed coastal sage scrub would be impacted by all elements of the Project. The majority of this impact is located within the additional inundation area (0.58 acre) at the Debris Dam; this impact would not remove vegetation but may infrequently inundate the habitat in the event of a very large storm. As this vegetation type is on the outer edge of the inundation footprint, it would be expected to be inundated for the least amount of time (i.e., a few days). In addition to the inundation area impacts, 0.03 acre of mixed coastal sage scrub is within the Wilderness Park Culvert Crossing Work Area (0.01 acre permanent structural, 0.02 acre temporary access). Ranked G4 S4, this vegetation type is considered apparently secure. The minimal loss of this vegetation type (0.3 percent of coastal sage scrub vegetation types in the study area) would be considered less than significant in relation to the total amount of these vegetation types available in the study area and in the Project region. In Southern California, the forests collectively (i.e., Angeles, Cleveland, Los Padres, and San Bernardino National Forests) support more than 550,000 acres of coastal sage scrub (USFS 2005a). Impacts on mixed coastal sage scrub would be considered less than significant and no mitigation would be required.

Chaparral

A total of 0.15 acre of southern mixed chaparral/mixed coastal sage scrub and 0.01 acre of disturbed southern mixed chaparral/mixed coastal sage scrub is within the Project Work Areas. A total of 0.13 acre would be within the Dam Work Area (0.01 acre permanent, 0.12 acre temporary access) and 0.03 acre would be disturbed for temporary access in the Headworks/Wilderness Park Culvert Crossing Work Area. The minimal loss of this vegetation type (less than 0.01 percent of chaparral vegetation types in the study area) would be considered less than significant in relation to the total amount of these vegetation types available in the study area and in the Project region. In Southern California, the forests collectively (i.e., Angeles, Cleveland, Los Padres, and San Bernardino National Forests) support more than 830,000 acres of chaparral (USFS 2005a). Impacts on southern mixed chaparral/mixed coastal sage scrub would be considered less than significant and no mitigation would be required.

Riparian/Open Water

A total of 2.39 acres of riparian vegetation types would be impacted by all elements of the Project. The majority of this impact is located within the additional inundation area (1.86 acres comprised of 0.08 acre of southern cottonwood willow riparian forest and 1.78 acre of mule fat scrub) at the Debris Dam; this impact would not remove vegetation but may inundate the habitat in the event of a large storm. This vegetation type is located in the center of the inundation footprint and would be expected to be inundated the longest (i.e., a few weeks) during inundation events. However, riparian vegetation is adapted to periodic flooding and is expected to be able to withstand flooding events. Additionally, much of the riparian vegetation is within the basin and may be cleared periodically under existing permits for flood maintenance. In addition to the inundation area impacts, a total of 0.53 acre of southern cottonwood willow riparian forest and sycamore alluvial woodland/southern riparian forest is within the Project Work Areas. A total of 0.40 acre of southern cottonwood willow riparian forest would be disturbed: 0.20 acre for construction of the Wilderness Park Culvert Crossing (0.06 acre permanent structural, 0.14 acre temporary access); and 0.20 acre would be disturbed for temporary access in the Debris Dam Work Area. A total of 0.13 acre of sycamore alluvial woodland/southern riparian forest would be disturbed for construction of the Wilderness Park Culvert Crossing (0.10 acre permanent structural, 0.03 acre temporary access). Southern cottonwood willow riparian forest is a G4 S3 special status vegetation type and sycamore alluvial woodland/southern riparian woodland is a G3 S3 special status vegetation type; both are considered vulnerable by the State. These resources are also within the jurisdiction of the USACE, CDFW, and RWQCB. The loss of 0.53 acre (0.16 acre

permanent structural, 0.37 acre temporary access) is considered significant. Implementation of MM-1 would reduce this impact to less than significant.

A total of 0.89 acre of open water would be within Project Work Areas. A total of 0.76 acre is within the Dam Work Area. It should be noted that the amount of open water varies substantially based on the rainfall of the year, the season (winter versus summer), and the amount of water being released from the Reservoir. During construction of the Project, it is anticipated that the Reservoir will have been previously drained and there would likely be no water released from the Reservoir; therefore, during construction the amount of open water impacted downstream of the Dam would likely be substantially less than mapped for the Project in April 2012. Although 0.76 acre is shown in the Dam Work Area, this area would be expected to be dry during construction and would be allowed to refill with water following Project construction. A total of 0.04 acre of open water would be permanently impacted by construction of the new structures at the Headworks facility; a portion of this open water would be affected by the placement of riprap on the slope north of the structure. Additionally, 0.09 acre would be temporarily disturbed within the work area for the Headworks. Open water would be dewatered from the Headworks Work Area during construction; open water would be allowed to refill (over the riprap) following Project construction. Though some of the areas would be affected by bank protection, open water would occur over the riprap/gunite and therefore, the impact is partially an artifact of mapping.

Jurisdictional Resources

Within riparian areas, the Project would impact a total of 3.392 acres of "Waters of the U.S." under the jurisdiction of the USACE and the RWQCB, including 0.576 acre of open water and 2.816 acres of non-wetland Waters of the U.S. (Exhibits 8A–8C, Table 10). The Project would impact a total of 3.708 acres of waters under the jurisdiction of the CDFW. Jurisdictional resources are protected by Sections 401 and 404 of the CWA and by the *California Fish and Game Code* (Sections 1600 through 1616). Impacts on jurisdictional resources could be significant and would require permitting with each of the resource agencies. Implementation of MM 1 would reduce this impact to less than significant.

Angeles National Forest Non-Forest Land Inholding Area

Proposed Helipad Location

Santa Anita Dam

Angeles National Forest Non-Forest Land Inholding Area

Non-Forest Land Inholding Area

Study Area

Angeles National Forest Boundary

Work Areas

Permanent

Temporary Access

Jurisdictional Resources

USACE "Waters of the U.S."

Open Water

Other Non-wetland Waters

CDFW

CDFW Jurisdiction

Aerial Source: LAR-IAC 2011

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Project Work Areas – Jurisdictional Resources – Dam

Exhibit 8A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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Proposed Helipad Location

Angeles National Forest Non-Forest Land Inholding Area

Access Road

Chantry Flats Rd

Non-Forest Land Inholding Area

Study Area

Angeles National Forest Boundary

Work Areas

Permanent

Temporary Access

Jurisdictional Resources

USACE "Waters of the U.S."

Open Water

Other Non-wetland Waters

CDFW

CDFW Jurisdiction

Aerial Source: LAR-IAC 2011

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Project Work Areas – Jurisdictional Resources – Dam (Access Road)

Exhibit 8B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

150 75 0 150 Feet

BonTerra PSOMAS

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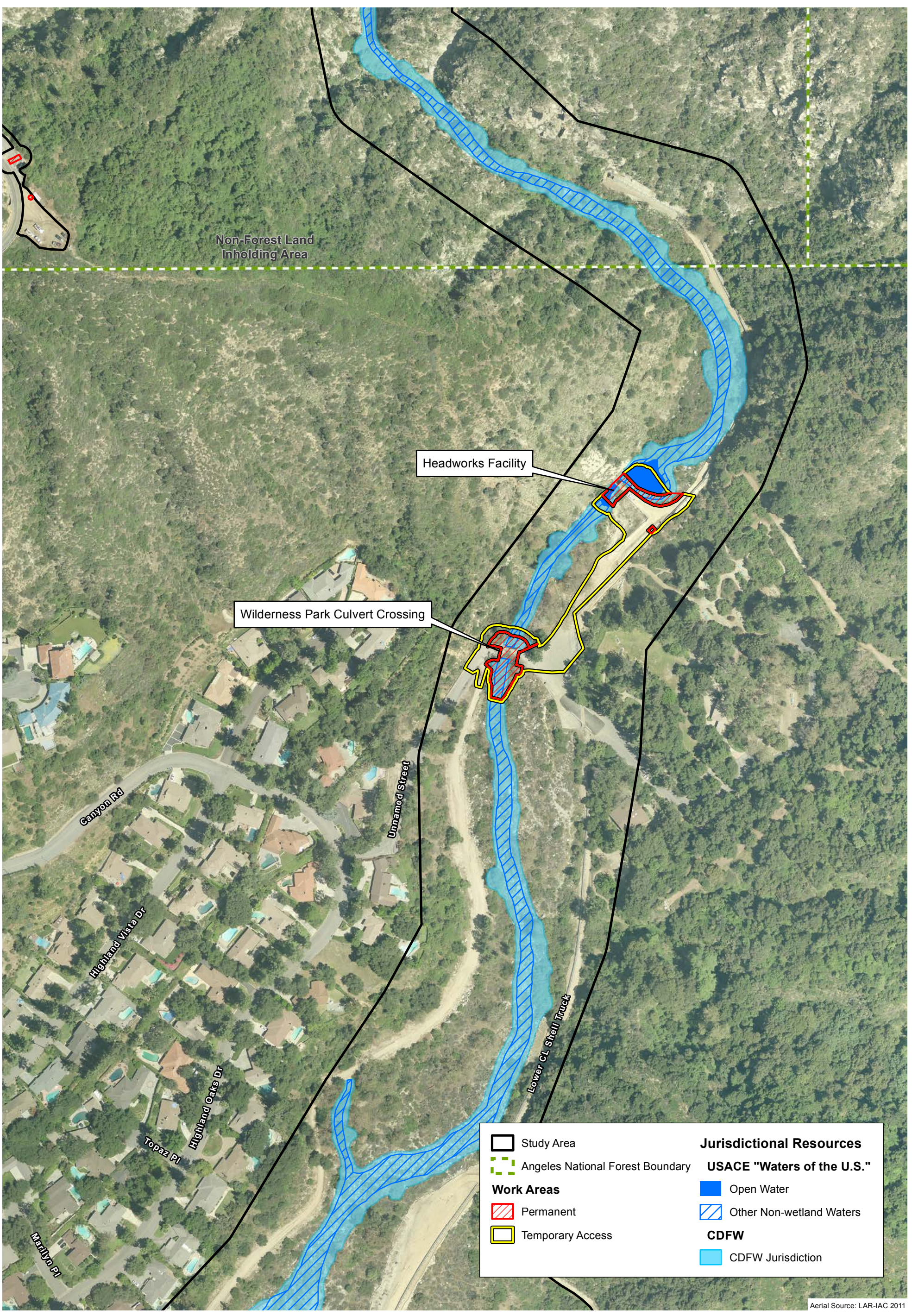

Project Work Areas – Jurisdictional Resources – Headworks and Wilderness Park Culvert Crossing Exhibit 8C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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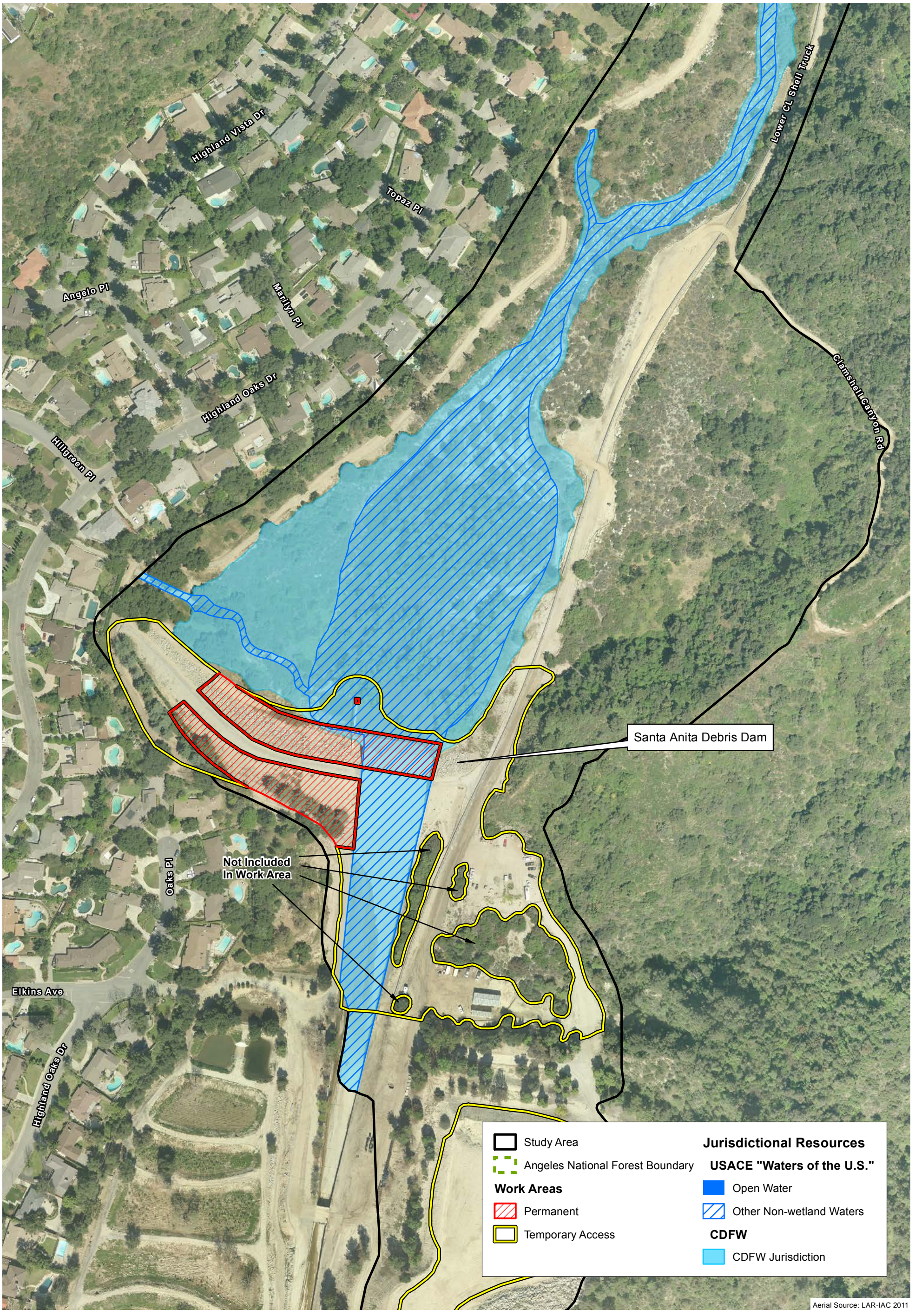

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Project Work Areas – Jurisdictional Resources – Debris Dam

Exhibit 8D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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Project Work Areas – Jurisdictional Resources – Debris Dam (Sediment Placement Site)

Exhibit 8E

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\BioTech\ex8_impacts_JD.pdf

TABLE 10
SUMMARY OF JURISDICTIONAL RESOURCES IN PROJECT WORK AREAS

Jurisdictional Resources	Existing (acres)	Dam		Headworks[a]		Debris Dam		Total Permanent Structure	Total Temporary Access	Total (acres)
		Permanent Structure (acres)	Temporary Access (acres)	Permanent Structure Headworks (acres)	Temporary Access (acres)	Permanent Structure (acres)	Temporary Access (acres)			
Total USACE Jurisdiction	19.421	0.000	0.958	0.100	0.113	0.324	1.897	0.424	2.968	3.392
Open Water	3.003	0.000	0.482	0.011	0.083	0.000	0.000	0.011	0.565	0.576
Other Non-wetland "Waters of the U.S."	16.418	0.000	0.476	0.089	0.030	0.324	1.897	0.413	2.403	2.816
Total RWQCB Jurisdiction	19.421	0.000	0.958	0.100	0.113	0.324	1.897	0.424	3.533	3.392
Total CDFW Jurisdiction	26.985	0.000	1.125	0.172	0.138	0.353	1.920	0.525	3.183	3.708

[a] The Headworks column includes impacts for construction of both the Headworks facility and the Wilderness Park Culvert Crossing. As these facilities are close together, they share a temporary access footprint.

Oak Woodland

A total of 0.25 acre of oak woodland vegetation types would be impacted by all elements of the Project. The majority of this impact is located within the additional inundation area (0.17 acre) at the Debris Dam, which is discussed below. A total of 0.08 acre of coast live oak woodland is within the Project Work Areas. A total of 0.07 acre (0.04 permanent structural, 0.03 temporary access) of coast live oak woodland would be disturbed to construct the Debris Dam, and 0.01 acre of oak woodland/southern mixed chaparral would be disturbed for temporary access to construct the Wilderness Park Culvert Crossing. It should be noted that the impacts resulting from temporary access (0.04 acre) is largely an artifact of mapping. Where oak branches extend over existing access roads, the vegetation was mapped as the canopy layer. Within the temporary access footprint, construction vehicles would drive along the existing access roads under the oak branches; no trees would be removed. However, branches may need to be trimmed for construction access; therefore, to provide for a conservative analysis, these areas were considered potentially impacted. Ranked G5 S4, oak woodlands are considered apparently secure. The minimal loss of coast live oak woodland vegetation types (0.04 acre of direct oak removal; 0.01 percent of all oak woodland vegetation types in the study area) would be considered less than significant in relation to the total amount of these vegetation types available in the study area and in the Project region. In Southern California, the forests collectively (i.e., Angeles, Cleveland, Los Padres, and San Bernardino National Forests) support more than 489,000 acres of Foothill Woodland, which includes coast live oak, blue oak woodland, Engelmann oak woodland, valley oak woodland, California walnut woodland, and Alvord oak woodland (USFS 2005a). Impacts on coast live oak woodland would be considered less than significant and mitigation would not be required for the loss of the vegetation community. However, the City of Arcadia, City of Monrovia, and County of Los Angeles have oak tree ordinances and require mitigation for removal of oak trees; LACFCD typically requires mitigation consistent with local City or County ordinances. Additionally, CDFW requires replacement of trees within their jurisdiction. Of the 162 trees documented within the tree survey area, a total of four trees are located within Project Work Areas; all are within the footprint for the Wilderness Park Culvert Crossing (Exhibits 9A–E). Three of the trees are western sycamores (Tree Numbers 220-222) and one is a coast live oak tree (Tree Number 219); all are located within CDFW jurisdiction and the oak tree is also located with the jurisdiction of the City of Arcadia. Two sycamore trees (Trees Numbers 220 and 221) located downstream of the culvert crossing would be removed in order to construct the Project. One sycamore tree (Tree Number 222) is located at the edge of the permanent impact area and would likely not need to be removed; however, to provide for a conservative analysis, this tree is considered impacted. The oak tree (Tree Number 219) is also located on the permanent impact boundary; however, this tree would not need to be removed. Grading for the culvert crossing would remain outside of the edge of the oak tree's canopy wherever possible. Construction activities occurring directly adjacent to the oak tree, and the sycamore tree (Tree Number 222) if it is able to be preserved, could harm the trees' root systems and may affect the health of the trees. Oaks and other native trees are located near Project Work Areas and could also be inadvertently affected by construction activities (e.g., stockpiling soil or other construction materials). MM2 would be required to mitigate for impacts on individual trees that would be directly removed and to protect trees adjacent to Project Work Areas.

The additional inundation area would affect 0.17 acre of oak woodland; within this area, vegetation would not be removed, but the habitat may be infrequently inundated in the event of a very large storm. As this vegetation type is toward the outer edge of the inundation footprint, it would be expected to be inundated for a lesser amount of time (i.e., a few days). A total of 21 trees are within the additional inundation footprint (Exhibits 9A–E). This includes 10 coast live oak (Tree Numbers 126, 142-145, 147, 148, 150, 151, and 197), 1 Engelmann oak tree (Tree Number 149), 5 western sycamore trees (Tree Numbers 165, 177, 178, 181-184, 272) and two Goodding's black willow (Tree Number 179, 180). These trees are expected to be inundated infrequently and for

Tree Survey Area

Work Areas

Permanent

Temporary Access

Trees by Species

canyon live oak *(Quercus chrysolepis)*

266

265

264

263

City of Monrovia

Unincorporated County

Aerial Source: LAR-IAC 2011

Project Work Areas – Tree Locations – Dam

Exhibit 9A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

180 90 0 180 Feet

BonTerra PSOMAS

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Tree Survey Area

Work Areas

Permanent

Trees by Species

coast live oak *(Quercus agrifolia)*

canyon live oak *(Quercus chrysolepis)*

Engelmann oak *(Quercus englemanii)*

260

259

256

257

Unincorporated County

City of Arcadia

Aerial Source: LAR-IAC 2011

Project Work Areas – Tree Locations – Dam (Access Road)

Exhibit 9B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

PSOMAS

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Tree Survey Area

Work Areas

Permanent

Temporary Access

Trees by Species

western sycamore	*(Platanus racemosa)*
coast live oak	*(Quercus agrifolia)*
Goodding's black willow	*(Salix gooddingii)*

City of Monrovia
City of Arcadia

Headworks Facility

Wilderness Park Culvert Crossing

229
231
228
227
225
226
224
222
219
220
221

City of Monrovia
City of Arcadia

Aerial Source: LAR-IAC 2011

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Project Work Areas - Tree Locations - Headworks and Wilderness Park Culvert Crossing

Exhibit 9C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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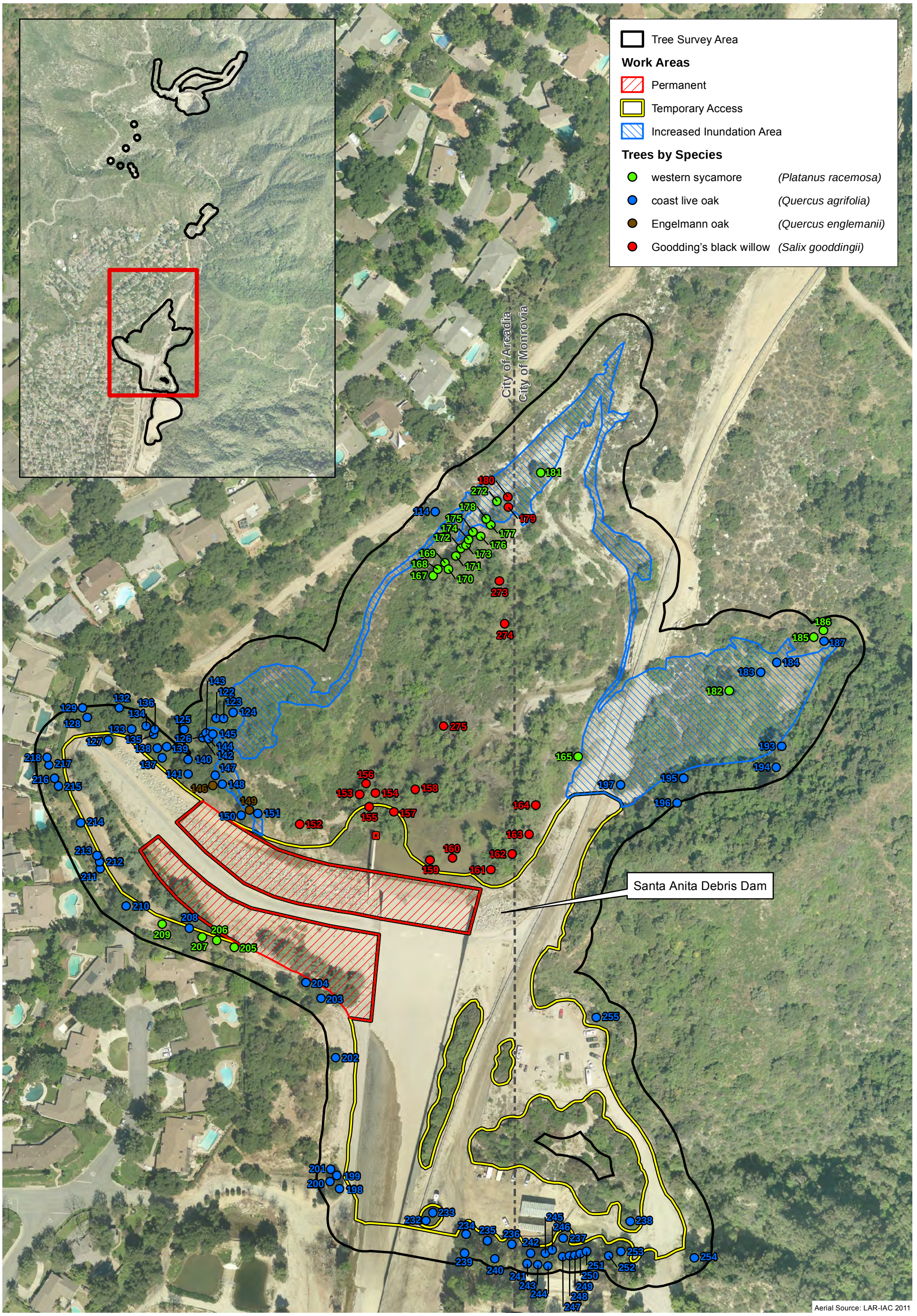

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Project Work Areas - Tree Locations - Debris Dam

Exhibit 9D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

160 80 0 160 Feet

BonTerra PSOMAS

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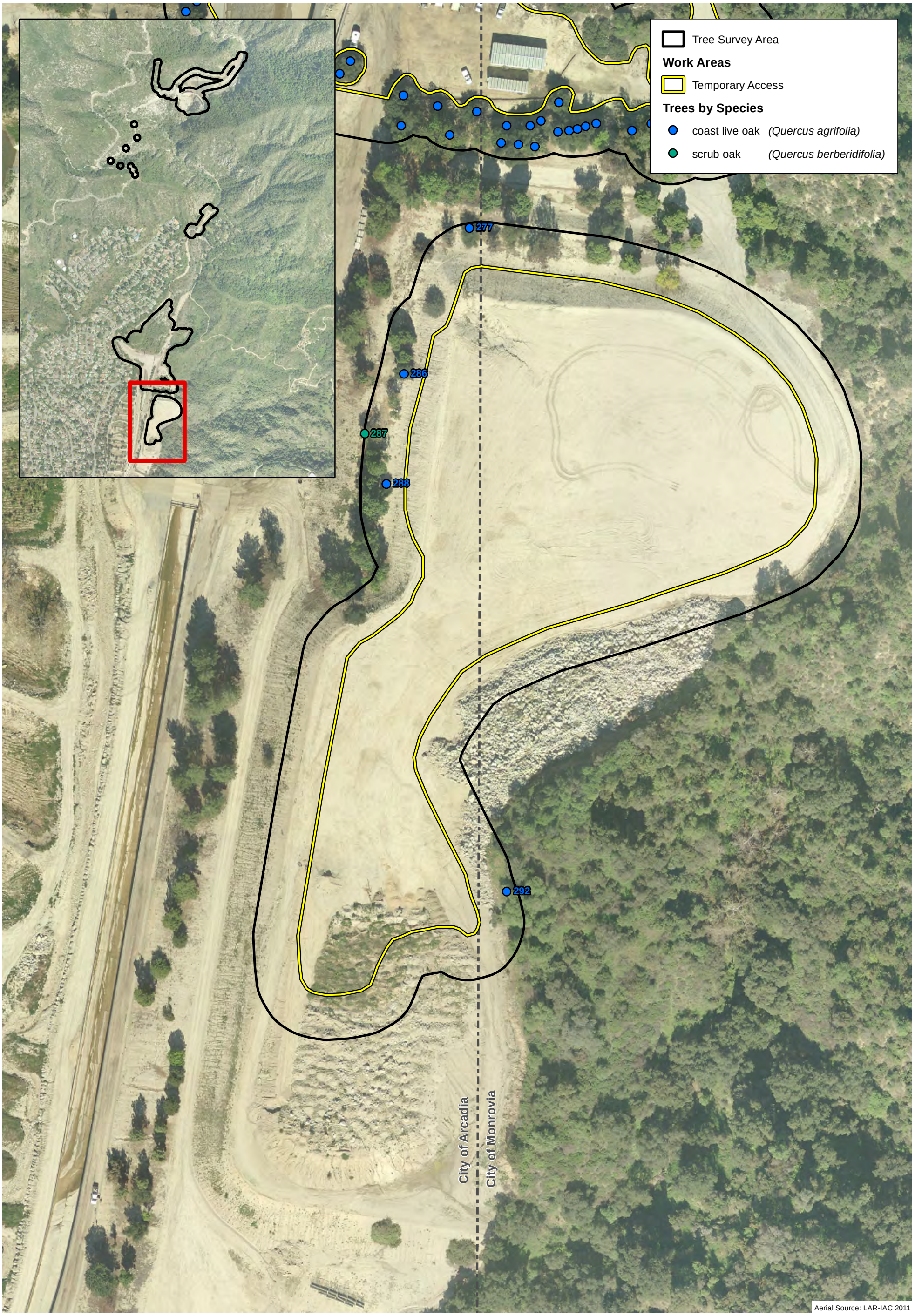

Aerial Source: LAR-IAC 2011

Project Work Areas – Tree Locations – Debris Dam (Sediment Placement Site)

Exhibit 9E

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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short durations; therefore, no long-term impact on them is expected. However, if natural rainfall events and/or management of the flood control facilities cause the trees to be inundated more frequently than expected or for longer durations, these trees could decline in health and may die over time. This impact would be considered potentially significant. Implementation of MM2 would reduce this impact to less than significant.

Ornamental

A total of 0.75 acre of ornamental areas would be within Project Work Areas. A total of 0.02 acre would be disturbed for temporary access within the Dam Work Area. A total of 0.04 acre would be disturbed within the Headworks Work Area (0.01 permanent structural; 0.03 acre temporary access). A total of 0.69 acre (0.31 permanent structural, 0.38 acre temporary access) of ornamental vegetation is would be disturbed for construction of the Debris Dam. The removal of 0.75 acre of ornamental vegetation is considered a beneficial impact of the Project, especially the removal of 0.01 acre of invasive fountain grass at the Headworks because it would remove a small portion of the seed source of non-native invasive species that could invade native habitat types in the study area.

Ruderal/Disturbed

A total of 11.15 acres of ruderal and disturbed vegetation types would be impacted by all elements of the Project. A total of 0.99 acre (0.02 acre permanent structural, 0.97 acre temporary access) would be disturbed in the Dam Work Area; 0.16 acre (0.03 acre permanent structural, 0.13 acre for temporary access) would be disturbed in the Headworks Work Area; and 9.51 acres (0.81 permanent structural, 8.70 acres temporary access) would be within the Debris Dam Work Area and Sediment Placement Site. In addition, 0.49 acre of disturbed areas would be within the additional inundation area. Disturbed areas are existing dirt access roads or unvegetated areas that consist of compacted soils previous disturbance has occurred; ruderal areas consists of weedy vegetation. These areas are of limited biological value. Therefore, impacts on ruderal and disturbed areas would be considered less than significant.

Developed

A total of 6.82 acres of developed areas would be with Project Work Areas. A total of 3.33 acres (0.11 acre permanent structural, 3.22 acres temporary access) of developed areas would be disturbed within the Dam Work Area, consisting primarily of existing paved roads or gunite. A total of 0.53 acre (0.04 acre permanent structural, 0.49 acre temporary access) of developed areas within the Headworks Work Area, consisting of existing paved roads and structures, would be impacted. A total of 2.96 acres (0.73 permanent structural, 2.23 acres temporary access) of developed areas within the Debris Dam Work Area, consisting of the existing spillway and existing paved access roads. In most cases, existing paved access roads would be used by construction but otherwise not disturbed. Developed areas lack vegetation and are of extremely limited biological value; therefore, impacts on developed areas would not be considered an impact on biological resources.

4.3.2 Wildlife

To assess impacts on wildlife, the total impact on particular vegetation types that provide habitat for wildlife was assessed. The following discussion of wildlife impacts focuses on the common species occurring in the study area that may be affected by the Project.

General Habitat and Wildlife Loss

Native vegetation provides valuable nesting, foraging, roosting, and denning opportunities for a variety of wildlife species. The Project would result in the loss of approximately 0.80 acre of native habitat that includes the permanent loss of 0.01 acre and the temporary loss of 0.12 acre for access to the Dam; a permanent loss of 0.17 acre and a temporary loss of 0.23 acre for the Headworks and Wilderness Park Culvert Crossing; and a permanent loss of 0.04 acre and temporary loss of 0.23 acre for the Debris Dam. The minimal loss of native vegetation type (less than 0.01 percent of native vegetation types in the study area) would be considered less than significant in relation to the total amount of these vegetation types available in the study area and in the Project region. Therefore, the loss of wildlife habitat would be considered less than significant. The Project would also impact 0.75 acre of ornamental vegetation (0.02 acre within the Dam Work Area; 0.04 acre within the Headworks Work Area, and 0.69 acre within the Debris Dam Work Area) and a total of 11.15 acres of ruderal and disturbed areas that primarily consist of existing dirt access roads. These areas are of limited value to wildlife; therefore, their loss would be considered less than significant. Most wildlife species that are now using the Project Work Areas would be expected to move into adjacent areas of open space, which would consequently increase competition for available resources in adjacent areas. This situation could result in the loss of individuals that cannot successfully compete. Additionally, construction may result in the limited loss of small mammals, reptiles, amphibians, and other slow-moving wildlife that live in the Project Work Areas if they cannot move out of the area quickly enough. However, because the disturbance of native habitat in each Work Area is limited, the Project would not be expected to affect many individuals. Therefore, the loss of wildlife would be considered less than significant.

Several common bird and raptor species may nest in the Project Work Areas (including on developed structures). The MBTA protects migratory birds, their nests, and eggs. If construction is initiated during the peak bird nesting season (i.e., March 15 to September 15), it could impact nesting birds protected by the MBTA. Additionally, Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code* protect active raptor nests. If construction is initiated during the peak raptor nesting season (i.e., February 1 to June 30), it could impact nesting raptors protected by the *California Fish and Game Code.* The loss of any active bird or raptor nest would be considered a potentially significant impact. Implementation of MM 3 would reduce this impact to a less than significant level.

Wildlife Movement

The Project Work Area currently consists of existing LACFCD facilities surrounded by open space. Construction at the Dam would be on the existing dam structure, adjacent developed areas, and adjacent gunite slopes; these changes are not expected to change wildlife movement patterns at the Dam.

Construction at the Headworks facility would replace an existing structure with a slightly larger structure and would modify the existing access road, reinforcing the slope with riprap; it would not reconfigure the road/facility substantially. Therefore, the Headworks facility would not be expected to change wildlife movement patterns at the Headworks facility. The Wilderness Park Culvert Crossing would replace the existing structure and culverts, resulting in a culvert crossing of the creek. Riprap would be placed along the bottom of the creek, both upstream and downstream of the culvert crossing structure. The Wilderness Park Culvert Crossing is typically inundated with water; therefore, the species moving through the culverts are expected to be small aquatic species (e.g., fish, and amphibians), which would continue to be able to use the streambed beneath the proposed Wilderness Park Culvert Crossing following Project construction. Medium and large-sized mammals would be expected to cross either over or under the culvert crossing/access road; since the Project would not be expected to affect the low traffic volumes

into the Wilderness Park, no change to wildlife movement is expected at the Wilderness Park Culvert Crossing. If a temporary bypass crossing is constructed to allow passage to the Wilderness Park, it would not be expected to disrupt wildlife movement; wildlife would be expected to be able to move through or around the structure during construction.

Project improvements at the Debris Dam would slightly expand the footprint of the existing Debris Dam structure to the southeast to accommodate the new spillway; however, the existing concrete spillway would be demolished and filled with dirt creating a disturbed area that matches the rest of the area downstream of the existing Debris Dam. These modifications are not expected to change wildlife movement at the Debris Dam. The improvements at the Debris Dam would allow the basin to be inundated more frequently than it currently is inundated. With inundation of the Debris Dam basin, some terrestrial wildlife would have to circumnavigate the basin rather than crossing the basin bottom; this would not be substantively different than the existing conditions. Wildlife that fly or swim could continue to move freely in the basin even if it was inundated. While this effect would be adverse for some terrestrial wildlife, the basin edges would continue to be available for movement; thus, wildlife movement would not be substantially disrupted and less than significant impacts are anticipated.

Construction activities would create dust and noise within and adjacent to the impact area. During active construction, wildlife movement may be deterred by noise and human activity; however, most wildlife movement would occur at night while construction activities would occur during the day. In addition, construction activities would also be temporary in nature. Therefore, construction impacts on local wildlife movement would be considered adverse, but less than significant and no mitigation would be required.

4.3.3 Special Status Biological Resource Impacts

Implementation of the Project would result in impacts on special status plant and wildlife species that occur in Project Work Areas. Potential impacts on special status species were evaluated by determining the impacts on habitat that the species are expected to occupy or based on the results of focused surveys conducted for the Dam (Attachments C through I).

Special Status Plant Species

Focused surveys for special status plant species were conducted in spring/summer 2012. Of the 96 special status plant species listed in Table 6, 94 of these either have no potential to occur due to lack of suitable habitat or were determined to be absent because they were not observed during focused surveys for special status plant species (Attachment C). Therefore, there would be no impact on those species. Two special status plant species were observed during the surveys: Engelmann oak and Coulter's matilija poppy (*Romneya coulteri*). None of the Engelmann oaks or Coulter's matilija poppies are located in Project Work Areas; therefore, there would be no impact on these species. One Engelmann oak (Tree Number 149) is located within the additional inundation area within the basin of the Debris Dam; MM2 would ensure that there are no long-term impacts resulting from increased inundation of this tree.

Wildlife

Fish

Arroyo chub, Santa Ana speckled dace, and Santa Ana sucker were not observed in the study area (Attachment D). Therefore, there would be no impact on these species.

Amphibians

Coast Range newt was not observed during focused surveys in the study area. Therefore, there would be no impact on this species.

Reptiles

A turtle, not positively identified but consistent with a Pacific pond turtle, was observed in Santa Anita Reservoir during focused trapping surveys in 2011 (BonTerra Consulting 2011). Santa Anita Reservoir would be dewatered during work on the Dam, which would make this habitat unavailable to Pacific pond turtle during construction in the Dam Work Area. If the area upstream of the Headworks is ponded at the time of construction, this area would also be dewatered. Dewatering of the Reservoir and the pond upstream of the Headworks may affect this species and the impact would be considered potentially significant because this species meets the criteria to be considered under Section 15380 of CEQA. Implementation of MM 4 would reduce this impact to a less than significant level.

Coast horned lizard, coastal western whiptail, [San Bernardino] ringneck snake, San Bernardino mountain kingsnake, northern three-lined boa [coastal rosy boa] (*Lichanura orcutti* [*Charina trivirgata roseofusca*]), and coast patch-nosed snake have potential to occur or were observed in upland habitat types in the study area. The two-striped garter snake was observed along Santa Anita Canyon during surveys. As discussed above (under vegetation impacts), the loss of 0.80 acre of native habitat is limited compared to the amount of habitat available in the study area and Project region (662,983 acres of open space in the Angeles National Forest [USFS 2005a]). Therefore, impacts on these species would not be considered significant and no mitigation would be required. However, biological monitoring during vegetation clearing is recommended to relocate any individuals outside the Project Work Areas (RM 1).

Birds

Southwestern willow flycatcher, least Bell's vireo, and coastal California gnatcatcher are considered to be absent from the study area because they were not observed during focused surveys (Attachments G and H). Therefore, there would be no impact on these species.

Loggerhead shrike may occur in upland vegetation in the study area, and Southern California rufous-crowned sparrow was observed in upland vegetation in the study area. The Project Work Areas would impact approximately 0.19 acre of suitable habitat for these species (0.13 acre at the Dam and 0.06 acre at the Headworks facility). Due to the limited amount of habitat loss relative to the availability of habitat for these species in the study area and the Project region, impacts on loggerhead shrike and Southern California rufous-crowned sparrow would be considered adverse, but less than significant and no mitigation would be required. However, active nests of these species are protected by the MBTA and the loss of an active nest would be considered a significant impact. Implementation of MM 3 would reduce this impact to a less than significant level.

Yellow warbler and yellow-breasted chat were observed in the study area. The Project Work Areas would impact 0.53 acre of suitable habitat for these species (0.33 acre at the Headworks, 0.20 acre at the Debris Dam). Due to the limited amount of habitat loss relative to the availability of habitat for these species in the study area and the Project region, impacts on yellow warbler and yellow-breasted chat would be considered adverse, but less than significant and no mitigation would be required. However, active nests of these species are protected by the MBTA and the loss of an active nest would be considered a significant impact. Implementation of MM 3 would reduce this impact to a less than significant level.

Cooper's hawk, white-tailed kite, merlin, prairie falcon, American peregrine falcon, long-eared owl, and black swift may forage over several habitats in the study area; Cooper's hawk was observed in the study area. Of these species, Cooper's hawk, white-tailed kite, and long-eared owl may nest in trees in the study area while prairie falcon and American peregrine falcon may nest on cliffs in the study area. The Project would result in the loss of approximately 0.80 acre of native habitats and 11.41 acres of ornamental, ruderal, and disturbed areas of potential foraging habitat. The loss of foraging habitat for these species would contribute to the ongoing regional and local loss of foraging habitat. Although impacts on foraging habitat would be considered adverse, they would not be expected to appreciably affect the overall population of these species given the amount of suitable foraging habitat in the study area and Project region. Therefore, impacts on foraging habitat for these species would be considered adverse but less than significant and no mitigation would be required. However, the loss of any active raptor nest would be considered a potentially significant impact. Implementation of MM 3 would reduce this impact to a less than significant level.

Mammals

An acoustical survey was conducted to determine which bats occur within or adjacent to Project Work Areas (Attachment I). Townsend's big-eared bat, hoary bat, fringed myotis, and western mastiff bat were observed in the Dam Work Area; pallid bat was not positively identified but also may be present in the Dam Work Area based on a poor-quality call recorded during the survey. In addition, silver-haired bat, western red bat, pocketed free-tailed bat, and big free-tailed bat have potential to forage in the study area. Construction activities would only occur during daylight hours; therefore, foraging would continue to be available over the construction areas throughout the duration of construction.

Many bat species prefer to forage over water. During construction of each facility, water would be routed around the construction area. Although each Project Work Area would be lower quality foraging habitat during construction, it is expected that water (i.e., preferred foraging habitat) would be available upstream and/or downstream of each Project Work Area during construction. This, combined with the large areas of open space surrounding the Project Work Areas would continue to provide suitable foraging habitat for bats throughout construction. Additionally, following completion of each portion of the Project, open water would again be ponded within each facility. When natural rainfall allows, the modifications to the Debris Dam may increase the amount of open water ponded at the Debris Dam following completion of the project; a beneficial impact for foraging bats at the Debris Dam.

Dewatering of the reservoir would also temporarily reduce the amount of flat water available for these bat species to drink during construction; however, drinking water would continue to be available upstream and downstream of each Project Work Area. Following completion of construction in each Project Work Area, the reservoir/ponded area would be allowed to refill and flat water would be available for bats to drink.

Townsend's big-eared bat typically roosts in caves and is therefore not expected to roost in the Dam or other structures. Additionally, no caves were observed immediately adjacent to Project Work Areas during the roosting bat survey, and the acoustical surveys indicated that the Townsend's big-eared bat observed foraging at the Dam likely roosted some distance from the Project Work Area based on the timing of the first recorded call after dusk. Therefore, the Project is not expected to impact roosting Townsend's big-eared bat.

All of the other bat species listed above have potential to roost in or adjacent to Project Work Areas based on the presence of suitable habitat. Bats may roost in the rocky outcroppings along Santa Anita Canyon, in crevices of structures (e.g., Dam structure, gunite, Headworks facility

building, Debris Dam outlet tower), or in large oak or sycamore trees in the study area (e.g., those at the Wilderness Park Culvert Crossing). Acoustical surveys are initiated before dusk and record sonar calls of bats as they emerge from their roosts; it is assumed that bats that are recorded within the first hour are roosting in or around the recording site while those that first appear over an hour into the recording are assumed to have traveled to the area to forage from a roost site out of the immediate area. Based on the acoustical recordings, fringed myotis and western mastiff bat have a low potential to roost in crevices and structures of the Dam Work Area because they were recorded over an hour into the survey. The hoary bat is not likely to roost in the Dam Work Area because it roosts in trees, although it may roost in other Project Work Areas. No special status bats were recorded at the Headworks or Debris Dam Work Areas during the acoustical surveys; however, suitable habitat is present and they may occur for roosting in the future. The combined loss of 0.57 acre of southern cottonwood willow riparian forest, sycamore alluvial woodland/southern riparian forest, and coast live oak woodland would remove potential roosting habitat for bat species that roost in trees (i.e., silver-haired bat, western red bat, and hoary bat); bat species that roost on cliffs and rocky outcroppings could be affected by repair of gunite adjacent to the Dam and/or construction on structures at the Dam and Headworks (i.e., pallid bat, Townsend's big-eared bat, fringed myotis, western mastiff bat, pocketed free-tailed bat, and big free-tailed bat). Impacts on bats roosting in trees and structures would be considered potentially significant because repair would could directly impact roosting individuals. Implementation of MM 5 would reduce this impact to a less than significant level. The loss of 0.57 acre of habitat for bats that roost in trees, and the temporary loss of crevices in the Dam or other structures where they could roost, would be considered adverse but less than significant because there are plenty of available trees and crevices in the Project vicinity that roosting bats could use as an alternative to roosting in Project Work Areas. Therefore, no mitigation would be required for the loss of roosts.

Southern grasshopper mouse and Los Angeles pocket mouse may occur in sage scrub vegetation types in the study area. The Project would impact 0.03 acre of mixed sage scrub for construction of the Headworks facility; and 0.13 acre of southern mixed chaparral/mixed coastal sage scrub for the Dam and 0.02 acre of southern mixed chaparral/mixed coastal sage scrub for the Headworks. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the study area and the Project region, impacts on southern grasshopper mouse and Los Angeles pocket mouse would be considered adverse, but less than significant and no mitigation would be required.

4.3.4 Significant Ecological Areas, Habitat Conservation Plan/Natural Community Conservation Plan

Significant Ecological Areas (SEAs) were established in 1980 by Los Angeles County based on a 1976 study (England and Nelson 1976) to designate areas with sensitive environmental conditions and/or resources in order to preserve biological diversity. SEA boundaries are general in nature, and broadly outline the biological resources of concern. The study area is not located in an SEA, however it is located approximately 1.8 miles from the Los Angeles County's San Gabriel Canyon SEA #62. This SEA is centered on the mouths of 3 major canyons, San Gabriel, Sawpit, and Santa Anita Canyon above the cities of Azusa, Duarte, Monrovia, Arcadia, and Sierra Madre, which flow from the mountains and the interconnecting terrain in between. In general, the topography of the SEA is severe, consisting of steep-walled canyons and narrow ridgelines. Elevations range from a high of approximately 5,710 feet above msl at Mount Wilson, to a low of approximately 660 feet above msl in San Gabriel Canyon. Several major drainages and numerous tributaries exit the San Gabriel Mountains through this SEA. The wide range of elevation, topography, slope aspect, and geology represent a wide array of physical habitats within this SEA. Consequently, a number of plant communities exist, including grasslands, riparian, shrublands, woodlands, and forests. Within these major community types, there are many sub-communities,

which vary according to plant species dominance. This SEA contains the last remaining relatively well-developed lower montane riparian habitats in the eastern County.

Updates to LA County's SEAs have been drafted and are currently under review. The updated SEA boundaries include the study area within the San Gabriel Canyon SEA (Los Angeles County Regional Planning 2011). However, the new boundaries will not be effective until the SEA boundaries are finalized; until then, the existing SEA boundaries will be in effect.

The study area is not located within a Los Angeles County adopted SEA, a habitat conservation plan (HCP), or natural community conservation plan (NCCP).

4.4 INDIRECT IMPACTS

4.4.1 Noise Impacts

Noise levels in the Project Work Areas would be expected to increase over present levels during construction of the Project. During construction, temporary noise impacts have the potential to disrupt foraging, nesting, roosting, and/or denning activities for wildlife species occurring within or adjacent to Project Work Areas. Wildlife species stressed by noise may disperse from the habitat located in the vicinity of the Project. Because the Project Work Areas are limited in extent, this impact is considered adverse but less than significant and no mitigation would be required. However, if raptor species are nesting in the vicinity of the Project Work Areas during construction, they may be temporarily displaced by construction noise. Indirect noise impacts on these species would be considered significant because nesting birds are protected by the *California Fish and Game Code.* Impacts on active nests would be reduced to a less than significant level with implementation of MM 3.

Each of the Project elements would modify an existing LACFCD facility; no new facilities would be created. Operational noise would be expected to be the same as current levels. Therefore, there would be no impact as a result of operational noise.

4.4.2 Increased Dust and Urban Pollutants

Grading and other construction activities would disturb soils and result in the accumulation of dust on the surface of the leaves of trees, shrubs, and herbs within or immediately adjacent to Project Work Areas. The respiratory function of the plants in these areas could be impaired if dust accumulation is excessive. Because the Project Work Areas are limited in extent, this indirect impact is considered adverse but less than significant. Therefore, no mitigation would be required.

During construction, excess silt, petroleum, or chemicals on the soil surface within the construction could be washed into drainages during storms and may affect areas downstream of the Project Work Areas. Adverse effects on water quality could indirectly impact species that use riparian areas within the watershed by affecting the food web interactions (e.g., abundance of insects or other prey) or through biomagnification (i.e., the buildup of pesticides to toxic levels in higher trophic levels). With implementation of standard Best Management Practices, this impact is expected to be less than significant. Therefore, no mitigation would be required.

No dust or urban pollutants would be expected during operation of the Project. Therefore, there would be no impact and no mitigation would be required.

4.4.3 Invasive Exotic Plant Species

There would be no landscaping associated with the Project. Therefore, there would be no impact as a result of invasive species and no mitigation would be required.

The Project would remove a limited amount of non-native invasive fountain grass for construction of the Headworks facility. This would be considered a beneficial impact of the Project.

4.4.4 Night Lighting

The Project would include upgrades to the lighting; however, these upgrades would reduce the spillover night lighting into the surrounding area. There would be no additional construction lighting associated with the Project. Therefore, there would be a beneficial impact as a result of night lighting and no mitigation would be required.

4.4.5 Human Activity

Each of the Project elements would modify an existing LACFCD facility; no new facilities would be created. Human activity would be expected to be the same as current levels, and may be less since the Project would allow remote operation of the Headworks facility. Therefore, there would be no impact as a result of human activity.

4.4.6 Increased Inundation

The Project would allow the Debris Dam to increase the inundation in the basin in order to capture water following rain events. Inundation behind the Debris Dam is reliant on releases from the Dam and the rainfall of the season, which would remain consistent with the conditions that currently exist in the basin and the time of year that the basin is inundated (winter/ early spring) would not substantially change. The Project would raise the Debris Dam height thereby expanding the water retention capacity of the facility and would allow the inundation area to expand 3.09 acres beyond the existing basin (Exhibit 7D).

Areas in the basin (currently within the existing inundation footprint) would be inundated more frequently and deeper than in the current condition. Additionally, the hillside slopes to the east of the basin would experience an increased inundation area. The vegetation within the existing basin is dominated by willows, which have a high to very high tolerance to inundation when willows shoots (trunks, stems, leaves) are not fully submerged (Glentz et al 2006, Tallent-Halsell and Walker 2002, Francis et al 2005, Good et al 1992). Glentz et al (2006) found that willows can withstand a flooding duration for as much as 40% of the growing season (spring/summer); the study area receives most rainfall outside the growing season in the winter and early spring when willows are dormant. Therefore, the increased inundation capability of the Debris Dam is not expected to affect the riparian vegetation that currently exists in the basin.

Some of the areas adjacent to the existing basin would be newly inundated; however, these fringe areas would be inundated the least often and for the shortest duration (e.g., a few days). Although inundation would not directly remove vegetation from the study area, habitat within the inundation area would be unavailable to most wildlife when flooded. If inundation occurred during the breeding season, it could flood burrows and nests causing them to fail. However, it is anticipated that most inundation events would occur during the storm season (October 1 to April 15), which is outside the breeding season for most animals. Following each inundation event, the habitat would again be available for use with areas along the periphery becoming available most quickly. Although inundation effects would be considered adverse, they would affect a limited amount of habitat (3.10 acres) compared to the amount of habitat available in the study area and Project region. Therefore, inundation effects would be considered less than significant.

5.0 PROJECT DESIGN FEATURE/MITIGATION MEASURES

This section lists Project Design Features (PDFs), Mitigation Measures (MMs), and Recommended Measures (RMs) for the Project. Strategies to mitigate each impact to a less than significant level are identified and described below.

5.1 PDF BIO-1 BIOLOGICAL MONITOR DURING VEGETATION CLEARING

A Biological Monitor shall be on site during vegetation clearing in Project Work Areas (e.g., limits of disturbance). The Biological Monitor shall confirm that the limits of Project Work Areas are clearly marked. The Biological Monitor shall provide environmental awareness training to the Contractor; the training shall include a discussion of native habitat types, special status species that may occur in the Project Work Areas, direction for what to do if a special status species is observed, and an overview of applicable permit conditions. Prior to construction, the Biological Monitor shall conduct a pre-clearing sweep of the Project Work Area and shall flush or move wildlife outside the Project Work Area to the extent practicable.

5.2 MM 1 – RIPARIAN VEGETATION/JURISDICTIONAL AREAS

Prior to initiation of Project activities, the Los Angeles County Flood Control District (LACFCD) shall obtain all necessary permits for impacts to USACE, the RWQCB, and/or the CDFW jurisdictional areas. Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process. Potential mitigation options shall include one or more of the following: (1) payment to a mitigation bank or regional riparian enhancement program (e.g., invasive plant or wildlife species removal); and/or (2) restoration of riparian habitat either on site or off site at a ratio of no less than 1:1, determined through consultation with the above-listed resource agencies. If in-lieu mitigation fees are required, prior to the initiation of any construction related activities, the LACFCD shall pay the in-lieu mitigation fee to a mitigation bank/enhancement program for the in-kind (equivalent vegetation type and acreage) replacement of impacted jurisdictional resources. If a Restoration Program is required, prior to the initiation of any construction-related activities, LACFCD shall prepare and submit a [AH1]Riparian Habitat Mitigation and Monitoring Program (HMMP) for USACE and CDFW approval. If a Riparian HMMP is required, it shall contain the following items:

A. Responsibilities and qualifications of the personnel to implement and supervise the plan. The responsibilities of the Landowner, Specialists, and Maintenance Personnel that would supervise and implement the plan shall be specified.

B. Site selection. The mitigation site shall be determined in coordination with the USACE, CDFW, and RWQCB. The site shall either be located in a dedicated open space area on County land, USFS land, or off-site land shall be purchased.

C. Seed source. Seeds (or plantings) used shall be from local sources (within ten miles of the Project area) to ensure genetic integrity.

D. Site preparation and planting implementation. Site preparation shall include (1) protection of existing native species; (2) trash and weed removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting, decompacting); (5) temporary irrigation installation; (6) erosion control measures (i.e., rice or willow wattles); (7) seed mix application; and (8) container species planting.

E. Schedule. A schedule shall be developed which includes planting in late fall and early winter, between October 1 and January 30.

F. Maintenance plan/guidelines. The Maintenance Plan shall include (1) weed control; (2) herbivory control; (3) trash removal; (4) irrigation system maintenance; (5) maintenance training; and (6) replacement planting.

G. Monitoring plan. The Monitoring Plan shall include (1) qualitative monitoring (i.e., photographs and general observations); (2) quantitative monitoring (i.e., randomly placed transects); (3) performance criteria, as approved by the above-listed resource agencies; (4) monthly reports for the first year and reports quarterly thereafter; and (5) annual reports for five years, which shall be submitted to the resource agencies on an annual basis. The site shall be monitored and maintained for five years to ensure successful establishment of riparian habitat within the restored and created areas.

H. Long-term preservation. Long-term preservation of the site shall also be outlined in the conceptual Mitigation Plan to ensure the mitigation site is not impacted by future development.

5.3 MM 2 – OAK WOODLAND/OAK TREES

A. Replacement shall occur for the western sycamores (Tree Numbers 220-222) that are removed by construction of the Wilderness Park Culvert Crossing. At a minimum, impacted sycamore trees at the Culvert Crossing shall be replaced at no less than a 1:1 ratio, and the minimum box size of replacement trees shall be 24 inches. The replacement trees shall be incorporated into the Riparian Habitat Mitigation and Monitoring Plan (HMMP) or a separate Tree HMMP shall be prepared and shall contain the same required components.

B. The oak tree adjacent to the Wilderness Park Culvert Crossing (Tree Number 219) shall not be removed. This tree shall be protected as described in subsection “C” below. However, the protective fencing for this tree shall be placed at the edge of the canopy to allow for construction to occur immediately outside its canopy. When initial vegetation removal/ground disturbance is occurring within 1.5 times the dripline/root protection zone, the work shall be monitored by a Certified Arborist who shall oversee any removal/cutting of roots necessary and shall determine if trimming of the canopy is necessary to protect the health of the tree. The Certified Arborist shall monitor the health of this tree a minimum of once per month during construction of the Wilderness Park Culvert Crossing and once per month for a period of six-months following completion of construction. Photographs shall be taken monthly to compare the overall vigor of the tree over time. The tree shall be considered “impacted” if its health rating declines two or more rating levels as referenced in the Tree Survey Report (Attachment D). If this occurs, in coordination with CDFW and the City of Arcadia, the tree shall be mitigated at no less than a 1:1 ratio, and the minimum box size of replacement trees shall be 24 inches. If Tree Number 220 is also preserved, protection shall follow the same requirements that are specified herein for Tree Number 219.

C. To protect native trees adjacent to Project Work Areas, the following shall be implemented within each Project Work Area:

1. Brightly-colored construction fencing shall be placed around all native trees to be preserved that are located within 50 feet of Project Work Areas. The fencing shall be placed at 1.5 times the dripline/root protection zone (defined as the outer

canopy edge, at least 15 feet from the trunk). These areas shall be labeled as "Tree Protection Areas" and shall be regarded as Environmentally Sensitive Areas on construction plans. If an existing access road is within the Tree Protection Area, the Tree Protection Area may be adjusted to allow for access along the existing roadway.

2. Stockpiling of materials or vehicle operation shall be prohibited within the Tree Protection Areas. If a Tree Protection Area has been adjusted to allow for an existing access road, no stockpiles or materials shall be allowed within 1.5 times the dripline/root protection zone of the native tree.

3. Limbs of native trees can be pruned if necessary to allow construction equipment access. Small branches (less than three inches diameter) can be trimmed without the supervision of a Certified Arborist if less than ten percent of the total canopy shall be removed. If larger branches need to be removed or if more than ten percent of the total canopy shall be affected, these activities shall be supervised by a Certified Arborist.

4. Changes to the grade or drainage patterns in the areas surrounding a Tree Protection Area shall be avoided so that excess water does not drain to native trees, unless otherwise approved by a Certified Arborist.

5. Any activities (e.g., vehicle operation) occurring within a Tree Protection Area shall be coordinated with a Certified Arborist to ensure that activities would not affect the health of the tree(s). If construction would damage or remove any trees, the Certified Arborist shall contact the appropriate jurisdiction(s) to determine mitigation requirements before the tree is impacted.

6. An on-site pre-construction field meeting shall be held to inform all construction personnel of tree restrictions prior the initiation of work.

D. A subset of 20 of the native trees located within the increased inundation area shall be monitored for health over the course of 5 years following completion of the Debris Dam construction. A Certified Arborist shall monitor these trees annually each spring following the rainy season for a period of 5 years for signs of any negative health effects from flooding (e.g., yellowing leaves, lack of new growth, trunk decay, etc.) using the same health rating scale described to evaluate baseline conditions. Monitoring will distinguish if any changes in health may be from other outside factors. Each monitoring event shall measure and track the dbh of the trees to determine growth patterns, and other trees outside of the future inundation areas shall also be measured to compare growth rates. Photographs shall be taken annually to compare the overall vigor of each tree's crown over time. Monitoring events shall assess whether a tree has been "affected" by determining if a tree's health rating declines two or more rating levels. Any affected trees shall be monitored for a two year period, which may be in addition to the original 5-year monitoring period, to determine if their health condition subsequently improves. If an affected tree shows improvement in the health rating during this two year period, it shall be considered a "recovered" tree and would not require mitigation. If an affected tree's health condition does not improve during this 2-year period, then the tree would be considered "impacted" and would require mitigation. If this occurs, in coordination with CDFW, the tree shall be mitigated at no less than a 1:1 ratio. The replacement trees shall be incorporated into the Riparian HMMP, as set forth in MM 1, or a separate Tree HMMP shall be prepared and shall contain the same required components.

5.4 MM 3 – MIGRATORY BIRD TREATY ACT AND NESTING RAPTORS

The Project shall be conducted in compliance with the conditions set forth in the Migratory Bird Treaty Act (MBTA) and *California Fish and Game Code* with methods approved by USFWS and CDFW to protect active bird/raptor nests. The nature of the Project requires that work would be initiated during the breeding season for nesting birds (March 15–September 15) and nesting raptors (February 1–June 30). LACFCD, in consultation with a qualified biologist, may employ bird exclusionary measures (e.g., mylar flagging) prior to the start of bird breeding season to minimize opportunities for birds to nest within established boundaries of the Project. In order to avoid direct impacts on active nests, a pre-construction survey shall be conducted by a qualified Biologist for nesting birds and/or raptors within 3 days prior to clearing of any vegetation or any work near existing structures (i.e., within 50 feet for nesting birds and within 500 feet for nesting raptors). If the Biologist does not find any active nests within or immediately adjacent to the impact area, the vegetation clearing/construction work shall be allowed to proceed.

If the Biologist finds an active nest within or immediately adjacent to the construction area and determines that the nest may be impacted or breeding activities substantially disrupted, the Biologist shall delineate an appropriate buffer zone (at a minimum of 25 feet) around the nest depending on the sensitivity of the species and the nature of the construction activity. Any nest found during survey efforts shall be mapped on the construction plans. The active nest shall be protected until nesting activity has ended. To protect any nest site, the following restrictions to construction activities shall be required until nests are no longer active, as determined by a qualified Biologist: (1) clearing limits shall be established within a buffer around any occupied nest (the buffer shall be 25–100 feet for nesting birds and 300–500 feet for nesting raptors), unless otherwise determined by a qualified Biologist and (2) access and surveying shall be restricted within the buffer of any occupied nest, unless otherwise determined by a qualified Biologist. Encroachment into the buffer area around a known nest shall only be allowed if the Biologist determines that the proposed activity would not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest or the nest has failed.

5.5 MM 4 – PACIFIC POND TURTLE TRAPPING

At least seven days prior to the initiation of dewatering/construction at the Dam and Headworks (and Debris Dam if ponded water is present at the time of construction), a five-day/four-night pre-construction trapping for the Pacific pond turtle shall be conducted by a qualified Biologist. Concurrently with the trapping effort, the Biologist shall also visually search for and capture two-striped garter snakes and any other special status species in the Project Work Areas. If any Pacific pond turtles, two-striped garter snakes, or other special status species are captured, they shall be relocated to a suitable site along Santa Anita Wash outside of the construction area. Prior to relocating any of these species, the USFS and the CDFW shall approve the potential relocation site(s) and methods for transferring the turtles/snakes to the relocation sites. Any non-native animal species encountered during pre-construction surveys shall be permanently removed from the reservoir.

Additionally, a qualified Biologist shall be present during the latter stages of dewatering to ensure that no Pacific pond turtles, two-striped garter snakes, or other special status species are stranded. If any of these species are observed during monitoring, they shall be captured by a qualified Biologist (i.e., one with the necessary approvals to handle these species) and released at the relocation site. Any non-native animal species encountered during dewatering of the reservoir shall be permanently removed from the reservoir. A Letter Report shall be prepared to document the results of the pre-construction surveys and monitoring; the Report shall be provided to the USFS and CDFW within 30 days of conclusion of the survey effort.

5.6 MM 5 – PRE-CONSTRUCTION ROOSTING BAT SURVEY

Water shall be drained or re-routed around Project Work Areas at least one month prior to construction to deter bats from roosting in the vicinity of the Work Areas.

If exclusionary measures have not already been installed on all potential roost structures within the Project Work Area, a pre-construction follow-up roosting bat survey (including both day and evening efforts) shall be conducted by a qualified biologist within two weeks prior to the initiation of construction to ensure that no active day-roosts would be impacted. The day survey will involve inspecting the structures for sign of bat roosting. The evening survey will involve monitoring each potential roost site for evening emergence, conducting exit counts, and acoustic monitoring (from a half an hour before sunset to at least one hour after sunset) near potential roosts. If active bat day-roosts occur within the Project Work Area, bat exclusion devices shall be installed under the supervision of a qualified biologist prior to the start of construction.

If active bat day-roosts occur within structures proposed for removal/repair (including gunite repair on hill slopes), then exclusionary measures, such as barriers with one-way doors or permanent exclusion (e.g., caulking or wire mesh), shall be installed under the supervision of a qualified biologist.

If active bat day-roosts occur within trees proposed for removal, then either tree removal shall be conducted between September and November (to avoid the bat maternity and the bat hibernation season), or the tree removal will occur under the supervision of a qualified biologist and will utilize phased tree trimming. If avoidance of bat hibernation and bat maternity season is not feasible, then exclusionary measures, such as netting or phased tree trimming, shall be implemented after the evening roost emergence under the supervision of a qualified biologist. Once bats have been excluded from the trees to be removed, then tree removal can proceed.

5.7 RM 1 – BIOLOGICAL MONITORING

A Biological Monitor will be on site during vegetation clearing in Project Work Areas (i.e., limits of disturbance). The Biological Monitor will confirm that the limits of Project Work Areas are clearly marked. The Biological Monitor shall provide environmental awareness training to the Contractor; the training will include a discussion of native habitat types, special status species that may occur in the Project Work Areas, direction for what to do if a special status species is observed, and an overview of applicable permit conditions. Prior to construction, the Biological Monitor will conduct a pre-clearing sweep of the Project Work Area and will flush or move wildlife outside of the Project Work Area to the extent practicable.

6.0 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of all the PDF and MMs listed above shall mitigate biological impacts to a level that is considered less than significant.

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ATTACHMENT A

SITE PHOTOGRAPHS



Photo 1. Facing east, view of willow riparian in the lower portion of Santa Anita Debris Basin.



Photo 2. Facing north, view of willow riparian in the Santa Anita Debris Basin.

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Site Photographs

Attachment A-1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

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Photo 3. Facing northwest, overview of coastal sage scrub and sycamore alluvial woodland in the upper portion of Santa Anita Debris Basin.



Photo 4. Facing north, overview of creek upstream of the headworks facility where the canyon begins to narrow.

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Photo 5. Facing north, view of habitat along creek in the narrow portion of Santa Anita Canyon.



Photo 6. Facing west, view of alder riparian forest along creek in the narrow portion of Santa Anita Canyon. Note the steep slope on the opposite bank.

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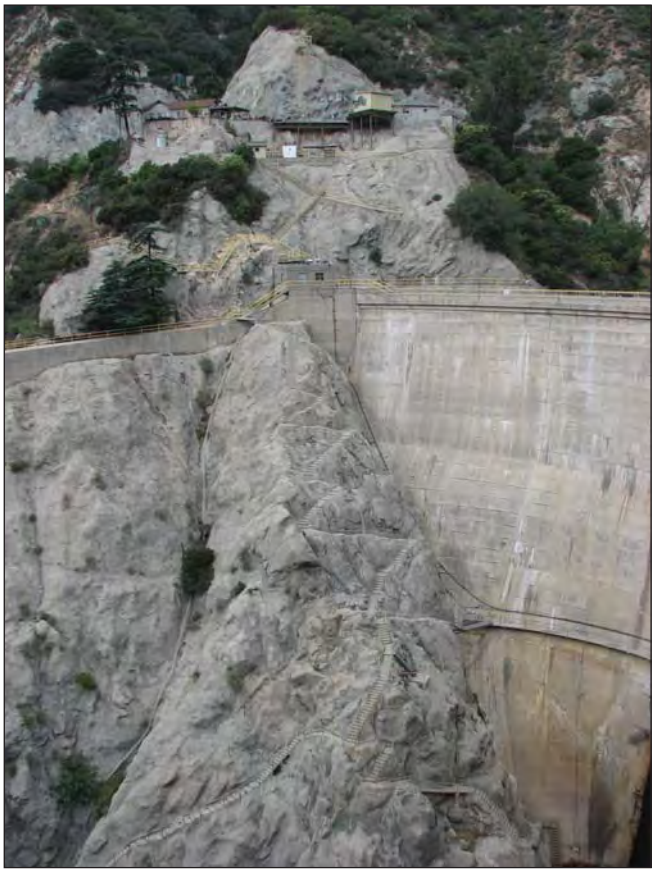

Photo 7. Facing west, view of the existing gunite banks adjacent to Santa Anita Dam.



Photo 8. Facing northwest, view of the existing Headworks Facility.

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Site Photographs

Attachment A-4

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS



Photo 9. Facing east, view of the existing Wilderness Park Bridge.



Photo 10. Facing north, view of the existing Santa Anita Debris Dam.

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ATTACHMENT B

PLANT AND WILDLIFE COMPENDIUM

ATTACHMENT B-1

PLANT COMPENDIA

PLANT SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS

Species	
***PTERIDOPHYTES* – FERNS AND ALLIES**	
POLYPODIACEAE – POLYPODY FAMILY	
Polypodium californicum	California polypody
PTERIDACEAE – BRAKE FAMILY	
Pellaea andromedifolia	coffee fern
Pellaea mucronata	bird's foot fern
SELAGINELLACEAE – SPIKE-MOSS FAMILY	
Selaginella bigelovii	Bigelow's or bushy spike-moss
GYMNOSPERMS	
CUPRESSACEAE – CYPRESS FAMILY	
Juniperus sp.	ornamental juniper
PINACEAE – PINE FAMILY	
Pinus canariensis	Canary Island pine
***ANGIOSPERMAE* – FLOWERING PLANTS**	
DICOTYLEDONES	
ADOXACEAE – MUSKROOT FAMILY	
Sambucus nigra ssp. *caerulea*	blue elderberry
AMARANTHACEAE – AMARANTH FAMILY	
*Amaranthus albus**	tumbleweed
ANACARDIACEAE – SUMAC FAMILY	
Malosma laurina	laurel sumac
Rhus ovata	sugar bush
Rhus aromatica [*Rhus trilobata*]	skunkbush
*Schinus molle**	pepper tree
Toxicodendron diversilobum	western poison oak
APIACEAE (UMBELLIFERAE) – CARROT FAMILY	
Apiastrum angustifolium	wild celery
APOCYNACEAE – DOGBANE FAMILY	
Asclepias fascicularis	narrow-leaved milkweed
*Nerium oleander**	common oleander
*Vinca major**	greater periwinkle
ARALIACEAE – GINSENG FAMILY	
*Hedera helix**	English ivy
ASTERACEAE (COMPOSITAE) – SUNFLOWER FAMILY	
Achillea millefolium	common yarrow
*Ageratina adenophora**	crofton weed
Ambrosia acanthicarpa	annual bur-sage
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Baccharis salicifolia ssp. *salicifolia* [*Baccharis salicifolia*]	mule fat
Bidens frondosa	sticktight
Brickellia californica	California brickellbush
Carduus pycnocephalus var. *pycnocephalus**	Italian thistle
*Centaurea melitensis**	tocalote/Maltese star thistle
Chaenactis glabriuscula	yellow pincushion

PLANT SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS (Continued)

Species	
Corethrogyne filaginifolia [*Lessingia filaginifolia*]	California-aster
Delairea odorata [*Senecio mikanioides*]*	German ivy
Helianthus annuus	western sunflower
Heterotheca grandiflora	telegraph weed
*Hypochaeris glabra**	smooth cat's-ear
Isocoma menziesii	goldenbush
*Lactuca serriola**	prickly lettuce
Lepidospartum squamatum	scale-broom
Logfia gallica [*Filago gallica*] *	daggerleaf cottonrose
Malacothrix saxatilis	cliff malacothrix
Pseudognaphalium biolettii [*Gnaphalium bicolor*]	bicolored everlasting/Bioletti's cudweed
Pseudognaphalium californicum [*Gnaphalium californicum*]	California everlasting
Pseudognaphalium canescens [*Gnaphalium canescens*]	everlasting
Pseudognaphalium luteoalbum [*Gnaphalium luteoalbum*]*	weedy cudweed
*Senecio vulgaris**	common groundsel
*Silybum marianum**	milk thistle
*Sonchus oleraceus**	common sow thistle
Uropappus lindleyi	silver puffs
BETULACEAE – BIRCH FAMILY	
Alnus rhombifolia	white alder
BORAGINACEAE – BORAGE FAMILY	
Amsinckia intermedia	common fiddleneck
Cryptantha sp.	cryptantha
Cryptantha intermedia	common cryptantha
Eriodictyon trichocalyx	hairy yerba santa
Eucrypta chrysanthemifolia	common eucrypta
Phacelia cicutaria	caterpillar phacelia
Phacelia distans	common phacelia
Phacelia minor	wild canterbury-bell
Phacelia ramosissima	branching phacelia
BRASSICACEAE (CRUCIFERAE) – MUSTARD FAMILY	
*Hirschfeldia incana**	shortpod mustard
Lepidium nitidum	peppergrass/shining peppergrass
Nasturtium officinale [*Rorippa nasturtium-aquaticum*]*	water cress
*Sisymbrium irio**	London rocket
CACTACEAE – CACTUS FAMILY	
*Opuntia ficus-indica**	mission prickly-pear
Opuntia littoralis	coastal prickly pear

PLANT SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS (Continued)

Species	
CAPRIFOLIACEAE – HONEYSUCKLE FAMILY	
Lonicera subspicata var. *denudata*	southern honeysuckle
*Silene gallica**	small-flower catchfly
CHENOPODIACEAE – GOOSEFOOT FAMILY	
*Chenopodium album**	lamb's quarters
*Salsola tragus**	Russian thistle
CISTACEAE – ROCK-ROSE FAMILY	
Helianthemum scoparium	peak rush-rose
CONVOLVULACEAE – MORNING-GLORY FAMILY	
Calystegia macrostegia	morning-glory
Cuscuta californica	chaparral dodder
CRASSULACEAE – STONECROP FAMILY	
Crassula connata	pygmy-weed
Dudleya caespitosa (?)	capitates dudleya
Dudleya cymosa ssp. *pumila*	canyon dudleya
Dudleya lanceolata	lance-leaved dudleya
CUCURBITACEAE – GOURD FAMILY	
Marah macrocarpus	wild cucumber/chilicothe
EUPHORBIACEAE – SPURGE FAMILY	
Croton setigerus [*Eremocarpus setigerus*]	doveweed/turkey mullein
*Ricinus communis**	castor bean
FABACEAE (LEGUMINOSAE) – LEGUME FAMILY	
Acmispon strigosus [*Lotus strigosus*]	strigose lotus
Acmispon glaber [*Lotus scoparius* var. *scoparius*]	deerweed
Lupinus bicolor	miniature lupine
Lupinus hirsutissimus	stinging lupine
Lupinus truncatus	truncate lupine/collar lupine
*Melilotus indica**	sourclover
*Spartium junceum**	Spanish broom
Trifolium willdenovii	tomcat clover
FAGACEAE – OAK/BEECH FAMILY	
Quercus agrifolia	coast live oak
Quercus berberidifolia	scrub oak/California scrub oak
Quercus chrysolepis	maul oak/canyon live oak
Quercus engelmannii	Engelmann oak
Quercus lobata	valley oak
GERANIACEAE – GERANIUM FAMILY	
*Erodium cicutarium**	red-stemmed filaree
Geranium sp.* *(molle?)*	Carolina geranium
GROSSULARIACEAE – GOOSEBERRY FAMILY	
Ribes aureum	golden currant
Ribes speciosum	fuchsia-flowered gooseberry

PLANT SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS (Continued)

Species	
LAMIACEAE (LABIATAE) – MINT FAMILY	
*Marrubium vulgare**	common horehound
Salvia apiana	white sage
Salvia columbariae	chia
Salvia mellifera	black sage
LAURACEAE – LAUREL FAMILY	
Umbellularia californica	California bay
Claytonia perfoliata ssp. *perfoliata*	common miner's-lettuce
MORACEAE – FIG FAMILY	
*Ficus carica**	edible fig
MYRSINACEAE – MYRSINE FAMILY	
*Anagallis arvensis**	scarlet pimpernel
MYRTACEAE – MYRTLE FAMILY	
Eucalyptus sp.*	gum
OLEACEAE – OLIVE FAMILY	
Fraxinus sp.	ash
ONAGRACEAE – EVENING PRIMROSE FAMILY	
Camissonia bistorta	California sun cup
Clarkia purpurea	four-spot
Epilobium canum	California fuchsia
Epilobium ciliatum	willow-herb
Eulobus californicus [*Camissonia californica*]	mustard-like evening primrose
PAPAVERACEAE – POPPY FAMILY	
Romneya coulteri	Coulter's matilija poppy
PHRYMACEAE – LOPSEED FAMILY	
Mimulus aurantiacus	bush monkeyflower
Mimulus guttatus	seep monkeyflower
Mimulus pilosus	downy monkeyflower
PLANTAGINACEAE – PLANTAIN FAMILY	
Keckiella cordifolia	heart-leaved bush-penstemon
Plantago arenaria [*Plantago indica*]*	sand plantain
*Veronica anagallis-aquatica**	water speedwell
PLATANACEAE – SYCAMORE FAMILY	
Platanus racemosa	western sycamore
POLYGONACEAE – BUCKWHEAT FAMILY	
Eriogonum elongatum var. *elongatum*	long-stemmed wild buckwheat
Eriogonum fasciculatum	California buckwheat
RHAMNACEAE – BUCKTHORN FAMILY	
Rhamnus ilicifolia	hollyleaf redberry
ROSACEAE – ROSE FAMILY	
Adenostoma fasciculatum	chamise
Cercocarpus betuloides var. *betuloides*	birch-leaf mountain-mahogany
Heteromeles arbutifolia	toyon/christmas berry
Prunus ilicifolia	holly-leaved cherry
Rosa californica	California rose

PLANT SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS (Continued)

Species	
Rubus ursinus	California blackberry
RUBIACEAE – MADDER FAMILY	
Galium aparine	goose grass
SALICACEAE – WILLOW FAMILY	
Salix exigua	narrow-leaved willow
Salix gooddingii	Goodding's black willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
SAPINDACEAE – SOAP BERRY FAMILY	
Acer macrophyllum	big-leaf maple
SCROPHULARIACEAE – FIGWORT FAMILY	
*Verbascum thapsus**	woolly mullein
SOLANACEAE – NIGHTSHADE FAMILY	
*Nicotiana glauca**	tree tobacco
Solanum douglasii	Douglas' nightshade
TAMARICACEAE – TAMARISK FAMILY	
*Tamarix ramosissima**	Mediterranean tamarix
URTICACEAE – NETTLE FAMILY	
Urtica dioica ssp. *holosericea*	hoary nettle
***MONOCOTYLEDONES* – MONOCOTS**	
AGAVACEAE – CENTURY PLANT FAMILY	
Hesperoyucca whipplei [*Yucca whipplei*]	Our Lord's candle
ARECACEAE (PALMAE) – PALM FAMILY	
*Washingtonia robusta**	Mexican fan palm
CYPERACEAE – SEDGE FAMILY	
Cyperus sp.	umbrella-sedge
POACEAE [GRAMINEAE] – GRASS FAMILY	
Stipa coronata [*Achnatherum coronatum*]	crested needlegrass
Avena sp.*	cultivated oat
*Bromus diandrus**	ripgut grass
Bromus madritensis ssp. *rubens**	red brome
Festuca myuros [*Vulpia myuros*] *	foxtail fescue
*Lamarckia aurea**	goldentop
Melica imperfecta	little California melic grass
*Pennisetum setaceum**	crimson fountain grass
*Piptatherum miliaceum**	smilo grass/millett ricegrass
*Poa annua**	annual bluegrass
THEMIDACEAE – BRODIAEA FAMILY	
Bloomeria crocea	common goldenstar
TYPHACEAE – CATTAIL FAMILY	
Typha sp.	cattail

* Non-native species

? specimen sent to herbarium for confirmation since out of known elevational range, may be a hybrid (UCSC Herbarium); confirmed that it is not any of the listed *Dudleya* species.

ATTACHMENT B-2

WILDLIFE COMPENDIA

WILDLIFE SPECIES OBSERVED DURING 2012 SURVEYS

Species	
FISH	
SALMONIDAE – TROUT AND SALMON	
Oncorhynchus mykiss	rainbow trout
CENTRACHIDAE – SUNFISH	
Lepomis cyanellus *	green sunfish
AMPHIBIANS	
BUFONIDAE – TRUE TOADS	
Anaxyrus boreas [*Bufo boreas*]	western toad
HYLIDAE – TREEFROGS	
Pseudacris [*Hyla*] *cadaverina*	California treefrog
Pseudacris hypochondriaca [*Hyla regilla*]	Baja California treefrog
REPTILES	
PHRYNOSOMATIDAE – ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
TEIIDAE – WHIPTAIL LIZARDS	
Aspidoscelis [*Cnemidophorus*] *tigris stejnegeri*	coastal western whiptail
ANGUIDAE – ALLIGATOR LIZARDS	
Elgaria multicarinata	southern alligator lizard
COLUBRIDAE – COLUBRID SNAKES	
Pituophis catenifer	gopher snake
Crotalus oreganus	western rattlesnake
BIRDS	
ANATIDAE – WATERFOWL	
Branta canadensis	Canada goose
Anas platyrhynchos	mallard
ODONTOPHORIDAE – QUAILS	
Callipepla californica	California quail
ARDEIDAE – HERONS, BITTERNS, AND ALLIES	
Ardea herodias	great blue heron
Ardea alba	great egret
CATHARTIDAE – NEW WORLD VULTURES	
Cathartes aura	turkey vulture
ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES	
Accipiter cooperii	Cooper's hawk
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
CHARADRIIDAE – PLOVERS	
Charadrius vociferus	killdeer
COLUMBIDAE – PIGEONS AND DOVES	
*Columba livia**	rock pigeon
*Streptopelia decaocto**	Eurasian collared-dove
Patagioenas fasciata	band-tailed pigeon
Zenaida macroura	mourning dove

WILDLIFE SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS (Continued)

Species	
TYTONIDAE – BARN OWLS	
Tyto alba	barn owl
STRIGIDAE – TRUE OWLS	
Bubo virginianus	great horned owl
APODIDAE – SWIFTS	
Aeronautes saxatalis	white-throated swift
TROCHILIDAE – HUMMINGBIRDS	
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird
Calypte costae	Costa's hummingbird
Selasphorus sasin	Allen's hummingbird
ALCEDINIDAE - KINGFISHERS	
Megaceryle [*Ceryle*] *alcyon*	belted kingfisher
PICIDAE – WOODPECKERS	
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker
Colaptes auratus	northern flicker
PSITTACIDAE – PARROTS	
Amazona viridigenalis	red-crowned parrot
Aratinga mitrata	mitred parakeet
Nandyus nenday	black-hooded parakeet
TYRANNIDAE – TYRANT FLYCATCHERS	
Contopus cooperi	olive-sided flycatcher
Contopus sordidulus	western wood-pewee
Empidonax difficilis	Pacific-slope flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
VIREONIDAE – VIREOS	
Vireo huttoni	Hutton's vireo
Vireo gilvus	warbling vireo
CORVIDAE – CROWS AND JAYS	
Cyanocitta stelleri	Steller's jay
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE – SWALLOWS	
Tachycineta thalassina	violet-green swallow
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
Hirundo rustica	barn swallow
PARIDAE – TITMICE	
Baeolophus inornatus	oak titmouse
AEGITHALIDAE – BUSHTITS	
Psaltriparus minimus	bushtit

WILDLIFE SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS (Continued)

Species	
SITTIDAE – NUTHATCHES	
Sitta carolinensis	white-breasted nuthatch
TROGLODYTIDAE – WRENS	
Catherpes mexicanus	canyon wren
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
TURDIDAE – THRUSHES AND ROBINS	
Catharus ustulatus	Swainson's thrush
Turdus migratorius	American robin
MIMIDAE – THRASHERS	
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
STURNIDAE – STARLINGS	
Sturnus vulgaris *	European starling
PTILOGONATIDAE – SILKY-FLYCATCHERS	
Phainopepla nitens	phainopepla
PARULIDAE – WARBLERS	
Oreothlypis [*Vermivora*] *celata*	orange-crowned warbler
Geothlypis trichas	common yellowthroat
Setophaga petechia [*Dendroica petechia*]	yellow warbler
Cardellina pusilla [*Wilsonia pusilla*]	Wilson's warbler
EMBERIZIDAE – SPARROWS AND JUNCOS	
Pipilo maculatus	spotted towhee
Melozone [*Pipilo*] *crissalis*	California towhee
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow
Melospiza melodia	song sparrow
Junco hyemalis	dark-eyed junco
CARDINALIDAE – CARDINALS AND ALLIES	
Piranga ludoviciana	western tanager
Pheucticus melanocephalus	black-headed grosbeak
ICTERIDAE – BLACKBIRDS	
Agelaius phoeniceus	red-winged blackbird
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
Icterus bullockii	Bullock's oriole
FRINGILLIDAE – FINCHES	
Carpodacus mexicanus	house finch
Spinus [*Carduelis*] *psaltria*	lesser goldfinch
Spinus [*Carduelis*] *tristis*	American goldfinch
ESTRILDIDAE – MANNIKINS	
*Lonchura punctulata**	nutmeg mannikin

WILDLIFE SPECIES OBSERVED DURING 2012 FOCUSED SURVEYS (Continued)

Species	
MAMMALS	
LEPORIDAE – HARES AND RABBITS	
Sylvilagus audubonii	desert cottontail
SCIURIDAE – SQUIRRELS	
Neotamius [*Tamias*] *merriami*	Merriam's chipmunk
Spermophilus beecheyi	California ground squirrel
Sciurus griseus	western gray squirrel
CANIDAE – WOLVES AND FOXES	
Canis latrans	coyote
URSIDAE – BEARS	
Ursus americanus	American black bear
MEPHITIDAE – SKUNKS	
Mephitis mephitis	striped skunk
CERVIDAE – DEER	
Odocoileus hemionus	mule deer
* introduced species	

ATTACHMENT C

SPECIAL STATUS PLANT SURVEY REPORT

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October 15, 2012

Grace Yu
Water Resources Division
Department of Public Works
County of Los Angeles
900 South Fremont Avenue
Alhambra, California 91803

VIA EMAIL
gyu@dpw.lacounty.gov

Subject: Results of Special Status Plant Surveys for the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project in Arcadia and the Angeles National Forest, Los Angeles County, California

Dear Ms. Yu:

This Letter Report presents the findings of special status plant surveys conducted for the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project Site (hereinafter referred to as the "project site") located within the City of Arcadia and Angeles National Forest in Los Angeles County, California (Exhibits 1 and 2). The project will improve Los Angeles County Flood Control District facilities to better manage storm water runoff from the Santa Anita Canyon watershed and achieve the following goals: (1) reduce flood damage to the downstream communities; (2) increase recharge of the local groundwater basin; and (3) improve public safety by remediating seismic safety issues at the Dam and Debris Basin.

The project site is located immediately north of the Santa Anita Dam and continues south along Santa Anita Creek to the Santa Anita Debris Basin (Exhibit 3). The survey area for the project includes the area for the proposed improvements plus a 100-foot buffer. The survey area is bordered by open space in the Angeles National Forest and Arcadia Wilderness Park, and by residential development. The survey area is located on the U.S. Geological Survey's (USGS') Mt. Wilson 7.5-minute quadrangle, with an elevation of about 750 to 1,300 feet above mean sea level (msl).

METHODS

Prior to the field surveys, a literature review was conducted to identify special status plants known from the general survey area vicinity. This included a review of the USGS Mt. Wilson, Azusa, El Monte, Pasadena and Baldwin Park 7.5-minute quadrangles in the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB; CDFG 2012) and the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2012). The literature review also included a review of the Angeles National Forest Threatened, Endangered, Proposed, Candidate, and Forest Service Sensitive Plants and Animals (U.S. Forest Service 2011). Table 1 lists all the special status plant species known to occur in the vicinity of the survey area. However, surveys were only conducted for those plant species shown in Table 1 to have potential suitable habitat in the survey area. The survey protocol follows the current CDFG protocol for surveying special status native plant populations (CDFG 2009).

Reference populations were visited for the highest status and priority special status plant species with potential to occur within the survey area to confirm that they were blooming and that it was an appropriate time to survey for them. A known reference population of San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) was visited and observed flowering immediately west of the San Fernando Valley on April 10, 2012, in Las Virgenes Canyon. A known reference population of slender-horned spineflower (*Dodecahema leptoceras*) was visited and observed flowering in the Elsinore area of Western Riverside on April 20, 2012. A known reference population of slender mariposa lily (*Calochortus clavatus* var. *gracilis*) was visited and observed flowering in the Santa Clarita area on May 18, 2012. A known reference population of Plummer's mariposa lily was visited and observed flowering in the Tujunga Dam area on June 8, 2012. A known reference population of southern tarplant (*Centromadia parryi* ssp. *australis*) was visited and observed flowering in the Riverside area on June 12, 2012. A known reference population of white rabbit-tobacco (*Pseudognaphalium leucocephalum*) was visited and observed flowering in San Juan Capistrano on August 13, 2012.

According to the National Weather Service, Burbank Valley Pump Plant (located about 20 miles south of the survey area) has received 10.37 inches of precipitation over the past year (since July 1, 2011), which is about 61 percent of the normal 16.29 inches based on 1939–2012 averages (Western Regional Climate Service 2012).

Consulting Botanist Sandra Leatherman conducted special status plant surveys on April 25; May 2, 16, and 30; June 4; August 8 and 24, 2012. Ms. Leatherman was assisted by Consulting Biologists Brian Leatherman, James Huelsman, and Adam DeLuna. Systematic surveys were conducted to search the survey area for any special status plants. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for subsequent identification using keys in Baldwin, B.G., et al. (2012). Taxonomy follows Baldwin, B.G., et al. (2012) and current scientific data (e.g., scientific journals) for scientific and common names.

SITE DESCRIPTION

Vegetation types in the survey area include coastal sage scrub, chaparral, black willow riparian forest, sycamore woodland, mixed riparian forest, alder riparian forest, elderberry woodland, mule fat scrub, coast live oak woodland, mixed woodland, ornamental, and ruderal. Disturbed areas include dirt roads and other mechanically disturbed areas that generally lack vegetation. Photographs of representative habitat are included in Attachment A.

Soil types generally consist of the Trigo family soils, which have a granitic substratum on 60 to 90 percent slopes in the northern portion of the survey area, no data is available for the soils in the southern portion of the survey area (USDA NRCS 2012) (Exhibit 4).

SURVEY RESULTS

Two special status plant species were observed during the surveys: Engelmann oak (*Quercus engelmannii*) and Coulter's matilija poppy (*Romneya coulteri*) (Table 1; Exhibit 5). These species are further discussed below. A list of all plants observed within the survey area during focused botanical surveys can be found in Attachment B. CNDDB forms for the Engelmann oak and Coulter's matilija poppy occurrences are included in Attachment C.

TABLE 1
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR
IN THE SURVEY AREA VICINITY

Species	Status				Habitat Suitability Within the Survey Area and Survey Results
	USFWS	CDFG	CRPR	FSS	
Acanthoscyphus parishii var. *parishii* Parish's oxytheca	None	None	4.2	None	No suitable habitat; out of elevation range.
Arctostaphylos glandulosa ssp. *gabrielensis* San Gabriel manzanita	None	None	1B.2	Yes	No suitable habitat; out of elevation range.
Astragalus brauntonii Braunton's milk-vetch	FE	None	1B.1	FE	Potentially suitable habitat present; not observed during focused surveys.
Berberis nevinii Nevin's barberry	FE	CE	1B.1	Yes	Potentially suitable habitat present; not observed during focused surveys.
Calochortus clavatus var. *gracilis* slender mariposa lily	None	None	1B.2	Yes	Potentially suitable habitat present; not observed during focused surveys.
Calochortus plummerae Plummer's mariposa lily	None	None	1B.2	FS	Potentially suitable habitat present; not observed during focused surveys.
Calochortus weedii var. *intermedius* intermediate mariposa lily	None	None	1B.2	None	Limited suitable habitat present; not observed during focused surveys.
Centromadia parryi ssp. *australis* southern tarplant	None	None	1B.1	None	Potentially suitable habitat present; not observed during focused surveys.
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	FC	SE	1B.1	FS	Limited suitable habitat present; not observed during focused surveys.
Chorizanthe parryi var. *parryi* Parry's spineflower	None	None	1B.1	FS	Limited suitable habitat present; not observed during focused surveys.
Cladium californicum California saw-grass	None	None	2.2	None	No suitable habitat present; not observed during focused surveys.
Clinopodium mimuloides monkey-flower savory	None	None	4.2	None	No suitable habitat; out of elevation range.
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	None	None	2.2	None	No suitable habitat; out of elevation range.
Dodecahema leptoceras slender-horned spineflower	FE	SE	1B.1	FE	Potentially suitable habitat present; not observed during focused surveys.
Dudleya cymosa ssp. *crebrifolia* San Gabriel River dudleya	None	None	1B.2	FS	Potentially suitable habitat present; not observed during focused surveys.
Dudleya densiflora San Gabriel Mountains dudleya	None	None	1B.1	FS	Potentially suitable habitat present; not observed during focused surveys.
*Galium angustif*olium ssp. *gabrielense* San Antonio Canyon bedstraw	None	None	4.3	None	No suitable habitat; out of elevation range.
Galium grande San Gabriel bedstraw	None	None	1B.2	FS	No suitable habitat; out of elevation range.
Galium johnstonii Johnston's bedstraw	None	None	4.3	None	No suitable habitat; out of elevation range.
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	None	None	1A	None	Not expected to occur, species presumed extinct; potentially suitable habitat present; not observed during focused surveys.
Hordeum intercedens vernal barley	None	None	3.2	None	Limited suitable habitat present; not observed during focused surveys.

TABLE 1 (Continued)
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR
IN THE SURVEY AREA VICINITY

Species	Status				Habitat Suitability Within the Survey Area and Survey Results
	USFWS	CDFG	CRPR	FSS	
Horkelia cuneata ssp. *puberula* mesa horkelia	None	None	1B.1	FS	Limited suitable habitat present; not observed during focused surveys.
Imperata brevifolia California satintail	None	None	2.1	FS	Potentially suitable habitat present; not observed during focused surveys.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	None	None	1B.1	None	No suitable habitat present; not observed during focused surveys.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	None	None	1B.2	None	Limited suitable habitat present; not observed during focused surveys.
Linanthus concinnus San Gabriel linanthus	None	None	1B.2	FS	No suitable habitat present; not observed during focused surveys.
Linanthus orcuttii Orcutt's linanthus	None	None	1B.3	None	No suitable habitat present; not observed during focused surveys.
Malacothamnus davidsonii Davidson's bush-mallow	None	None	1B.2	None	Potentially suitable habitat present; not observed during focused surveys.
Mimulus johnstonii Johnston's monkeyflower	None	None	4.3	None	No suitable habitat; out of elevation range.
Muhlenbergia californica California muhly	None	None	4.3	None	Potentially suitable habitat present; not observed during focused surveys.
Orobanche valida ssp. *valida* Rock Creek broomrape	None	None	1B.2	FS	No suitable habitat; out of elevation range.
Phacelia stellaris Brand's star phacelia	FC	None	1B.1	None	Limited suitable habitat present; not observed during focused surveys.
Pickeringia montana var. *tomentosa* woolly chaparral-pea	None	None	4.3	None	Limited suitable habitat present; not observed during focused surveys.
Pseudognaphalium leucocephalum white rabbit-tobacco	None	None	2.2	None	Potentially suitable habitat present; not observed during focused surveys.
Quercus engelmannii **Engelmann oak**	**None**	**None**	**4.2**	**None**	**Observed.**
Ribes divaricatum var. *parishii* Parish's gooseberry	None	None	1A	None	Species presumed extinct; potentially suitable habitat present; not observed during focused surveys.
Romneya coulteri **Coulter's matilija poppy**	**None**	**None**	**4.2**	**None**	**Observed.**
Rupertia rigida Parish's rupertia	None	None	4.3	None	No suitable habitat; out of elevation range.
Scutellaria bolanderi ssp. *austromontana* southern mountains skullcap	None	None	1B.2	FS	No suitable habitat; out of elevation range.
Senecio astephanus San Gabriel ragwort	None	None	4.3	None	Limited suitable habitat present; not observed during focused surveys.
Symphyotrichum defoliatum San Bernardino aster	None	None	1B.2	FS	Potentially suitable habitat present; not observed during focused surveys.
Symphyotrichum [*Aster*] *greatae* Greata's aster	None	None	1B.3	None	Potentially suitable habitat present; not observed during focused surveys.

TABLE 1 (Continued)
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR
IN THE SURVEY AREA VICINITY

Species	Status				Habitat Suitability Within the Survey Area and Survey Results
	USFWS	CDFG	CRPR	FSS	
Thelypteris puberula var. *sonorensis* Sonoran maiden fern	None	None	2.2	FS	Potentially suitable habitat present; not observed during focused surveys.

LEGEND:

Federal (USFWS)
FE Endangered
FC Candidate

State (CDFG)
SE Endangered
SC Candidate

California Rare Plant Rank (CRPR) List Categories
List 1A Plants Presumed Extinct in California
List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2 Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 3 Plants About Which We Need More Information - A Review List
List 4 Plants of Limited Distribution – A Watch List

CRPR Threat Rank Extensions
.1 Seriously threatened in California (high degree/immediacy of threat)
.2 Fairly threatened in California (moderate degree/immediacy of threat)
.3 Not very threatened in California (low degree/immediacy of threat or no current threats known)

Angeles National Forest Threatened, Endangered, Proposed, Candidate, and Forest Service Sensitive (FSS) Plants and Animals Which May Occur Within the Angeles National Forest, Los Angeles and San Bernardino Counties, California.
FE Federal Endangered
FS Forest Service Sensitive

Englemann Oak

Englemann oak is a CNPS List 4.2 species. This large tree grows in chaparral, cismontane woodland, riparian woodland and valley and foothill grasslands in Los Angeles, Orange and Riverside counties and in Baja California.

A total of six individuals of Englemann oak were observed in the survey area (Exhibit 5). These plants were observed west of the access road (above the Basin) in the southern portion of the survey area on gentle slopes on loamy soils. The associated species at the various populations included coast live oak (*Quercus agrifolia*), laurel sumac (*Malosma laurina*), mule fat (*Baccharis salicifolia*), valley oak (*Quercus lobata),* poison oak (*Toxicodendron diversilobum*), Coulter's matilija poppy, wild cucumber (*Marah macrocarpus*), shortpod mustard (*Hirschfeldia incana*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*) and sticktight (*Bidens frondosa*).

Coulter's Matilija Poppy

Coulter's matilija poppy is a CNPS List 4.2 species. This rhizomatous herb blooms between March and June in chaparral and coastal scrub. It is known to occur in Los Angeles, Orange, Riverside, and San Diego counties.

A total of 17 clumps of poppy were observed in the survey area in 1 general location (Exhibit 5). These plants were observed west of the access road above the Basin in the southern portion of the survey area on gentle slopes with loamy soils. The poppy spreads by rhizomes and it is

difficult to identify individual plants. The associated species include Englemann oak, wild cucumber, poison oak, coast live oak, and sand plantain (*Plantago arenaria*).

CONCLUSIONS

Although the CDFG protocol requests an assessment of potential project impacts to special status species, the project impact boundaries have not yet been identified. Because the Engelmann oak and Coulter's matilija poppy were observed outside the Basin, they are not expected to be directly impacted. However, future evaluations of project impacts and corresponding mitigation measures will be conducted as part of the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation. The Project should avoid the Engelmann oak and Coulter's matilija poppy to the extent practicable. Protective fencing should be placed around the oak and poppy locations to protect them from damage during construction activities.

Although reference populations and regional rainfall amounts were monitored to ensure the scientific adequacy of these focused surveys, there is always a minimal potential for false negative survey results as species could possibly be present on a site but may not be detectable at the time of the surveys.

If you have any comments or questions, please call Amber Oneal (714) 444-9199.

Sincerely,

BONTERRA CONSULTING



Amber S. Oneal
Senior Project Manager, Biological Services

Enclosures: Exhibit 1 – Regional Location
Exhibit 2 – Local Vicinity
Exhibit 3 – Survey Area
Exhibit 4 – Soil Types
Exhibit 5 – Special Status Plant Locations
Attachment A – Site Photographs
Attachment B – Plant Compendium
Attachment C – CNDDB Forms

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Project Location

Exhibit 1

Santa Anita Prop 1E Project

N W E S

10 5 0 10 Miles

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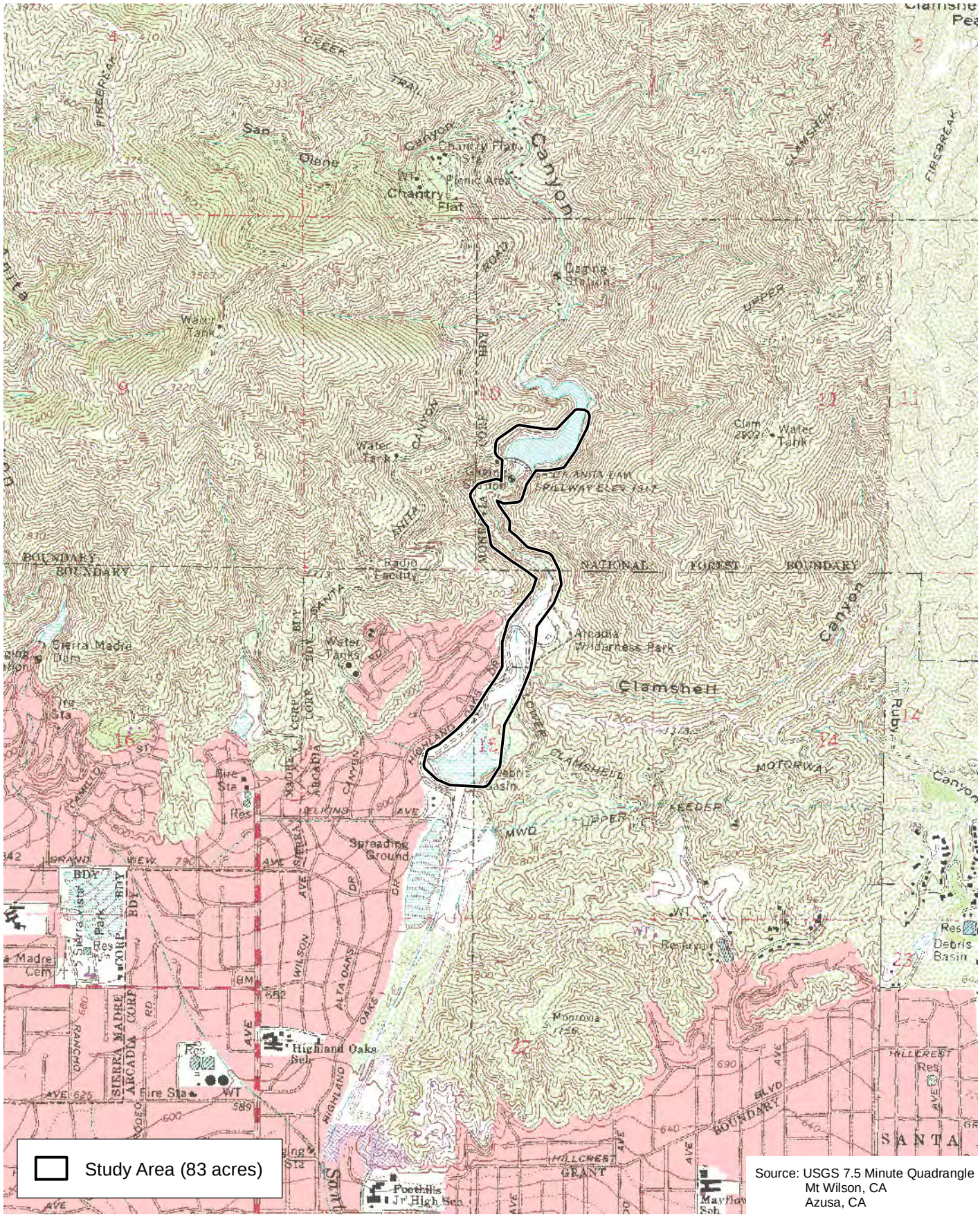

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Local Vicinity

Exhibit 2

Santa Anita Prop 1E Project

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Survey Area

Exhibit 3

Santa Anita Prop 1E Project

N
W E
S

1,000 500 0 1,000

Feet

BonTerra CONSULTING

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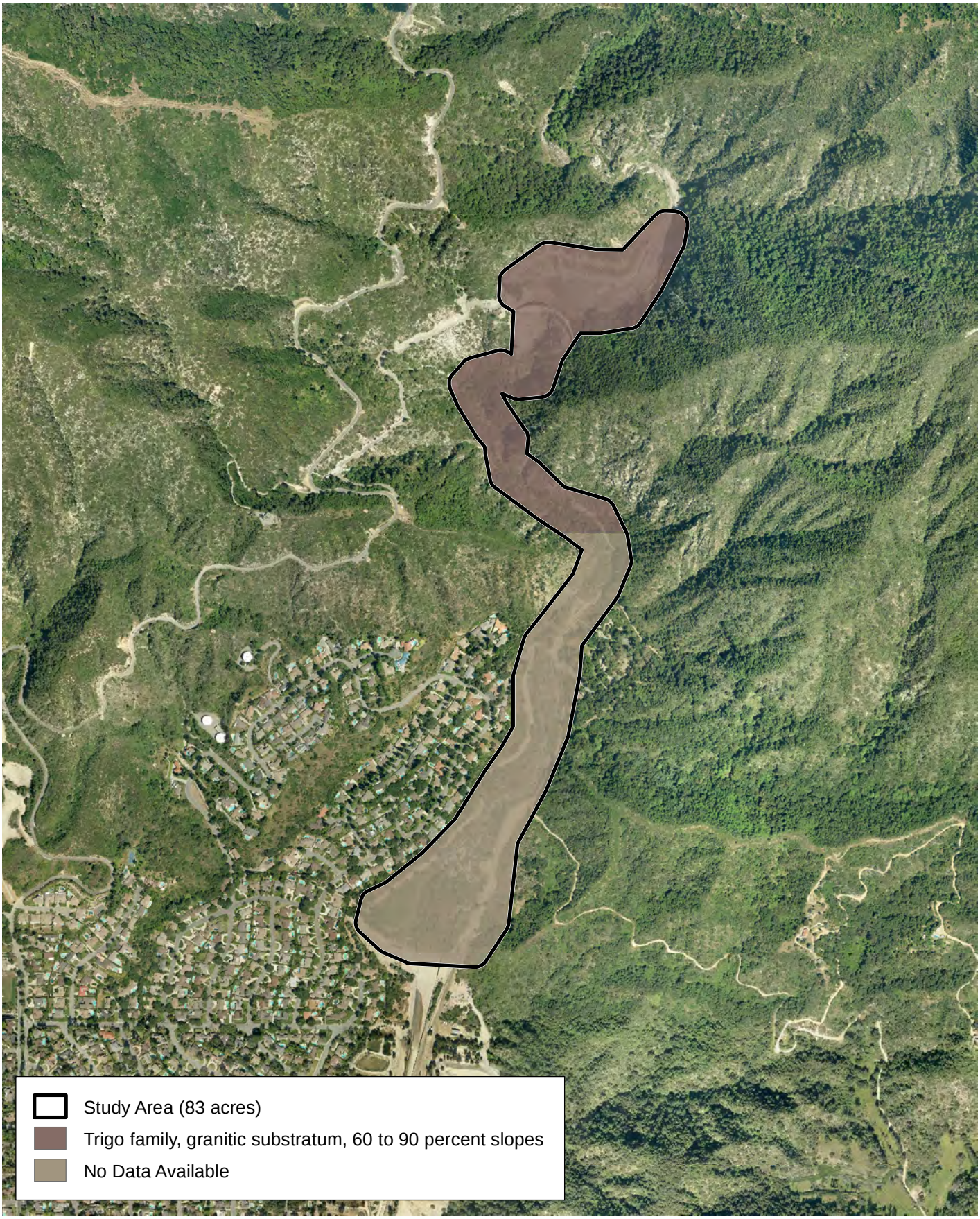

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Soils

Exhibit 4

Santa Anita Prop 1E Project

N
W E
S

1,000 500 0 1,000

Feet

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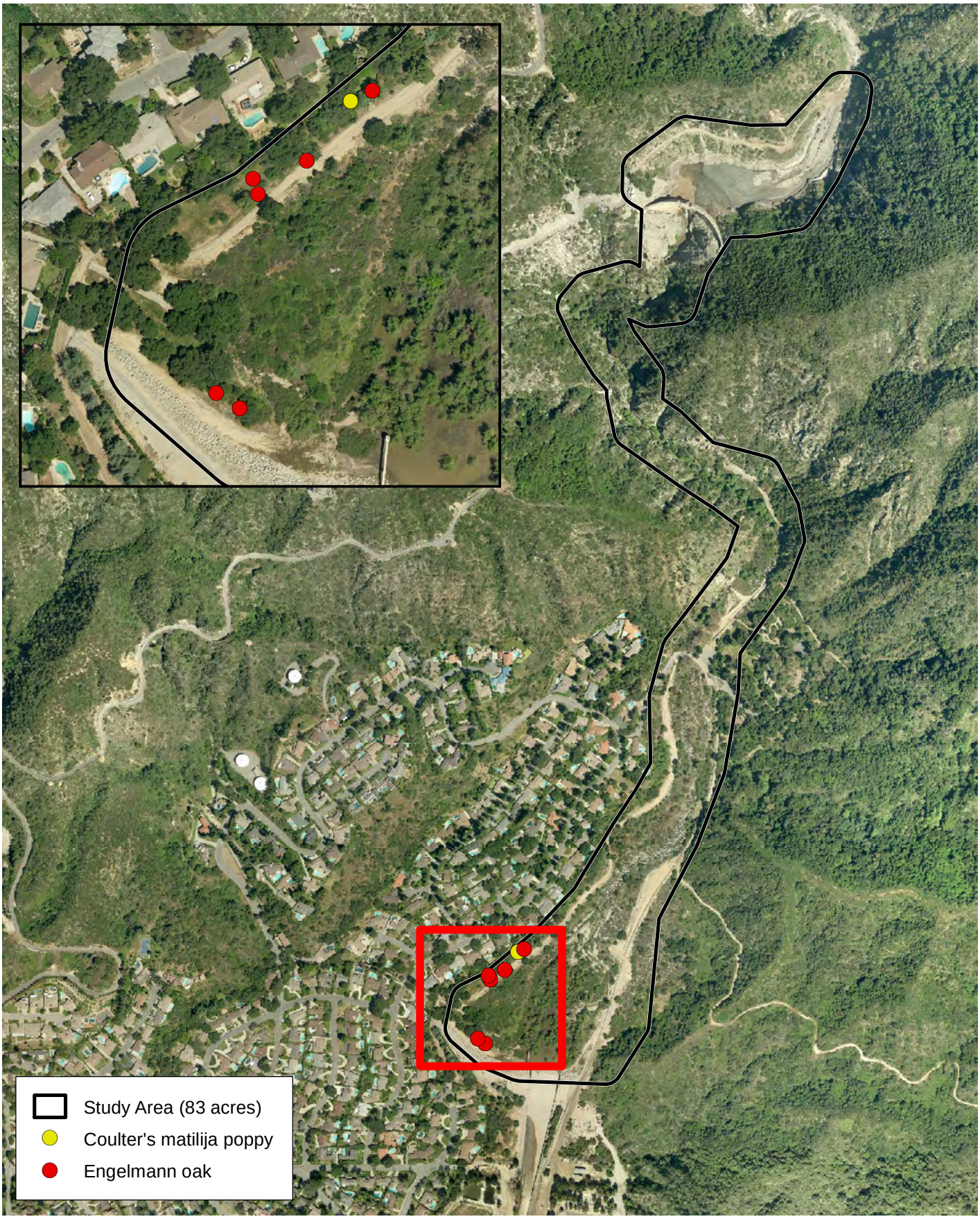

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Special Status Plant Locations

Exhibit 5

Santa Anita Prop 1E Project

N
W E
S

750 375 0 750

Feet

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ATTACHMENT A

SITE PHOTOGRAPHS



Photo 1. Facing east, view of willow riparian in the lower portion of Santa Anita Debris Basin.



Photo 2. Facing north, view of black willow riparian forest in the Santa Anita Debris Basin.

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Site Photographs

Attachment A-1

Santa Anita Proposition 1E Project

BonTerra CONSULTING

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Photo 3. Facing northwest, overview of coastal sage scrub and sycamore woodland in the upper portion of Santa Anita Debris Basin.



Photo 4. Facing north, overview of creek upstream of the headworks facility where the canyon begins to narrow.

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Photo 5. Facing north, view of habitat along creek in the narrow portion of Santa Anita Canyon. Note the steep slope on the west side of the creek.



Photo 6. Facing west, view of alder riparian forest along creek in the narrow portion of Santa Anita Canyon. Note the steep slope on the opposite bank.

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ATTACHMENT B

PLANT COMPENDIUM

PLANTS SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED BOTANICAL SURVEYS

Species	
***PTERIDOPHYTES* – FERNS AND ALLIES**	
POLYPODIACEAE – POLYPODY FAMILY	
Polypodium californicum	California polypody
PTERIDACEAE – BRAKE FAMILY	
Pellaea andromedifolia	coffee fern
Pellaea mucronata	bird's foot fern
SELAGINELLACEAE – SPIKE-MOSS FAMILY	
Selaginella bigelovii	Bigelow's or bushy spike-moss
GYMNOSPERMS	
CUPRESSACEAE – CYPRESS FAMILY	
Juniperus sp.	ornamental juniper
PINACEAE – PINE FAMILY	
Pinus canariensis	Canary Island pine
***ANGIOSPERMAE* – FLOWERING PLANTS**	
DICOTYLEDONES	
ADOXACEAE – MUSKROOT FAMILY	
Sambucus nigra ssp. *caerulea*	blue elderberry
AMARANTHACEAE – AMARANTH FAMILY	
*Amaranthus albus**	tumbleweed
ANACARDIACEAE – SUMAC FAMILY	
Malosma laurina	laurel sumac
Rhus ovata	sugar bush
Rhus aromatica [*Rhus trilobata*]	skunkbush
*Schinus molle**	pepper tree
Toxicodendron diversilobum	western poison oak
APIACEAE (UMBELLIFERAE) – CARROT FAMILY	
Apiastrum angustifolium	wild celery
APOCYNACEAE – DOGBANE FAMILY	
Asclepias fascicularis	narrow-leaved milkweed
*Nerium oleander**	common oleander
*Vinca major**	greater periwinkle
ARALIACEAE – GINSENG FAMILY	
*Hedera helix**	English ivy
ASTERACEAE (COMPOSITAE) – SUNFLOWER FAMILY	
Achillea millefolium	common yarrow
*Ageratina adenophora**	crofton weed
Ambrosia acanthicarpa	annual bur-sage
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Baccharis salicifolia ssp. salicifolia [*Baccharis salicifolia*]	mule fat
Bidens frondosa	sticktight
Brickellia californica	California brickellbush
Carduus pycnocephalus var. *pycnocephalus**	Italian thistle

PLANTS SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED BOTANICAL SURVEYS

Species	
*Centaurea melitensis**	tocalote/Maltese star thistle
Chaenactis glabriuscula	yellow pincushion
Corethrogyne filaginifolia [*Lessingia filaginifolia]*	California-aster
Delairea odorata [*Senecio mikanioides*]*	German ivy
Helianthus annuus	western sunflower
Heterotheca grandiflora	telegraph weed
*Hypochaeris glabra**	smooth cat's-ear
Isocoma menziesii	goldenbush
*Lactuca serriola**	prickly lettuce
Lepidospartum squamatum	scale-broom
Logfia gallica [*Filago gallica*] *	daggerleaf cottonrose
Malacothrix saxatilis	cliff malacothrix
Pseudognaphalium biolettii [*Gnaphalium bicolor*]	bicolored everlasting / Bioletti's cudweed
Pseudognaphalium californicum [*Gnaphalium californicum*]	California everlasting
Pseudognaphalium canescens [*Gnaphalium canescens*]	everlasting
Pseudognaphalium luteoalbum [*Gnaphalium luteoalbum*] *	weedy cudweed
*Senecio vulgaris**	common groundsel
*Silybum marianum**	milk thistle
*Sonchus oleraceus**	common sow thistle
Uropappus lindleyi	silver puffs
BETULACEAE – BIRCH FAMILY	
Alnus rhombifolia	white alder
BORAGINACEAE – BORAGE FAMILY	
Amsinckia intermedia	common fiddleneck
Cryptantha sp.	cryptantha
Cryptantha intermedia	common cryptantha
Eriodictyon trichocalyx	hairy yerba santa
Eucrypta chrysanthemifolia	common eucrypta
Phacelia cicutaria	caterpillar phacelia
Phacelia distans	common phacelia
Phacelia minor	wild canterbury-bell
Phacelia ramosissima	branching phacelia
BRASSICACEAE (CRUCIFERAE) – MUSTARD FAMILY	
*Hirschfeldia incana**	shortpod mustard
Lepidium nitidum	peppergrass / shining peppergrass
Nasturtium officinale [*Rorippa nasturtium-aquaticum*]*	water cress
*Sisymbrium irio**	London rocket
CACTACEAE – CACTUS FAMILY	
*Opuntia ficus-indica**	mission prickly-pear
Opuntia littoralis	coastal prickly pear

PLANTS SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED BOTANICAL SURVEYS

Species	
CAPRIFOLIACEAE – HONEYSUCKLE FAMILY	
Lonicera subspicata var. *denudata*	southern honeysuckle
*Silene gallica**	small-flower catchfly
CHENOPODIACEAE – GOOSEFOOT FAMILY	
*Chenopodium album**	lamb's quarters
*Salsola tragus**	Russian thistle
CISTACEAE – ROCK-ROSE FAMILY	
Helianthemum scoparium	peak rush-rose
CONVOLVULACEAE – MORNING-GLORY FAMILY	
Calystegia macrostegia	morning-glory
Cuscuta californica	chaparral dodder
CRASSULACEAE – STONECROP FAMILY	
Crassula connata	pygmy-weed
Dudleya caespitosa (?)	capitates dudleya
Dudleya cymosa ssp. *pumila*	canyon dudleya
Dudleya lanceolata	lance-leaved dudleya
CUCURBITACEAE – GOURD FAMILY	
Marah macrocarpus	wild cucumber/chilicothe
EUPHORBIACEAE – SPURGE FAMILY	
Croton setigerus [*Eremocarpus setigerus*]	doveweed / turkey mullein
*Ricinus communis**	castor bean
FABACEAE (LEGUMINOSAE) – LEGUME FAMILY	
Acmispon strigosus [*Lotus strigosus*]	strigose lotus
Acmispon glaber [*Lotus scoparius* var. *scoparius*]	deerweed
Lupinus bicolor	miniature lupine
Lupinus hirsutissimus	stinging lupine
Lupinus truncatus	truncate lupine / collar lupine
*Melilotus indica**	sourclover
*Spartium junceum**	Spanish broom
Trifolium willdenovii	tomcat clover
FAGACEAE – OAK / BEECH FAMILY	
Quercus agrifolia	coast live oak
Quercus berberidifolia	scrub oak / California scrub oak
Quercus chrysolepis	maul oak/canyon live oak
Quercus engelmannii	Engelmann oak
Quercus lobata	valley oak
GERANIACEAE – GERANIUM FAMILY	
*Erodium cicutarium**	red-stemmed filaree
Geranium sp. (molle?)*	Carolina geranium
GROSSULARIACEAE – GOOSEBERRY FAMILY	
Ribes aureum	golden currant
Ribes speciosum	fuchsia-flowered gooseberry

PLANTS SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED BOTANICAL SURVEYS

Species	
LAMIACEAE (LABIATAE) – MINT FAMILY	
*Marrubium vulgare**	common horehound
Salvia apiana	white sage
Salvia columbariae	chia
Salvia mellifera	black sage
LAURACEAE – LAUREL FAMILY	
Umbellularia californica	California bay
Claytonia perfoliata ssp. *perfoliata*	common miner's-lettuce
MORACEAE – FIG FAMILY	
*Ficus carica**	edible fig
MYRSINACEAE – MYRSINE FAMILY	
*Anagallis arvensis**	scarlet pimpernel
MYRTACEAE – MYRTLE FAMILY	
Eucalyptus sp.*	gum
OLEACEAE – OLIVE FAMILY	
Fraxinus sp.	ash
ONAGRACEAE – EVENING PRIMROSE FAMILY	
Camissonia bistorta	California sun cup
Clarkia purpurea	four-spot
Epilobium canum	California fuchsia
Epilobium ciliatum	willow-herb
Eulobus californicus [*Camissonia californica*]	mustard-like evening primrose
PAPAVERACEAE – POPPY FAMILY	
Romneya coulteri	Coulter's matilija poppy
PHRYMACEAE – LOPSEED FAMILY	
Mimulus aurantiacus	bush monkeyflower
Mimulus guttatus	seep monkeyflower
Mimulus pilosus	downy monkeyflower
PLANTAGINACEAE – PLANTAIN FAMILY	
Keckiella cordifolia	heart-leaved bush-penstemon
Plantago arenaria [*Plantago indica*]*	sand plantain
*Veronica anagallis-aquatica**	water speedwell
PLATANACEAE – SYCAMORE FAMILY	
Platanus racemosa	western sycamore
POLEMONIACEAE – PHLOX FAMILY	
POLYGONACEAE – BUCKWHEAT FAMILY	
Eriogonum elongatum var. *elongatum*	long-stemmed wild buckwheat
Eriogonum fasciculatum	California buckwheat
RHAMNACEAE – BUCKTHORN FAMILY	
Rhamnus ilicifolia	hollyleaf redberry
ROSACEAE – ROSE FAMILY	
Adenostoma fasciculatum	chamise
Cercocarpus betuloides var. betuloides	birch-leaf mountain-mahogany
Heteromeles arbutifolia	toyon / christmas berry

PLANTS SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED BOTANICAL SURVEYS

Species	
Prunus ilicifolia	holly-leaved cherry
Rosa californica	California rose
Rubus ursinus	California blackberry
RUBIACEAE – MADDER FAMILY	
Galium aparine	goose grass
SALICACEAE – WILLOW FAMILY	
Salix exigua	narrow-leaved willow
Salix gooddingii	Goodding's black willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
SAPINDACEAE – SOAP BERRY FAMILY	
Acer macrophyllum	big-leaf maple
SCROPHULARIACEAE – FIGWORT FAMILY	
*Verbascum thapsus**	woolly mullein
SOLANACEAE – NIGHTSHADE FAMILY	
*Nicotiana glauca**	tree tobacco
Solanum douglasii	Douglas' nightshade
TAMARICACEAE – TAMARISK FAMILY	
*Tamarix ramosissima**	Mediterranean tamarix
URTICACEAE – NETTLE FAMILY	
Urtica dioica ssp. *holosericea*	hoary nettle
***MONOCOTYLEDONES* – MONOCOTS**	
AGAVACEAE – CENTURY PLANT FAMILY	
Hesperoyucca whipplei [Yucca whipplei]	Our Lord's candle
ARECACEAE (PALMAE) – PALM FAMILY	
*Washingtonia robusta**	Mexican fan palm
CYPERACEAE – SEDGE FAMILY	
Cyperus sp.	umbrella-sedge
LILIACEAE – LILY FAMILY	
POACEAE [GRAMINEAE] - GRASS FAMILY	
Stipa coronata [*Achnatherum coronatum*]	crested needlegrass
*Avena sp.**	cultivated oat
*Bromus diandrus**	ripgut grass
Bromus madritensis ssp. *rubens**	red brome
Festuca myuros [*Vulpia myuros*] *	foxtail fescue
*Lamarckia aurea**	goldentop
Melica imperfecta	little California melic grass
*Pennisetum setaceum**	crimson fountain grass
*Piptatherum miliaceum**	smilo grass / millett ricegrass
*Poa annua**	annual bluegrass

PLANTS SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED BOTANICAL SURVEYS

Species	
THEMIDACEAE – BRODIAEA FAMILY	
Bloomeria crocea	common goldenstar
TYPHACEAE– CATTAIL FAMILY	
Typha sp.	cattail

* Non-native species
? specimen sent to herbarium for confirmation since out of known elevational range, may be a hybrid (UCSC Herbarium); confirmed that it is not any of the listed *Dudleya* species.

ATTACHMENT C

CNDDB FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 08/23/2012

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Quercus engelmannii*

Common Name: Engelmann oak

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 6 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Sandy Leatherman
Address: 4848 Lakeview Ave, Suite 100E
Yorba Linda, Ca 92886
E-mail Address: sandyleatherman@aol.com
Phone: (714) 701-0863

Plant Information

Phenology: 100 % vegetative _____ % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Los Angeles Landowner / Mgr.: Los Angeles County Department of Public Works

Quad Name: Mt. Wilson Elevation: 800-850

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Oregon

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: 11 s 0405726 3781703, 11S 0405723 3781711, 11S 0405751 3781720, 11S 0405774 3781750, 11S 0405716 3781594, 11S 0405703 3781602

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

The associated species at the various populations included: coast live oak (Quercus agrifolia), laurel sumac (Malosma laurina), mule fat (Baccharis salicifolia), valley oak (Quercus lobata), poison oak (Toxicodendron diversilobum), Coulter's matilija poppy, wild cucumber (Marah macrocarpus), shortpod mustard (Hirschfeldia incana), ripgut brome (Bromus diandrus), red brome (Bromus madritensis ssp. rubens) and sticktight (Bidens frondosa). These plants were observed above the basin in the southern portion of the site on gentle slopes on loamy soils.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: residential and flood control

Visible disturbances: flood control activities

Threats:

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: known species

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 08/23/2012

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Romneya coulteri*

Common Name: Coulter's matilija poppy

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 17 clumps Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: - Number - Museum / Herbarium

Reporter: Sandy Leatherman
Address: 4848 Lakeview Ave, Suite 100E
Yorba Linda, Ca 92886
E-mail Address: sandyleatherman@aol.com
Phone: (714) 701-0863

Plant Information

Phenology: 100 % vegetative _____ % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Los Angeles Landowner / Mgr.: County of Los Angeles Department Public Works

Quad Name: Mt. Wilson Elevation: _____

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Oregon

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: 11S 0405774 3781750

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Plants occur between residences and the maintenance road for the Santa Anita Debris Basin Area. The area is disturbed with clumps of Romneya. Associated species: Englemann oak (Quercus engelmannii) , wild cucumber (Marah macrocarpus), poison oak (Toxicodendron diversilobum), coast live oak (Quercus agrifolia) and sand plantain (Plantago arenaria).

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: Residential and Flood Control

Visible disturbances: Flood Control Activities including weed abatement

Threats:

Comments: Plants may have been planted by adjacent residences.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Previous work with species

Photographs: *(check one or more)* Slide Print Digital

Plant / animal ☐ ☐ ☐
Habitat ☐ ☐ ☐
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☐ no ☐

ATTACHMENT D

TREE SURVEY REPORT

BonTerra PSOMAS

Native Tree Survey

Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California

Prepared for

Los Angeles County Flood Control District
900 South Fremont Avenue
Alhambra, California 91803-1331

Prepared by

BonTerra Psomas
225 South Lake Avenue, Suite 1000
Pasadena, California 91101
Contact: David Hughes, Certified Arborist
T: (626) 351-2000 F: (626) 351-2030

October 15, 2014

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APPENDICES

Appendix	
A	Summary of Native Tree Data
B	Baseline Photographic Documentation

Executive Summary

BonTerra Psomas Certified Arborists conducted a survey of native trees within and adjacent to proposed project construction areas associated with the Santa Anita Stormwater Flood Management and Seismic Strengthening Project. The project site is divided into six sub-areas: (1) the Santa Anita Dam Modification; (2) Santa Anita Dam Access Road; (3) Headworks Reconstruction; (4) Wilderness Park Culvert Crossing; (5) Debris Dam Remediation/Enlargement; and (6) Sediment Placement Site. Native trees that occur within and adjacent to construction impact areas at each of these sub-areas were identified, mapped, and given an identifying numbered tag. The trunk diameter, tree height, and canopy width were measured and the health and aesthetic quality of each tree were evaluated.

In addition to the project construction areas, the Debris Dam reservoir is proposed to be enlarged by raising the spillway of the Debris Dam. Trees that are currently in upland areas, but that would be within the new reservoir inundation boundary, were also inventoried.

The result of the tree survey indicates that a total of four trees are within the project construction boundary at the Wilderness Park Culvert Crossing site. These four trees consist of three western sycamores (*Platanus racemosa*) and one coast live oak (*Quercus agrifolia*).

In addition to the trees within the impacts area, 21 trees occur in future inundation areas that would result from raising the spillway of the Debris Dam. These 21 trees include 6 western sycamores, 12 coast live oaks, 1 Englemann oak (*Quercus englemannii*), and 2 Goodding's black willows (*Salix gooddingii*). Because the effect of the Debris Dam changes to these 21 trees is currently unknown, the LACFCD will implement a post-construction long-term monitoring program to identify any changes to the health of trees in the future inundation areas.

SECTION 1.0 INTRODUCTION

The purpose of this report is to (1) identify and quantify trees on the Santa Anita Stormwater Flood Management and Seismic Strengthening Project site (hereafter referred to as the project site) that are regulated by the Cities of Arcadia and Monrovia Tree Ordinances and/or the *California Fish and Game Code*; (2) determine the impacts that the project would have on these trees; (3) determine the expected number of replacement trees that would be required to mitigate these impacts; (4) describe methods to avoid impacts to trees that are located in the vicinity of proposed construction areas; and (5) describe long-term monitoring methods to determine the effect that increases in the extent, duration, and depth of inundation may have on various trees in the project area.

1.1 PROJECT LOCATION AND DESCRIPTION

The proposed Project is located in the cities of Arcadia and Monrovia, as well as unincorporated portions of Los Angeles County, California. The Project study area for the proposed Project extends from the inundation area of Santa Anita Dam downstream to the Santa Anita Debris Dam adjacent to Highland Oaks Drive (Exhibit 1). Open space in the City of Arcadia's Wilderness Park (Wilderness Park) and the Angeles National Forest occur north and east of the Project study area.

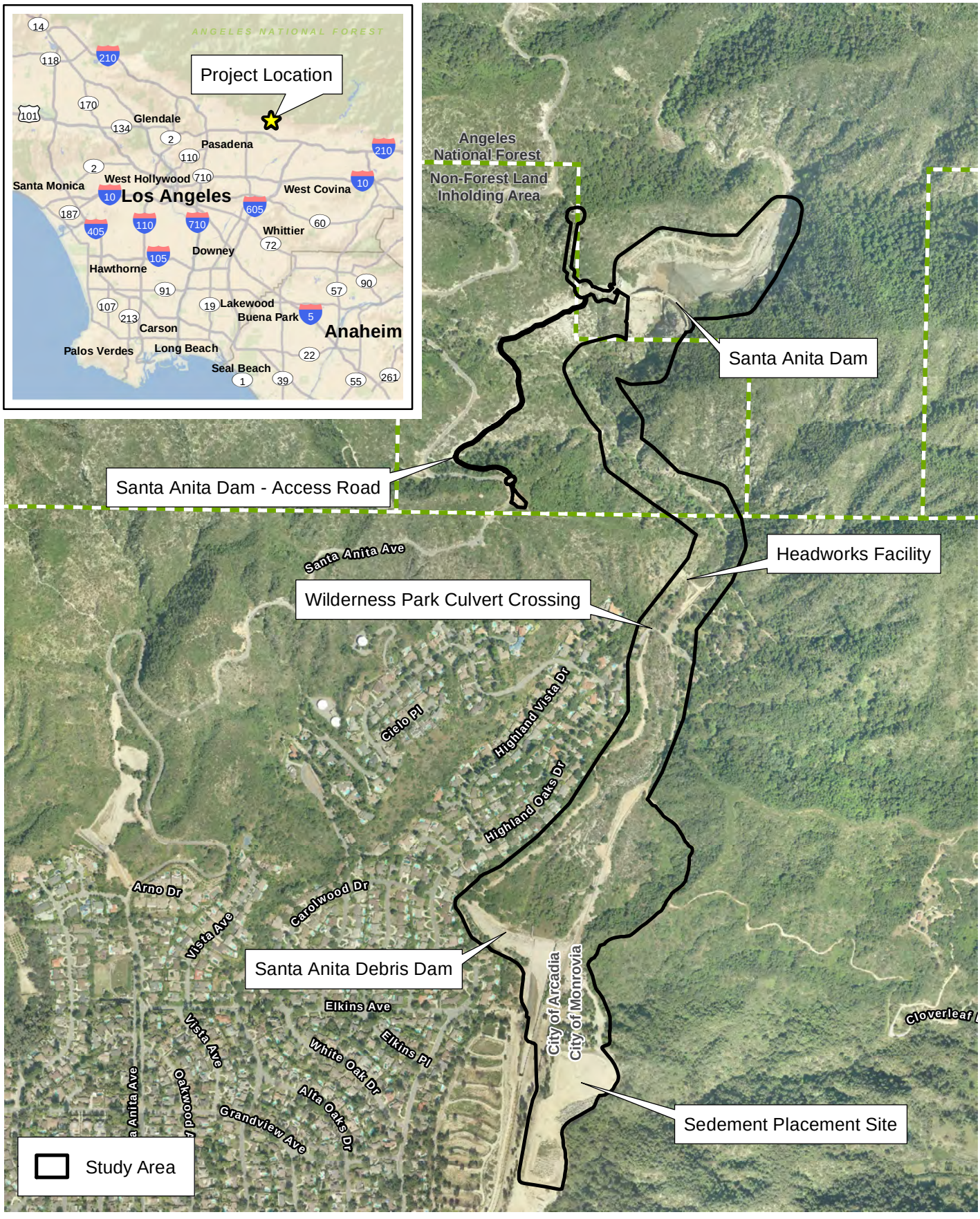
The Project has multiple components, including (1) the Santa Anita Dam Modification; (2) Santa Anita Dam Access Road; (3) Headworks Reconstruction; (4) Wilderness Park Culvert Crossing; (5) Debris Dam Remediation/Enlargement; and (6) Sediment Placement Site. A detailed project description can be found in the Project's Mitigated Negative Declaration (BonTerra Psomas 2014). The proposed Project would improve the Los Angeles County Flood Control District (LACFCD) facilities to better manage storm water runoff and improve public safety by addressing seismic safety and other structural issues, as well as by preventing flood damage to downstream communities.

1.2 REGULATORY BACKGROUND

The tree survey area for this project includes areas within the cities of Arcadia and Monrovia as well as unincorporated areas within Los Angeles County. As a result, proposed tree impacts are potentially subject to compliance with the Arcadia Oak Tree Ordinance (Article IX, Chapter 7 of the Arcadia Municipal Code), the Monrovia Oak Tree Ordinance (Chapter 17, Section 20.040 of the Monrovia Municipal Code), and the County of Los Angeles Oak Tree Ordinance (Section 22.56 of the Los Angeles County Code). Furthermore, many of the trees are associated with streambed areas that are subject to regulation under the *California Fish and Game Code* (§§1600–1616), regardless of city or county boundaries. A summary of each of these regulatory requirements is provided below.

Arcadia Oak Tree Ordinance

The City of Arcadia requires that an applicant acquire a permit prior to removing, relocating, damaging, or encroaching upon the protected zone of any oak tree (City of Arcadia 2014). The protected zone is defined as the outer canopy of any oak tree or 15 feet from the trunk, whichever is greater. Encroachment is defined as any soil disturbance or placement of fill that would potentially damage the root zone of trees.



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Project Location

Exhibit 1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

1,000 500 0 1,000 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\ex1_ProjLocation.pdf

Oak trees that are covered by these regulations include any coast live oak (*Quercus agrifolia*) or Englemann oak (*Quercus englemannii*) that has a trunk diameter at breast height (dbh) of at least four inches. All other species of oak (i.e., trees within the genus *Quercus*) must have a dbh of at least 12 inches to qualify for protection under the ordinance. Tree replacement requirements are determined by the City and are based on the value or replacement cost of the trees that are impacted.

Monrovia Oak Tree Ordinance

The City of Monrovia requires that an applicant acquire a permit prior to removing an oak tree, pruning an oak tree, or grading (cutting or filling) within the outer canopy of an oak tree (City of Monrovia 2013). Oak trees (all species of the genus *Quercus*) must measure at least ten inches dbh to be regulated under this ordinance. Tree replacement requirements, if any, are determined by the City through the permit acquisition process.

Los Angeles County Oak Tree Ordinance

The County of Los Angeles Oak Tree Ordinance (County of Los Angeles 2014) requires that a permit is acquired prior to cutting, destroying, removing, relocating, inflicting damage, or encroaching into the protected zone of any oak tree species that measures at least eight inches dbh. Multi-trunk trees must have a combined size of at least 12 inches dbh for the largest two trunks to be included. For the County of Los Angeles, an oak tree protected zone extends 5 feet outside the outer canopy or 15 feet from the trunk, whichever is greater. Impacts to oak trees that are covered by this ordinance are to be replaced at a 2:1 ratio.

California Fish and Game Code

The California Department of Fish and Wildlife (CDFW) is charged with issuing Streambed Alteration Agreements that would allow for the removal of native tree species that occur within the bed, channel, or bank of any river, stream, or lake (State of California 2004). The minimum size requirement for regulation by the CDFW is two inches dbh. Mitigation/replacement ratios for trees within CDFW jurisdiction is based on the size of the tree dbh (i.e., mitigation ratios increase as the size of the impacted tree increases).

It should be noted that many trees in the survey area are subject to regulation by both a city/county ordinance as well as the *California Fish and Game Code*.

SECTION 2.0 METHODOLOGY

BonTerra Psomas Certified Arborists David Hughes (International Society of Arboriculture [ISA] Certificate Number WE-7752A) and Trevor Bristle (ISA Certificate Number WE-10233A) surveyed trees within the tree survey area on August 28, 2014, and by Mr. Hughes on September 2 and 15, 2014. All trees within the tree survey area boundaries that are subject to regulation by a city/county tree ordinance and/or the *California Fish and Game Code* were identified and mapped in the field. During the survey, each tree was tagged and the following data were collected: dbh, tree height, and canopy width, as well as qualitative ratings on aesthetics and overall health. Collected data are included in Appendix A.

2.1 MAPPING

Each tree that was surveyed was mapped on a 100-scale (1 inch = 100 feet) aerial photograph in the field and each location was recorded using a hand-held global positioning system (GPS) device.

2.2 TREE TAGS

Each tree that was assessed was individually tagged with an aluminum tag bearing the tree number. Trees that could not be tagged (e.g., trees on extremely steep slopes, surrounded by poison oak [*Toxicodendron diversilobum*], or infested with bees) were given identifying numbers. Tag numbers used during the surveys included tags 114 through 275.

2.3 DIAMETER

Using a diameter tape, measurements were taken at four and one-half feet above mean natural grade (two feet above grade for trees within the City of Monrovia boundaries); multiple trunks were measured separately. The diameter of the largest two trunks was combined to determine the total diameter of each tree. In addition, the total number of trunks was recorded. The diameter was estimated for trees that were not accessible (e.g., surrounded by poison oak or located on a steep slope).

2.4 HEIGHT AND CANOPY

The height of each tree was estimated from mean natural grade to the highest branch. Also, the diameter of each tree's canopy was estimated at its widest point.

2.5 AESTHETICS

Each tree assessed was inspected and compared to an archetype tree (considered excellent on all points mentioned below) of the same species. Tree aesthetics were evaluated with respect to overall form and symmetry, crown balance, branching pattern, and broken branches.

The trees were rated on a scale of 1 to 5, as follows:

1: Very Poor

2: Poor

3: Fair

4: Good

5: Excellent

2.6 HEALTH

The health of each tree was assessed based on visual evidence of vigor, such as the amount of foliage; leaf color and size; presence of branch or twig dieback; severity of insect infestation; the presence of disease; heart rot; fire damage; mechanical damage; amount of new growth; appearance of bark; and rate of callous development over wounds. The tree's structural integrity was also evaluated with respect to branch attachment, branch placement, root health, and stability. In addition, the health assessment considered such elements as the presence of decay, weak branch attachments, and the presence of exposed roots due to soil erosion.

Based on the brief health assessment, each tree was rated using a scale of one to five, based on the criteria that are summarized in Table 1.

TABLE 1
TREE HEALTH RATING CRITERIA

Rating	Criteria
5	Tree in excellent health with abundant foliage and new leaf growth and no signs of herbivory or decay on trunk or branches. Root zone unconfined and unaffected by soil disturbing activities. Excellent overall tree structure and branch attachment.
4	Tree in very good health with ample green foliage and new leaf growth; evidence of minor but compartmentalized trunk/branch decay. Minor soil disturbance evident within root zone. Excellent tree structure overall.
3	Tree in moderate health with thin canopy overall. Minor, uncompartmentalized or moderate, compartmentalized trunk/branch decay evident. Evidence of ongoing soil disturbing activities within root zone, compacted soil, or confined root zone overall. Poor branch attachments or included bark present.
2	Tree in poor health; existing leaves yellowing and/or new leaf growth appears unhealthy; extensive limb or trunk damage. Root zone severely confined. Evidence of internal decay (fungus, bleeding sap). Poor overall soil conditions for root development.
1	Tree in obvious decline; existing leaves yellowing and no new leaf growth. Tree sounds hollow. Extensive limb or trunk damage.

SECTION 3.0 RESULTS

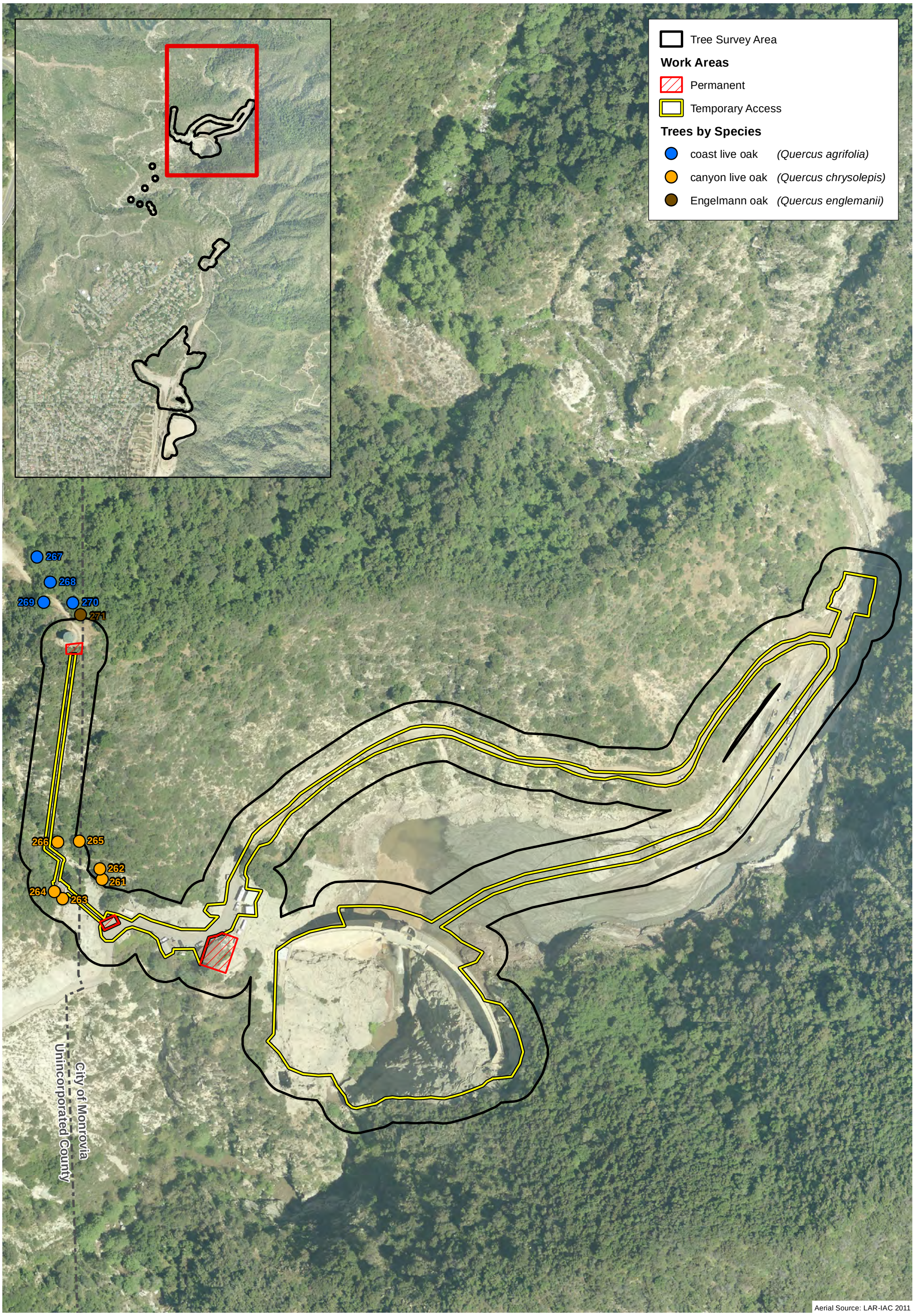
A total of 162 trees were documented within the tree survey area that met the minimum size requirement described in the various tree ordinances and/or the *California Fish and Game Code*. Tree locations are provided in Exhibits 2 through 6. At each location in the survey area, trees are either:

1. within the Project Work Areas and are presumed to be removed or protected and monitored;
2. adjacent to Project Work Areas so that protection measures should be taken to avoid impacts; or
3. in future inundation areas (i.e., current upland areas that will be periodically subject to flooding from an expanded Debris Dam inundation footprint) and will be monitored to identify any effects to their overall health from inundation.

In all, a total of four native trees are located within Project Work Areas. These include three western sycamores (*Platanus racemosa*) and one coast live oak. All four of these trees are located at the Wilderness Park Culvert Crossing. Two sycamore trees (Trees Numbers 220 and 221) located downstream of the culvert crossing would be removed in order to construct the Project. One sycamore tree (Tree Number 222) is located at the edge of the permanent impact area and would likely not need to be removed; however, to provide for a conservative analysis, this tree is considered impacted. The oak tree (Tree Number 219) is also located on the permanent impact boundary; however, this tree would not need to be removed. Grading for the culvert crossing would remain outside of the edge of the oak tree's canopy whenever possible. Construction activities occurring directly adjacent to the oak tree, and the sycamore tree if it is able to be preserved, could harm the trees' root systems and may affect the health of the trees. Therefore, during construction activities occurring directly adjacent to the canopy of this tree, a Certified Arborist should monitor the work to ensure that the tree is properly protected and to minimize the potential for harm to the health of the tree. A summary of trees that occur at each Project Work Area is provided in Tables 2 through 5 below (it should be noted that the coast live oak (Tree Number 219) adjacent to construction activities is subject to permitting by both the City of Arcadia and the CDFW, while the three western sycamores that would need to be removed are under the jurisdiction of the CDFW only). No trees protected by the Monrovia Municipal Code or the Los Angeles County Oak Tree Ordinance are proposed for removal.

As part of the improvements at the Debris Dam, six non-native deodar cedar trees (*Cedrus deodara*) located at the downstream toe of the embankment would also be removed. These trees are not subject to the jurisdiction of any tree ordinance nor are they regulated by the CDFW.

Several trees are located in the immediate vicinity of construction activities. No impacts to these trees are anticipated and recommendations to ensure that these trees are protected in place are provided in Section 4. Native trees in the construction buffer area that are subject to regulation by a city/county tree ordinance and/or the CDFW include 1 white alder (*Alnus rhombifolia*), 17 western sycamores, 74 coast live oaks, 9 canyon live oaks (*Quercus chrysolepis*), 3 Englemann oaks, and 18 Goodding's black willows (*Salix gooddingii*).



Tree Locations - Dam

Exhibit 2

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

180 90 0 180 Feet

BonTerra PSOMAS

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Tree Survey Area

Work Areas

Permanent

Trees by Species

coast live oak *(Quercus agrifolia)*

canyon live oak *(Quercus chrysolepis)*

Engelmann oak *(Quercus englemanii)*

260

259

256

257

258

Unincorporated County

City of Arcadia

Aerial Source: LAR-IAC 2011

Tree Locations - Dam (Access Road)

Exhibit 3

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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Tree Survey Area

Work Areas

Permanent

Temporary Access

Trees by Species

white alder	*(Alnus rhombifolia)*
western sycamore	*(Platanus racemosa)*
coast live oak	*(Quercus agrifolia)*
Goodding's black willow	*(Salix gooddingii)*

City of Monrovia
City of Arcadia

Headworks Facility

Wilderness Park Culvert Crossing

230
229
231
228
227
225
226
223
224
222
219
220
221

City of Monrovia
City of Arcadia

Aerial Source: LAR-IAC 2011

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Tree Locations - Headworks and Wilderness Park Culvert Crossing

Exhibit 4

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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Tree Survey Area

Work Areas

Permanent

Temporary Access

Increased Inundation Area

Trees by Species

western sycamore	*(Platanus racemosa)*
coast live oak	*(Quercus agrifolia)*
Engelmann oak	*(Quercus englemanii)*
valley oak	*(Quercus lobata)*
Goodding's black willow	*(Salix gooddingii)*

City of Arcadia
City of Monrovia

Santa Anita Debris Dam

Aerial Source: LAR-IAC 2011

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Tree Locations – Debris Dam

Exhibit 5

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

160 80 0 160 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\ex5_DebrisDam.pdf



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Tree Locations – Debris Dam (Sediment Placement Site)

Exhibit 6

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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TABLE 2
TREES WITHIN SURVEY AREA REGULATED BY CITY OF ARCADIA

Species	Existing Trees (Trees Within Project Work Areas)						
	Dam	Dam Access Road	Headworks Area	Wilderness Park Culvert Crossing	Debris Dam[a]	Sediment Placement Site	Total
Quercus agrifolia coast live oak	–	–	–	1 (1[b])	57 (0)	5 (0)	**63 (1[b])**
Quercus englemannii Englemann oak	–	–	–	–	2 (0)	–	**2 (0)**
Total	**0 (0)**	**0 (0)**	**0 (0)**	**1 (1)**	**59 (0)**	**5 (0)**	**65 (1[b])**

[a] 9 coast live oaks (numbers 126, 142-145, 147, 148, 150, and 151) and 1 Englemann oak (number 149) are located within future inundation areas.

[b] Although this oak tree (Tree Number 219) is located at the edge of the permanent impact boundary, construction plans show that this tree would not need to be removed to construct the Project.

TABLE 3
TREES WITHIN SURVEY AREA REGULATED BY CITY OF MONROVIA

Species	Existing Trees (Trees Within Project Work Areas)						
	Dam	Dam Access Road	Headworks Area	Wilderness Park Culvert Crossing	Debris Dam[a]	Sediment Placement Site	Total
Quercus agrifolia coast live oak	–	–	–	–	21 (0)	10 (0)	**31 (0)**
Quercus chrysolepis canyon live oak	2 (0)	–	–	–	–	–	**2 (0)**
Total	**2 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**21 (0)**	**10 (0)**	**33 (0)**

[a] One coast live oak (number 197) is located within future inundation areas.

TABLE 4
TREES WITHIN SURVEY AREA
REGULATED BY COUNTY OF LOS ANGELES

Species	Existing Trees (Trees Within Project Work Areas)						
	Dam	Dam Access Road	Headworks Area	Wilderness Park Culvert Crossing	Debris Dam	Sediment Placement Site	Total
Quercus agrifolia coast live oak	4 (0)	1 (0)	–	–	–	–	**5 (0)**
Quercus chrysolepis canyon live oak	4 (0)	3 (0)	–	–	–	–	**7 (0)**
Quercus englemannii Englemann oak	1 (0)	–	–	–	–	–	**1 (0)**
Total	**9 (0)**	**4 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**13 (0)**

TABLE 5
TREES WITHIN SURVEY AREA REGULATED BY CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Species	Existing Trees (Trees Within Project Work Areas)[a]						
	Dam	Dam Access Road	Headworks Area	Wilderness Park Culvert Crossing	Debris Dam[b]	Sediment Placement Site	Total
*Alnus rhombi*folia white alder	–	–	1 (0)	–	–	–	**1 (0)**
Platanus racemosa western sycamore	–	–	2 (0)	3 (3)	15 (0)	–	**20 (3)**
Quercus agrifolia coast live oak	–	–	–	1 (1[c])	49 (0)	–	**50 (1[c])**
Quercus chrysolepis canyon live oak	6 (0)	–	–	–	–	–	**6 (0)**
Quercus englemannii Englemann oak	–	–	–	–	3 (0)	–	**3 (0)**
Quercus lobata valley oak	–	–	–	–	1 (0)	–	**1 (0)**
Salix gooddingii black willow	–	–	3 (0)	–	15 (0)	–	**18 (0)**
Total	6 (0)	0 (0)	6 (0)	4 (4[c])	83 (0)	0 (0)	**99 (4[c])**

[a] Trees under CDFW jurisdiction are also subject to regulation by the ordinances summarized in Tables 2, 3, and 4. These trees are subject to overlapping jurisdictions.

[b] Five western sycamores (numbers 165, 177, 178, 181, and 272), nine coast live oaks (numbers 126, 142-145, 147, 148, 150, and 151), one Englemann oak (number 149), and two Goodding's black willows (numbers 179 and 180) are located within future inundation areas.

[c] Although this oak tree (number 219) is located at the edge of the permanent impact boundary, construction plans show that this tree would not need to be removed to construct the Project.

As part of the proposed project, the Debris Dam spillway will be raised four feet to increase the water retaining capacity of the Debris Dam reservoir. As a result, 21 trees that are currently outside the inundation area of the Debris Dam will be subject to periodic flooding. These 21 trees include 6 western sycamores, 12 coast live oaks, 1 Englemann oak, and 2 Goodding's black willows. Because the effect the Debris Dam changes would have on these 21 trees is currently unknown, the LACFCD will implement a post-construction long-term monitoring program to identify any changes to the health of trees in the future inundation areas. This monitoring program is discussed in more detail in Section 5.

Please note that of the 21 trees listed above that are within the future inundation areas, 1 western sycamore (tree number 182) and 3 coast live oaks (tree numbers 183, 184, and 197) are upland trees currently outside of the CDFW's jurisdiction. However, once the Debris Dam spillway is raised, these trees would presumably be considered under the CDFW's jurisdiction.

SECTION 4.0 TREE PRESERVATION RECOMMENDATIONS

Construction activities have the potential for unintended and/or indirect negative effects on trees. In order to avoid any unintended harm to trees adjacent to proposed construction areas, the following items are recommended:

1. Brightly-colored construction fencing shall be placed along or outside the root protection zone for all trees to be preserved (defined as the outer canopy edge, at least 15 feet from the trunk) that are located within 50 feet of proposed work areas. For trees that are subject to the Los Angeles County Oak Tree Ordinance, fencing shall be placed at least five feet outside the dripline (at least 15 feet from the trunk).

2. No stockpiling of materials or vehicle operation shall be allowed within the root protection zone.

3. Limbs can be pruned if necessary to allow construction equipment access. Small branches (less than three inches diameter) can be trimmed without the supervision of a Certified Arborist if less than ten percent of the total canopy will be removed. If larger branches need to be removed or if more than ten percent of the total canopy will be affected, these activities shall be supervised by a Certified Arborist.

4. Changes to the grade or drainage patterns in the areas surrounding a root protection zone shall be avoided so that excess water does not drain to these trees.

5. Any activities (e.g., vehicle operation) that need to occur within the root protection zone shall be coordinated with a Certified Arborist to mitigate the effects.

6. An on-site pre-construction field meeting shall be held to inform all construction personnel of these restrictions prior the initiation of work.

SECTION 5.0 LONG-TERM MONITORING GUIDELINES

As described in Section 3.0, 21 native trees are located within future inundation areas of the Debris Dam (areas currently outside the inundation zone of the Debris Dam that would be subject to inundation after the Debris Dam spillway is raised). In order to monitor the possible effects that inundation may have on these trees, 16 trees within or immediately adjacent to the future inundation area were selected and their health and structure were assessed. Trees were selected based on their location and the ability to reach and photograph them over time. These trees include 5 western sycamores, 9 coast live oaks, and 2 Englemann oaks. In addition, four Goodding's black willows were selected that are located within the current inundation area for the Debris Dam. The purpose of the monitoring is to detect negative health effects on trees that are (1) currently outside the inundation area of the Debris Dam to determine if periodic flooding will harm their health and (2) within the existing inundation area of the Debris Dam to determine if deeper and/or longer lasting inundation events harm willow trees that are found in the basin. A summary of the trees to be included in the long-term monitoring study is provided in Table 6.

After the Debris Dam construction is complete, 20 trees that comprise the monitoring study will be assessed each spring following the rainy season for five years. The health rating rubric shown in Table 1 was used to determine baseline health conditions and will be used future evaluations. A Certified Arborist will evaluate these trees for signs of negative health effects from flooding (yellowing leaves, lack of new growth, trunk decay, etc.). The dbh of these trees will be measured and tracked over time to ensure that trees continue to grow (other trees outside of the future inundation areas will also be measured to compare growth rates). Photographs of the 20 trees in this study were taken during the survey for this report to document baseline conditions and are provided in Appendix B. Future photographs will be taken during the long-term monitoring program to compare overall vigor of each tree's crown.

TABLE 6
TREES TO BE MONITORED IN FUTURE INUNDATION AREAS

Tree Number	Species	No. of Trunks	DBH (in)	Height (ft)	Canopy Width (ft)	Health Rating	Aesthetic Rating	Notes
122	*Quercus agrifolia* coast live oak	2	13.7, 7.3	30	20	4	4	
123	*Quercus agrifolia* coast live oak	1	8.2	25	15	4	3	No baseline photo taken
124	*Quercus agrifolia* coast live oak	1	6.1	25	25	4	3	
142	*Quercus agrifolia* coast live oak	1	18.0	50	25	4	4	
146	*Quercus englemannii* Englemann oak	3	13.0, 11.2, 7.5	50	35	5	4	
147	*Quercus agrifolia* coast live oak	1	7.9	20	20	4	3	
148	*Quercus agrifolia* coast live oak	1	10.2	20	15	5	3	
149	*Quercus englemannii* Englemann oak	1	22.0	50	40	5	5	
159	*Salix gooddingii* black willow	3	14.1, 12.2, 11.6	40	40	4	3	Within debris dam basin
165	*Platanus racemosa* western sycamore	1	19.4	25	30	4	4	

TABLE 6
TREES TO BE MONITORED IN FUTURE INUNDATION AREAS

Tree Number	Species	No. of Trunks	DBH (in)	Height (ft)	Canopy Width (ft)	Health Rating	Aesthetic Rating	Notes
177	*Platanus racemosa* western sycamore	2	13.0, 8.5	35	15	4	3	
181	*Platanus racemosa* western sycamore	7	8.5, 8.4, 6.0, 5.5, 5.5, 5.5, 4.0	35	35	4	4	
182	*Platanus racemosa* western sycamore	3	26.5, 22.2, 7.3	60	40	3	4	Large limb broken from poor branching structure
183	*Quercus agrifolia* coast live oak	1	6.0	20	15	5	4	
184	*Quercus agrifolia* coast live oak	1	5.8	15	12	4	3	
197	*Quercus agrifolia* coast live oak	1	19.5	30	25	5	5	Large tree adjacent to unpaved access road
272	*Platanus racemosa* western sycamore	1	5.5	25	20	4	4	
273	*Salix gooddingii* black willow	1	18.1	35	30	4	4	Within debris dam basin
274	*Salix gooddingii* black willow	1	12.0	35	30	4	4	Within debris dam basin
275	*Salix gooddingii* black willow	1	12.8	35	35	4	4	Within debris dam basin
dbh: diameter at breast height; in: inches; ft: feet								

To determine what effect, if any, that inundation will have on the health of the trees in the future inundation areas, these trees will be visited annually for a period of five years to identify any deterioration in their health. During each annual visit, the dbh of each tree will be measured and the tree's health will be assessed based on the criteria shown in Table 1. Trees will be considered "affected" if a tree's health rating declines two or more rating levels after an inundation event. Affected trees will be monitored for a two year period to determine if their health condition subsequently improves after the inundation event. If an affected tree shows improvement in the health rating during this two year period, it shall be considered a "recovered" tree and would not need to be mitigated. However, if the health condition does not improve during this period, then such a tree would be considered "impacted" and would require mitigation as described below in Section 6.0.

SECTION 6.0 TREE REPLACEMENT REQUIREMENTS

A total of 4 trees are located within Project Work Areas and subject to the jurisdiction of a tree ordinance or regulated by CDFW; up to three of the trees would be removed. All of these trees are regulated by Section 1602 of the *California Fish and Game Code.* The one coast live oak that would not be removed, but is located adjacent to construction activities, is also subject to regulation by the Arcadia Municipal Code*.*

Impacts to trees that are regulated by the Arcadia Municipal Code typically deal with individual trees that a homeowner would propose for removal. Therefore, the City of Arcadia may not require tree replacement for this type of project. Tree replacement requirements are determined by the Arcadia Planning Director once a person or entity applies for a removal permit. Coordination with the City of Arcadia should be initiated to determine tree protection requirements.

No impacts to trees regulated by the City of Monrovia or County of Los Angeles are proposed, and no tree replacement would be required.

Tree replacement requirements for CDFW impacts are negotiated in the process of acquiring a Streambed Alteration Agreement. Typically, the CDFW requires escalating mitigation ratios based on each tree's trunk diameter (i.e., larger trees have a higher mitigation ratio). Though the tree replacement ratios are not codified in the *California Fish and Game Code*, the ratios shown in Table 7 are commonly used by the CDFW.

TABLE 7
ANTICIPATED MITIGATION FOR TREES UNDER CDFW JURISDICTION

Species		Tree Size (dbh)					Total
		< 5"	5-12"	12-24"	24-36"	>36"	
Platanus racemosa western sycamore	Impacts	–	–	–	–	3	**3**
	Replacement Ratio	2:1	5:1	10:1	15:1	20:1	
	Expected Replacement	–	–	–	–	60	**60**
Quercus agrifolia coast live oak	Impacts	–	–	–	–	–	–
	Replacement Ratio	2:1	5:1	10:1	15:1	20:1	
	Expected Replacement	–	–	–	–	–	–
Tree Impact Subtotal		–	–	–	–	3	**3**
Replacement Ratios		2:1	5:1	10:1	15:1	20:1	
Total Replacement Requirement		–	–	–	–	60	**60**
dbh: diameter at breast height; ": inches							

Additionally, within the future inundation areas, there are 10 trees that are protected by the Arcadia Municipal Code, 1 tree that is protected by the Monrovia Municipal Code, and 17 trees that will be under the jurisdiction of the CDFW following Debris Dam improvements. Because these trees are anticipated to be inundated infrequently in most years, this analysis assumes that these trees would not be affected. However, changing the site hydrology has the potential to negatively affect trees over the long-term; therefore, in accordance with a request from CDFW, these trees will be monitored for a period of five years following project implementation. If inundation affects the trees, as described in Section 5, affected trees would be mitigated at no less than a 1:1 ratio, in accordance with replacement ratios specified in the Project's Streambed Alteration Agreement. The Cities of Arcadia and Monrovia and CDFW should be consulted to ensure that they concur with the proposed approach.

SECTION 7.0 REFERENCES

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APPENDIX A

RAW TREE DATA

NATIVE TREE DATA TABLE

Tree Tag #	Tree Species		# Main Trunks	DBH1 (in)	DBH2 (in)	DBH3 (in)	DBH4 (in)	DBH5 (in)	DBH6 (in)	DBH7 (in)	Sum of Largest Two Trunks (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	City of Arcadia Ordinance	City of Monrovia Ordinance	County of Los Angeles Ordinance	CDFW Tree	To be Removed
	Scientific Name	Common Name																		
114	*Quercus agrifolia*	coast live oak	2	21.0	19.3						40.3	35	50	3	4	X			X	
115	*Quercus agrifolia*	coast live oak	2	18.7	17.9						36.6	40	50	4	4	X			X	
116	*Quercus lobata*	valley oak	1	9.6							9.6	20	20	4	3				X	
117	*Quercus agrifolia*	coast live oak	2	5.8	5.6						11.4	15	20	4	3	X			X	
118	*Quercus agrifolia*	coast live oak	2	4.2	1.8						6.0	12	10	3	3	X			X	
119	*Quercus englemanii*	Engelmann oak	1	12.1							12.1	20	25	3	4				X	
120	*Quercus agrifolia*	coast live oak	2	15.3	14.5						29.8	25	30	4	4	X			X	
121	*Quercus agrifolia*	coast live oak	1	29.4							29.4	50	50	5	5	X			X	
122	*Quercus agrifolia*	coast live oak	2	13.7	7.3						21.0	30	40	4	4	X			X	
123	*Quercus agrifolia*	coast live oak	1	8.2							8.2	30	20	3	3	X			X	
124	*Quercus agrifolia*	coast live oak	1	6.1							6.1	25	15	4	3	X			X	
125	*Quercus agrifolia*	coast live oak	1	17.7							17.7	25	25	4	3	X			X	
126	*Quercus agrifolia*	coast live oak	1	28.0							28.0	40	35	3	4	X			X	
127	*Quercus agrifolia*	coast live oak	1	16.9							16.9	30	20	4	4	X			X	
128	*Quercus agrifolia*	coast live oak	2	6.0	5.4						11.4	20	15	3	2	X				
129	*Quercus agrifolia*	coast live oak	2	10.5	10.0						20.5	30	25	3	2	X				
130	*Quercus agrifolia*	coast live oak	1	9.6							9.6	25	15	3	2	X				
131	*Quercus agrifolia*	coast live oak	1	9.5							9.5	20	15	3	3	X				
132	*Quercus agrifolia*	coast live oak	1	51.0							51.0	70	60	5	5	X				
133	*Quercus agrifolia*	coast live oak	1	10.4							10.4	30	15	4	3	X			X	
134	*Quercus agrifolia*	coast live oak	3	10.0	4.7	4.0					14.7	25	15	2	2	X			X	
135	*Quercus agrifolia*	coast live oak	3	13.0	6.2	6.0					19.2	30	20	2	2	X			X	
136	*Quercus agrifolia*	coast live oak	2	7.3	4.8						12.1	15	12	3	2	X			X	
137	*Quercus agrifolia*	coast live oak	1	9.4							9.4	25	15	4	3	X			X	
138	*Quercus agrifolia*	coast live oak	1	18.7							18.7	25	25	4	4	X			X	
139	*Quercus agrifolia*	coast live oak	1	8.7							8.7	25	15	3	3	X			X	
140	*Quercus agrifolia*	coast live oak	1	6.5							6.5	25	15	3	3	X			X	
141	*Quercus agrifolia*	coast live oak	2	34.9	16.2						51.1	60	60	5	5	X			X	
142	*Quercus agrifolia*	coast live oak	1	18.0							18.0	50	25	4	4	X			X	
143	*Quercus agrifolia*	coast live oak	1	12.0							12.0	35	20	4	3	X			X	
144	*Quercus agrifolia*	coast live oak	1	8.5							8.5	25	15	4	3	X			X	
145	*Quercus agrifolia*	coast live oak	1	11.0							11.0	35	20	4	3	X			X	
146	*Quercus englemanii*	Engelmann oak	3	13.0	11.2	7.5					24.2	50	35	5	4	X			X	
147	*Quercus agrifolia*	coast live oak	1	7.9							7.9	20	20	4	3	X			X	
148	*Quercus agrifolia*	coast live oak	1	10.2							10.2	20	15	5	3	X			X	
149	*Quercus englemanii*	Engelmann oak	1	22.0							22.0	50	40	5	5	X			X	
150	*Quercus agrifolia*	coast live oak	2	7.7	4.0						11.7	20	20	4	3	X			X	
151	*Quercus agrifolia*	coast live oak	2	6.1	3.9						10.0	15	12	3	2	X			X	
152	*Salix gooddingii*	Goodding's black willow	2	20.0	18.0						38.0	40	50	5	2				X	
153	*Salix gooddingii*	Goodding's black willow	1	14.0							14.0	30	50	4	3				X	
154	*Salix gooddingii*	Goodding's black willow	2	12.0	10.0						22.0	30	50	4	3				X	
155	*Salix gooddingii*	Goodding's black willow	2	18.0	10.0						28.0	30	50	4	3				X	
156	*Salix gooddingii*	Goodding's black willow	2	10.0	8.0						18.0	30	50	4	3				X	
157	*Salix gooddingii*	Goodding's black willow	4	20.0	14.0	12.0	10.0				34.0	50	50	4	3				X	

Tree Tag #	Tree Species		# Main Trunks	DBH1 (in)	DBH2 (in)	DBH3 (in)	DBH4 (in)	DBH5 (in)	DBH6 (in)	DBH7 (in)	Sum of Largest Two Trunks (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	City of Arcadia Ordinance	City of Monrovia Ordinance	County of Los Angeles Ordinance	CDFW Tree	To be Removed
	Scientific Name	Common Name																		
158	*Salix gooddingii*	Goodding's black willow	1	16.0							16.0	20	20	4	3				X	
159	*Salix gooddingii*	Goodding's black willow	3	14.1	12.2	11.6					26.3	40	40	4	3				X	
160	*Salix gooddingii*	Goodding's black willow	3	9.0	8.0	6.0					17.0	35	25	4	3				X	
161	*Salix gooddingii*	Goodding's black willow	5	13.0	13.0	10.0	10.0	8.0			26.0	30	30	4	3				X	
162	*Salix gooddingii*	Goodding's black willow	4	13.0	12.0	12.0	9.0				25.0	30	30	4	3				X	
163	*Salix gooddingii*	Goodding's black willow	4	16.0	12.0	12.0	10.0				28.0	50	30	4	3				X	
164	*Salix gooddingii*	Goodding's black willow	1	28.0							28.0	45	30	4	3				X	
165	*Platanus racemosa*	western sycamore	1	19.4							19.4	25	30	4	4				X	
166	*Platanus racemosa*	western sycamore	1	28.0							28.0	35	25	3	3				X	
167	*Platanus racemosa*	western sycamore	2	10.7	7.1						17.8	40	20	4	3				X	
168	*Platanus racemosa*	western sycamore	2	9.8	8.0						17.8	35	15	4	3				X	
169	*Platanus racemosa*	western sycamore	2	8.8	5.9						14.7	35	15	4	3				X	
170	*Platanus racemosa*	western sycamore	1	7.9							7.9	35	15	4	3				X	
171	*Platanus racemosa*	western sycamore	2	11.6	4.7						16.3	35	15	4	3				X	
172	*Platanus racemosa*	western sycamore	1	12.0							12.0	35	15	2	3				X	
173	*Platanus racemosa*	western sycamore	1	11.2							11.2	35	15	4	3				X	
174	*Platanus racemosa*	western sycamore	1	10.1							10.1	35	15	4	3				X	
175	*Platanus racemosa*	western sycamore	1	14.0							14.0	20	10	1	3				X	
176	*Platanus racemosa*	western sycamore	3	10.1	9.0	7.0					19.1	35	15	2	3				X	
177	*Platanus racemosa*	western sycamore	2	13.0	8.5						21.5	35	15	4	3				X	
178	*Platanus racemosa*	western sycamore	2	10.7	5.7						16.4	35	15	4	3				X	
179	*Salix gooddingii*	Goodding's black willow	2	8.0	6.5						14.5	25	15	4	2				X	
180	*Salix gooddingii*	Goodding's black willow	3	5.5	5.5	5.0					11.0	15	25	4	3				X	
181	*Platanus racemosa*	western sycamore	7	8.5	8.4	6.0	5.5	5.5	5.5	4.0	16.9	35	35	4	4				X	
182	*Platanus racemosa*	western sycamore	3	26.5	22.2	7.3					48.7	60	40	3	4					
183	*Quercus agrifolia*	coast live oak	1	6.0							6.0	20	15	5	4					
184	*Quercus agrifolia*	coast live oak	1	5.8							5.8	15	12	4	3					
185	*Platanus racemosa*	western sycamore	4	22.0	18.0	10.0	7.0				40.0	50	40	4	4					
186	*Platanus racemosa*	western sycamore	2	9.9	7.4						17.3	30	25	3	3					
187	*Quercus agrifolia*	coast live oak	2	18.1	8.5						26.6	35	45	5	4		X			
188	*Platanus racemosa*	western sycamore	1	11.3							11.3	25	30	3	3					
189	*Platanus racemosa*	western sycamore	1	13.3							13.3	25	25	3	3					
190	*Quercus agrifolia*	coast live oak	4	36.0	25.7	19.4	11.5				61.7	60	80	5	4		X			
191	*Quercus agrifolia*	coast live oak	3	26.3	19.3	6.0					45.6	70	60	5	4		X			
192	*Platanus racemosa*	western sycamore	1	10.0							10.0	40	20	4	4					
193	*Quercus agrifolia*	coast live oak	1	28.0							28.0	60	40	5	4		X			
194	*Quercus agrifolia*	coast live oak	1	14.5							14.5	35	25	5	4		X			
195	*Quercus agrifolia*	coast live oak	2	18.0	14.0						32.0	40	30	5	4		X			
196	*Quercus agrifolia*	coast live oak	1	22.0							22.0	40	30	5	4		X			
197	*Quercus agrifolia*	coast live oak	1	19.5							19.5	30	25	5	5		X			
198	*Quercus agrifolia*	coast live oak	1	7.6							7.6	15	15	2	3	X				
199	*Quercus agrifolia*	coast live oak	1	9.3							9.3	20	15	3	4	X				
200	*Quercus agrifolia*	coast live oak	1	10.3							10.3	25	15	3	4	X				
201	*Quercus agrifolia*	coast live oak	1	19.3							19.3	25	25	4	4	X				
202	*Quercus agrifolia*	coast live oak	1	12.0							12.0	20	20	4	4	X				

Tree Tag #	Tree Species		# Main Trunks	DBH1 (in)	DBH2 (in)	DBH3 (in)	DBH4 (in)	DBH5 (in)	DBH6 (in)	DBH7 (in)	Sum of Largest Two Trunks (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	City of Arcadia Ordinance	City of Monrovia Ordinance	County of Los Angeles Ordinance	CDFW Tree	To be Removed
	Scientific Name	Common Name																		
203	*Quercus agrifolia*	coast live oak	1	17.6							17.6	35	25	4	4	X				
204	*Quercus agrifolia*	coast live oak	1	18.3							18.3	40	30	4	4	X				
205	*Platanus racemosa*	western sycamore	1	19.7							19.7	40	20	4	4					
206	*Platanus racemosa*	western sycamore	1	22.3							22.3	45	25	4	4					
207	*Platanus racemosa*	western sycamore	1	25.0							25.0	50	25	4	4					
208	*Quercus agrifolia*	coast live oak	1	50.0							50.0	60	50	5	5	X				
209	*Platanus racemosa*	western sycamore	1	16.9							16.9	40	25	2	3					
210	*Quercus agrifolia*	coast live oak	1	64.0							64.0	50	60	5	5	X				
211	*Quercus agrifolia*	coast live oak	1	8.5							8.5	20	15	4	4	X				
212	*Quercus agrifolia*	coast live oak	1	3.6							3.6	15	10	4	3					
213	*Quercus agrifolia*	coast live oak	1	15.9							15.9	30	20	5	4	X				
214	*Quercus agrifolia*	coast live oak	2	10.6	9.3						19.9	25	20	4	4	X				
215	*Quercus agrifolia*	coast live oak	2	14.6	8.9						23.5	40	20	4	4	X				
216	*Quercus agrifolia*	coast live oak	1	17.0							17.0	40	20	4	4	X				
217	*Quercus agrifolia*	coast live oak	1	14.6							14.6	25	15	3	3	X				
218	*Quercus agrifolia*	coast live oak	1	10.3							10.3	15	15	2	2	X				
219	*Quercus agrifolia*	coast live oak	2	10.0	6.0						16.0	25	20	4	4	X			X	
220	*Platanus racemosa*	western sycamore	4	27.0	25.0	22.0	15.0				52.0	50	60	4	5				X	X
221	*Platanus racemosa*	western sycamore	5	30.0	27.0	27.0	24.0	5.0			57.0	50	40	4	4				X	X
222	*Platanus racemosa*	western sycamore	7	25.0	21.5	16.0	14.0	14.0	6.0	5.0	46.5	40	40	4	4				X	X
223	*Platanus racemosa*	western sycamore	1	28.5							28.5	40	40	4	4				X	
224	*Platanus racemosa*	western sycamore	4	16.6	16.0	13.2	9.0				32.6	40	50	4	4					
225	*Platanus racemosa*	western sycamore	2	23.3	19.2						42.5	50	25	5	5					
226	*Platanus racemosa*	western sycamore	2	15.4	5.5						20.9	50	40	4	4					
227	*Platanus racemosa*	western sycamore	2	27.0	18.6						45.6	50	40	4	4				X	
228	*Salix gooddingii*	Goodding's black willow	5	10.0	7.0	7.0	6.0	5.0			17.0	40	40	4	3				X	
229	*Salix gooddingii*	Goodding's black willow	2	12.0	10.0						22.0	30	20	4	3				X	
230	*Alnus rhombifolia*	white alder	2	10.0	8.0						18.0	25	20	4	3				X	
231	*Salix gooddingii*	Goodding's black willow	3	12.0	4.0	4.0					16.0	25	20	4	3				X	
232	*Quercus agrifolia*	coast live oak	1	9.4							9.4	25	15	3	4	X				
233	*Quercus agrifolia*	coast live oak	2	20.5	16.1						36.6	25	25	4	4	X				
234	*Quercus agrifolia*	coast live oak	1	25.5							25.5	25	30	5	4	X			X	
235	*Quercus agrifolia*	coast live oak	5	8.5	6.5	5.0	4.0	4.0			15.0	20	20	3	3	X			X	
236	*Quercus agrifolia*	coast live oak	1	10.5							10.5	25	20	2	3	X			X	
237	*Quercus agrifolia*	coast live oak	1	17.0							17.0	40	20	5	4		X		X	
238	*Quercus agrifolia*	coast live oak	1	14.0							14.0	30	20	4	3		X			
239	*Quercus agrifolia*	coast live oak	3	13.0	12.5	6.0					25.5	40	25	4	3	X			X	
240	*Quercus agrifolia*	coast live oak	1	7.5							7.5	10	10	3	3	X			X	
241	*Quercus agrifolia*	coast live oak	1	22.0							22.0	30	25	4	4		X		X	
242	*Quercus agrifolia*	coast live oak	2	7.5	7.0						14.5	20	15	3	3				X	
243	*Quercus agrifolia*	coast live oak	1	9.0							9.0	30	15	4	4				X	
244	*Quercus agrifolia*	coast live oak	1	11.0							11.0	35	20	4	4		X		X	
245	*Quercus agrifolia*	coast live oak	1	8.0							8.0	20	15	3	3				X	
246	*Quercus agrifolia*	coast live oak	1	14.5							14.5	25	20	4	4		X		X	
247	*Quercus agrifolia*	coast live oak	2	10.5	9.0						19.5	25	15	3	3		X		X	

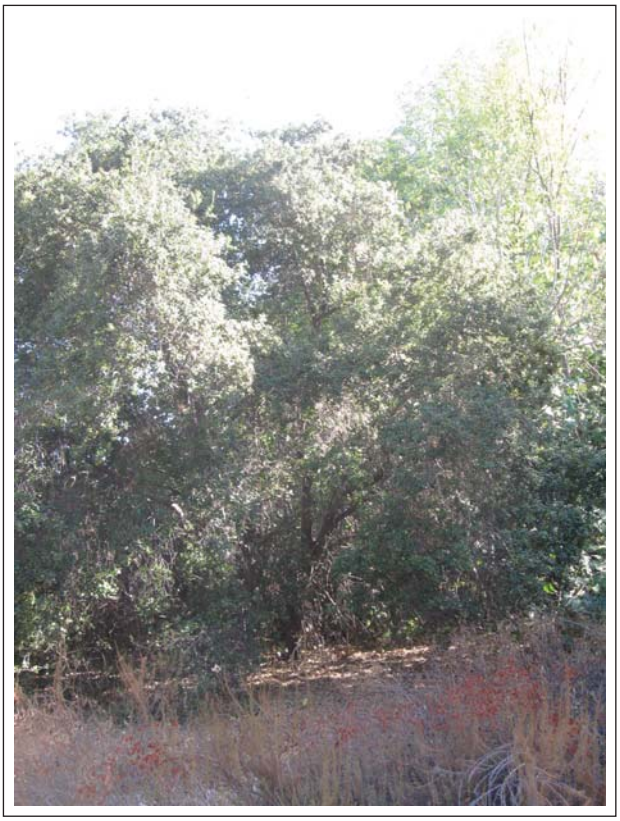
Tree Tag #	Tree Species		# Main Trunks	DBH1 (in)	DBH2 (in)	DBH3 (in)	DBH4 (in)	DBH5 (in)	DBH6 (in)	DBH7 (in)	Sum of Largest Two Trunks (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	City of Arcadia Ordinance	City of Monrovia Ordinance	County of Los Angeles Ordinance	CDFW Tree	To be Removed
	Scientific Name	Common Name																		
248	*Quercus agrifolia*	coast live oak	1	5.0							5.0	20	15	4	4				X	
249	*Quercus agrifolia*	coast live oak	1	12.5							12.5	25	15	4	4		X		X	
250	*Quercus agrifolia*	coast live oak	1	12.0							12.0	25	15	4	4		X		X	
251	*Quercus agrifolia*	coast live oak	1	14.0							14.0	25	15	4	4		X		X	
252	*Quercus agrifolia*	coast live oak	1	11.0							11.0	30	20	4	4		X		X	
253	*Quercus agrifolia*	coast live oak	3	15.0	10.5	4.0					25.5	25	25	3	3		X		X	
254	*Quercus agrifolia*	coast live oak	1	25.0							25.0	40	25	4	4		X		X	
255	*Quercus agrifolia*	coast live oak	1	12.0							12.0	25	20	4	4		X			
256	*Quercus chrysolepis*	canyon live oak	3	14.0	3.0	2.0					17.0	40	25	4	4			X		
257	*Quercus chrysolepis*	canyon live oak	2	9.5	4.0						13.5	25	20	3	3			X		
258	*Quercus chrysolepis*	canyon live oak	2	8.5	4.5						13.0	25	15	4	3			X		
259	*Quercus agrifolia*	coast live oak	2	7.0	5.0						12.0	20	20	3	3			X		
260	*Quercus englemanii*	Engelmann oak	3	4.0	4.0	2.0					8.0	15	12	4	3					
261	*Quercus chrysolepis*	canyon live oak	2	10.0	8.0						18.0	20	15	2	2		X		X	
262	*Quercus chrysolepis*	canyon live oak	5	8.0	7.0	7.0	5.0	3.0			15.0	30	20	4	4		X		X	
263	*Quercus chrysolepis*	canyon live oak	2	11.0	5.0						16.0	30	20	4	3			X	X	
264	*Quercus chrysolepis*	canyon live oak	2	18.0	14.0						32.0	30	30	4	4			X	X	
265	*Quercus chrysolepis*	canyon live oak	1	10.0							10.0	25	25	4	3			X	X	
266	*Quercus chrysolepis*	canyon live oak	1	12.0							12.0	25	25	3	3			X	X	
267	*Quercus agrifolia*	coast live oak	1	35.0							35.0	30	30	4	4			X		
268	*Quercus agrifolia*	coast live oak	1	27.0							27.0	30	30	4	4			X		
269	*Quercus agrifolia*	coast live oak	3	22.0	17.0	16.0					39.0	30	25	4	4			X		
270	*Quercus agrifolia*	coast live oak	4	15.0	11.0	10.0	8.0				26.0	30	30	4	4			X		
271	*Quercus englemanii*	Engelmann oak	4	7.0	5.0	5.0	4.0				12.0	30	30	4	4			X		
272	*Platanus racemosa*	western sycamore	1	5.5							5.5	25	20	4	4				X	
273	*Salix gooddingii*	Goodding's black willow	1	18.1							18.1	35	30	4	4				X	
274	*Salix gooddingii*	Goodding's black willow	1	12.0							12.0	35	30	4	4				X	
275	*Salix gooddingii*	Goodding's black willow	1	12.8							12.8	35	35	4	4				X	
276	*Quercus agrifolia*	coast live oak	1	8.8							8.8	20	15	4	4	X				
277	*Quercus agrifolia*	coast live oak	1	12.5							12.5	25	20	4	4	X				
278	*Quercus agrifolia*	coast live oak	1	17.2							17.2	30	20	4	4		X			
279	*Quercus agrifolia*	coast live oak	1	6.5							6.5	15	10	3	3					
280	*Quercus agrifolia*	coast live oak	5	9.0	6.0	5.0	5.0	3.0			15.0	15	15	3	3		X			
281	*Quercus agrifolia*	coast live oak	1	13.0							13.0	25	20	4	3		X			
282	*Quercus agrifolia*	coast live oak	2	25.0	12.5						37.5	25	35	3	3		X			
283	*Quercus agrifolia*	coast live oak	1	19.5							19.5	20	20	3	3		X			
284	*Quercus agrifolia*	coast live oak	1	10.5							10.5	15	20	4	4		X			
285	*Quercus agrifolia*	coast live oak	1	11.5							11.5	20	20	4	3		X			
286	*Quercus agrifolia*	coast live oak	1	12.0							12.0	30	20	4	4	X				
287	*Quercus berberidifolia*	scrub oak	1	8.3							8.3	20	15	3	3					
288	*Quercus agrifolia*	coast live oak	1	8.3							8.3	25	15	4	3	X				
289	*Quercus agrifolia*	coast live oak	1	15.0							15.0	30	20	4	4	X				
290	*Quercus agrifolia*	coast live oak	2	8.0	7.0						15.0	15	15	3	3		X			
291	*Quercus agrifolia*	coast live oak	2	5.5	4.8						10.3	12	15	3	3		X			
292	*Quercus agrifolia*	coast live oak	4	4.0	4.0	3.2	3.0				8.0	10	10	3	3		X			

ATTACHMENT B

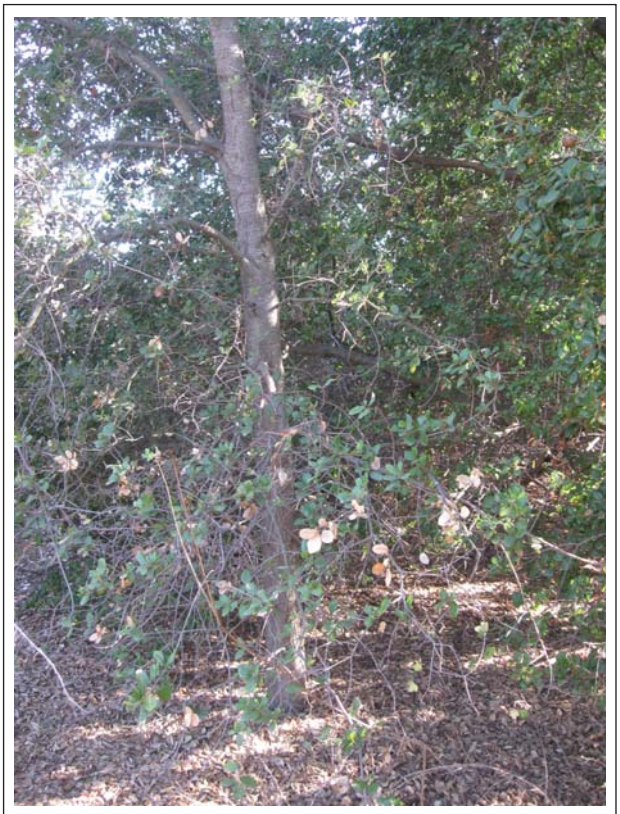
BASELINE PHOTOGRAPHIC DOCUMENTATION



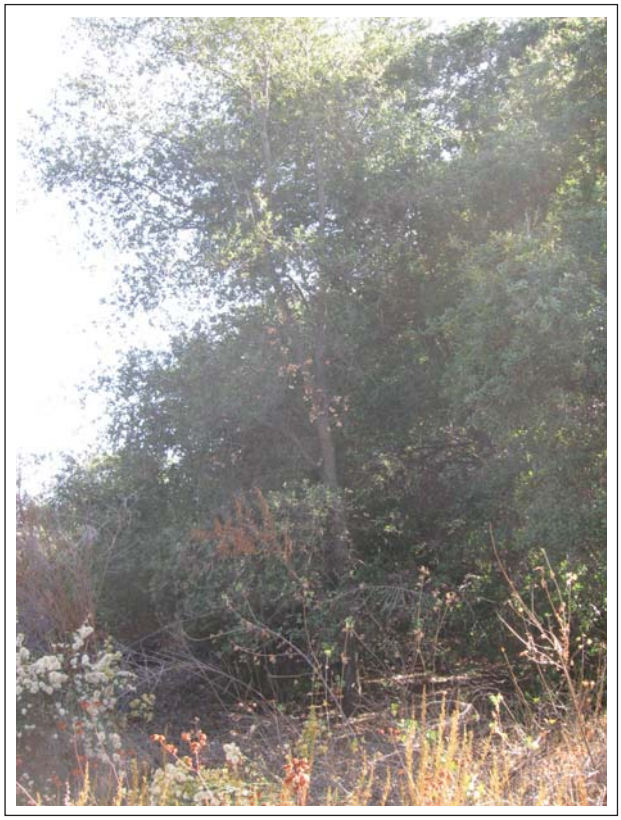
September 5, 2014. Baseline photo of Tree 122.



September 5, 2014. Baseline photo of Tree 122.



September 5, 2014. Baseline photo of Tree 124.



September 5, 2014. Baseline photo of Tree 124.

Baseline Photo Documentation

Exhibit B-1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(09/18/2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\exB1_SP.pdf

D:\Projects\COLADPWJ166\Graphics\TreeReportex_SP1.ai



September 5, 2014. Baseline photo of Tree 142.



September 5, 2014. Baseline photo of Tree 142.



September 5, 2014. Baseline photo of Tree 146.



September 5, 2014. Baseline photo of Tree 146.

D:\Projects\COLADPWJ166\Graphics\TreeReport\ex_SP2.ai

Baseline Photo Documentation

Exhibit B-2

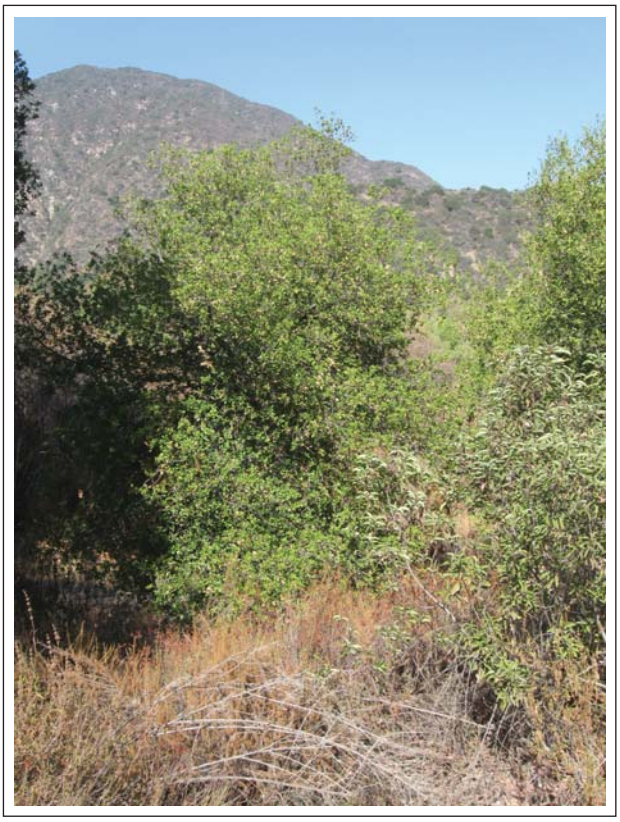
Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(09/18/2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\exB2_SP.pdf



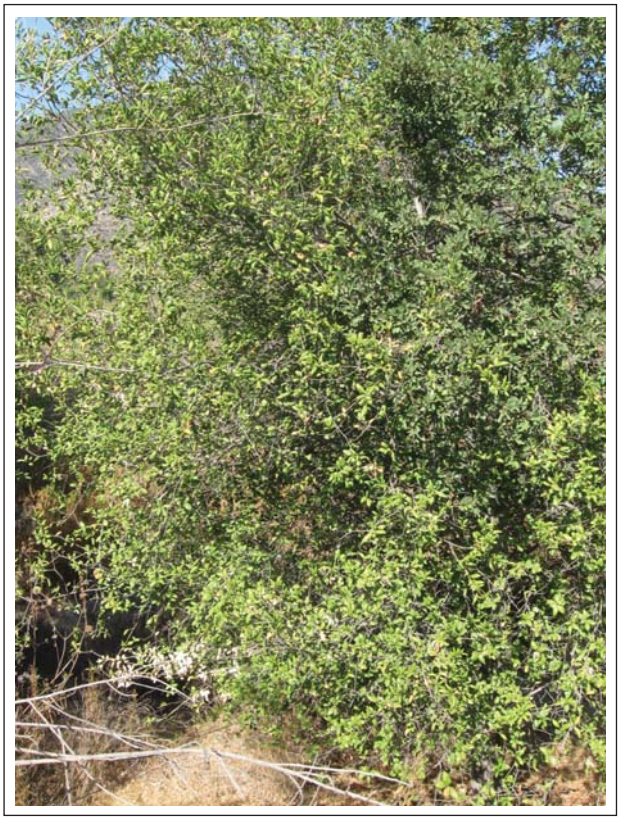
September 5, 2014. Baseline photo of Tree 147.



September 5, 2014. Baseline photo of Tree 147.



September 5, 2014. Baseline photo of Tree 148.



September 5, 2014. Baseline photo of Tree 148.

D:\Projects\COLADPWJ166\Graphics\TreeReport\ex_SP3.ai

Baseline Photo Documentation

Exhibit B-3

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(09/18/2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\exB3_SP.pdf



September 5, 2014. Baseline photo of Tree 149.



September 5, 2014. Baseline photo of Tree 149.



September 5, 2014. Baseline photo of Tree 165.



September 5, 2014. Baseline photo of Tree 165.

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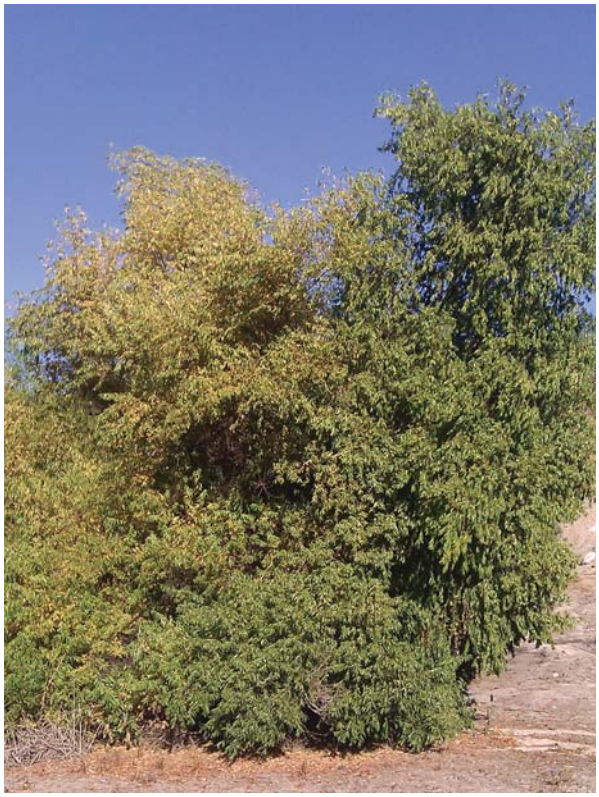
Baseline Photo Documentation

Exhibit B-4

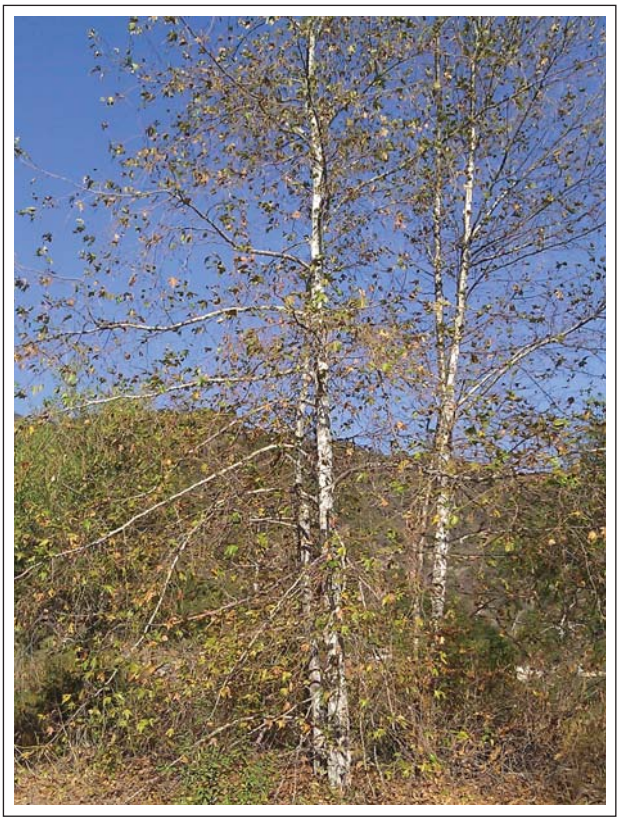
Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

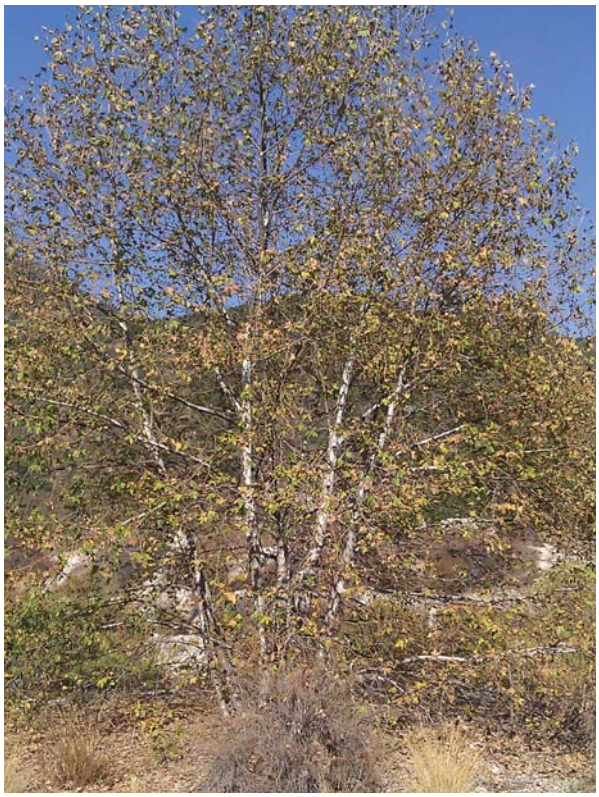
(09/18/2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\exB4_SP.pdf



September 5, 2014. Baseline photo of Tree 159.



September 5, 2014. Baseline photo of Tree 177.



September 5, 2014. Baseline photo of Tree 181.



September 5, 2014. Baseline photo of Tree 183.

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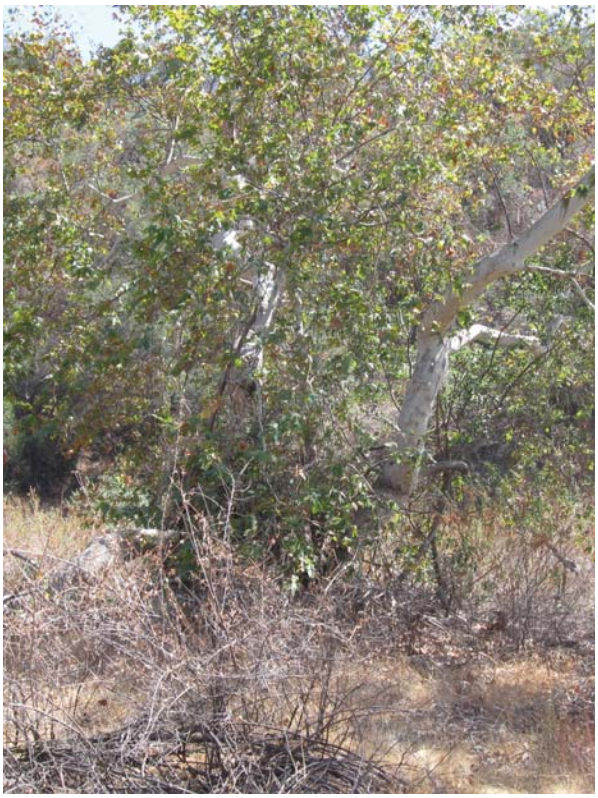
Baseline Photo Documentation

Exhibit B-5

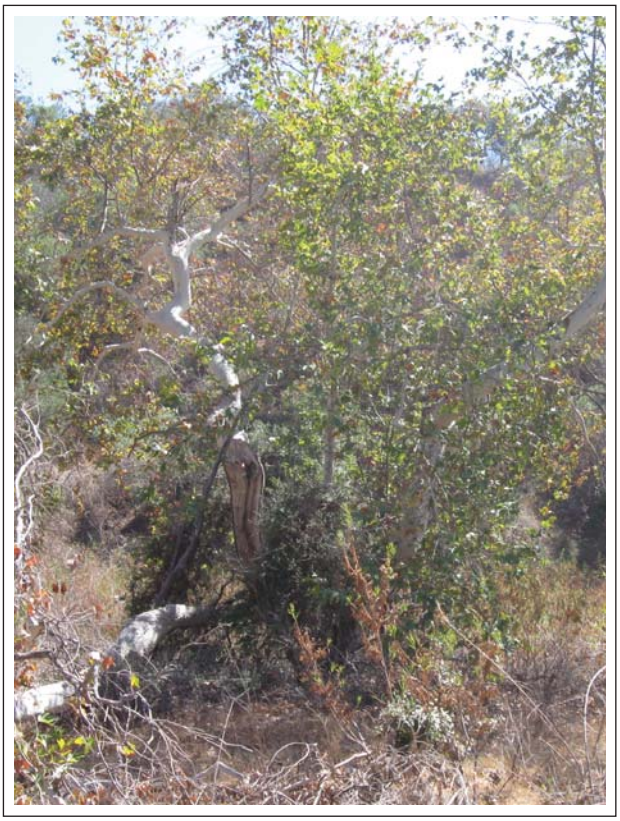
Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(09/18/2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\exB5_SP.pdf



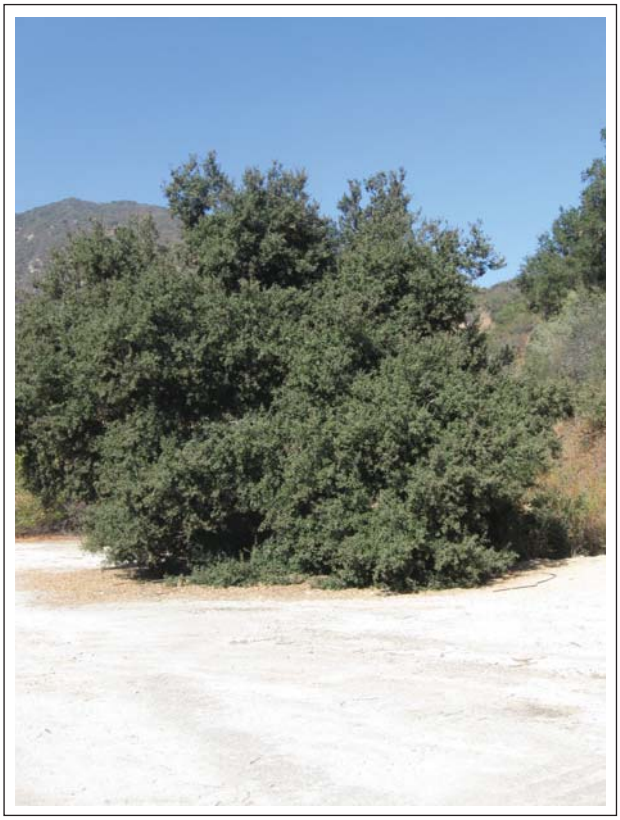
September 5, 2014. Baseline photo of Tree 182.



September 5, 2014. Baseline photo of Tree 182.



September 5, 2014. Baseline photo of Tree 184.



September 5, 2014. Baseline photo of Tree 197.

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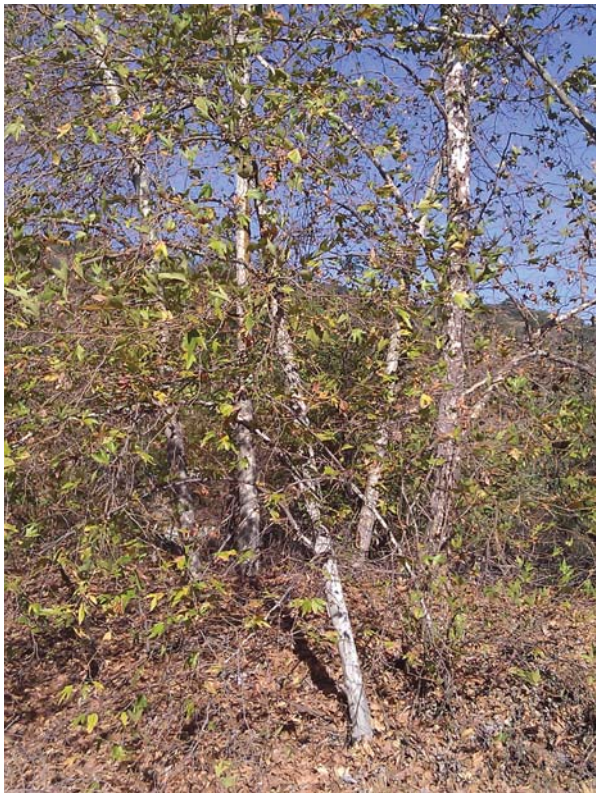
Baseline Photo Documentation

Exhibit B-6

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(09/18/2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\exB6_SP.pdf



September 5, 2014. Baseline photo of Tree 272.



September 5, 2014. Baseline photo of Tree 273.



September 5, 2014. Baseline photo of Tree 274.



September 5, 2014. Baseline photo of Tree 275.

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Baseline Photo Documentation

Exhibit B-7

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(09/18/2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\TreeReport\exB7_SP.pdf

ATTACHMENT E

SPECIAL STATUS FISH SURVEY REPORT

BonTerra CONSULTING
2 Executive Circle, Suite 175 Irvine, CA 92614
T: (714) 444-9199 F: (714) 444-9599 | www.BonTerraConsulting.com

October 26, 2012

Ms. Susie Tharratt
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

VIA EMAIL AND MAIL
Susie_Tharratt@fws.gov

Subject: Results of Focused Presence/Absence surveys for Special Status Fish Species for the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project in Arcadia and the Angeles National Forest, Los Angeles County, California

Dear Ms. Tharratt:

This Letter Report presents the results of focused surveys to evaluate the presence or absence of special status fish species, including Santa Ana sucker (*Catostomus santaanae*), Santa Ana speckled dace (*Rhinichthys osculus* ssp. 3), and arroyo chub (*Gila orcutti*) in the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project Site (hereinafter referred to as the "Project Site") in Los Angeles County, California. A Biologist with the necessary experience and the Federal Endangered Species Act 10(a) survey permit conducted the surveys according to U.S. Fish and Wildlife Service (USFWS) protocol.

The Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project would improve Los Angeles County Flood Control District facilities to better manage storm water runoff from the Santa Anita Canyon Watershed to achieve the following goals: (1) to reduce flood damage to the downstream communities; (2) to increase recharge of the local groundwater basin; and (3) to improve public safety by remediating seismic safety issues at the Dam and Debris Basin.

Survey Area

The Project Site is located in the City of Arcadia and the Angeles National Forest (Exhibit 1). It is located on the U.S. Geological Survey's (USGS') Mount Wilson 7.5-minute topographic quadrangle in Township 1 North, Range 11 West in portions of Sections 10 and 15 with elevations ranging from 750 to 1,300 feet above mean sea level (msl) (Exhibit 2). The survey area includes habitat from the Santa Anita Reservoir downstream along Santa Anita Creek to the Santa Anita Debris Basin (Exhibit 3). Private residences occur along the western boundary of the basin along Highland Oaks Boulevard. Open space in the Arcadia Wilderness Park and the Angeles National Forest occurs north and east of the survey area.

Santa Anita Canyon is very narrow and steep-sided along Santa Anita Creek as it flows approximately ½ mile below the Dam, opening into a broad alluvial wash in the Santa Anita Debris Basin. Vegetation types in the survey area include coastal sage scrub, chaparral, black willow riparian forest, sycamore woodland, mixed riparian forest, alder riparian forest,

elderberry woodland, mule fat scrub, coast live oak woodland, mixed woodland, ornamental, and ruderal. Representative photos are located in Attachment A.

Santa Anita Creek is perennial in the upper portion of the canyon and contains some slow moving pools. The lower portion of Santa Anita Creek and the Debris Basin are ephemeral and were dry at the time of the focused survey. Santa Anita Creek is characterized by very steep slopes, shallow soils, and watercourses contained within bedrock channels. Erosion has deposited alluvium (including boulders, cobbles, gravel, and coarse to fine sandy soils) within the stream course. Topography is irregular and stream grade, width, and flow velocity vary but are generally moderate to steep. The creek channel morphology in the survey area includes portions with narrow, incised, fast-moving water; portions with wider, slow-moving water; deep pools.

Background

Santa Ana Sucker

Santa Ana sucker is a federally listed Threatened species and a California Species of Special Concern. Its historic range consisted of the Los Angeles, San Gabriel, and Santa Ana River systems; only these populations within its historic range are federally protected. The California Natural Diversity Database (CNDDB) does not contain any records of Santa Ana sucker from the vicinity of the survey area. The nearest Santa Ana sucker occurrence reported in the CNDDB is from Fish Creek, a tributary of the San Gabriel River, roughly 5.5 miles east of the Project Site (CDFG 2012). The West Fork of the San Gabriel River, located roughly six miles northeast of the project area, also has a known extant population of Santa Ana sucker.

Santa Ana sucker is found in small, shallow streams with flows that run from slow to swift. It is most abundant where water is clear and unpolluted, although it can withstand seasonal turbidity. It is often associated with bottom materials of boulders, gravel, and cobble where there are growths of filamentous algae, though it is also occasionally found on sand or mud substrates. Although Santa Ana sucker has generalized stream habitat requirements, it is intolerant of polluted or highly modified streams (Moyle et al. 1995). The majority of its diet consists of algae and detritus that it scrapes from rock surfaces, as well as occasional aquatic insect larvae.

Adult Santa Ana suckers rarely exceed a standard length of eight inches (measured from snout tip to anterior of the caudal fin [tail fin]). It possesses a broad mouth with notches at the junction of the upper and lower lips, and the median notch on the lower lip is less well defined. Its body coloration is silver on the ventral (belly/underside) surface and darker with irregular blotches on the dorsal (back/top) surface. Its scale pattern has longitudinal lateral (along the length of their body) striping. The interradial membrane (membrane between the spines) of the caudal fin is pigmented, and the anal and pelvic fins normally lack pigment (Moyle et al. 1995).

Santa Ana suckers are relatively short-lived; they become reproductively mature by the first year and spawn during the first and second years. Most suckers do not survive past the second year, although a few live three to four years. There is no sexual dimorphism (appearances between males and females are distinguishable), although reproductive males develop breeding tubercles (small bumps) over most of the body (Moyle et al. 1995).

Santa Ana sucker spawning occurs from April until early July, but peaks in late May and early June. Santa Ana suckers spawn over gravel beds in flowing water where the female deposits the eggs in fine gravel substrate. The eggs hatch within 36 hours at 55.5 degrees Fahrenheit (°F), and the fry (fish hatchlings) congregate in shallow, slow-moving waters along the stream

margins in water depths ranging from 1 to 5.5 inches, often over very soft sand or mud substrates. Edgewater habitat is probably used by fry because (1) it typically contains fewer predatory fish and (2) shallow water is warmer and probably allows the suckers to grow more quickly (USFWS 2010).

The Santa Ana sucker is currently threatened by water diversions; alteration of stream channels; changes in the watershed that result in erosion and debris flows; pollution; and predation by non-native fishes. The primary cause for the extirpation of the Santa Ana sucker from lowland reaches of the Los Angeles, San Gabriel, and Santa Ana Rivers is most likely due to increased urbanization (USFWS 2000).

On January 4, 2005, the USFWS published a final rule designating 8,305 acres of critical habitat for the Santa Ana sucker (USFWS 2005). Two areas were designated in Los Angeles County, one along the San Gabriel River (Unit 2) and the other along Big Tujunga Creek (Unit 3). This designation did not include habitat for the species in Orange, Riverside, or San Bernardino Counties. Following lawsuits, the USFWS proposed a revised critical habitat on December 9, 2009, adding habitat along the Santa Ana River in Orange, Riverside, and San Bernardino Counties to critical habitat for the species (USFWS 2009). This increased the critical habitat designation to 9,331 acres. On December 14, 2010, the USFWS published the final rule formalizing the revised critical habitat (USFWS 2010). The survey area is not within the 2010 revised critical habitat for Santa Ana sucker.

Arroyo Chub

Arroyo chub is a California Species of Special Concern. Arroyo chub is a small freshwater fish native to the watersheds of the Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita Rivers and those of the Malibu and San Juan Creeks. Arroyo chub has also been successfully introduced into the Santa Ynez, Santa Maria, Cuyama, and Mojave River systems and other smaller coastal streams (Moyle 2002). The arroyo chub is now common at only three of its native locations: Santa Margarita and De Luz Creeks in San Diego County; Trabuco and San Juan Creeks in Orange County; and Malibu Creek in Los Angeles County (Swift et al. 1993). The CNDDB does not contain any records of arroyo chub from the vicinity of the survey area.

The arroyo chub is a small fish that can reach standard lengths of 4.72 inches, although typical adult lengths are between 2.76 and 3.94 inches (Moyle 2002). Males are distinguished from females by their larger fins and, when breeding, by the prominent patch of tubercles on the upper surface of the pectoral fins (forelimbs). The arroyo chub has a chunky body, fairly large eyes, and a small mouth. Its body color is silver or grey to olive-green dorsally, white ventrally, and it usually has a dull grey lateral band (Moyle et al. 1995).

Arroyo chub is found in coastal freshwater streams and rivers with sustained flows and emergent vegetation. It prefers the slowest moving sections where the substrates consist primarily of sand or mud, but it can also be found in fairly fast-moving (31.5 inches/second or more) sections of stream over coarse substrates (Moyle 2002). The arroyo chub also prefers water with depths greater than 15.75 inches (Moyle 2002). This species is adapted to survive in widely fluctuating water temperatures (50°F to 75°F) and fluctuating dissolved oxygen levels common in coastal streams. The arroyo chub forms schools and feeds heavily on algae and other plants as well as small crustaceans and aquatic insect larvae (Moyle 2002).

Arroyo chubs rarely live beyond four years and begin to reproduce at one year of age (McGinnis 2006). Arroyo chubs breed more or less continuously from February through August, although

most spawning occurs in June and July. The majority of spawning occurs in pools or in quiet edge waters with temperatures between 57.2°F and 71.6°F (Moyle 2002). Eggs adhere to the substrate or plants and hatch in approximately four days. After hatching, the fry spend the next three to four months in quiet water in the water column and usually occur among vegetation or other flooded cover (Moyle 2002).

The arroyo chub is threatened by the introduction of non-native fish, and it shows a decline in the watershed when non-native species become abundant. The introduction of largemouth bass (*Micropterus salmoides*) and green sunfish (*Lepomis cyanellus*) pose a threat to arroyo chub and could be responsible for its extirpation from many areas (Moyle et al. 1995). The arroyo chub is also threatened by water diversions, urbanization of watersheds, and pollution.

Santa Ana Speckled Dace

Santa Ana speckled dace is a California Species of Special Concern. The Santa Ana speckled dace has not been formally described as a subspecies yet, which is the reason why it is not federally listed. Many believe that Santa Ana speckled dace deserves subspecies status because it has morphological differences that distinguish it from other California dace: it has finer scales; a better developed frenum (a flap of skin attaching the snout to upper lip); a longer head; and smaller eggs (Moyle et al. 1995). The species was historically distributed throughout the upland portions of the Santa Ana, San Gabriel, and Los Angeles River systems, but it currently has a limited distribution in the headwaters of the Santa Ana and San Gabriel Rivers (Moyle et al. 1995). The CNDDB does not contain any records of Santa Ana speckled dace from the vicinity of the survey area.

Santa Ana speckled dace is a small, freshwater fish that rarely exceeds three inches in length. Physical characteristics of the Santa Ana speckled dace include one barbel (whisker-like) at the end of each jaw and a frenum on the upper lip. The back and sides of the fish are dusky yellow or olive, and are covered with dark speckles and splotches. During breeding, the base of the fins in both sexes and the snouts and lips of males often turn red. Also, males usually develop tubercles on their pectoral fins and head (Moyle 2002).

Santa Ana speckled dace requires perennial streams with summer water temperatures between 62°F and 68°F (Moyle et al. 1995). It prefers riffle habitats in clean, rocky-bottomed streams and rivers, but is also found near the shores of lakes (Moyle et al. 1995). This species exhibits predatory avoidance behaviors such as nocturnal feeding and hiding among the bottom rocks during daylight hours. Except for the breeding season, this species does not form large groups, but instead forages in small groups that can easily blend into the bottom rocks to avoid predation. It forages on a large variety of small, ground-dwelling invertebrates, zooplankton, filamentous algae, and other plant material (McGinnis 2006).

Santa Ana speckled dace typically has a life span of three years, but it can live up to six years or more. It becomes sexually mature in their second year, and spawning occurs throughout the summer months. Speckled daces lay and fertilize their eggs on the stream bottom in rocks and gravel. The eggs hatch in six days and, similar to most other minnows, the young seek out calm inshore areas where zooplankton is available to feed upon (Moyle 2002; McGinnis 2006).

Santa Ana speckled dace is threatened by the introduction of non-native fish, and it shows a decline in the watershed when non-native species become abundant. The introduction of largemouth bass and green sunfish pose a threat to Santa Ana speckled dace and could be responsible for its extirpation from many areas (Moyle et al. 1995). Santa Ana speckled dace is also threatened by water diversions, urbanization of watersheds, and pollution.

Survey Methodology

Surveys were conducted by Consulting Fisheries Biologists Justin Wood (TE-37481A-0) and Cynthia Hitchcock from Aspen Environmental Group with BonTerra Consulting's Senior Fisheries Biologist, Dr. Carl Demetropoulos. Prior to the surveys, Mr. Wood consulted John O'Brien from the California Department of Fish and Game (CDFG) for approval to conduct the surveys for special status fish species in the survey area. Survey methods included underwater video recording, dip netting, seining, and snorkeling depending on the location/stream morphology within the survey area.

Surveys followed the current presence/absence protocol for the Santa Ana sucker and were conducted on August 23 and August 30, 2012, from Santa Anita Dam downstream to the upper end of Santa Anita Debris Basin. During the first survey, all accessible areas of the creek between the Santa Anita Dam and the headworks facility were surveyed using dip nets, seine nets, and underwater videography. During the second survey, dip nets were used along with snorkel surveys of two large pools: one below the headworks facility and one below the entrance road to Arcadia Wilderness Park. While using underwater video and seining, care was taken to avoid algal mats and dense vegetation in the creek to avoid impacts on refugia for potential young fish.

Netting

Dip netting and seining methods were used in shallow water down to depths of approximately three feet. Seining was conducted using a 20-foot by 4-foot deep nylon knotless delta weave bagged seine with ¼-inch mesh. Captured fishes were immediately transferred into a container of clean water taken from the creek and were visually identified. Native fishes were released unharmed at the point of capture. Non-native fish and invertebrates were not returned to Santa Anita Creek.

Underwater Videography

For the purpose of this study, deep creek habitat was defined as portions of the creek where depth was greater than what could effectively be surveyed using dip or seine nets (approximately three feet) and where underwater cameras would be more effective at determining presence/absence of fish species. Depending on the habitat type, the two following underwater cameras with high lumen light-emitting diode (LED) lighting systems and weighted platforms were used to observe pool and deep creek habitat: (1) high definition remote underwater color video camera (Aqua Vu, Inc AV760cz Color Underwater Video Camera) providing depth, temperature, and time on an underwater video monitor and (2) a high definition 360-degree view camera (Aqua Vu, Inc AV360 Black/White Underwater Video Camera) with a selectable 4-way split screen.

Surveyors viewed the creek in real time and could simultaneously record targets for later review on a Digital Video Recorder (DVR) output from the video camera. The location of the image (in Universal Transverse Mercator [UTM]) could be correlated to global positioning system (GPS) location by a time stamp. After the survey and in order to validate and map the location of fish that may not have been seen during the survey, video targets were analyzed on a computer at 0.25 real time speed.

Snorkel/Swim Surveys Transects

To establish in visual identification and assessment of fish species and description of habitat preferences in large pools (e.g., 15 feet wide by 30 feet long by approximately 6 feet deep), snorkel surveys were conducted by a single person (Permitted Biologist, Justin Wood) swimming zigzag transects and taking underwater photographs of any suspect fish targets.

All fish observed during the surveys were recorded in field notes.

Survey Results

The water temperature in Santa Anita Creek during both surveys was approximately 68°F. No native fish (Santa Ana sucker, arroyo chub, or Santa Ana speckled dace) were found during either of the surveys. During the August 23, 2012, survey, which covered the area from Santa Anita Dam downstream to the headworks facility, a total of 53 green sunfish (*Lepomis cyanellus*) were captured with an additional 35 observed in the creek.

During the August 30, 2012, survey in the large pool below the headworks, 2 green sunfish were captured with an additional 8 observed. For this species, a range of size classes were seen, indicating the species is actively reproducing. Four rainbow trout (*Oncorhynchus mykiss*) averaging approximately 6 inches in length were also observed in the large pool (15 feet wide by 30 feet long by 6 feet deep) below the headworks. These trout remained within the bottom 12 inches, indicating a thermocline1 was likely present in this pool. Rainbow trout were stocked in this stream system from 1930 to 1945 (CDFG 1945, 1952), and likely continue to reproduce when conditions are favorable.

Previous special-status fish surveys in Santa Anita Creek have also had absence findings for native fish (O'Brien 2012; Swift 2012).

OTHER OBSERVATIONS

One California Species of Special Concern[2] was observed in the survey area: two-striped garter snake (*Thamnophis hammondii*). A CNDDB form will be submitted to the CDFG for this species (Attachment B).

A single red swamp crayfish (*Procambarus clarkii*), an introduced species that can act as a predator on native aquatic species, was observed during the survey.

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1 A thermocline is a thin layer in a body of water that changes more rapidly with depth than the water above it or below it; like a blanket that separates the upper mixed water layer from the calm deep water below

2 California Species of Special Concern are considered special status due to declining population levels, limited ranges, and/or continuing threats, which have made them vulnerable to extinction. Not all Species of Special Concern have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing.

BonTerra Consulting appreciates the opportunity to assist on this project. If you have any comments or questions, please call Amber Oneal at (714) 444-9199) or Carl Demetropoulos at (626) 351-2000.

Sincerely,

BONTERRA CONSULTING

Amber S. Oneal
Senior Project Manager, Biological Services

Carl L. Demetropoulos, Ph.D.
Senior Fisheries Biologist

I certify that the information in this survey report and enclosed exhibits fully and accurately present my work.

Justin Wood
TE-37481A-0

Attachments: Exhibits 1, 2, and 3
A – Site Photographs
B – CNDDB Forms

cc: Grace Yu, Los Angeles County Department of Public Works

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Project Location

Exhibit 1

Santa Anita Prop 1E Project

N W E S

10 5 0 10 Miles

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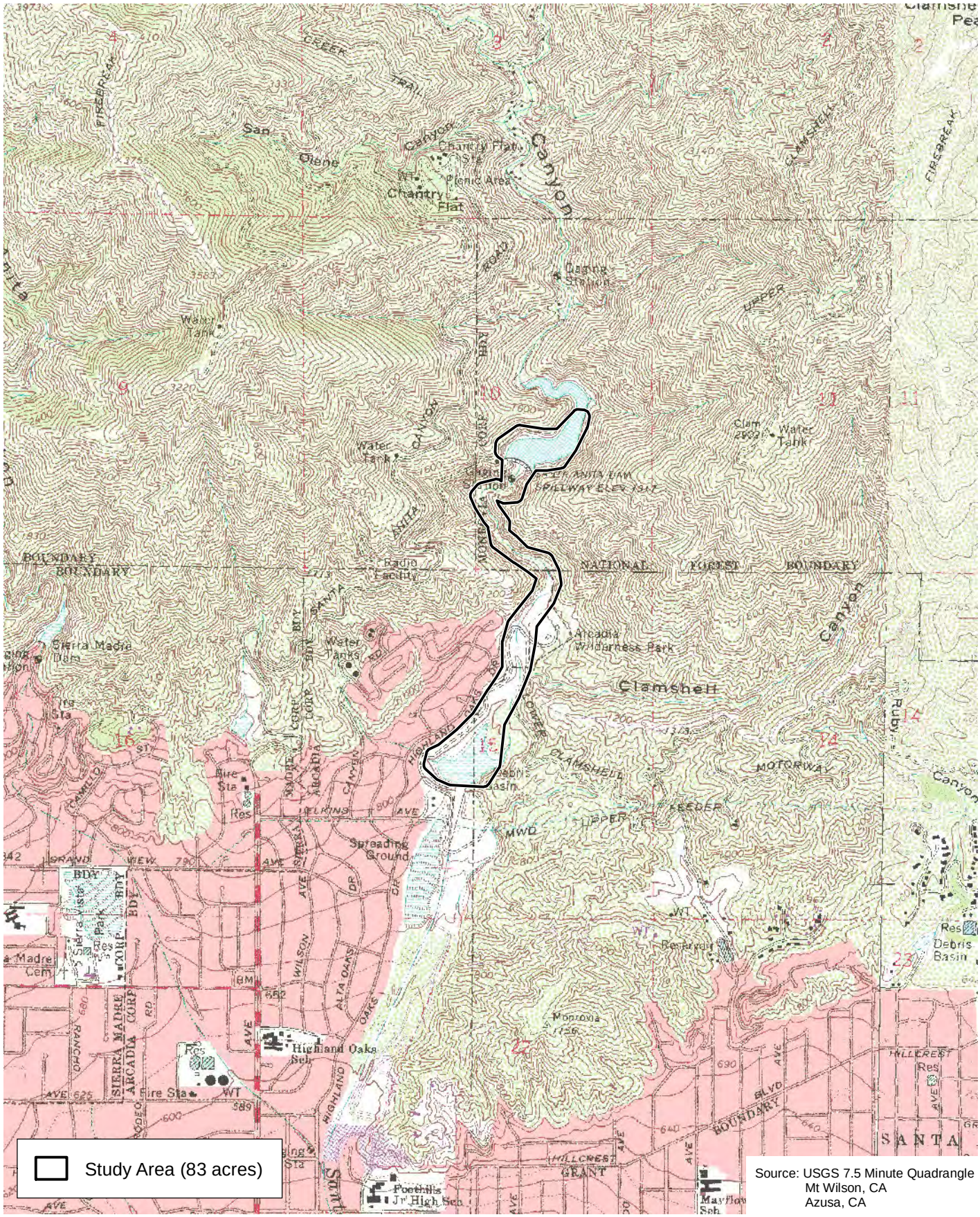

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Local Vicinity

Exhibit 2

Santa Anita Prop 1E Project

BonTerra CONSULTING



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Survey Area

Exhibit 3

Santa Anita Prop 1E Project

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1,000 500 0 1,000

Feet

BonTerra CONSULTING

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ATTACHMENT A

SITE PHOTOS



Photo 1. Typical section in Santa Anita Creek.



Photo 2. Typical substrate in Santa Anita Creek.



Photo 3. Typical pool in Santa Anita Creek.

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Site Photos

Attachment A-1

Santa Anita Prop 1E Project

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Photo 4. Headworks pool in Santa Anita Creek (seasonally wet, sometimes dry)



Photo 5. Road pool in Santa Anita Creek (seasonally wet, sometimes dry)



Photo 6. Underwater videography survey method used in Santa Anita Creek.

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Site Photos

Attachment A-2

Santa Anita Prop 1E Project

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Photo 7. Adult green sunfish found in Santa Anita Creek.



Photo 8. Young of the year green sunfish found in Santa Anita Creek.

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Site Photos

Attachment A-3

Santa Anita Prop 1E Project

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ATTACHMENT B

CNDDB FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 08/23/2012

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Thamnophis hammondii*

Common Name: Two-striped garter snake

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Justin M. Wood
Address: 201 North First Ave. No. 102
Upland, CA 91786
E-mail Address: Jwood@aspeneg.com
Phone: (909) 568-5235

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

San Gabriel Mountains, Santa Anita Canyon, 0.40 miles downstream of the Santa Anita Dam along Santa Anita Creek. Roughly 0.25 miles upstream of the entrance to Arcadia Wilderness Park

County: Los Angeles Landowner / Mgr.: USFS

Quad Name: Mount Wilson Elevation: 942'

T 1N R 11W Sec 10, SW ¼ of SE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): Google

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐

Coordinates: 34 10' 47.6" N, 118 01' 07.56" W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*

Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Single adult observed foraging along the margins of a deep pool in the canyon bottom. Foraging among boulders under mulefat canopy. Green sunfish abundant in pool, possible food source.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Dam upstream and city wilderness park downstream

Visible disturbances: None

Threats:

Comments: Relatively intact stretch of creek and riparian vegetation bounded by the dam upstream and concrete lined channel downstream.

Determination: *(check one or more, and fill in blanks)*

- ☑ Keyed (cite reference): Stebbins 2003
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

ATTACHMENT F

SPECIAL STATUS HERPETOFAUNA REPORT

BonTerra CONSULTING
2 Executive Circle, Suite 175 Irvine, CA 92614
T: (714) 444-9199 F: (714) 444-9599 | www.BonTerraConsulting.com

October 15, 2012

Grace Yu
Water Resources Division
Department of Public Works
County of Los Angeles
900 South Fremont Avenue
Alhambra, California 91803

VIA EMAIL
gyu@dpw.lacounty.gov

Subject: Results of Special Status Herpetofauna Surveys for the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project in Arcadia and the Angeles National Forest, Los Angeles County, California

Dear Ms. Yu:

This Letter Report presents the findings of special status herpetofauna surveys conducted for the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project Site (hereinafter referred to as the "project site") located in the City of Arcadia and in the Angeles National Forest in Los Angeles County, California (Exhibits 1 and 2). The Project will improve Los Angeles County Flood Control District facilities to better manage storm water runoff from the Santa Anita Canyon watershed and to achieve the following goals: (1) reduce flood damage to the downstream communities; (2) increase recharge of the local groundwater basin; and (3) improve public safety by remediating seismic safety issues at the Dam and Debris Basin.

This survey focused on the detection of Pacific [western] pond turtle (*Actinemys* [*Emys*] *marmorata*), Coast Range newt (*Taricha torosa torosa*), two-striped garter snake (*Thamnophis hammondii*), and silvery legless lizard (*Aniella pulchra*). The survey was conducted by qualified Biologists with the necessary experience and permits to handle special status herpetofauna.

SURVEY AREA

The project site is located immediately north of the Santa Anita Dam and continues south along Santa Anita Creek to the Santa Anita Debris Basin. The survey area for the project included the area for the proposed improvements plus a 100-foot buffer (Exhibit 3). The survey area is bordered by open space in the Angeles National Forest and Arcadia Wilderness Park, and residential development. The survey area is located on the Mt. Wilson U.S. Geological Survey's (USGS') 7.5-minute quadrangle at Township 1 North, Range 11 West, Section 12, with an elevation of about 750 to 1300 feet above mean sea level (msl).

Santa Anita Canyon is very narrow and steep-sided along Santa Anita Creek as it flows approximately ½-mile below the Dam, opening into a broad alluvial wash in the Santa Anita Debris Basin. Vegetation types in the survey area include coastal sage scrub, chaparral, black willow riparian forest, sycamore woodland, mixed riparian forest, alder riparian forest, elderberry woodland, mule fat scrub, coast live oak woodland, mixed woodland, ornamental, and ruderal. Santa Anita Creek is perennial in the upper portion of the canyon and contains

some slow moving pools. The lower portion of Santa Anita Creek and the Debris Basin were dry at the time of the focused survey. Representative photos are located in Attachment A.

BACKGROUND

Pacific Pond Turtle

The Pacific [western] pond turtle is a California Department of Fish and Game (CDFG) Species of Special Concern and a U.S. Forest Service Sensitive species in the Angeles National Forest. The Pacific pond turtle occurs primarily in freshwater rivers, streams, lakes, ponds, vernal pools, and seasonal wetlands with basking sites such as logs, banks, or other suitable areas above water level.

The Pacific pond turtle is found within the Coast Ranges and Central Valley south into northwestern Baja California, Mexico. Isolated, extant populations are found in the interior draining Mojave River of California as far into the Mojave Desert as Afton Canyon and in the Amargosa River in the vicinity of Lake Elizabeth in northern Los Angeles County (Holland 1994).The Pacific pond turtle has a low carapace (upper shell), 3.5 to 8.5 inches in length, and may be brown, olive, or blackish in color, usually with black or brown spots or lines that radiate out from the center of the carapace shields (Stebbins 2003). The limbs of this species have prominent scales that contain black lines or flecks, and the head may also contain black spots or markings (Stebbins 2003). Males tend to have a lighter throat without black markings with a shell that is flatter and more of a solid color than females (Stebbins 2003).

The Pacific pond turtle lays a clutch of 3 to 14 eggs from April to August (Stebbins 2003). Nest sites are usually found in upland habitat beyond the floodplain, typically on south-facing slopes of less than a 60-degree angle (Jennings and Hayes 1994). In Southern California, most hatchlings emerge in the early fall, while some may overwinter in the nest (Holland 1994). Adult pond turtles in Southern California may be active year round; however, during the coldest months (i.e., between October and April), this species will often seek upland refugia and enter a period of brumation (i.e., reptilian inactivity and decreased metabolic rate in response to seasonal temperature changes), particularly in more temperate, high elevation areas of the species' range (Holland and Goodman 1996). Winter refugia are often found in the same upland habitat as nesting sites.

Agricultural development, flood-control projects, water diversion, and urbanization have resulted in the elimination of over 90 percent of wetland habitat within the historic range of the Pacific pond turtle throughout California (USFWS 1992). These anthropogenic threats have also fragmented the remaining suitable habitat and isolated remaining populations, resulting in a lack of genetic variability.

Invasion of exotic pest species into habitat occupied by pond turtles is another threat to the continued survival of the species. Invasive, nonnative plant species such as tamarisk (*Tamarix ramosissima*) and giant reed (*Arundo donax*) have become established throughout Southern California, reducing plant diversity, altering stream morphology, and eliminating suitable basking sites (Lovich et al. 1994). The invasive bullfrog (*Rana catesbeiana*) is native to eastern North America, but is widely established in California. Bullfrogs are voracious predators that will eat any live animal they can swallow, and predation of hatchling and young pond turtles has been recorded (Holland 1994). The intensity of bullfrog predation is severe enough to eliminate recruitment in some pond turtle populations in Southern California (Overtree and Collings 1997). As a result of the threats listed above, the Pacific pond turtle population is believed to be in decline throughout 75 to 80 percent of its range (Stebbins 2003).

The closest records of the Pacific pond turtle relative to the survey area include occurrences in the west fork of the San Gabriel River, which is located approximately five miles northeast of the survey area (CDFG 2012). An unidentified turtle, likely a Pacific pond turtle, was visually observed in Santa Anita Reservoir during the 2011 trapping effort prior to dewatering for sediment removal (BonTerra Consulting 2011).

Coast Range Newt

The Coast Range newt is a CDFG Species of Special Concern. The Coast Range newt breeds in aquatic habitat such as slow-moving stream courses, pools, and ponds, and uses adjacent upland habitat extensively for foraging and aestivation (i.e., period of inactivity and decreased metabolic rate in response to arid conditions). Upland habitat typically consists of riparian, oak forests, chaparral, and rolling grasslands where it is often found in rodent burrows and beneath mesic (moist) microhabitats such as logs, boards, and rocks (Stebbins 2003). This species preys primarily upon small invertebrates, insects, and amphibian eggs and larvae (Hanson et al. 1994). It occurs between sea level and 4,200 feet above msl.

The Coast Range newt is the coastal subspecies of the California newt (*Taricha torosa*) that ranges from the Coast Ranges of California from Mendocino to San Diego County and from the western slopes of the southern Cascades south through the western slopes of the Sierra Nevada in Kern County. The Coast Range newt occurs from Monterey County south to San Diego County; it occurs throughout Southern California in isolated populations including the Santa Monica, San Gabriel, and Santa Ana Mountains.

The Coast Range newt is a stocky, medium-sized salamander with a snout to vent length between approximately 2.8 and 3.5 inches. It has rough, grainy skin in the terrestrial phase and no costal grooves (vertical grooves present on the sides of some salamanders). It is yellowish brown to dark brown above, and pale yellow to orange below. The eyelids and the area just below the eyes are lighter in color than the rest of the head, and the iris is light yellow to silver (Stebbins 2003).

From December to early May, depending on locality and weather conditions, the Coast Range newt enters streams, pools, and ponds to breed. Breeding at any given site will last from 3 to 12 weeks, and males will arrive before females to establish territories (Gamradt et al. 1997). Females deposit spherical egg masses with 7 to 47 eggs onto submerged vegetation or stones up to 1 foot deep (Mosher et al. 1964). Eggs will hatch within four to six weeks, and thereafter larvae will metamorphose within three months and move onto land in late summer or early fall (Kats et al. 1994; Kaplan 1985).

Coast Range newt populations have been impacted by degradation of breeding and aestivation sites, and the degradation and development of migration routes (Jennings and Hayes 1994). Migration occurs from non-breeding terrestrial locations to breeding ponds, reservoirs, and sluggish pools in streams. Migration can take several weeks, and distance travelled can span up to two miles. Furthermore, although adults and embryos of this species contain the potent neurotoxin tetradotoxin, which provides an effective defense against would-be predators, the introduced red-swamp crayfish (*Procambarus clarkia*), mosquitofish (*Gambusia affinis*), and American bullfrog have demonstrated a tolerance for the toxin and have caused serious declines and extermination of some populations (Gamradt and Kats 1996).

This species was observed during surveys for the Santa Anita Reservoir Sediment Removal Project approximately 0.25 mile upstream of the Santa Anita Reservoir within Santa Anita Creek (BonTerra Consulting 2009).

Two-Striped Garter Snake

Two-striped garter snake is a CDFG Species of Special Concern and a U.S. Forest Service Sensitive Species. The two-striped garter snake is highly aquatic and rarely found far from water, which it frequently enters to forage and escape predators (Stebbins 2003). Preferred habitat includes perennial and ephemeral streams with sandy to rocky beds bordered by willow thickets or other dense vegetation (Jennings and Hayes 1994). This species tends to occupy streamside sites during summer, switching to nearby upland habitats during winter (Rathbun et al. 1993). This species forages on fish, fish eggs, and tadpoles and metamorphs of frogs and toads (Rathbun et al. 1993; Cunningham 1959).

This species occurs throughout the South Coast and Peninsular Ranges west of the San Joaquin Valley, and deserts from the vicinity of Salinas and Cantua Creek in Monterey and Fresno counties, south along the coast to Southern California (Jennings and Hayes 1994). In Southern California, it ranges east through the Transverse Ranges and south through the Peninsular Ranges through Baja California, Mexico from near sea level to approximately 8,040 feet above msl (Jennings and Hayes 1994).

Breeding typically occurs in March, with females producing 4 to 36 live young in summer (Stebbins 2003). The young are born fully developed and receive no parental care.

The two-striped garter snake is medium-sized for the genus, growing to approximately 3.3 feet in total length. Body color varies from olive to brown or brownish gray with two lateral (along the length of the body) stripes on the second and third scale rows and four lateral rows of small dark spots between the stripes (Jennings and Hayes 1994). The lateral stripes and rows or dark spots may sometimes be absent, particularly in melanistic (dark coloration) individuals common in the northern portion of the species' range (Larson 1984). The ventral (bottom) surface is dull yellow to orange-red or salmon with a whitish throat (Stebbins 2003).

The historic range of two-striped garter snake has been reduced by an estimated 40 percent because of livestock grazing, urban development, and channelization of stream habitat for flood control (Stebbins 2003). Additionally, population declines have resulted from increased predation by introduced predatory fish and American bullfrog and a decline in prey species (Jennings and Hayes 1994).

The closest record of two-striped garter snake relative to the survey area is an occurrence in the west fork of the San Gabriel River, approximately 0.7 mile east of the Devore campground, which is located approximately 5 miles north of the survey area (CDFG 2012).

Silvery Legless Lizard

Silvery legless lizard is a California Species of Special Concern and a U.S. Forest Service Sensitive Species in the Angeles National Forest. It is a small, secretive lizard that spends most of its life in leaf litter; beneath the soil; and/or under stones, logs, and debris. The silvery legless lizard requires areas with loose, sandy soil; moisture; warmth; and plant cover. It occurs in chaparral, pine-oak woodland, beach, and riparian vegetation types at elevations ranging from sea level to about 5,100 feet above msl (Stebbins 2003). Silvery legless lizards are normally subterranean, and not often seen on the surface. They are active primarily in the morning and evening, when they forage in the leaf litter or soil. Their diet consists primarily of spiders, insects, and insect larvae (Jones and Lovich 2009).

Silvery legless lizard occurs from Contra Costa County south to Baja California, Mexico (Stebbins 2003). This species occurs in the Coast, Transverse, and Peninsular ranges, and also at the edge of the deserts. There are also scattered occurrences of this species on the San Joaquin Valley floor.

Silvery legless lizard is a small, slender lizard that reaches lengths of 4 to 7 inches from snout to vent. It lacks external ear openings, but has lower eyelids. It has small body scales that have a shiny or polished look. While body color varies geographically, throughout most of its range, the silvery legless lizard's body is silver, beige, or gray, with a dark mid-dorsal (along the back) stripe and several less defined lateral (along the sides) stripes (Jones and Lovich 2009).

Silvery legless lizards reach sexual maturity at two to three years of age, usually producing one to four live young between September and November (Jones and Lovich 2009). Young lizards are cream or silver colored above, and light gray or pale yellow below (Stebbins 2003).

This species is naturally rare since it specializes in substrates with a high sand content, but is also threatened by grazing; off-road vehicle activity; sand mining; beach erosion and excessive recreational use of coastal dunes; and the introduction of exotic plants (Jennings and Hayes 1994).

The closest record of silvery legless lizard relative to the survey area includes an observation from a residential lot in the city of Claremont, approximately 19 miles east of the survey area (CDFG 2012). Silvery legless lizard is also known from the Big Tujunga Wash, approximately 20 miles northwest of the survey area (CDFG 2012).

SURVEY METHODOLOGY

BonTerra Consulting Senior Herpetologist Samuel Stewart (CDFG Scientific Collecting Permit SC-004421) and Herpetologist Jason Mintzer conducted focused surveys on June 19–23, 2012. Mr. Stewart has experience with all four species and has the appropriate CDFG authorization for trapping and handling.

The Pacific pond turtle survey methodology was based on survey and census recommendations made by Holland (1991) and survey protocols developed by Reese and Welsh (1988) and Goodman (1999). Surveys incorporated both visual encounter and live-trapping. Live trapping consists of placing live-catch turtle traps (i.e., floating net mesh box traps) at 4 trapping stations in Santa Anita Creek (Exhibit 3) for a total of 4 trapping periods lasting up to 24 hours each. Net mesh box traps are 24-inch (in) by 18-in by 8-in framed, $^{5}/_{16}$-in mesh in square, mesh boxes with two 1-way funnel entrances. Floats were placed inside the traps to allow submergence of one trap entrance and flotation of approximately four inches of trap enclosure. All four net mesh box traps were firmly secured to banks or exposed vegetation within larger pools in the stream using nylon rope. The traps were baited with fresh mackerel. Turtles attracted by the scent of the bait would enter the submerged entrance and surface within the enclosure to breathe. All traps were fitted with tags listing the CDFG Scientific Collecting Permit number under which live trapping was being conducted. Trap station locations were recorded with a Garmin Etrex Vista H geographic positioning system (GPS) unit.

Mr. Stewart and Mr. Mintzer conducted five diurnal visual encounter surveys for Pacific pond turtle, two-striped garter snake, and Coast Range newt during setting and checking/removal of traps (Table 1). Additionally, two nocturnal visual encounter surveys for Coast Range newt and two-striped garter snake were conducted. Biologists conducted "visual encounter" surveys during atmospheric conditions most conducive to Pacific pond turtle, two-striped garter snake,

and Coast Range newt activity and avoided adverse conditions that may inhibit activity, including high winds (greater than 16 miles per hour), heavy precipitation, and temperature extremes less than 50 or greater than 90 degrees Fahrenheit. The visual encounter methodology involved walking along the creek banks checking the stream and pools for Pacific pond turtle, two-striped garter snake, and Coast Range newt, periodically scanning upstream and downstream using binoculars to detect two-striped garter snakes and Pacific pond turtles that may be basking or actively foraging, and inspecting crevices and under ledges for two-striped garter snakes at rest. Surveyors wore polarized sunglasses during diurnal surveys to reduce glare and improve visibility in the stream and pools.

The survey methodology for silvery legless lizard was based on an approach previously approved by CDFG in a Memorandum of Understanding for a silvery-legless lizard focused survey and translocation effort (BonTerra Consulting 2004). Methods included flipping rocks/debris, gently raking, and actively searching duff below oaks and sycamores in areas with sandy substrate. The survey effort focused on areas with deeper sandy deposits and leaf litter beneath oaks and sycamores in, and adjacent to, the Santa Anita Debris Basin.

SURVEY RESULTS

No Pacific pond turtles were captured during the trapping session or seen during visual surveys (Table 1). One introduced fish species, green sunfish (*Lepomis cyanellus*), was captured during live trapping. No Coast Range newts or two-striped garter snakes were observed during visual surveys. No silvery legless lizards were observed during active searches and/or raking.

A summary of survey results is provided in Table 1. A complete list of wildlife species observed during the surveys is included in Attachment B.

TABLE 1
SUMMARY OF TRAPPING RESULTS

Start				End				
Trap Set Date	Time	Air Temp (°F)	Wind Speed (mph)	Trap Check Date	Time	Air Temp (°F)	Wind Speed (mph)	Trap Results
6/19/2012	4:10PM–12:00 AM	78	1–3	6/20/2012	2:30–11:30 PM	77	1–3	Trap 1 – 8 sunfish
								Trap 2 – Empty
								Trap 3 – Empty
								Trap 4 – 1 sunfish
6/20/2012	2:30–11:30 PM	77	1–3	6/21/2012	3:30 PM–10:15 PM	80	1–4	Trap 1 – Empty
								Trap 2 – Empty
								Trap 3 – 1 sunfish
								Trap 4 – 2 sunfish
6/21/2012	3:30 PM–10:15 PM	80	1–4	6/22/2012	1:30 PM–9:15 PM	85	3–6	Trap 1 – 1 sunfish
								Trap 2 – Empty
								Trap 3 – 1 sunfish
								Trap 4 – 1 sunfish
6/22/2012	1:30 PM–9:15 PM	85	3–6	6/23/2012	12:30 PM–5:50 PM	86	4–7	Trap 1 – 1 sunfish
								Trap 2 – Empty
								Trap 3 – Empty
								Trap 4 – 1 sunfish

°F: degrees Fahrenheit; mph: miles per hour

Two CDFG Special Animals were observed during the survey: yellow warbler (*Setophaga petechia* [*Dendroica petechia*]), a CDFG Species of Special Concern, and Southern California rufous-crowned sparrow (*Aimophila ruficeps*), a CDFG Watch List Species. California Natural Diversity Database (CNDDB) forms for these species were submitted with focused survey reports for special status bird species for the project; therefore, none will be submitted with this report.

BonTerra Consulting appreciates the opportunity to assist with this project. Please contact Amber Oneal at (714) 444-9199 or Sam Stewart at (626) 351-2000 if you have questions or comments.

Sincerely,

BONTERRA CONSULTING

Amber S. Oneal
Senior Project Manager, Biological Resources

Samuel C. Stewart, IV
Senior Herpetologist

Enclosures: Exhibits 1–3
Attachment A – Site Photos
Attachment B – Wildlife Compendium

cc: M. Ching, mching@dpw.lacounty.gov

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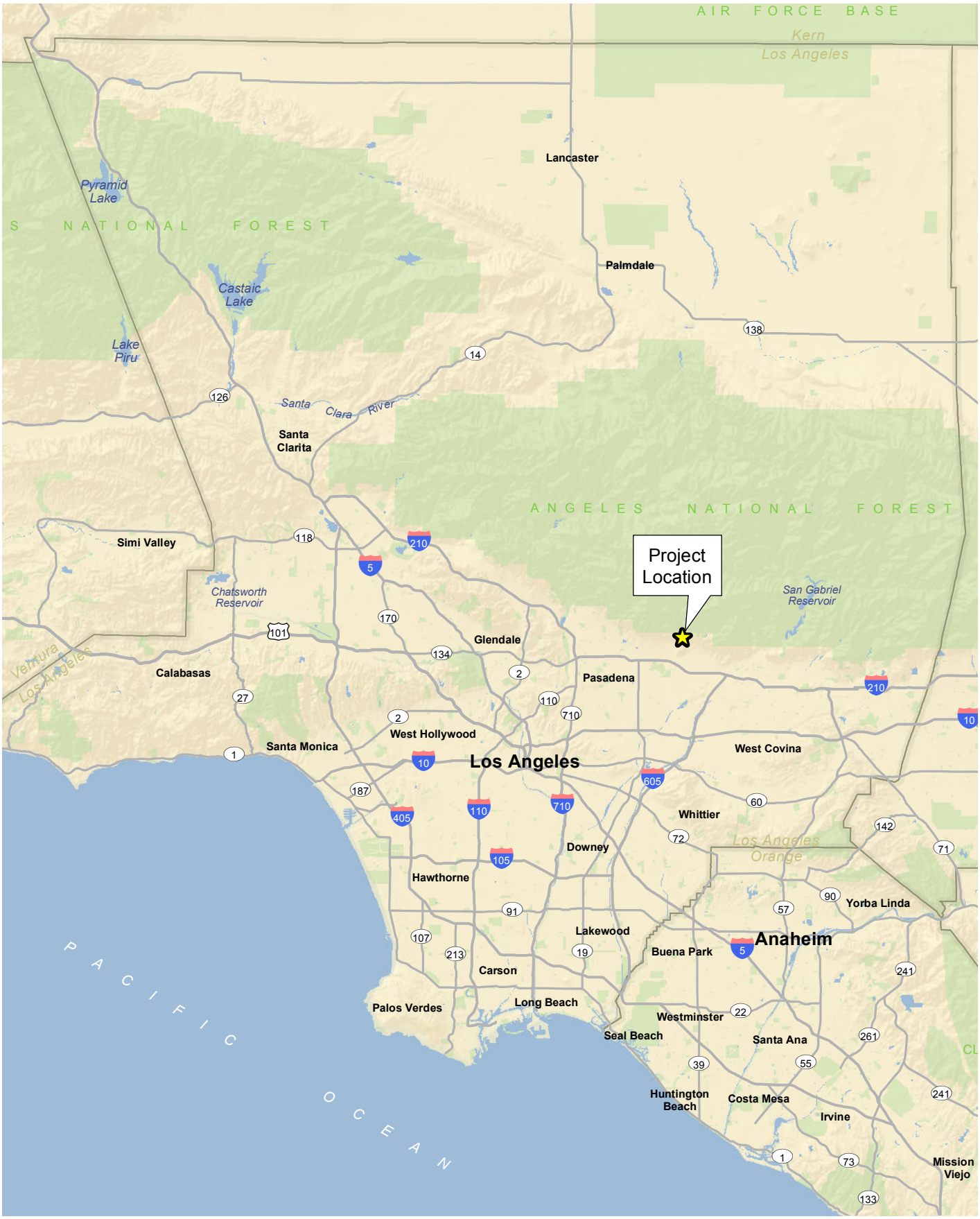

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Project Location

Exhibit 1

Santa Anita Proposition 1E Project

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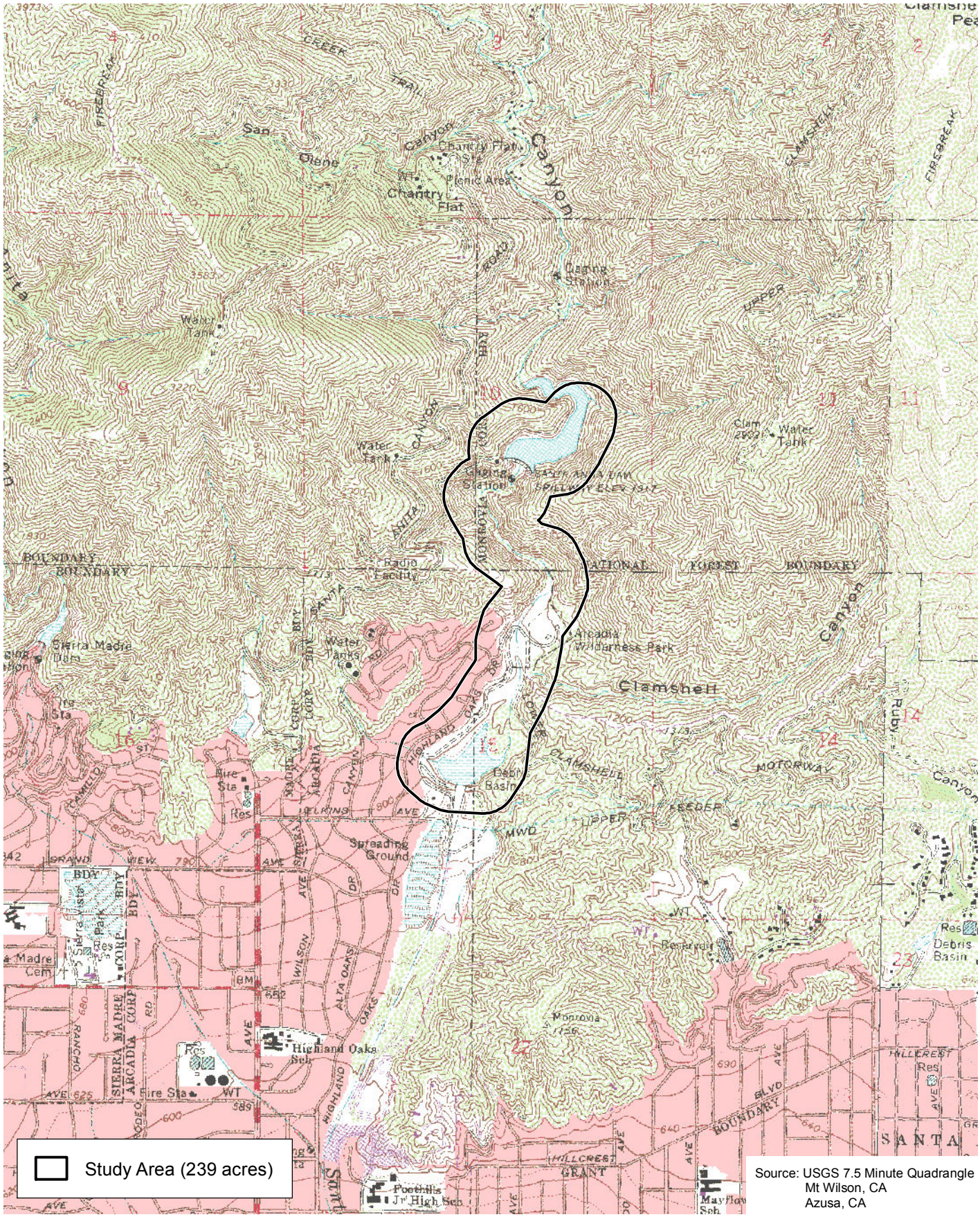

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Local Vicinity

Exhibit 2

Santa Anita Prop 1E Project

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Survey Area

Exhibit 3

Santa Anita Proposition 1E Project

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Feet

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ATTACHMENT A

SITE PHOTOS



Photo 1. Trap Station 1: Large pool immediately downstream of the headworks facility. Photo taken facing west.



Photo 2. Trap Station 2: Large pool immediately upstream of the headworks facility. Photo taken facing north.

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Site Photographs

Attachment A-1

Santa Anita Proposition 1E Project

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Photo 3. Trap Station 3: Large pool with freshwater marsh habitat in the canyon between the dam and the headworks facility. Turtle trap is visible in the foreground (see red arrow). Photo taken facing north.



Photo 4. Trap Station 4: Large pool immediately downstream from Santa Anita Dam. Photo taken facing northwest.



Photo 5. Collapsible nylon mesh box traps with two funnel entrances.

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ATTACHMENT B

WILDLIFE COMPENDIUM

WILDLIFE COMPENDIUM

Species
Fish
SALMONIDAE – SALMON, TROUT, CHARS, FRESHWATER WHITEFISHES, AND GRAYLINGS
Oncorhynchus mykiss rainbow trout
CENTRACHIDAE – SUNFISH
*Lepomis cyanellus** green sunfish
Amphibians
BUFONIDAE – TRUE TOADS
Anaxyrus boreas [*Bufo boreas*] *halophilus* California toad
HYLIDAE – TREEFROGS
Pseudacris [*Hyla*] *cadaverina* California treefrog
Pseudacris [*Hyla*] *hypochondriaca* [*regilla*] Baja California treefrog
Reptiles
PHRYNOSOMATIDAE – ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS
Sceloporus occidentalis western fence lizard
Uta stansburiana side-blotched lizard
ANGUIDAE – ALLIGATOR LIZARDS
Elgaria multicarinata southern alligator lizard
COLUBRIDAE – COLUBRID SNAKES
Pituophis catenifer gopher snake
Birds
ODONTOPHORIDAE – QUAILS
Callipepla californica California quail
ARDEIDAE – HERONS, BITTERNS, AND ALLIES
Ardea Herodias great blue heron
CATHARTIDAE – NEW WORLD VULTURES
Cathartes aura turkey vulture
ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES
Buteo jamaicensis red-tailed hawk
COLUMBIDAE – PIGEONS AND DOVES
Zenaida macroura mourning dove
TYTONIDAE – BARN OWLS
Tyto alba barn owl
STRIGIDAE – TRUE OWLS
Bubo virginianus great horned owl

WILDLIFE COMPENDIUM (Continued)

Species
TROCHILIDAE – HUMMINGBIRDS
Archilochus alexandri black-chinned hummingbird
Calypte anna Anna's hummingbird
Calypte costae Costa's hummingbird
Selasphorus sasin Allen's hummingbird
PICIDAE – WOODPECKERS
Melanerpes formicivorus acorn woodpecker
Picoides nuttallii Nuttall's woodpecker
Colaptes auratus northern flicker
TYRANNIDAE – TYRANT FLYCATCHERS
Contopus cooperi olive-sided flycatcher
Contopus sordidulus western wood-pewee
Empidonax difficilis Pacific-slope flycatcher
Sayornis nigricans black phoebe
VIREONIDAE – VIREOS
Vireo gilvus warbling vireo
CORVIDAE – CROWS AND JAYS
Aphelocoma californica western scrub-jay
Cyanocitta stelleri Steller's jay
HIRUNDINIDAE – SWALLOWS
Tachycineta thalassina violet-green swallow
Petrochelidon pyrrhonota cliff swallow
Hirundo rustica barn swallow
PARIDAE – TITMICE
Baeolophus inornatus oak titmouse
AEGITHALIDAE – BUSHTITS
Psaltriparus minimus bushtit
TROGLODYTIDAE – WRENS
Catherpes mexicanus canyon wren
Thryomanes bewickii Bewick's wren
Troglodytes aedon house wren

WILDLIFE COMPENDIUM (Continued)

Species
TURDIDAE – THRUSHES AND ROBINS
Turdus migratorius American robin
MIMIDAE – THRASHERS
Mimus polyglottos northern mockingbird
PTILOGONATIDAE – SILKY-FLYCATCHERS
Phainopepla nitens phainopepla
PARULIDAE – WARBLERS
Setophaga petechia [*Dendroica petechia*] yellow warbler
Cardellina pusilla [*Wilsonia pusilla*] Wilson's warbler
EMBERIZIDAE – SPARROWS AND JUNCOS
Pipilo maculatus spotted towhee
Melozone [*Pipilo*] *crissalis* California towhee
Aimophila ruficeps rufous-crowned sparrow
Melospiza melodia song sparrow
CARDINALIDAE – CARDINALS AND ALLIES
Piranga ludoviciana western tanager
ICTERIDAE – BLACKBIRDS
Icterus cucullatus hooded oriole
FRINGILLIDAE – FINCHES
Carpodacus mexicanus house finch
Spinus [*Carduelis*] *psaltria* lesser goldfinch
ESTRILDIDAE – MANNIKINS
Lonchura punctulata * nutmeg mannikin
Mammals
SCIURIDAE – SQUIRRELS
Spermophilus beecheyi California ground squirrel
Neotamius [*Tamias*] *merriami* Merriam's chipmunk
Sciurus griseus western gray squirrel
MEPHITIDAE – SKUNKS
Mephitis mephitis striped skunk
* introduced species

ATTACHMENT G

COASTAL CALIFORNIA GNATCATCHER SURVEY REPORT

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October 3, 2012

Ms. Susie Tharratt
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

VIA EMAIL AND MAIL
Susie_Tharratt@fws.gov

Subject: Results of Focused Presence/Absence Coastal California Gnatcatcher Survey for the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project in Arcadia and the Angeles National Forest, Los Angeles County, California

Dear Ms. Tharratt:

This Letter Report presents the results of focused surveys to evaluate the presence or absence of the federally listed Threatened California gnatcatcher (*Polioptila californica californica*) on the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project Site (hereinafter referred to as the "Project Site") in Los Angeles County, California. A Biologist with the necessary experience and the Federal Endangered Species Act 10(a) survey permit conducted the surveys according to U.S. Fish and Wildlife Service (USFWS) protocol.

The Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project will improve Los Angeles County Flood Control District facilities to better manage storm water runoff from the Santa Anita Canyon Watershed to achieve the following goals: (1) reduce flood damage to the downstream communities; (2) increase recharge of the local groundwater basin; and (3) improve public safety by remediating seismic safety issues at the Dam and Debris Basin.

Survey Area

The Project Site is located in the City of Arcadia and the Angeles National Forest (Exhibit 1). It is located on the U.S. Geological Survey's (USGS's) Mount Wilson 7.5-minute topographic quadrangle in Township 1 North, Range 11 West in portions of Sections 10 and 15 with elevations ranging from 750 to 1,300 feet above mean sea level (msl) (Exhibit 2). The survey area includes habitat from the Santa Anita Reservoir downstream along Santa Anita Creek to the Santa Anita Debris Basin (Exhibit 3). Private residences occur along the western boundary of the basin along Highland Oaks Boulevard. Open spaces in the Arcadia Wilderness Park and the Angeles National Forest occur north and east of the survey area.

Most of the coastal sage scrub, representing potentially suitable habitat for the California gnatcatcher, occurs in the southern portion of the survey area within the Santa Anita Debris Basin. A mixture of alluvial fan sage scrub and riparian habitats occur along the banks and in the floodplain of the creek within the basin. The upper terraces transition from alluvial fan sage scrub, dominated by

scalebroom (*Lepidospartum squamatum*), to coastal sage scrub habitat, dominated by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and deerweed (*Lotus scoparius*).

Small patches of coastal sage scrub habitat also occur around the reservoir, upstream of the Dam. The understory in these areas consists of a variety of non-native herbs and grasses and some native annuals. These patches of habitat are interspersed with chaparral habitat and/or steep cliffs.

The area along Santa Anita Creek between the Dam and the Debris Basin consists of a canyon with vertical walls or very steep slopes that are either unvegetated or dominated by dense chaparral; these areas do not represent suitable habitat for California gnatcatchers.

Representative photos of coastal sage scrub habitat are included in Attachment A.

Background

The California gnatcatcher was listed by the USFWS as a Threatened species in 1993 (USFWS 1993). Historically, it occurred in California from the Santa Clara River Valley and northern San Fernando Valley south through the coastal foothills of San Diego County (Garrett and Dunn 1981). Habitat loss and fragmentation from expanding development and agriculture has been a major factor in the decline of this species in Southern California (Atwood 1993).

The California gnatcatcher inhabits moderately dense stands of coastal sage scrub occurring on arid hillsides, mesas, and washes. Coastal sage scrub communities dominated by California sagebrush, California buckwheat, and white sage (*Salvia apiana*) seem to be preferred by this species, but shrub composition in occupied areas across the species' range varies, as does shrub community structure (height, density, etc.). Chaparral, riparian, and ruderal habitats may be used occasionally for dispersal and foraging, especially when these habitats are adjacent to occupied stands of coastal sage scrub. California gnatcatcher populations in inland areas usually occur in lower densities than in coastal sites, and generally occur in more open scrub habitats; as such, inland populations tend to have larger home ranges than coastal populations. The California gnatcatcher's elevation limit is 2,640 feet above msl, but most occurrences are well below that, with populations generally between sea level and 1,800 feet above msl in inland areas and between sea level and 1,350 feet above msl in coastal habitats (Atwood and Bontrager 2001).

The California gnatcatcher is a resident (non-migratory) songbird that nests and forages in coastal sage scrub vegetation in Southern California year-round. Territory size varies with season and locale. Territory size may increase by as much as 80 percent during the non-breeding season as pairs and individuals tend to wander more widely, and inland populations tend to have larger home ranges than coastal populations, as noted above. The breeding season generally occurs from March through July. Juvenile dispersal distances average less than 1.2 miles from natal territories, but have been documented up to nearly 6 miles.

The USFWS published a Revised Final Rule designating critical habitat for the coastal California gnatcatcher in 2007 (USFWS 2007). This revised rule designates 197,303 acres of critical habitat in San Diego, Orange, Riverside, San Bernardino, Los Angeles, and Ventura Counties. The survey area is not within the Revised Critical Habitat for this species.

Survey Methodology

Prior to conducting the focused survey, a search was conducted in the California Department of Fish and Game's (CDFG's) California Natural Diversity Database (CNDDB) for the Mount Wilson USGS 7.5-minute quadrangle (CDFG 2012) to determine the extent of California gnatcatcher occurrences reported in the survey area and vicinity.

Focused surveys were conducted by James Huelsman (USFWS permit No. TE 827493-7). Survey methods followed guidelines developed by the USFWS for conducting California gnatcatcher surveys. Field surveys were aided by the use of topographic maps and aerial photographs depicting the survey limits. Locations of special status species observed incidentally were recorded as waypoints using Global Positioning System (GPS) technology (Garmin Oregon t450). The focus of the surveys was to detect and identify the California gnatcatcher, but all wildlife incidentally observed or detected in the survey area was recorded and is listed in Attachment B.

Surveys for the California gnatcatcher followed the current presence/absence protocol (USFWS 1997). Six surveys were conducted in suitable habitat at least seven days apart between March 15 and June 30. Surveys were conducted between dawn and noon under suitable weather conditions. The protocol allows coverage of 80 acres of suitable habitat per survey day; one field day was sufficient to survey all potentially suitable habitats in the survey area. Surveys were conducted by walking slowly within and along the perimeter of coastal sage scrub stands while watching and listening for California gnatcatcher activity. Recorded vocalizations were used conservatively to solicit a response from any gnatcatcher's potentially presence. The frequency of taped playback used varied with site conditions such as habitat patch size, topography, and ambient noise levels. Survey dates, times, and weather data for the focused California gnatcatcher surveys are shown in Table 1.

TABLE 1
DATES, TIMES AND WEATHER CONDITIONS
FOR CALIFORNIA GNATCATCHER SURVEYS

	Time		Weather Conditions					
			Temp. (ºF)		Ave. Wind (mph)		Cloud Cover	
Date	Start	Finish	Start	Finish	Start	Finish	Start	Finish
5/16/2012	6:30AM	11:50AM	65	75	0–1	2–3	0%	0%
5/25/2012	6:30AM	10:30AM	62	62	<1	2–4	100%	100%
6/1/2012	7:00AM	11:15AM	66	75	<1	1–3	100%	0%
6/11/2012	7:00AM	11:00AM	63	75	<1	2–3	20%	0%
6/18/2012	7:30AM	11:00AM	63	76	<1	2–3	100%	0%
6/25/2012	7:15AM	11:00AM	63	72	<1	1–2	0%	0%
ºF: degrees Fahrenheit; mph: miles per hour.								

Survey Results

No California gnatcatchers were observed during any of the surveys. Therefore, the California gnatcatcher is determined to be absent from the survey area at this time. The only occurrence reported in the CNDDB was from 1928 in an area that is now completely developed in the City of Arcadia (CDFG 2012). Based on the following information, the California gnatcatcher is likely absent from the Project Site at this time and is unlikely to occur in the near future: (1) the negative survey results reported here; (2) the lack of recent sightings in the survey area;

California gnatcatchers within known dispersal distances; and (5) the professional judgment and experience of the surveying Biologist.

Other Observations

One California Species of Special Concern,[1] yellow warbler (*Dendroica petechia*), and one CDFG Watch List Species,[2] Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), were observed in the survey area. CNDDB forms will be submitted to the CDFG for these species (Attachment C).

Three brown-headed cowbirds (*Molothrus ater*) were observed on the June 11, 2012 survey visit; they were not observed on any of the other visits.

BonTerra Consulting appreciates the opportunity to assist on this project. If you have any comments or questions, please call Amber Oneal at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Thomas E. Smith
Principal, Environmental Services

Amber S. Oneal
Senior Project Manager, Biological Services

I certify that the information in this survey report and enclosed exhibits fully and accurately present my work.

James Huelsman
Biologist
Permit No. TE827493-7

Attachments: Exhibits 1, 2, and 3
A – Site Photographs
B – Wildlife Compendium
C – CNDDB Forms

cc: Grace Yu, Los Angeles County Department of Public Works

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1 California Species of Special Concern are considered special status due to declining population levels, limited ranges, and/or continuing threats, which have made them vulnerable to extinction. Not all Species of Special Concern have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing.

2 CDFG Watch List Species are not on the current Special Concern list but (1) were on previous lists and have not been State listed under California Endangered Species Act; (2) were previously State or federally listed and now are on neither list; or (3) are on the list of "Fully Protected" species.

REFERENCES

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———. 1997 (July 28). *Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol.* Washington, D.C.: USFWS.

———. 1993 (March 30). Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the Coastal California Gnatcatcher. *Federal Register* 58(59): 16742–16757. Washington, D.C.: USFWS.



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Project Location

Exhibit 1

Santa Anita Prop 1E Project

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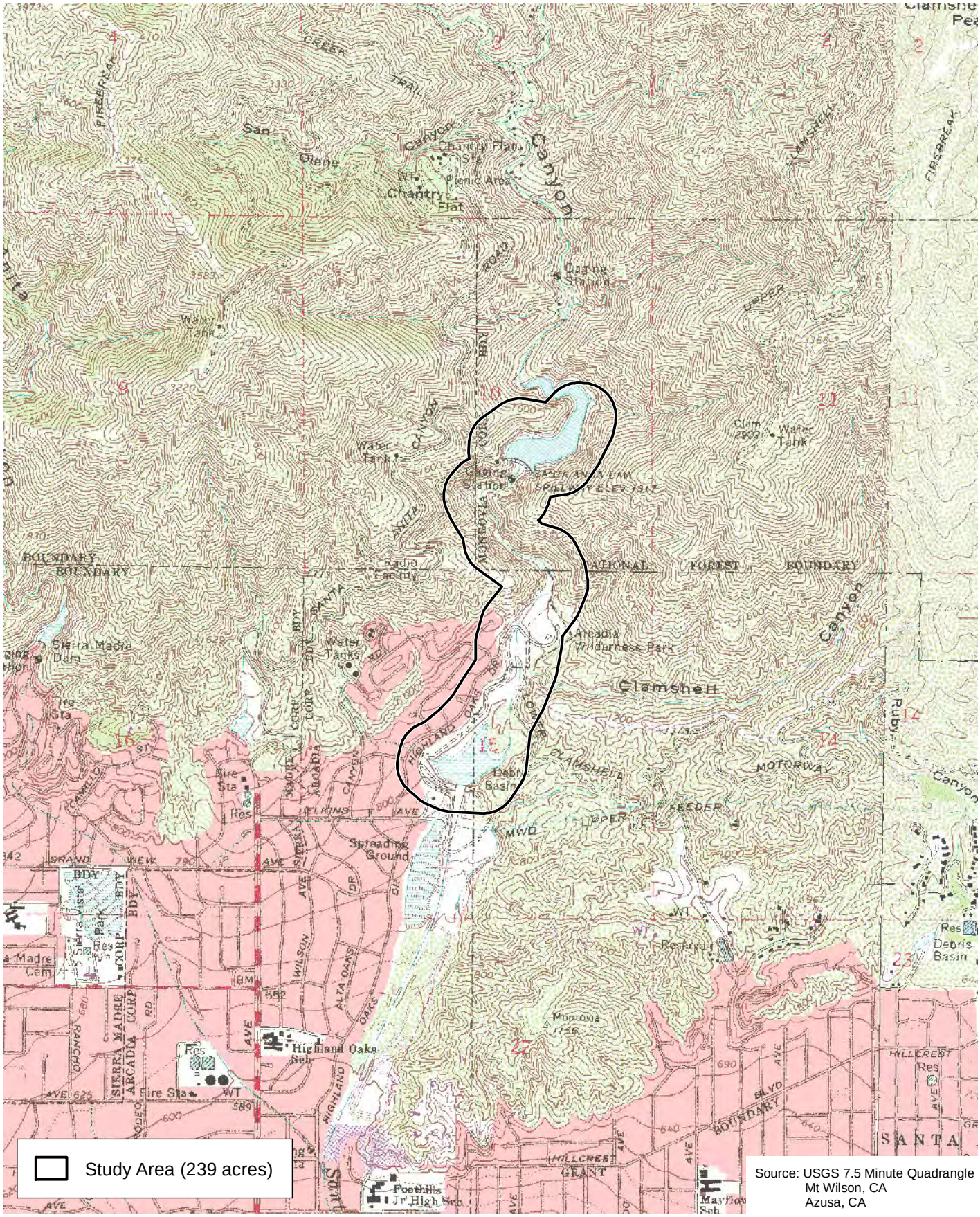

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Local Vicinity

Exhibit 2

Santa Anita Prop 1E Project

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Survey Area

Exhibit 3

Santa Anita Prop 1E Project

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Feet

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ATTACHMENT A

SITE PHOTOS



View of alluvial sage scrub habitat at the upper end of the Santa Anita Debris Basin. Photo taken from the middle of the Debris Basin looking north.



View of coastal sage scrub habitat along the edges of the riparian habitat in the Santa Anita Debris Basin. Photo taken from the southwestern side of the Debris Basin looking east.

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Site Photographs

Attachment A

Santa Anita Proposition 1E Project

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ATTACHMENT B

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING COASTAL CALIFORNIA GNATCATCHER SURVEYS SPRING/SUMMER 2012

SCIENTIFIC NAME	COMMON NAME
REPTILIA	**Reptiles**
Phrynosomatidae	**Phrynosomatids**
Sceloporus occidentalis biseriatus	Western fence lizard
Uta stansburiana	Side-blotched lizard
Teiidae	**Whiptail lizards**
Cnemidophorus tigris	Western whiptail
Viperidae	**Rattlesnakes**
Crotalus viridis	Western rattlesnake
AVES	**Birds**
Ardeidae	**Herons and Egrets**
Ardea herodias	Great blue heron
Cathartidae	**Vultures**
Cathartes aura	Turkey vulture
Anatidae	**Geese and ducks**
Anas platyrhynchos	Mallard
Accipitridae	**Raptors**
Buteo lineatus	Red-shouldered hawk
Buteo jamaicensis	Red-tailed hawk
Odontophoridae	**Quail**
Callipepla californica	California quail
Columbidae	**Pidgeons and doves**
* *Columba livia*	Rock dove
* *Streptopelia decaocto*	Eurasian collared dove
Zenaida macroura	Mourning dove
Trochilidae	**Hummingbirds**
Calypte anna	Anna’s hummingbird
Calypte costae	Costa's hummingbird
Selasphorus sasin	Allen's hummingbird
Picidae	**Woodpeckers**
Melanerpes formicivorus	Acorn woodpecker
Picoides nuttallii	Nuttall’s woodpecker
Colaptes auratus	Northern flicker
Tyrannidae	**Tyrant flycatchers**
Empidonax difficilis	Pacific-slope flycatcher
Sayornis nigricans	Black phoebe
Sayornis saya	Say’s phoebe
Myiarchus cinerascens	Ash-throated flycatcher
Corvidae	**Jays and crows**
Cyanocitta stelleri	Steller’s jay
Aphelocoma californica	Western scrub-jay
Corvus corax	Common raven

WILDLIFE SPECIES OBSERVED DURING COASTAL CALIFORNIA GNATCATCHER SURVEYS SPRING/SUMMER 2012 (Continued)

SCIENTIFIC NAME	COMMON NAME
Hirundinidae	**Swallows**
Tachycineta thalassina	Violet-green swallow
Stelgidopteryx serripennis	Northern rough-winged swallow
Petrochelidon pyrrhonota	Cliff swallow
Paridae	**Titmice and chickadees**
Baeolophus inornatus	Oak (Plain) titmouse
Aegithalidae	**Bushtits**
Psaltriparus minimus	Bushtit
Troglodytidae	**Wrens**
Salpinctes obsoletus	Rock wren
Catherpes mexicanus	Canyon wren
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	House wren
Turdidae	**Bluebirds and thrushes**
Turdus migratorius	American robin
Timaliidae	**Wrentits**
Chamaea fasciata	Wrentit
Mimidae	**Mockingbirds and thrashers**
Mimus polyglottis	Northern mockingbird
Sturnidae	**Starlings**
* *Sturnus vulgaris*	European starling
Ptilogonatidae	**Silky flycatchers**
Phainopepla nitens	Phainopepla
Parulidae	**Wood warblers**
** *Dendroica petechia*	Yellow warbler
Emberizidae	**Towhees and sparrows**
Pipilo maculatus	Spotted towhee
Pipilo crissalis	California towhee
** *Aimophila ruficeps*	Rufous-crowned sparrow
Melospiza melodia	Song sparrow
Junco hyemalis	Dark-eyed junco
Cardinalidae	**Grosbeaks and buntings**
Pheucticus melanocephalus	Black-headed grosbeak
Icteridae	**Blackbirds and orioles**
* *Molothrus ater*	Brown-headed cowbird
Icterus cucullatus	Hooded oriole
Icterus bullockii	Bullock's oriole
Fringillidae	**Finches**
Carpodacus mexicanus	House finch
Carduelis tristis	American goldfinch
Estrildidae	**Estrildid finches**
Lonchura punctulata	Nutmeg mannikin

WILDLIFE SPECIES OBSERVED DURING COASTAL CALIFORNIA GNATCATCHER SURVEYS SPRING/SUMMER 2012 (Continued)

SCIENTIFIC NAME	COMMON NAME
MAMMALIA	**Mammals**
Leporidae	**Hares and rabbits**
Sylvilagus audubonii	Desert cottontail
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
Sciurus griseus	Western gray squirrel
Canidae	**Dogs/wolves/foxes**
Canis latrans	Coyote (scat, tracks)
Ursidae	**Bears**
Ursus americanus	Black bear (scat, tracks)
Cervidae	**Deer**
Odocoileus hemionus	Mule deer

* non-native species
** CDFG's Special Animals

Note: Other species may have been overlooked or inactive/absent because of the season (amphibians are active during rains, reptiles during summer, some birds (and bats) migrate out of the area for summer or winter, some mammals hibernate etc.). Taxonomy and nomenclature generally follow NABA (2002) for butterflies, Stebbins (2003) for amphibians and reptiles, AOU (1998) for birds, and Jones et al. (1992) for mammals.

ATTACHMENT C

CNDDB FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/25/2012

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Dendroica petechia*

Common Name: Yellow warbler

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Brian Leatherman
Address: 5622 Amberdale Drive
Yorba Linda, CA 92886
E-mail Address: blelathermanwlb@aol.com
Phone: (714) 701-0863

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Los Angeles Landowner / Mgr.: LADPW
Quad Name: Mt. Wilson Elevation: _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Oregon
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates: 0406227mE, 3782454mN

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

A mixture of alluvial fan sage scrub and patches of riparian habitat dominated by mulefat (Baccharis salicifolia) and willows (Salix spp.) along the banks and within the floodplain of the creek within the basin. The upper terraces transition from alluvial fan sage scrub, dominated by scalebroom (Lepidospartum squamatum), to coastal sage scrub habitat, dominated by California sagebrush (Artemisia californica), California buckwheat (Eriogonum fasciculatum), and deerweed (Lotus scoparius). Adult male singing, presumably on territory.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: USFS to the north, urban sprawl to the south.

Visible disturbances:

Threats:

Comments: Along floodplain below Santa Anita Dam.

Determination: *(check one or more, and fill in blanks)*

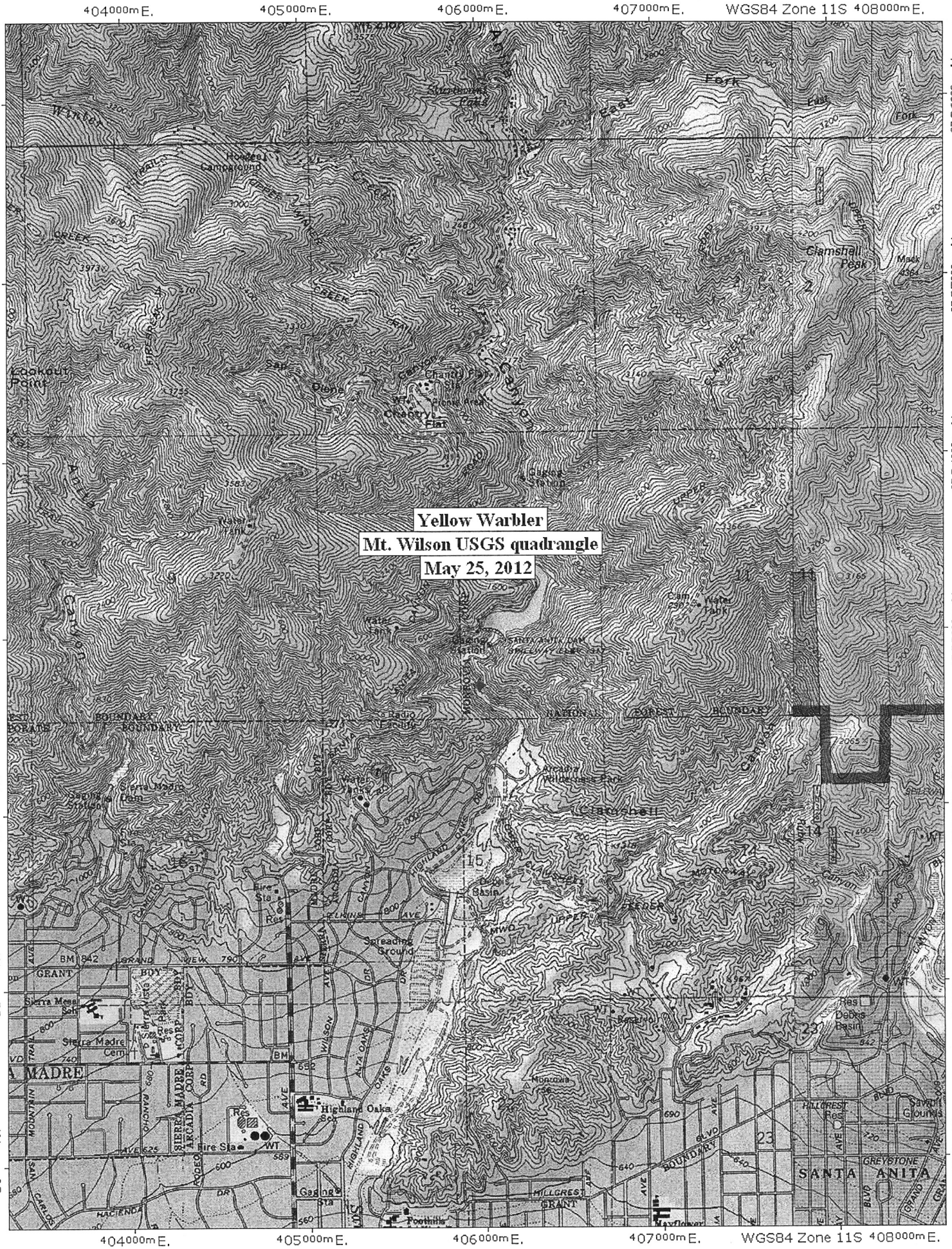
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Experience with species

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

TOPO! map printed on 09/26/12 from "Untitled.tpo"


Yellow Warbler
Mt. Wilson USGS quadrangle
May 25, 2012
404000m E.
405000m E.
406000m E.
407000m E.
408000m E.
WGS84 Zone 11S
3786000m N.
3785000m N.
3784000m N.
3783000m N.
3782000m N.
3781000m N.
3780000m N.
Eaton Canyon
Clamshell Peak
Cleghorn Canyon
Arcadia Wilderness Park
Sierra Madre
Highland Oaks
Santa Anita
Foothills
Mayflower
Hillcrest
Greystone
Debris Basin
Spreading Ground
Fire Sta
Water Tank
Radio Facility
Gaging Station
Hoagland Campground
Chantry Flat
Oakwood Park
Kaakaut Point
Mt. Wilson
Sturtevant Park
Lower Winter Creek
Upper Winter Creek
Upper Eaton Canyon
Lower Eaton Canyon
Upper Cleghorn Canyon
Lower Cleghorn Canyon
Upper Santa Anita Canyon
Lower Santa Anita Canyon
Upper Arcadia Canyon
Lower Arcadia Canyon
Upper Rubio Canyon
Lower Rubio Canyon
Upper Millard Canyon
Lower Millard Canyon
Upper Sturtevant Canyon
Lower Sturtevant Canyon
Upper Chantry Flat Canyon
Lower Chantry Flat Canyon
Upper Hoagland Canyon
Lower Hoagland Canyon
Upper Oakwood Canyon
Lower Oakwood Canyon
Upper Kaakaut Canyon
Lower Kaakaut Canyon
Upper Fern Canyon
Lower Fern Canyon
Upper Fox Canyon
Lower Fox Canyon
Upper Fox Creek
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Upper Fern Creek
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Upper Eaton Creek
Lower Eaton Creek
Upper Cleghorn Creek
Lower Cleghorn Creek
Upper Santa Anita Creek
Lower Santa Anita Creek
Upper Arcadia Creek
Lower Arcadia Creek
Upper Rubio Creek
Lower Rubio Creek
Upper Millard Creek
Lower Millard Creek
Upper Sturtevant Creek
Lower Sturtevant Creek
Upper Chantry Flat Creek
Lower Chantry Flat Creek
Upper Hoagland Creek
Lower Hoagland Creek
Upper Oakwood Creek
Lower Oakwood Creek
Upper Kaakaut Creek
Lower Kaakaut Creek
Upper Fern Creek
Lower Fern Creek
Upper Fox Creek
Lower Fox

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/25/2012

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Aimophila ruficeps*

Common Name: Rufous-crowned sparrow

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Brian Leatherman
Address: 5622 Amberdale Drive
Yorba Linda, CA 92886
E-mail Address: bleathermanwlb@aol.com
Phone: (714) 701-0863

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Los Angeles Landowner / Mgr.: LADPW
Quad Name: Mt. Wilson Elevation: 1348 feet
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Oregon
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates: 0406179mE, 3783136mN

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Along access road above debris basin behind Santa Anita Dam with vertical walls or very steep slopes that are either unvegetated or dominated by a mixture of coastal sage scrub and chaparral elements.

Adult male singing, presumably on territory.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: USFS to the north, urban sprawl to the south.

Visible disturbances:

Threats: Maintenance of access road and debris basin/dam facility.

Comments:

Determination: *(check one or more, and fill in blanks)*

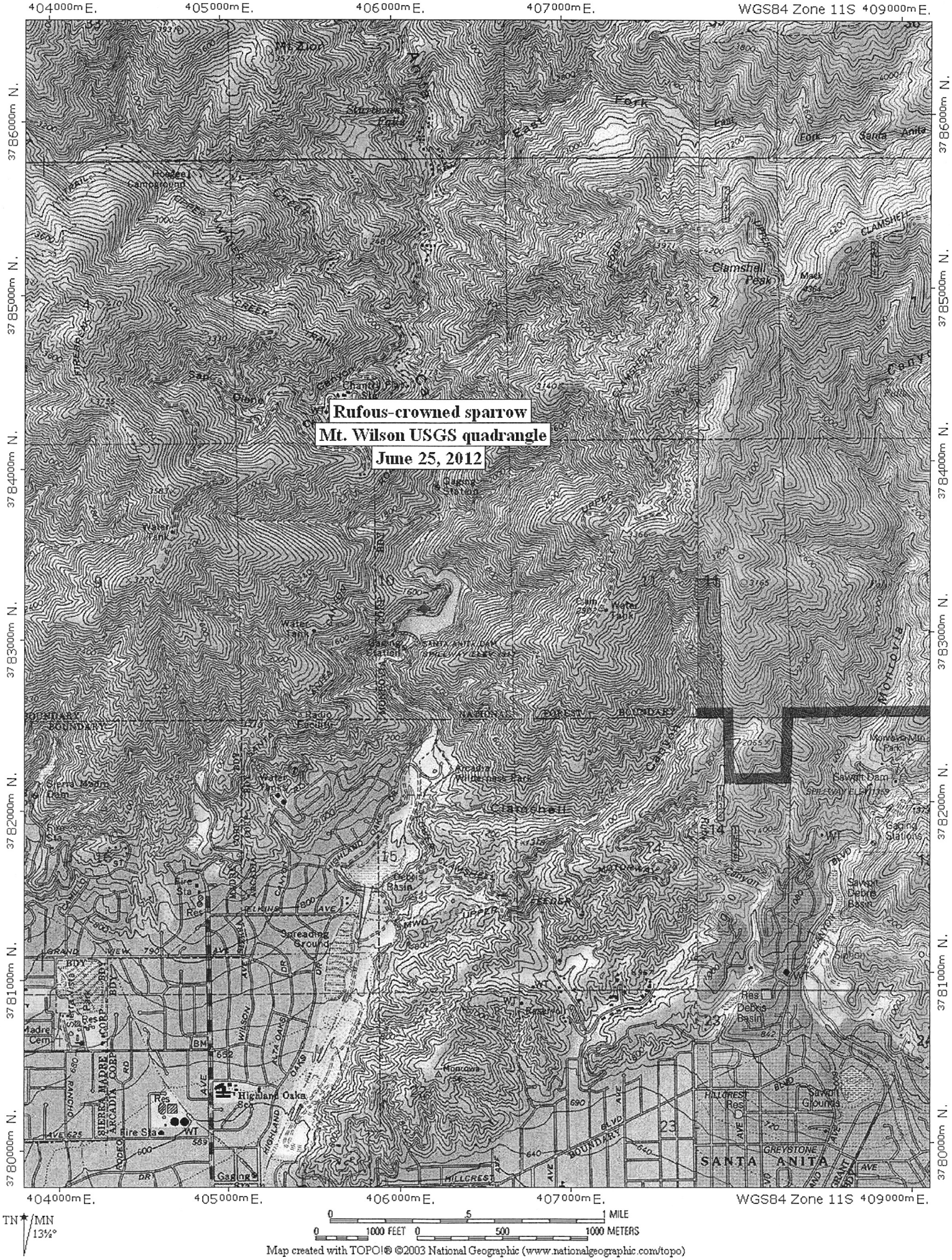
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Experience with species

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

TOPO! map printed on 09/26/12 from "Untitled.tpo"



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

ATTACHMENT H

LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEY REPORT

BonTerra CONSULTING
2 Executive Circle, Suite 175 Irvine, CA 92614
T: (714) 444-9199 F: (714) 444-9599 | www.BonTerraConsulting.com

October 10, 2012

Ms. Susie Tharratt
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

VIA EMAIL AND MAIL
susie_tharratt@fws.gov

Subject: Results of the 2012 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys for the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project in Arcadia and the Angeles National Forest, Los Angeles County, California

Dear Ms. Tharratt:

This Letter Report presents the results of focused surveys to determine the presence or absence of the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) on the Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project Site (hereinafter referred to as the "Project Site"). A Biologist with the necessary experience and the Federal Endangered Species Act 10(a) survey permit conducted the surveys according to U.S. Fish and Wildlife Service (USFWS) protocol for these species.

The Santa Anita Dam Proposition 1E Stormwater Management and Seismic Strengthening Project will improve Los Angeles County Flood Control District facilities to better manage storm water runoff from the Santa Anita Canyon watershed and to achieve the following goals: (1) to reduce flood damage to the downstream communities; (2) to increase recharge of the local groundwater basin; and (3) to improve public safety by remediating seismic safety issues at the Dam and Debris Basin. The Project Site is in the City of Arcadia and the Angeles National Forest and is located on the U.S. Geological Survey's (USGS') Mt. Wilson and Azusa 7.5-minute quadrangle maps (Exhibits 1 and 2).

Species Background

The southwestern willow flycatcher and least Bell's vireo were formerly more common and widespread, but have become rare and local summer residents of Southern California's lowland riparian woodlands (Grinnell and Miller 1986; Garrett and Dunn 1981). The substantial population declines of these two avian species over the latter half of the twentieth century is attributable to the loss and degradation of riparian habitats and to brood parasitism by the brown-headed cowbird (*Molothrus ater*). As a result, the least Bell's vireo was listed by the California Department of Fish and Game (CDFG) as Endangered on October 2, 1980, and by the USFWS as Endangered on May 2, 1986 (CDFG 2011). The CDFG listed all three subspecies of willow flycatcher that breed in California (*E. t. brewsteri*, *E. t. extimus*, and *E. t. adastus*) as Endangered on January 2, 1991 (CDFG 2011). The USFWS listed the southwestern willow flycatcher (*E. t. extimus*) as Endangered on February 7, 1995 (USFWS 1995), with an effective list date of March 29, 1995 (CDFG 2011).

Least Bell's Vireo

Bell's vireo is a Neotropical migrant that breeds in central and southwestern North America from northern Mexico to Southern California, Nevada, and Utah, east to Louisiana, and north to North Dakota, Wisconsin, and Indiana in the central U.S. (AOU 1998). Although not well known, the winter range of the Bell's vireo is believed to be the west coast of Central America from southern Sonora south to northwestern Nicaragua, including the cape region of Baja California, Mexico (Brown 1993). Of the four Bell's vireo subspecies, only two breed in California: the least Bell's vireo and the Arizona Bell's vireo (*V. b. arizonae*); the latter breeds in the Colorado River Valley (Garrett and Dunn 1981; Rosenberg et al. 1991). Though the least Bell's vireo was formerly considered a common breeder in riparian habitats throughout the Central Valley and other low-elevation riverine systems in California and Baja California, Mexico (Franzreb 1989), the least Bell's vireo had been eliminated from much of its historical range at the time of listing (Franzreb 1989; Brown 1993). The least Bell's vireo has increased tenfold since its listing to 2,968 territories, and it has begun to recolonize portions of its former range where it had been extirpated (USFWS 2006). The increase is credited to improvements in habitat abundance and quality and effective cowbird control. Continued cowbird control and exotic plant removal in riparian areas are considered necessary for the foreseeable future in order to continue this trend (USFWS 2006).

The breeding habitat of the least Bell's vireo is primarily riparian dominated by willows with dense understory vegetation, and shrubs such as mule fat and California rose are often a component of the understory (Goldwasser 1981). The least Bell's vireo is often found in areas that include trees such as willow (*Salix* spp.), western sycamore (*Platanus racemosa*), or cottonwood (*Populus* sp.), particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). The least Bell's vireo generally nests in early successional stages of riparian habitats, with nest sites frequently located in willows that are between four and ten years of age (RECON 1988; Franzreb 1989). The most critical factor in habitat structure is the presence of a dense understory shrub layer from approximately two to ten feet above ground (Goldwasser 1981; Salata 1983; Franzreb 1989).

On February 2, 1994, the USFWS issued their final determination of critical habitat for the least Bell's vireo (USFWS 1994), identifying approximately 37,560 acres as critical habitat in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties. The Project Site is not located within designated critical habitat for this species.

Southwestern Willow Flycatcher

The willow flycatcher is a Neotropical migrant that breeds in the west from northern Baja California, Mexico to central British Colombia, and generally east through the northern half of the U.S. to the Atlantic coast (AOU 1998). Depending on the authority, there are four or five recognized subspecies of willow flycatcher (Sedgwick 2000). The breeding range of southwestern willow flycatcher includes Southern California, Arizona, New Mexico, western Texas, and the extreme southern parts of Nevada and Utah (USFWS 1993). In California, the southwestern willow flycatcher breeds along the coast, north to the Santa Ynez River in Santa Barbara County, and north in the interior to about Independence in Inyo County (USFWS 2002; Unitt 1987). The largest breeding populations of southwestern willow flycatcher in California are located at the South Fork of the Kern River in Kern County and on the Santa Margarita River in Camp Pendleton in San Diego County (Unitt 1987). The range-wide population of southwestern willow flycatcher is estimated at 1,299 territories at 288 sites (Durst et. al. 2008). The population of southwestern willow flycatcher in California is estimated to be about 172 territories at 96 sites (Durst et al. 2008). Within the Coastal California Recovery Unit,

the population is estimated at 120 territories at 73 sites (Durst et al. 2008). The southwestern willow flycatcher population has not shown the same recovery that the least Bell's vireo has shown in response to riparian habitat restoration and cowbird control (Kus 2011).

The southwestern willow flycatcher breeds in willow-dominated riparian habitats that are similar to least Bell's vireo nesting habitats. The southwestern willow flycatcher differs from least Bell's vireo in that it shows a stronger dependency on willow thickets for all its habitat requirements (Grinnell and Miller 1986). In addition, the southwestern willow flycatcher appears to have a preference for sites with surface water in the vicinity, such as along streams; on the margins of a pond or lake; and at wet mountain meadows (Grinnell and Miller 1986; Flett and Sanders 1987; Harris et al. 1987). In Arizona, the southwestern willow flycatcher invariably nests near surface water (Phillips et al. 1964). Recently, the southwestern willow flycatcher has adapted to introduced highly invasive vegetation present in riparian communities, such as tamarisk (*Tamarix* sp.) and Russian olive (*Elaeagnus angustifolia*) (USFWS 1993).

The willow flycatcher is a common migrant in the interior of California and a rare-to-uncommon migrant along the coastal slope, with most birds moving through Southern California between May 15 and June 20 (Garrett and Dunn 1981; Unitt 1987). The spring migration of southwestern willow flycatcher is earlier than the northern subspecies (Unitt 1984; USFWS 1993). As a result, there is a presence of more abundant subspecies migrating through the range of the southwestern willow flycatcher during its breeding season. The migratory pattern of the willow flycatcher subspecies complicates the surveying process.

On October 19, 2005, the USFWS published a Final Rule designating critical habitat for the southwestern willow flycatcher (USFWS 2005). This final rule designates 120,824 acres in Arizona, California, Nevada, New Mexico, and Utah as critical habitat. Of that, 17,212 acres were designated in Kern, Santa Barbara, San Bernardino, and San Diego Counties, California. USFWS recently proposed a revised critical habitat designation on August 15, 2011. This revised critical habitat covers 2,090 stream miles in California, Nevada, Utah, Colorado, Arizona, and New Mexico (USFWS 2011). The Proposed Rule uses a slightly different methodology to designate critical habitat; it includes areas that USFWS consider essential for the recovery of the species even if they were not occupied at the time of the species' listing. The Project Site is not located within the previous final critical habitat designation, or the 2011 proposed revised critical habitat designation.

Survey Methodology

The USFWS protocol for the least Bell's vireo requires that at least eight surveys be conducted from April 10 to July 31 with a ten-day interval between each site visit. The USFWS protocol for the southwestern willow flycatcher requires a total of five surveys, with the first survey conducted between May 15 and May 31; the second and third surveys between June 1 and June 24; and the fourth and fifth surveys between June 25 and July 17. Due to similar ecological requirements, surveys for these two species can be conducted concurrently. A total of eight surveys were conducted to satisfy the survey requirements of both species. BonTerra Consulting Senior Biologist Brian Daniels (Permit No. TE 821401-4) conducted the five southwestern willow flycatcher surveys on May 24; June 4, 14, and 25; and July 6, 2012. BonTerra Consulting Senior Biologist Amber Oneal (Permit No. TE 148554-2) conducted the first two least Bell's vireo surveys on May 2 and 14, 2012, and Mr. Daniels conducted the remaining surveys on May 24; June 4, 14, and 25; and July 6 and 16, 2012.

The survey area for the Project Site includes all riparian habitats from the Santa Anita Debris Basin upstream to the outlet of the sediment transport tunnel (Exhibit 3). The approximate 4,000 feet length of riparian habitats were systematically surveyed by walking slowly and methodically along the margins of riparian habitat or by using meandering transects through riparian habitat at the debris basin. Following the willow flycatcher protocol, recorded vocalizations were used to elicit a response from any potentially territorial southwestern willow flycatchers. If no southwestern willow flycatchers were detected after the initial playing of the recorded vocalization, the recording will be replayed at least once, but often multiple times. The least Bell's vireo survey protocol does not require the playback of least Bell's vireo vocalizations, therefore, recorded least Bell's vireo vocalizations were not used during the surveys.

All surveys were conducted under optimal weather conditions (i.e., between 55 and 95 degrees Fahrenheit [°F] with wind speeds between 0 and 15 miles per hour) and during the early morning hours when bird activity is at a peak.

Survey Results

No breeding least Bell's vireo or southwestern willow flycatcher were detected during the surveys. No migrant willow flycatchers were observed during the surveys. Daily tallies indicating relative abundance for all bird species detected during the surveys are presented in Attachment A. Representative site photos are presented in Attachment B.

Riparian habitats in the Santa Anita Debris Basin at the south end of the survey area are dominated by willows. Willows are scarce elsewhere in the survey area, but there are some upstream of the small retention basin located about 300 feet downstream of the sediment transport tunnel outlet (see Attachment B- Project Photographs). The riparian habitats upstream from this retention basin are dominated by white alder (*Alnus rhombifollia*) and, as the canyon narrows significantly, the riparian habitats become unsuitable for occupation by both the least Bell's vireo and southwestern willow flycatcher. The middle of the survey area is dominated by alluvial sage scrub vegetation with scattered individuals or clumps of western sycamore and is generally not suitable for the least Bell's vireo or southwestern willow flycatcher.

The list of 69 species of birds identified during these surveys includes one species, the yellow warbler (*Setophaga petechia*), that is listed by the CDFG as Species of Special Concern (Shuford and Gardali 2008). Four to five breeding territories were established in the mature willow woodland at the south end of the survey area behind the dam of the Santa Anita Debris Basin. At least one family group of yellow warblers was observed during the surveys. As required by BonTerra Consulting's Letter of Agreement with the CDFG, a California Natural Diversity Database (CNDDB) form has been completed and submitted to the CDFG documenting this occurrence (Attachment C).

Please contact Amber Oneal (714) 444-9199 or Brian Daniels at (626) 351-2000 if you have questions or comments.

Sincerely,

BONTERRA CONSULTING

Amber S. Oneal
Associate, Senior Project Manager

Brian E. Daniels
Senior Biologist/Ornithologist

I certify that the information in this survey report and enclosed exhibits fully and accurately present my work.

Brian E. Daniels
Senior Biologist/Ornithologist
(TE-821401-4)

Attachments: Exhibits 1–3
A – Avian List: Daily Tallies – 2012
B – Project Photographs
C – CNDDB Form
D – Willow Flycatcher Survey and Detection Form

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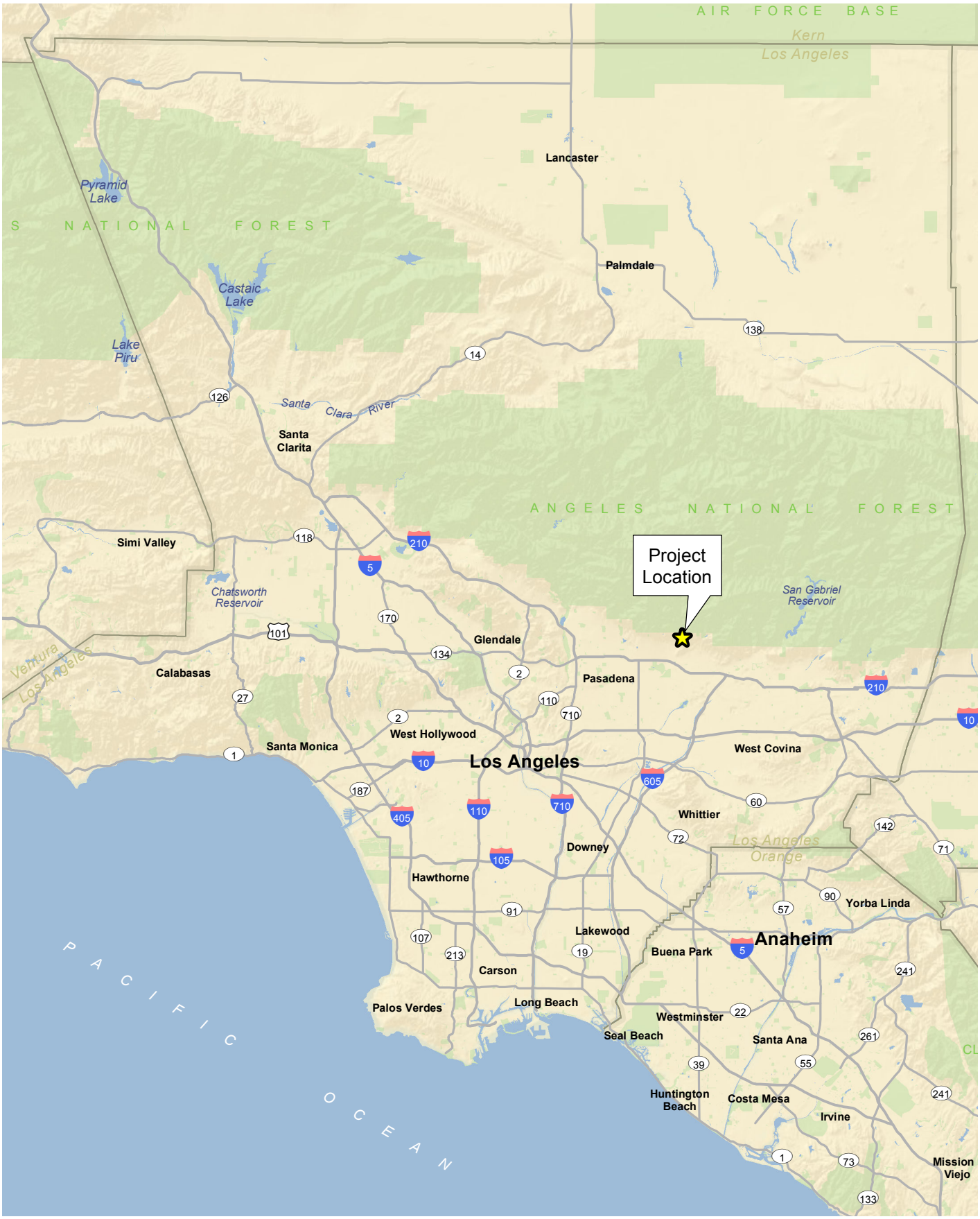

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Project Location

Exhibit 1

Santa Anita Proposition 1E Project

N W E S

10 5 0 10 Miles

BonTerra CONSULTING

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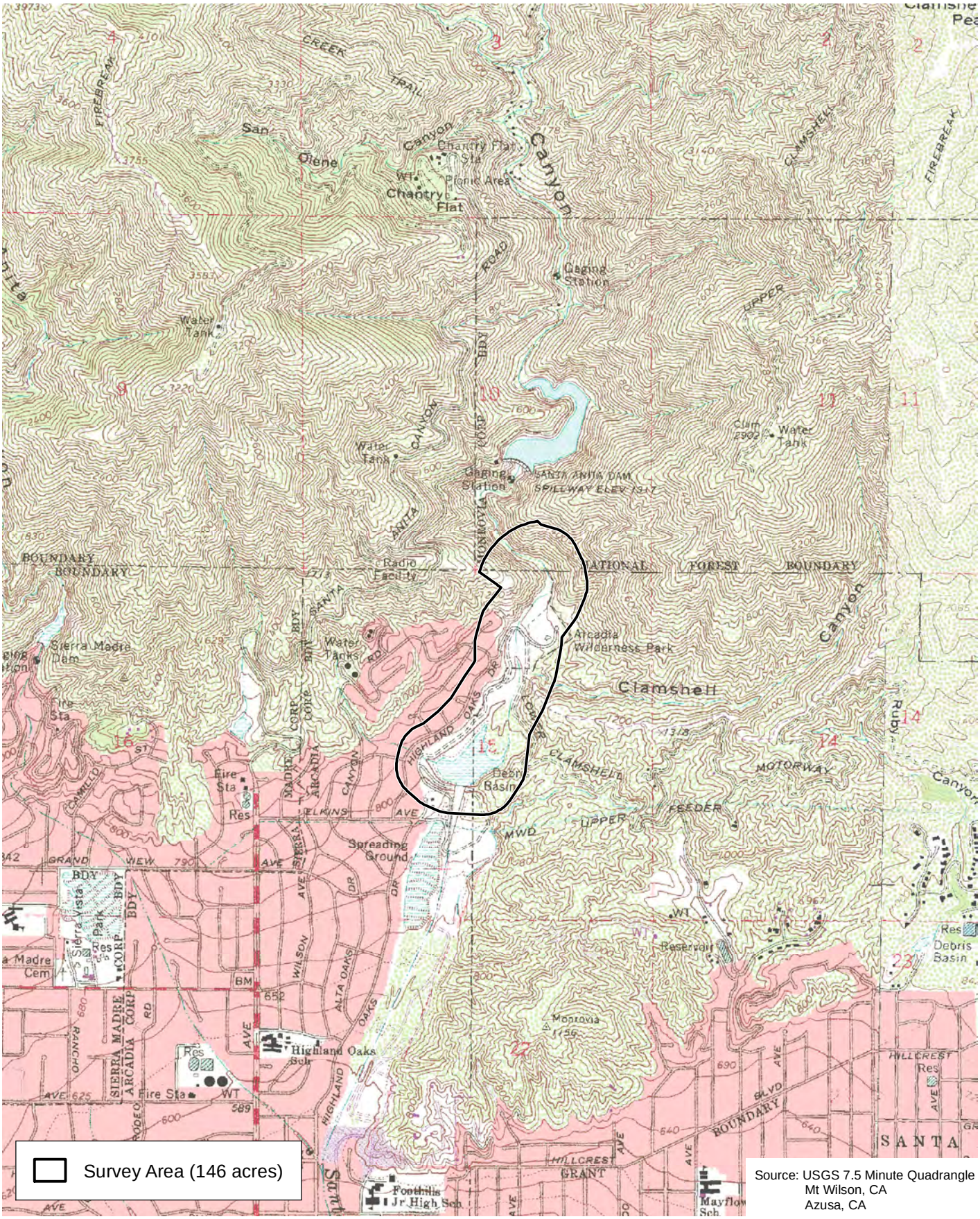
Survey Area (146 acres)
Source: USGS 7.5 Minute Quadrangle
Mt Wilson, CA
Azusa, CA
Chantry Flat
Picnic Area
Gaging Station
SANTA ANITA DAM
SPILLWAY ELEV 1317
Radio Facility
Arcadia Wilderness Park
Clamshell
Debris Basin
Spreading Ground
Reservoir
Highland Oaks Sch
Foothills Jr High Sch
Mayflower Sch
Monrovia
1156
NATIONAL FOREST BOUNDARY
Water Tanks
Fire Sta
Sierra Madre Dam
Sierra Madre Cem
Arcadia Park
Hillcrest Res
Debris Basin
MWD
UPPER FEEDER
MOTORWAY
CLAMSHELL
HIGHLAND OAKS DR
ELKINS AVE
WILSON AVE
ALTA OAKS DR
SIERRA MADRE BLVD
RANCHO ARCADIA RD
RODEO AVE
GRAND VIEW AVE
HILLCREST BLVD
GRANT AVE
SANTA ANITA CANYON
SAN DIEGO CREEK
FIREBREAK TRAIL
SAN DIENE CANYON
CLAMSHELL CANYON
RUBY CANYON
UPPER SANTA ANITA CANYON
ROAD
Water Tank
Clam 2902
Water Tank
Water Tank
Gaging Station
Water Tanks
Reservoir
Res
Fire Sta
Res
Res
Res
Res
Debris Basin
BM 552
BM 589
WT
WT
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SANTA
BOUNDARY
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CORP



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Survey Area

Exhibit 3

Santa Anita Proposition 1E Project

N
W E
S

1,000 500 0 1,000

Feet

BonTerra CONSULTING

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ATTACHMENT A

AVIAN LIST: DAILY TALLIES – 2012

TABLE 1
AVIAN LIST
DAILY TALLIES – 2012

Common Name	May 2	May 14	May 24	June 4	June 14	June 25	July 6	July 16
Canada Goose *Branta canadensis*			2					
Mallard *Amas platyrhynchos*		2	2					
California Quail *Callipepla californica*	2	4	10	10	20		40	15
Great Blue Heron *Ardea Herodias*		1			1			
Great Egret *Ardea alba*		1						
Turkey Vulture *Cathartes aura*		2						
Cooper's Hawk *Accipiter cooperii*					1	1		1
Red-shouldered Hawk *Buteo lineatus*	1		1	1	1	1		1
Red-tailed Hawk *Buteo jamaicensis*		1		1	1	1	5	1
Killdeer *Charadrius vociferus*		2						
Band-tailed Pigeon *Patagioenas fasciata*			4	6		1	4	2
Mourning Dove *Zenaida macroura*	8	6	7	6		6	12	8
White-throated Swift *Aeronautes saxatalis*				2		2	1	
Black-chinned Hummingbird *Archilochus alexandri*		1		1	1	1	2	5
Anna's Hummingbird *Calypte anna*	8	7	2	2	1	1	1	11
Costa's Hummingbird *Calypte costae*						3		
Allen's Hummingbird (males) *Selasphorus sasin*				3		1		
Allen'/Rufous Hummingbird *Selasphorus* sp.	1	4	1	4	4	6	11	5
Belted Kingfisher *Ceryle alcyon*		1						
Acorn Woodpecker *Melanerpes formicivorus*	7	6	4	7	5	3	6	5
Nuttall's Woodpecker *Picoides nuttallii*	2	1	2	5	2	5	3	3
Northern Flicker *Colaptes auratus*		4				1		
Red-crowned Parrot *Amazona viridigenalis* – **I**	6	9	15	12	8	12	12	15
Mitred Parakeet *Aratinga mitrata* – **Ex**					3			
Black-hooded Parakeet *Nandayus nenday* – **Ex**				1				

TABLE 1 (Continued)
AVIAN LIST
DAILY TALLIES – 2012

Common Name	May 2	May 14	May 24	June 4	June 14	June 25	July 6	July 16
Western Wood-Pewee *Contopus sordidulus*	2	1	3	1	2		2	3
Pacific-slope Flycatcher *Empidonax difficilis*	6	3	1			1	2	
Black Phoebe *Sayornis nigricans*	4	1	5	4	6	6	5	2
Ash-throated Flycatcher *Myiarchus cinerascens*		4	2		2	2	4	5
Hutton's Vireo *Vireo huttoni*			1					
Steller's Jay *Cyanocitta stelleri*					1		2	1
Western Scrub-Jay *Aphelocoma californica*	9	9	11	7	8	6	10	9
American Crow *Corvus brachyrhynchos*			1					
Common Raven *Corvus corax*			2	1			1	2
Violet-green Swallow *Tachycineta thalassina*		6	2	4	2	2	2	4
Northern Rough-winged Swallow *Stelgidopteryx serripennis*	6		8	2	4	2	8	1
Cliff Swallow *Petrochelidon pyrrhonota*		6	2					
Barn Swallow *Hirundo rustica*		1	1					1
Oak Titmouse *Baeolophus inornatus*	1	1	4	2	6	2		5
Bushtit *Psaltriparus minimus*	13	4	30	30	15	15	10	
White-breasted Nuthatch *Sitta carolinensis*						1		
Canyon Wren *Catherpes mexicanus*	3	1	4	1	3	3	4	4
House Wren *Troglodytes aedon*	6	7	12	6	4	3	4	4
Bewick's Wren *Thryomanes bewickii*	15	3	3	7	3	3	5	3
Wrentit *Chamaea fasciata*	4	3	14	8	12	12	23	10
Swainson's Thrush *Catharus ustulatus*		2						
American Robin *Turdus migratorius*			3	3	1	3	2	2
Northern Mockingbird *Mimus polyglottos*	2	7	4	3	5	8	10	8
California Thrasher *Toxostoma redivivum*	2	2			2	1		

TABLE 1 (Continued)
AVIAN LIST
DAILY TALLIES – 2012

Common Name	May 2	May 14	May 24	June 4	June 14	June 25	July 6	July 16
Red-whiskered Bulbul *Pycnonotus jocosus* – **Ex**			1	1	1		1	3
European Starling *Sturnus vulgaris* – **I**			5	2	5	1	4	2
Phainopepla *Phainopepla nitens*	2	7	8	15	18	15	9	9
Orange-crowned Warbler *Oreothlypis celata*	1		1	1				
Common Yellowthroat *Geothlypis trichas*	3	3	3	2	4	1	6	1
Yellow Warbler *Setophaga petechia*	6	4	10	5	5	7	8	4
Wilson's Warbler *Cardellina pusilla*	2	4						
Spotted Towhee *Pipilo maculates*	22	9	18	10	16	17	17	12
Rufous-crowned Sparrow *Aimophila ruficeps*						1	1	
California Towhee *Melozone crissalis*	18	1	12	5	9	6	12	8
Song Sparrow *Melospiza melodia*	16	12	15	10	9	3	6	
Western Tanager *Piranga ludoviciana*			2	1	1	2	4	4
Black-headed Grosbeak *Pheucticus melanocephalus*	6	6	7	5	3	1	7	13
Red-winged Blackbird *Agelaius phoeniceus*		4						
Brown-headed Cowbird *Molothrus ater*	4	4	2			1	1	
Hooded Oriole *Icterus cucullatus*			2	1	2	10	6	7
Bullock's Oriole *Icterus bullockii*	8	6	6	6	3	5	2	2
House Finch *Carpodacus mexicanus*	16	8	15	9	9	19	20	23
Lesser Goldfinch *Spinus psaltria*	32	8	8	8	20	7	12	11
American Goldfinch *Spinus tristis*							4	
Nutmeg Mannikin *Lonchura punctulata* – **Ex**						2		7

I Introduced non-native species with established breeding population in California
Ex Exotic or escaped non-native species that may or may not be breeding in California

ATTACHMENT B

PROJECT PHOTOGRAPHS



Photo 1. Representative habitat in the Santa Anita Debris Basin. Photo taken looking northeast.



Photo 2. Representative habitat in the Santa Anita Debris Basin. Photo taken looking north.

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Site Photographs

Attachment B-1

Santa Anita Proposition 1E Project

BonTerra CONSULTING

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Photo 3. Representative habitat along Santa Anita Creek near the headworks facility, just upstream of Arcadia Wilderness Park. Photo taken looking north.



Photo 4. Representative habitat along Santa Anita Creek, just north of the headworks facility near the tunnel used for sediment removal (project in progress). Upstream of this point, the canyon becomes narrow and habitat changes to alder riparian forest with little understory. Photo taken looking north.

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ATTACHMENT C

CNDDB FORM

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 09/06/2012

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Setophaga petechia*

Common Name: Yellow Warbler

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 8 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Brian E. Daniels
Address: 225 South Lake Ave, Suite 1000
Pasadena, CA 91101
E-mail Address: bdaniels@bonterraconsulting.com
Phone: (626) 351-2000

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

6	2			
# adults	# juveniles	# larvae	# egg masses	# unknown

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Los Angeles Landowner / Mgr.: Los Angeles County
Quad Name: Azusa Elevation: 232 m
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GoogleEarth
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates: 11S 405802 3781599

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Mature willow woodland behind Santa Anita Debris Basin supporting 4 to 5 breeding territories of Yellow Warblers

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Residential areas and open spaces of the Arcadia Wilderness Park

Visible disturbances: Active transfer of sediment from Santa Anita Dam downstream via conveyor belt to soil disposal site

Threats:

Comments: This is an active flood control debris basin.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

ATTACHMENT D

WILLOW FLYCATCHER SURVEY AND DETECTION FORM

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Santa Anita Dam State CA County Los Angeles
USGS Quad Name Mt. Wilson and Azusa Elevation 234 - 295 (meters)
Creek, River, Wetland, or Lake Name Santa Anita Creek
Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? *Yes* ✓ *No* ___

Survey Coordinates: Start: E 405767 N 3781583 UTM Datum NAD83 (See instructions)
Stop: E 406142 N 3782582 UTM Zone 11S
If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.
***** Fill in additional site information on back of this page *****

Survey # / Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N / If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) BED	Date 5/24 Start 0615 Stop 0900 Total hrs 2.75	0	0	0	N		0			
Survey # 2 Observer(s) BED	Date 6/4 Start 0615 Stop 0830 Total hrs 2.25	0	0	0	N		0			
Survey # 3 Observer(s) BED	Date 6/14 Start 0600 Stop 0900 Total hrs 3	0	0	0	N		0			
Survey # 4 Observer(s) BED	Date 6/25 Start 0600 Stop 0900 Total hrs 3	0	0	0	N		0			
Survey # 5 Observer(s) BED	Date 7/6 Start 0615 Stop 0845 Total hrs 2.5	0	0	0	N		0			

Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs ____	Total Adult Residents	Total Pairs	Total Territories	Total Nests
	0	0	0	0

Were any Willow Flycatchers color-banded? Yes___ No ___
If yes, report color combination(s) in the comments section on back of form and report to USFWS.

Reporting Individual Brian E. Daniels Date Report Completed September 25, 2012
US Fish and Wildlife Service Permit # TE821401-4 State Wildlife Agency Permit # ____

***Submit** form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.*

ATTACHMENT I

ROOSTING BAT SURVEY REPORT

BonTerra PSOMAS

Balancing the Natural and Built Environment

September 11, 2014

Matt Frary
Water Resources Division
Department of Public Works
County of Los Angeles
900 South Fremont Avenue
Alhambra, California 91803

VIA EMAIL
mfrary@dpw.lacounty.gov

Subject: Roosting Bat Survey Report for the Santa Anita Stormwater Management and Seismic Strengthening Project, Los Angeles County, California

Dear Mr. Frary:

At the request of the Los Angeles County Department of Public Works (LACDPW), BonTerra Psomas conducted a focused roost survey and habitat assessment for bat species (Order: *Chiroptera*) in the area that would be impacted by the Santa Anita Stormwater Management and Seismic Strengthening Project (hereinafter referred to as the "proposed project"). This Letter Report details the findings of the roost survey and focused habitat assessment.

PROJECT DESCRIPTION AND LOCATION

The proposed project is located in Los Angeles County at the northeast edge of the City of Arcadia; at the northwest edge of the City of Monrovia; and in the Angeles National Forest (Exhibit 1). The project would modify existing flood management and water conservation facilities along the Santa Anita Canyon Watershed, specifically in three areas: the Santa Anita Dam (Dam); the Santa Anita Headworks (Headworks) with the adjacent Wilderness Park Culvert Crossing; and the Santa Anita Debris Dam (Debris Dam). It aims to improve the facilities to better manage storm water runoff from the Santa Anita Canyon Watershed and to improve public safety by addressing seismic safety and other structural issues. The effort associated with this Letter Report focused on the portions of the project site with potential to support roosting bats, as generally identified in the Biological Technical Report (BonTerra Psomas 2014).

The project survey area is located on the U.S. Geological Survey's (USGS') Mount Wilson 7.5-minute topographic quadrangle in Township 1 North, Range 11 West in portions of Sections 10 and 15 with elevations ranging from 750 to 1,300 feet above mean sea level (msl). The project study area includes habitat from the Santa Anita Reservoir downstream along Santa Anita Creek to the Santa Anita Debris Basin. Private residences occur along the western boundary of the Debris Dam along Highland Oaks Boulevard. Open space in the Arcadia Wilderness Park and the Angeles National Forest occurs north and east of the project survey area.

2 Executive Circle
Suite 175
Irvine, CA 92614

Tel 714.444.9199
Fax 714.444.9599
www.Psomas.com

Santa Anita Canyon is very narrow and steep-sided along Santa Anita Creek as it flows approximately ½ mile below the Dam, opening into a broad alluvial wash in the Santa Anita Debris Basin. Vegetation types in the survey area include coastal sage scrub, chaparral, black willow riparian forest, sycamore woodland, mixed riparian forest, alder riparian forest, elderberry woodland, mule fat scrub, coast live oak woodland, mixed woodland, ornamental, and ruderal.

Santa Anita Creek is perennial in the upper portion of the canyon and contains some slow moving pools. The lower portion of Santa Anita Creek and the Debris Dam are ephemeral and were dry at the time of the survey. Santa Anita Creek is characterized by very steep slopes, shallow soils, and watercourses contained within bedrock channels.

SURVEY AREA

The survey area for the focused roost survey and habitat assessment for bat species focused on areas within the permanent and temporary impact footprints for the project (Exhibit 2a—2c). At the Dam, the survey focused on the Dam structure, gunite slopes adjacent to the Dam, and facility structures associated with the Dam. At the Headworks, the survey focused on the facility structure. At the Wilderness Park Culvert Crossing, the survey focused on the culverts and wing walls associated with the bridge. At the Debris Dam, the survey focused on the inlet structure and ornamental vegetation adjacent to the Debris Dam. Native vegetation, predominately mixed chaparral or riparian woodlands, occurs adjacent to all proposed impact areas.

No enclosed, subterranean mines (abandoned or active) are recorded in the greater vicinity (approximately 20 miles) of the proposed impact area (DOC 2014); however, the Angeles National Forest expands across a large, undeveloped area and likely contains various unreported or unlisted mine locations.

This survey was conducted during a poor precipitation year and only limited areas in Santa Anita Canyon supported aboveground water. The portions or adjacent portions of the survey area that contain open, standing water during the survey effort were limited to (1) the stored water on the upstream-side of Santa Anita Dam; (2) a small pool located immediately downstream of the Santa Anita Dam facilities (beyond all the slopes covered in gunite); and (3) a small pool located on the downstream side of the Headworks facility. No other areas currently support any aboveground water, including the Debris Dam, the area upstream of the Headworks facility, and the stream beneath the Wilderness Park Culvert Crossing.

METHODS

The focused daytime survey involved inspecting all proposed impact areas for sign of bat roosting. Signs of roosting include audible social calls; observation of individuals roosting; and presence of guano, urine staining, or *Lepidopteron* (moth) wings. The absence of sign does not preclude potential roosting features from additional survey efforts, but rather aids in final determinations. The focused daytime survey is also used to identify suitable roosting features in the survey area, including natural and artificial crevices in rocks and buildings. Various factors contribute to suitable day-roost sites, including structural opportunities (e.g., crevices), microclimate, thermal conductivity (the roost's ability to passively regulate temperature), protection from predators, and proximity to resources such as open water for drinking. The daytime survey was conducted by BonTerra Psomas biologist Steve Norton on July 31, 2014 from 8:30 AM to 5:00 PM.

The emergence survey (also known as the exit or evening survey) involved visually monitoring all potential roost sites for evening emergence. The evening emergence surveys were conducted on July 31 and August 6, 7, and 12, 2014, by BonTerra Psomas Biologists Steve Norton, Dani Henning, Jonathan Aguayo, and Jason Mintzer. Just before dusk, Biologists were staged at different locations near each proposed impact area with suitable roost features (Exhibit 2). Many of the suitable features along the

canyon walls at Santa Anita Dam were inaccessible and visibility was limited; monitoring of these features was conducted at remote distances and the findings were accompanied by monitoring bat activity entering and leaving the downstream Dam area. This effort was achieved by stationing two biologists at the top of the Dam and two biologists at the bottom of the Dam.

Visual monitoring and any bat exit counts extended from 30 minutes before sunset to approximately 1 hour after sunset, for a duration of approximately 90 minutes, depending on the amount of ambient light available. When environmental conditions (such as previously existing artificial light or moonlight) allowed for additional visual survey times, the visual survey window was extended. Alternatively, when environmental conditions were not favorable due to significant shading from dense canopy cover or canyon walls, the visual survey time was reduced. Surveys were scheduled to accommodate favorable emergence conditions, which include wind speeds less than 10 miles per hour, moderate day and evening temperatures, no rain, and avoiding the full moon (Table 1).

TABLE 1
SURVEY DATES AND CONDITIONS

Survey Location	Date	Surveying Biologists	Sunset	Moon Phase	Acoustic survey hours	Visual Survey hours	Cloud cover/ wind speed	daytime high/ evening low (°F)
Dam	7/31/2014	Steve Norton, Dani Henning, Jonathan Aguayo, Jason Mintzer	7:54 PM	20% visible, waxing	7:28 PM–11:06 PM	7:25 PM–8:55 PM	0%/1–3 mph	93/71
	8/12/2014	Steve Norton	7:42 PM	94% visible, waning*	7:13 PM–10:44 PM	7:13 PM–8:43 PM	0%/1–2 mph	89/68
Headworks	8/6/2014	Steve Norton, Jason Mintzer	7:48 PM	78% visible, waxing	7:20 PM–10:57 PM	7:20 PM–8:58 PM	0%/0–1 mph	82/70
Debris Dam	8/7/2014	Steve Norton, Jonathan Aguayo	7:47 PM	87% visible, waxing	7:20 PM–10:51 PM	7:20 PM–8:50 PM	0%/1–3 mph	82/69

mph: miles per hour; waxing: increasing the illumination of the moon; waning: decreasing the illumination of the moon.

* Survey was conducted within one day of a full moon; however, the survey location was in a deep, steep-walled canyon which prevented any ambient moon light from increasing visibility until after 11:00 PM.

The emergence survey also included stationing an ultrasonic acoustic recording device at locations likely to aid in determining roost occupancy. An acoustic recording device adds further useful data by (1) recording individuals that may have not been visually observed; (2) allowing passive species identification to associate roosting preferences with habitat present in the survey area; and (3) documenting the time of arrival of a species in the survey area. The purpose of conducting ultrasonic acoustic recording in this effort is not to provide a comprehensive inventory of all bat species utilizing the survey area, but rather to identify the potential for bats to utilize the survey area (i.e., project impact areas) for day-roosting. The acoustic recording occurred during each evening survey and extended for approximately 3.5 hours (30 minutes before sunset to 3 hours after sunset).

A Wildlife Acoustics EchoMeter 3+ unit was used to collect acoustic data. The acoustic data collected was recorded in full spectrum .wav files and segregated into regular files and noise files by the acoustic recording unit. The files not disqualified as "noise" were analyzed using SonoBat 3.2.1 software using the "United States West Region" classifier. These files were analyzed using the SonoBatch process, then

visually verified using Echolocation Call Characteristics of Western US Bats (Humboldt State University 2011). Any recordings potentially classified as a sensitive species—specifically Townsend's big-eared bat (*Corynorhinus townsendii*) or fringed myotis (*Myotis thysanodes*)—received additional analysis by Senior Biologist Ed West, an expert bat biologist with a specialty in acoustic monitoring.

RESULTS

The results are separated into the three survey areas (Dam, Headworks, and Debris Dam), summarized in Table 2 and discussed in detail below. A complete list of all the wildlife observed during the surveys is located in Attachment A. California Natural Diversity Database forms for special status species are included in Attachment B.

TABLE 2
BAT SPECIES RECORDED DURING SURVEY

Survey Location	Species	Common Name	Protected Status	Time first recorded on site	Suitable Roosting Habitat in Impact Area*	Potential to Roost in Impact Area*
Dam	*Corynorhinus townsendii*	Townsend's big-eared bat	SC, SSC, FSS	9:23 PM	No, cave roosting	Not likely
	Tadarida brasiliensis	Brazilian free-tailed bat	–	8:54 PM	Yes, crevice roosting	Low
	Parastrellus Hesperus	canyon bat	–	7:32 PM	Yes, crevice roosting	High
	Lasiurus cinereus	hoary bat	–	9:32 PM	No, tree roosting	Not likely
	Myotis yumanensis	yuma myotis	–	8:25 PM	Yes, crevice roosting	High
	Myotis lucifigus	little brown bat	–	7:57 PM	Yes, crevice and structure roosting	High
	Myotis californicus	California myotis	–	8:30 PM	Yes, crevice roosting	High
	Myotis thysanodes	fringed myotis	SSC, FSS	9:23 PM	Yes, crevice roosting	Low
	Eumops perotis	mastiff bat	SSC	9:10 PM	Yes, structure and crevice roosting	Low
Headworks	*Tadarida brasiliensis*	Brazilian free-tailed bat	–	9:59 PM	Yes, crevice and structure roosting	Moderate
	Parastrellus hesperus	canyon bat	–	7:42 PM	Yes, crevice roosting	Moderate
	Myotis yumanensis	yuma myotis	–	8:14 PM	Yes, crevice and structure roosting	High

TABLE 2
BAT SPECIES RECORDED DURING SURVEY

Survey Location	Species	Common Name	Protected Status	Time first recorded on site	Suitable Roosting Habitat in Impact Area*	Potential to Roost in Impact Area*
Debris Dam	*Eptesicus fuscus*	big brown bat	–	8:21 PM	Yes, structure roosting	Moderate
	Tadarida brasiliensis	Brazilian free-tailed bat	–	8:35 PM	Yes, crevice and structure roosting	Moderate
	Parastrellus hesperus	canyon bat	–	8:19 PM	No, crevice roosting	Not likely

SC: State Candidate for listing; SSC: California Species of Special Concern; FSS: United States Forest Service Sensitive

* Roosting is defined here as a necessary day-roosting feature. Features ambiguously used for temporary night-roosting or uncommon day-roost features are not assessed in this report.

Dam

The Dam impact area included three types of features with potential to support roosting bats: the openings in the gunite on the canyon walls proposed for repair; the small operations shack on the top-center of the Dam proposed for removal; and the concrete-lined spillway, which will remain unchanged. Photographs of these features are located in Exhibits 3a, 3b, and 3c.

The openings in the gunite are intermittent but provide large gaps in the otherwise sealed walls of the canyon adjacent to the Dam. Most of these areas were only visible by binoculars and a thorough physical inspection was not feasible; regardless, sufficient information was available to make an assessment of the roosting potential. The gunite is superficial and is separated from the natural sediment and rock of the canyon walls by several inches. This space in between the gunite and the natural canyon walls provides suitable day-roosting habitat for crevice-roosting bat species.

The small operations shack located on the Dam is a thin-walled, wooden shack with a composite shingled roof. Both the interior and exterior of the shack were inspected for sign of bat roosting. Various crevices were available for roosting, but all were unoccupied and no sign of bat roosting was present. The shack is regularly accessed by humans.

The concrete-lined spillway **[Matt-please verify that this would be called a spillway or correct this term for us]** runs beneath the top of the Dam on the west side. It is a smooth-walled, box culvert that is open on both sides with a gap in the top for ventilation. There are no cracks or crevices in the structure, but the ceiling on the upstream side of the spillway has several cement-lined crossbeams and two small steel pipes that span its width. The roosting opportunities in the spillway are very exposed and do not provide any suitable day-roosting habitat for bats. Additionally, significant amounts of owl pellets and whitewash were observed beneath the steel pipes, suggesting the spillway is frequently used for roosting by great-horned owl (*Bubo virginianus*), a likely predator of bats.[1] Regardless, sign of bat roosting along the corners of the spillway were present. Specifically, urine staining and guano characteristic of small insectivorous bats (such as myotis [*Myotis* spp.]) were present. No insect remains, such as *Lepidopteron* wings, were present. One bat was observed night-roosting in the spillway at the end of the survey.

[1] A great-horned owl was calling in the immediate vicinity the Santa Anita Dam during the evening emergence survey.

Bat activity at the Dam was significant; however, the activity was predominantly located on the upstream side of the Dam. Bats were observed foraging at the onset of the survey and activity continued throughout the survey. According to analysis of the acoustic recordings, nine bat species were confirmed during the surveys. Of the species that were recorded, four were first recorded within one hour of sunset. All four species are known to be crevice-roosting species and all have a high potential of roosting at the Dam.

Headworks

The Headworks area contains three features with potential to support roosting bats that would be impacted: the overhang structure at the Headworks building; the small, stone wall on the southwest abutment of the Wilderness Park Culvert Crossing; and the sycamore (*Platanus racemosa*) trees adjacent to the Wilderness Park Culvert Crossing. Photographs of the Headworks building and the stone wall are located in Exhibits 3c and 3d.

The majority of the Headworks building and its associated facilities are comprised of steel beams or exposed concrete walls with no crevices or other thermic insulation. These areas contain no suitable day-roosting habitat. The overhanging structure on the upstream side of the Headworks facility, however, contains large crevices between the wooden beams on the exposed underside of the structure. This area contains suitable bat roosting habitat, and one bat was observed day-roosting in this structure during the survey.

The culverts of the existing Wilderness Park Culvert Crossing do not provide suitable roosting habitat because they do not provide sufficient protection from predators. However, the small stone wall adjacent to the southwest abutment of the Wilderness Park Culvert Crossing provides potential roosting habitat. The wall is comprised of cobble-sized rocks that are cemented in place with shallow cracks. These cracks are likely not deep enough to support significant roost populations; however, day-roosting habitat for solitary individuals is present. No bats or sign was observed in this area during the survey.

The sycamore trees adjacent to the Wilderness Park Culvert Crossing contain suitable habitat for tree-roosting bats. No roosting bats or sign of roosting were observed during the survey; however, tree-roosting bats are far less likely to be observed roosting or provide easily observable sign. The trees proposed for removal are not isolated and comprise only a small portion of the larger riparian woodland. Removal of these trees would not be considered a significant loss of tree-roosting habitat, and there are no observable reasons that the trees proposed for removal are more likely to support bats than the remaining trees in the woodland.

Bat activity at the Headworks facility was minimal with the majority of the activity occurring at high elevations. According to analysis of the acoustic recordings, three bat species were confirmed as occurring during the surveys. Of the species present, two were first recorded within one hour of sunset. All of the species recorded, however, are known to be crevice- or structure-roosting species and all have potential to roost in the overhang structure at the Headworks building. No bat activity was observed at the sycamore trees or at the Wilderness Park Culvert Crossing, and no bats are likely roosting in these features at this time. During wet seasons or other periods when the drainage feature beneath the Wilderness Park Culvert Crossing supports standing water, both of the features have potential to support day-roosting bats.

Debris Dam

The Debris Dam area includes two features with potential to support roosting bats that would be impacted: the intake structure upstream of the Debris Dam and the deodar cedar trees (*Cedrus deodara*) downstream of the Debris Dam. Photographs of these features are located in Exhibit 3e.

The intake structure upstream of the Debris Dam is a well-ventilated, cement structure that has potential for structure-roosting bats. The structure was locked during the survey and a detailed visual assessment could not be completed. The structure is located at the boundary of a tall-growing, riparian woodland and an open sandy area leading to the Debris Dam. The deodar cedar trees located downstream of the Debris Dam are adjacent to the residences and contain marginally suitable habitat for tree-roosting bats.

Bat activity adjacent to the intake structure was significant; however, no bats were observed emerging from the structure. According to analysis of the acoustic recordings, three bat species were confirmed as occurring during the surveys. All of the species present were first recorded within one hour of sunset; however, the one species known to emerge prior to sunset did not occur until 30 minutes after sunset and is subsequently, not likely to be roosting in the immediate vicinity. The remaining two species are known to roost in structures and have potential to roost in the intake structure; however, neither are likely to roost in the survey area currently. Bat activity at the deodar cedar trees proposed for removal was limited and, although the visual monitoring could not confirm the absence of roosting activity, no tree-roosting bat species were recorded in the vicinity. The trees are not likely to currently support roosting bats. The trees, however, still contain marginally suitable habitat that may be used in the future.

DISCUSSION

All suitable habitat identified in the survey area has potential to support day-roosting bats. However, despite this suitability, the adjacent natural habitat, including the naturally occurring fissures in the cliff rocks, provides higher-quality habitat that is likely the preferred habitat of the crevice-roosting bat species identified during the survey. The naturally occurring features likely provide better thermic regulation and better protection from predators because the cliff fissures have the ability to go far deeper below the substrate surface. Also, the higher elevation cliffs in the canyon have more sun exposure and thereby better thermic regulation than the low-elevation features in the survey area. The relative abundance of the natural features in the immediate vicinity further support this conclusion. Finally, the overwhelming amount of bat activity observed during the emergence surveys involved bats originating and occurring at very high elevations through the night.

The findings in this report assume bat species (1will be emerge from their respective roosts within one hour of sunset and (2) will be acoustically recorded upon roost emergence if the roost is in the vicinity. Factors reinforcing these assumptions include locating the acoustic recording devices near local water sources and conducting the surveys during typical weather conditions for the region. It is possible the emerged individuals occurred in the survey area prior to the first recording and that they did not pass within the range of the acoustic recording device; however, it is more likely that the species is utilizing a day-roost located off site and that the late recording is a result of travel time from the roost to the survey area where the bat is foraging.

Several incidental observations were made during this survey effort. First, foraging periods for both bat species and swallow (*Petrochelidon pyrrhonota*) species overlapped on the upstream end of the Dam at dusk. Swallows were observed to be physically harassing foraging bat species during the dusk overlap period. Secondly, significant numbers of foraging bats were observed at both the Dam and Debris Dam locations, suggesting water is not the only factor in bats' preferred foraging locations. The Dam structures likely create a barrier in the flight column of night-flying invertebrates, causing greater invertebrate concentrations than other areas. The abundance of bat activity in these areas is not likely a function of high quality roosting habitat, but more likely a function of prey abundance. Finally, three special status bat species were recorded foraging at the Dam: Townsend's big-eared bat, fringed myotis, and mastiff bat (*Eumops perotis*) (Attachment B). None of these species are anticipated to be roosting in the features proposed to be impacted by the project. California Natural Diversity Database forms will be submitted to report these occurrences (Attachment C). One additional, poor-quality recording was collected at 11:04 PM at the Dam which has potential to be from a pallid bat (*Antrozous pallidus*). The

quality of the recording did not allow for sufficient analysis to confirm presence of the species and the species was, subsequently, not included in the results or wildlife compendium.

RECOMMENDATIONS

BonTerra Psomas recommends implementing the measures listed in Table 3 for each project feature listed. Each of these exclusion measures is discussed further below.

TABLE 3
EXCLUSIONARY MEASURE RECOMMENDATIONS

Action Area	Potential Roost Feature	Method*	Reference Photograph in Exhibits 3a–3e
Dam	Gunite to be repaired	Reentry exclusion	Various locations such as Photo 3
	Operations shack	Pre-construction survey and exclusion	Photo 4
Headworks	Underside of overhang at the Headworks Facility	Reentry exclusion	All the underside crevices visible in Photo 8.
	Stone wall on the southwest abutment	Pre-construction survey and exclusion	The two-foot tall stone wall at the top of Photo 6
	Sycamore trees	Two stage liming	No Photograph
Debris Dam	Intake structure	Reentry exclusion	Photo 9
	Deodar cedar trees	Two stage liming	Photo 10

* All the methods suggested must occur between August 1 and November 30 to avoid the bat maternity and bat hibernation seasons.

Reentry Exclusion

Under the supervision of a qualified Biologist, a barrier using light-weight, pliable materials (e.g., Visquine or a fine-mesh) must be installed around the relevant feature between August 1 and November 30. The material should be sealed on all sides except in one area where bat emergence can occur. On the unsealed side, the material must extend approximately 18 to 24 inches beyond the roost feature, leaving a pliable flap that will allow for bat emergence, but not allow for reentry (Attachment D). Construction activities at that location may be conducted two days following the successful installation of the exclusion material.

Pre-Construction Survey and Exclusion

Certain features in the survey area have potential to support day-roosting bats, but they lack the depth to support large populations and have a low likelihood of supporting day-roosting bats on a consistent basis. Furthermore, the occupancy status of these roosts can be determined through direct observation. These features do not likely require reentry exclusion, but would be better served by a daytime pre-construction survey immediately followed by installation of permanent exclusion materials (e.g., calking or wiremesh). In the unlikely scenario of day-roosting bat occupation as determined by the pre-construction survey, reentry exclusion may be necessary. Therefore, it is recommended that all the above activities occur between August 1 and November 30.

Two-Stage Liming

Tree-roosting bats have potential to occur in all the trees proposed for removal as part of the proposed project. To facilitate bat abandonment of the trees, a two-stage liming process must be implemented

between August 1 and November 30. On the first day of tree removal, trimming of branches with a general diameter of less than three inches shall be conducted. The following day, the remainder of tree can be removed.

If you have any questions or concerns regarding the content of this Letter Report, please contact Steve Norton or Amber Heredia.

Sincerely,
BonTerra Psomas

Amber O. Heredia
Senior Project Manager

Steve Norton
Senior Project Manager

cc: Eugenia Lin

Enclosures: Exhibit 1: Regional Vicinity Map
Exhibit 2: Survey Locations and Impact Boundary Map
Exhibit 3: Site Photos
Attachment A: Wildlife Compendium
Attachment B: Santa Anita Bat Call Identifications Memorandum
Attachment C: California Natural Diversity Database Form
Attachment D: Sample Exclusion Designs

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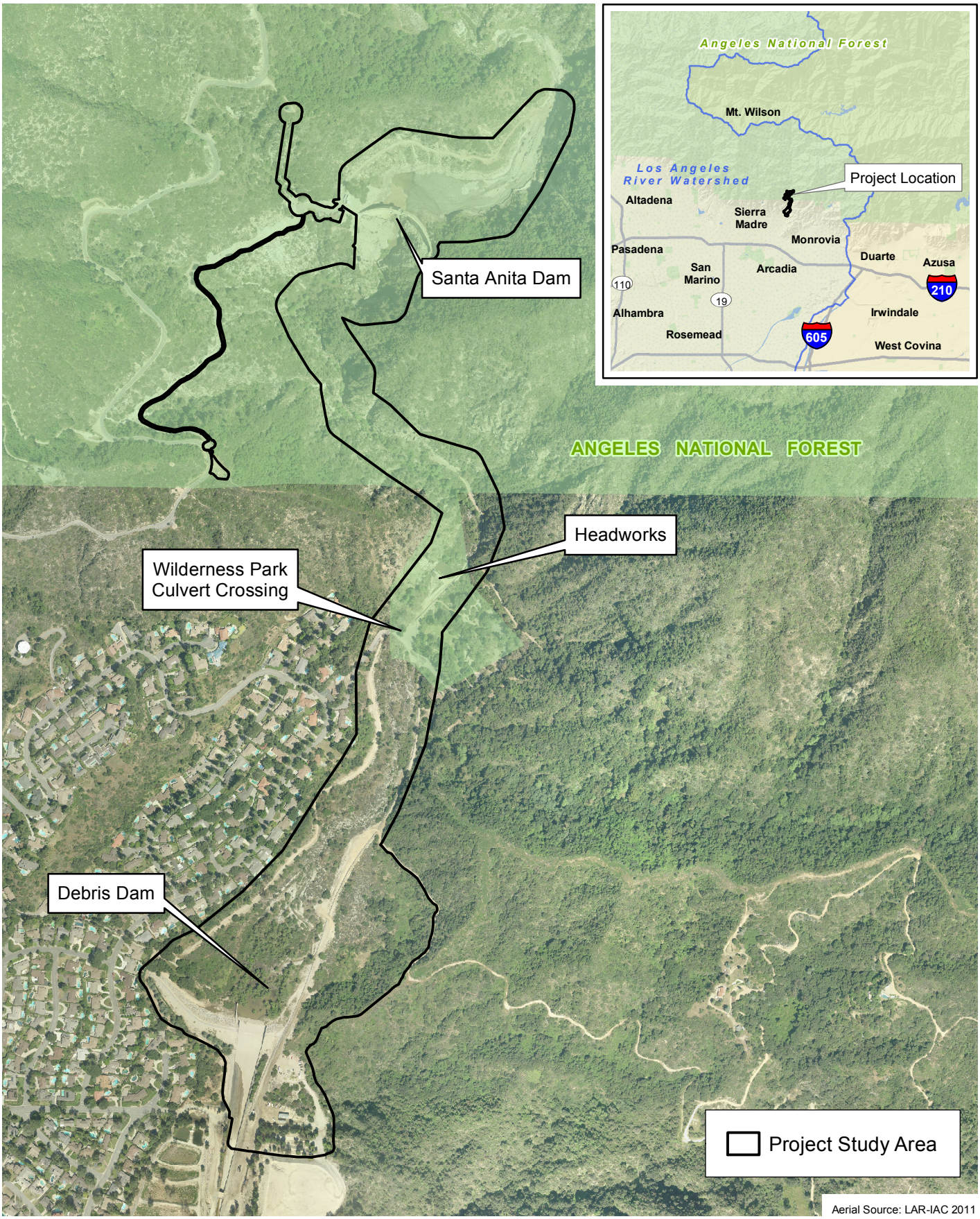

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Project Location Map

Exhibit 1

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

N W E S

800 400 0 800

Feet

BonTerra PSOMAS

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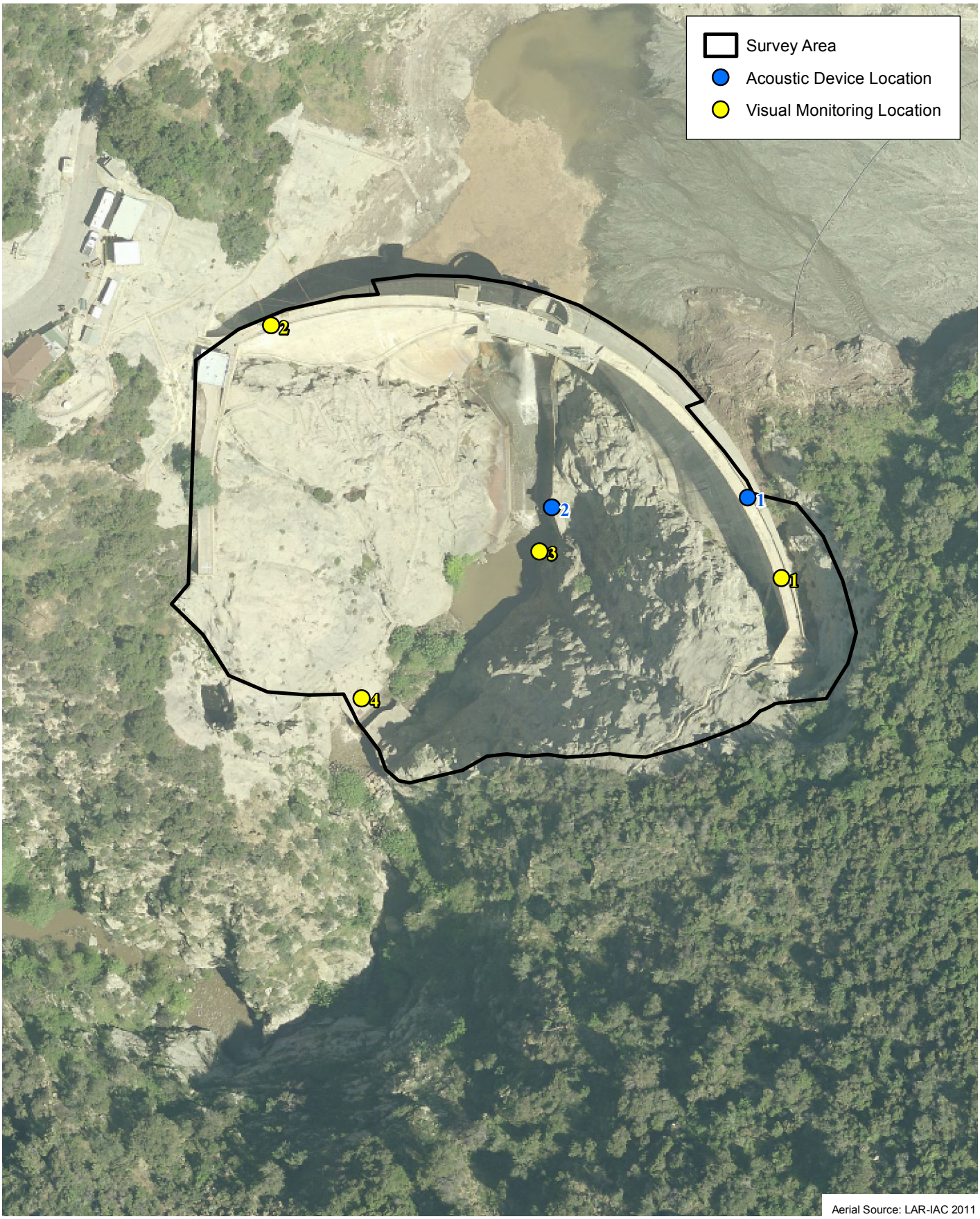

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Bat Survey Locations – Santa Anita Dam

Exhibit 2a

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

N
W E
S

100 50 0 100

Feet

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Aerial Source: LAR-IAC 2011

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Bat Survey Locations – Headworks and Wilderness Park Culvert Crossing Exhibit 2b

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

N
W E
S

100 50 0 100
Feet

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Bat Survey Locations – Debris Dam

Exhibit 2c

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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Photo 1: Photo taken facing northeast toward the downstream side of Santa Anita Dam. The west-facing slope on the right of the photo is covered by gunite, an artificial slope stabilization material. The red circle highlights one of the intermittent gunite areas that requires repair. The acoustic recording device was located at the top of the dam beneath the circle for one of the survey nights.



Photo 2: Photo taken facing northeast toward the downstream side of Santa Anita Dam. The acoustic recording device was located at the bottom of the dam near the water feature at the bottom of the photo for one of the survey nights.

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Site Photographs — Exhibit 3a

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

BonTerra PSOMAS

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Photo 3: The cracked and missing gunite in the center of the photo is one of the locations that will require repair. The broken feature provides marginally suitable habitat for crevice roosting bats.



Photo 4: Photo taken on the western side of the dam facing northeast, upstream of the dam. The building in the center of the photograph provided no evidence of roosting bats. Separately, the naturally-occurring cliff walls, crevices, and vegetation provides higher-quality roosting habitat for bats.



Photo 5: Photo taken within the entrance of the dam spillway facing downstream. Night roosting was observed on the exposed walls of the spillway. Additionally, significant evidence of great horned owl roosting was present.



Photo 6: Photo taken of facing north west toward the west end of the Wilderness Park Culvert Crossing. The small rock wall at the top of the photo contains limited, suitable roosting habitat for bats.

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Site Photographs

Exhibit 3c

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

BonTerra PSOMAS

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Photo 7: Photo taken facing west toward the Headworks facility and the adjacent gunite wall. The acoustic recording device was located at this facility for one of the recording nights.



Photo 8: Photo taken in the Headworks facility facing south. The red arrow points to crevice features that provides suitable roosting habitat for bats.

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Site Photographs — Exhibit 3d

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

BonTerra PSOMAS

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Photo 9: Photo of the Debris Dam and intake tower facility taken facing east. The intake tower is immediately adjacent to extensive riparian vegetation. The acoustic recording device was located at the top of the intake tower for one of the recording nights.



Photo 10: Photo of the trees proposed for removal taken from the top of the Debris Dam facing south.

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Site Photographs

Exhibit 3e

Roosting Bat Survey Report - Santa Anita Stormwater Management and Seismic Strengthening Project

BonTerra PSOMAS

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ATTACHMENT A

WILDLIFE COMPENDIUM

WILDLIFE OBSERVED DURING THE SURVEYS

Species	
REPTILES	
PHRYNOSOMATIDAE – ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS	
Sceloporus occidentalis	western fence lizard
BIRDS	
STRIGIDAE – TRUE OWLS	
Bubo virginianus	great horned owl
CAPRIMULGIDAE – GOATSUCKERS	
Phalaenoptilus nuttallii	common poorwill
APODIDAE – SWIFTS	
Aeronautes saxatalis	white-throated swift
PICIDAE – WOODPECKERS	
Melanerpes formicivorus	acorn woodpecker
TYRANNIDAE – TYRANT FLYCATCHERS	
Sayornis nigricans	black phoebe
CORVIDAE – CROWS AND JAYS	
Aphelocoma californica	western scrub-jay
HIRUNDINIDAE – SWALLOWS	
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
TROGLODYTIDAE – WRENS	
Catherpes mexicanus	canyon wren
Thryomanes bewickii	Bewick's wren
SYLVIIDAE – SYLVIID WARBLERS	
Chamaea fasciata	wrentit
MIMIDAE – THRASHERS	
Mimus polyglottos	northern mockingbird
PARULIDAE – WARBLERS	
Setophaga [*Dendroica*] *petechia*	yellow warbler
EMBERIZIDAE – SPARROWS AND JUNCOS	
Melozone [*Pipilo*] *crissalis*	California towhee
Melospiza melodia	song sparrow
FRINGILLIDAE – FINCHES	
Spinus [*Carduelis*] *psaltria*	lesser goldfinch
MAMMALS	
DIDELPHIDAE – NEW WORLD OPOSSUMS	
*Didelphis virginiana**	Virginia opossum
BATS	
VESPERTILIONIDAE – VESPER BATS	
Myotis californicus	California bat
Myotis lucifugus	little brown bat
Myotis thysanodes	fringed myotis
Myotis yumanensis	Yuma bat
Lasiurus cinereus	hoary bat
Parastrellus [*Pipistrellus*] *hesperus*	canyon bat

WILDLIFE OBSERVED DURING THE SURVEYS

Species	
Corynorhinus townsendii	Townsend's big-eared bat
MOLOSSIDAE – FREE-TAILED BATS	
Tadarida brasiliensis	Brazilian free-tailed bat
Eumops perotis	Western mastiff bat
CANIDAE – WOLVES AND FOXES	
Urocyon cinereoargenteus	common gray fox
URSIDAE – BEARS	
Ursus americanus	American black bear
* introduced species	

ATTACHMENT B

SANTA ANITA BAT CALL IDENTIFICATIONS MEMORANDUM

MEMO

To: Steve Norton,
Senior Project Manager, BonTerra Psomas

From: Edward W. West, Ph.D.,
President, West Ecosystems Analysis, Inc.

Date: August 25, 2014

Re: Santa Anita Dam bat call identifications

Introduction

Bat calls were recorded by BonTerraPsomas biologists (BTP) at Santa Anita Dam, Los Angeles County, California (34°11'1.50"N, 118° 1'7.46"W) on July 31, 2014. Six of the call sequences recorded were sent to West Ecosystems Analysis (WEA) for analysis and species identification. This report provides the results of that analysis.

Methods

All calls were recorded with an EM3+ ultrasonic detector (Wildlife Acoustics) using the internal SMX-UT microphone. The EM3+ settings were: sampling frequency 256 kHz; max duration 10 sec; trigger 8 kHz, 18 dB; RTE triggered; Format WAV. All files were provided to WEA as direct download wav files without any processing.

Each call file was processed and analyzed by WEA using Sonobat 3.1 (Sonobat). If call files exceeded the analysis capacity of the program representative subsections were selected for analysis. Each call within each call sequence was analyzed separately using the Standard View option to obtain species classification and discrimination probability values. The decision threshold for the analysis was set at 0.90 and the acceptable call quality level was 0.70. General characterizing call parameters were also obtained including the characteristic frequency (**fc**), highest frequency (**hi*f***), lowest frequency (**lo*f***), frequency at maximum amplitude (***f*maxE**), call duration (**dur**), upper slope (highest frequency to knee, **HiFtoKnSlope**), lower slope (knee to Fc; **KneetoFcSlope**), slope at Fc (**Slp@Fc**), total slope (**TotalSlope**) and call quality (**Quality**). Each subsection file was then analyzed using the Classify option at three different filter settings (unfiltered, 5 k Hz, and 10 kHz) to obtain species classifications and discrimination probability values for the call sequence. All full files (subsections + remaining recording) were then analyzed using the Sonobatch option to obtain species classifications and discrimination probability values for the complete files.

Final species determinations were made for each call sequence after reviewing the classifications of each call within each sequence, the quality of each call, the status of analysis checks (e.g. ambiguity, trend, and post classification checks), and how well the call characteristics matched those of California bats detailed in *Echolocation Call Characteristics of Western US Bats* (Humboldt State University Bat Lab,

2011) and the reference calls provided in Sonobat. All calls with classifications different from those obtain for their full call sequence were examined for characteristics that could explain the differences. For example, differences were due to the calls being of poor quality, they failed post classification tests, or were from sections of the non-search phase sections of the call sequence (e.g. feeding phase). Also out of range calls may exhibit features that mimic the call characteristics similar species (e.g. Tabr, Epfu, Lano and Laci). Finally the temporal patterns of the calls were examined to determine if more than one species were represented in any of the call sequences.

Results

Figures 1 – 6 show the sonograms, call characteristics and species identification determinations for the six call sequences analyzed. The call quality values are color coded from lowest (blue) to highest (red). The species classifications are color coded by species. The following summarizes the pertinent results of the analysis and provides species classifications for each call sequence.

Call Sequence #212301

- 24 calls in the call sequence (Figure 1),
- All calls except one had quality levels above call quality threshold (0.70),
- 12 calls (50%) were cleanly identified,
- One call (4.2%) had an ambiguous classification,
- 11 calls (45.8%) failed post classification checks,
- Both by vote and mean classification Sonobat call analysis algorithms for both the subsection view (Figure 1) and the full file analysis identified the call sequence as that from a **Brazilian free-tailed bat** (*Tadarida brasiliensis*, **Tabr**). The silver-haired bat (*Lasiurus noctivagans*; **Lano**) classifications are likely out of range Tabr calls.

Call Sequence #212316

- 28 calls in the call sequence (Figure 2),
- All calls except two (93%) had quality levels above threshold (0.70);
- Two calls (7.1%) had unacceptable trends,
- 12 calls (50%) failed post classification checks,
- Both by vote and mean classification Sonobat call analysis algorithms for both the subsection view (Figure 2) and the full file analysis identified the call sequence as that from a **Brazilian free-tailed bat**. Variable Tabr calls commonly mimic big-brown bat (*Eptesicus fuscus*, Epfu) calls.

Call Sequence #212339

- 31 calls in the call sequence (Figure 3),
- 24 calls (77.4%) had quality levels above threshold (0.70),
- Five calls (7.1%) had unacceptable quality,
- 18 calls (58%) failed post classification checks,
- Both by vote and mean classification Sonobat call analysis algorithms for both the subsection view (Figure 3) and the full file analysis identified the call sequence as that from a **Townsend's big-eared bat** (*Corynorhinus townsendii*, **Coto**). The simple linear FM sweep with the upsweep at the onset in numerous search phase calls is characteristic of the species.
- The temporal pattern of apparent **Tabr/Epfu** calls at the beginning of the full sequence suggests that it may include the two species – Coto and Tabr.

Call Sequence #213423

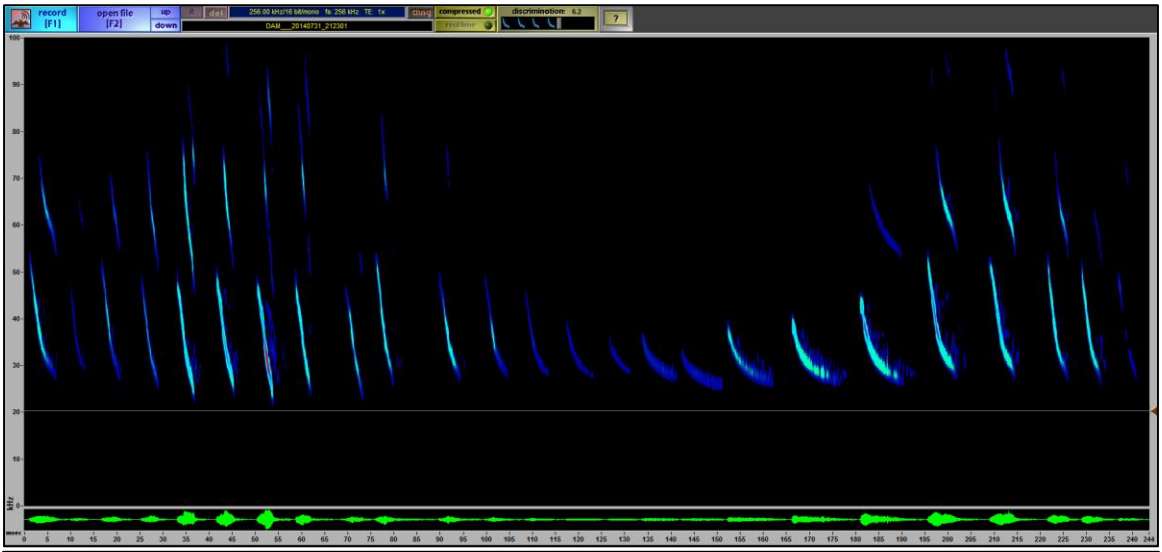
- 30 calls in the call sequence,
- 11 calls (37%) had quality levels above threshold (0.70),
  One call (3.3%) had unacceptable quality,
- Four calls (13.3%) had unacceptable trends,
- 15 calls (50%) failed post classification checks,
- The by vote and mean classification Sonobat call analysis algorithms for the subsection view (Figure 4) analysis identified the call sequence as that from a **fringed myotis** (Myotis thysanodes, **Myth**). The full file analysis, which included approximately 6 seconds of recording before the subsection view, and numerous Tabr calls, was only able to weakly classify the entire call sequence, by vote analysis only, as **Tabr**. The full call sequence therefore probably consists of Tabr calls upfront with Myth calls predominating in the subsection view section at the end of the sequence.

Call Sequence #224726

- 17 calls in the call sequence (Figure 5),
- Only seven calls (41%) had quality levels above threshold (0.70),
- Nine calls (53%) had an ambiguous classification,
- Nine calls (53%) had unacceptable trends,
- One call (5.9%) failed post classification checks,
- Both by vote and mean classification algorithms for both the subsection view (Figure 5) and the full file analysis were unable to give species specific classifications, defaulting to the **LoF** classification. However, the prevalence of Tabr call classifications (Figure 5), despite the numerous call quality limitations, suggest that this sequence was given by **Tabr**.

Call Sequence #224720

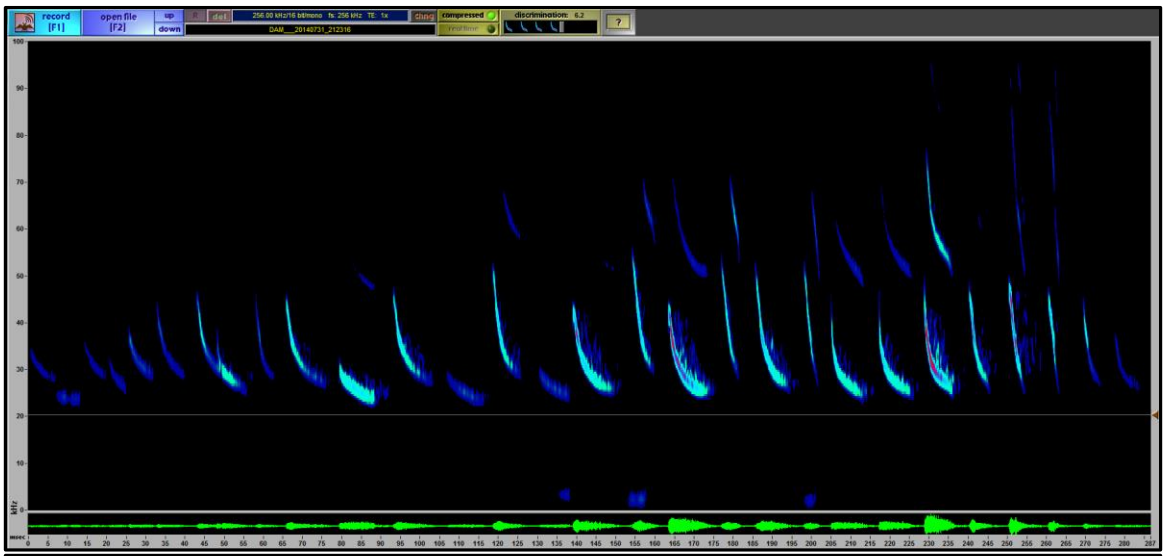
- 32 calls in the call sequence (Figure 6),
- Only three calls (9.4%) had quality levels above threshold (0.70),
- One call (3.3%) had an ambiguous classification (noise),
- Eight calls (25%) had unacceptable quality,
- One call (3.3%) had an unacceptable trend,
- 25 calls (78%) failed post classification checks,
- Filtering the subsection view file (Figure 6) at 10 kHz) resulted in a weak Coto/Myth classification. This classification is likely incorrect due to the high level of failed post classification checks and calls with unacceptable quality. The mean classification algorithm identified the principal calls as those from **Tabr**, a more reasonable result given the number of Tabr calls identified in the sequence (Figure 6). Because the reference view file included most of the entire file, the results for the full file analysis were identical to those for the reference view analysis.



Call No.	Time In File (msec)	Fc (kHz)	Hi Freq (kHz)	Low Freq (kHz)	Freq @ MaxPwr (kHz)	Cal Duration (msec)	HiF to Knee Slope	Knee To Fc Slope	Slope @ Fc	Total Slope	Quality	Ambiguous Classification	Unacceptable Quality	Unacceptable Trend	Failed Post Classification Checks	Spp 1	Discriminate Probability	Spp 2	Discriminate Probability	Spp 3	Discriminate Probability
1	216	31.15	54.35	30.57	40.82	4.43	7.59	3.83	0.26	6.36	0.84					Anpa	0.4025	Tabr	0.3383	Lano	0.1253
2	343	50.26	50.26	25.56	48.67	2.33	10.94	4.87	0.25	8.24	0.82				x	Anpa	0.6362	Epfu	0.2098	Lano	0.1321
3	414	30.90	53.60	28.87	41.11	3.75	9.08	4.43	0.85	8.09	0.85				x	Epfu	0.9496				
4	543	52.06	79.62	49.14	59.17	2.62	15.35	8.38	12.71	10.72	0.84					Coto	1.0000				
5	702	52.26	79.19	45.83	68.49	2.62	16.24	8.33	12.02	11.79	0.83					Lano	0.9755				
6	810	27.84	50.29	24.17	32.90	3.96	7.89	3.76	4.58	6.94	0.88					Lano	0.9792				
7	930	28.87	47.67	23.18	31.13	3.46	6.70	8.04	5.50	7.65	0.89				x	Lano	0.6255	Coto	0.3093		
8	1,017	28.95	49.53	24.30	37.04	3.40	17.13	7.44	5.63	7.60	0.91				x	Lano	0.7257	Coto	0.2623		
9	1,083	23.24	47.49	22.95	36.56	4.10	6.84	5.03	2.84	6.42	0.87				x	Coto	0.9987				
10	1,114	29.34	54.01	25.73	35.32	4.15	9.08	4.33	4.45	7.86	0.87				x	Epfu	0.9961				
11	1,212	28.53	50.13	26.07	35.66	4.97	6.66	2.63	2.97	5.18	0.91					Anpa	0.6318	Tabr	0.1977	Lano	0.1352
12	1,317	29.03	49.48	27.11	35.89	5.40	6.87	1.99	0.02	4.85	0.91					Lano	0.6340	Tabr	0.3201		
13	1,547	28.80	48.23	26.10	34.60	6.34	6.39	1.91	0.12	3.99	0.83					Anpa	0.6435	Tabr	0.2064	Lano	0.1294
14	1,808	27.98	39.96	26.87	35.22	6.89	3.76	1.07	0.08	2.08	0.83					Tabr	0.9958				
15	2,048	29.17	36.48	28.19	33.71	5.73	3.15	1.31	0.12	1.95	0.67					Tabr	1.0000				
16	2,383	28.92	37.21	27.65	34.05	7.47	2.96	1.06	0.09	1.71	0.88			x		Tabr	1.0000				
17	2,635	26.22	33.17	25.74	27.92	9.63	2.16	0.67	0.00	0.93	0.85					Tabr	0.9999				
18	2,881	27.83	38.10	27.26	36.41	8.01	2.94	0.89	0.30	1.59	0.90				x	Tabr	1.0000				
19	3,134	30.79	39.45	29.62	37.63	4.26	3.65	1.54	0.05	2.82	0.92				x	Epfu	0.9996				
20	3,365	29.59	45.03	27.08	37.20	8.44	5.59	1.58	0.02	2.86	0.92				x	Tabr	0.9996				
21	3,683	30.81	53.91	28.48	37.30	6.19	7.63	2.31	0.02	5.02	0.89					Anpa	0.7225	Lano	0.1371	Epfu	0.0821
22	3,867	28.20	52.86	28.20	40.98	5.55	6.56	1.97	1.85	4.59	0.88				x	Tabr	1.0000				
23	4,005	30.26	53.93	29.72	38.65	3.86	9.06	3.19	0.04	6.95	0.84					Epfu	0.9992				
24	4,089	28.96	52.58	25.72	36.73	4.37	8.59	3.06	3.15	6.24	0.88				x	Epfu	0.9979				

Filename	Filter	Reference View (Classify Option)					Full File (Sonobatch Option)				
		ByVote	#Maj	#Accpt	MeanClssn	DiscrProb	ByVote	#Maj	#Accpt	MeanClssn	DiscrProb
DAM___20140731_212301	unfiltered	Tabr	6	10	Tabr	0.9978	Tabr	6	10	Tabr	0.9983
DAM___20140731_212301	5 kHz	Tabr/Lano	3	6	Tabr	0.9974	Tabr	6	9	Tabr	0.9975
DAM___20140731_212301	10 kHz	Tabr/Lano	5	9	Tabr	0.9999	Tabr	4	6	Tabr	0.9903

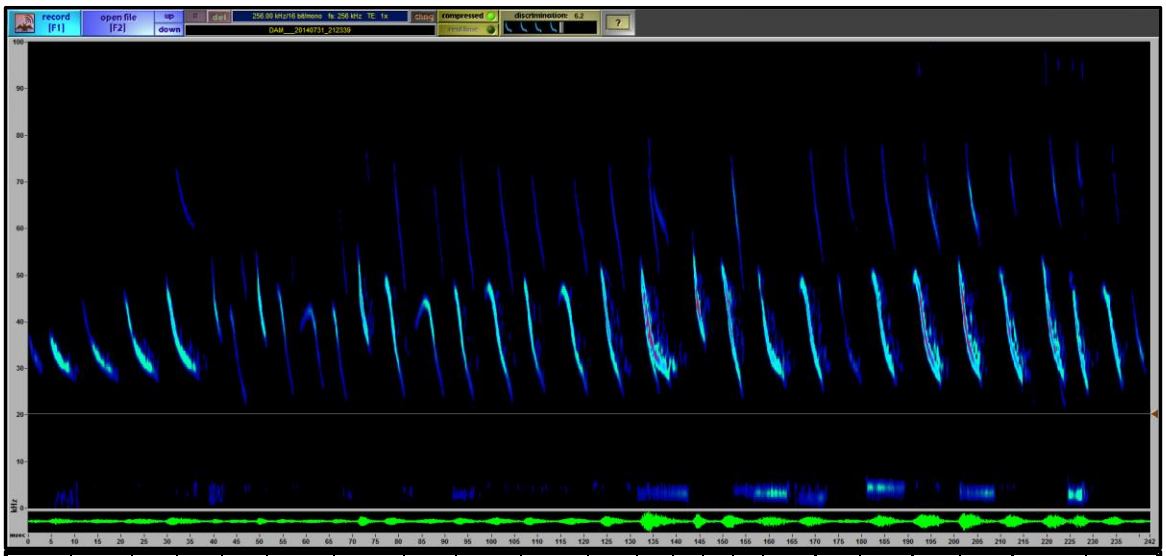
Figure 1. Sonogram, call characteristics and species classifications of call sequence #212301.



Call No.	Time In File (msec)	Fc (kHz)	Hi Freq (kHz)	Low Freq (kHz)	Freq @ MaxPwr (kHz)	Cal Duration (msec)	HiF to Knee Slope	Knee To Fc Slope	Slope @ Fc	Total Slope	Quality	Ambiguous Classification	Unacceptable Quality	Unacceptable Trend	Failed Post Classification Checks	Spp 1	Discriminate Probability	Spp 2	Discriminate Probability	Spp 3	Discriminate Probability
1	2,807	28.59	34.95	28.13	28.57	6.01	1.86	0.88	0.01	1.27	0.61					Tabr	0.9995				
2	2,866	23.69	25.64	23.38	23.87	7.71	0.02	0.60	0.01	0.05	0.83			x	x	Tabr	1.0000				
3	3,182	29.04	37.35	27.22	29.15	7.80	2.62	0.92	0.06	1.57	0.63				x	Tabr	0.9142				
4	3,427	26.00	33.29	24.44	26.30	7.31	3.21	0.82	0.03	1.40	0.79			x	x	Tabr	0.9928				
5	3,449	29.82	40.27	28.30	35.76	7.38	3.19	1.06	0.08	1.86	0.90					Tabr	0.9959				
6	3,689	29.26	45.79	27.74	39.20	8.46	4.43	1.12	0.09	2.16	0.85					Tabr	0.9593				
7	3,814	26.73	45.47	25.43	29.03	12.97	5.05	0.79	0.08	1.37	0.90				x	Epfu	0.7911	Anpa	0.2081		
8	3,865	28.69	47.88	25.05	37.05	6.14	8.34	1.65	0.00	3.90	0.86					Lano	0.9205				
9	3,940	28.30	45.81	25.63	36.78	10.77	5.83	1.15	0.07	1.97	0.92					Tabr	0.5998	Laci	0.4002		
10	4,008	24.22	29.82	23.36	24.70	9.30	1.57	0.63	0.06	0.77	0.91				x	Tabr	0.9949				
11	4,120	31.07	46.56	29.24	36.03	6.55	6.61	1.88	0.02	3.38	0.91					Epfu	0.9902				
12	4,200	24.46	29.03	23.15	24.93	8.89	1.07	0.55	0.03	0.79	0.85				x	Tabr	0.9697				
13	4,357	30.71	52.33	29.38	39.67	6.54	8.41	2.44	0.20	4.57	0.91					Anpa	0.7129	Epfu	0.1376		
14	4,374	25.19	29.04	24.53	25.74	7.27	1.28	0.55	0.02	0.77	0.87					Tabr	0.8962	Lano	0.0569		
15	4,554	30.54	43.94	28.46	37.18	4.76	5.63	2.21	0.00	4.16	0.93				x	Epfu	0.9988				
16	4,593	31.63	55.70	29.95	37.03	5.51	8.34	2.97	0.09	5.85	0.88				x	Anpa	0.7618	Tabr	0.2139		
17	4,706	27.42	42.92	26.08	35.53	6.84	6.09	1.84	0.08	3.04	0.89					Tabr	0.9987				
18	4,760	31.68	55.09	28.50	36.75	4.25	8.45	4.72	0.04	7.33	0.87				x	Epfu	0.9703				
19	4,849	27.41	52.66	26.65	36.95	8.62	8.44	1.68	0.05	3.48	0.91					Tabr	0.8469	Lano	0.1467		
20	4,897	26.55	54.41	25.31	36.78	3.86	9.83	4.61	6.02	7.32	0.89					Lano	0.9009				
21	5,038	25.74	44.97	24.50	31.03	8.44	7.38	0.95	0.10	2.09	0.89					Tabr	0.7727	Lano	0.2151		
22	5,221	26.31	43.80	24.42	30.51	8.55	5.49	0.86	0.04	1.97	0.89					Lano	0.6716	Laci	0.2129		
23	5,525	27.05	46.33	25.57	31.88	7.45	6.86	0.92	0.08	2.40	0.88					Lano	0.8090	Anpa	0.0552	Tabr	0.0511
24	5,781	29.08	48.28	27.28	38.37	4.88	8.48	2.91	0.29	5.63	0.91					Epfu	0.8131	Anpa	0.1670		
25	5,874	28.82	48.94	26.28	44.82	3.67	8.08	4.22	4.05	6.66	0.91				x	Lano	0.5254	Laci	0.2937	Epfu	0.1796
26	5,925	26.32	47.31	25.55	41.85	2.70	7.25	8.78	7.86	8.02	0.89					Coto	1.0000				
27	6,111	27.98	46.18	26.84	38.19	4.65	7.59	2.08	0.10	4.57	0.90				x	Epfu	0.9921				
28	6,359	28.63	39.49	27.00	33.55	4.42	6.80	2.43	0.06	3.72	0.75				x	Epfu	0.9992				

Filename	Filter	Reference View (Classify Option)					Full File (Sonobatch Option)				
		ByVote	#Maj	#Accpt	MeanClssn	DiscrProb	ByVote	#Maj	#Accpt	MeanClssn	DiscrProb
DAM___20140731_212316	unfiltered	Tabr	3	4	Tabr	0.9914	Tabr	4	6	Tabr	0.9983
DAM___20140731_212316	5 kHz	Tabr	7	9	Tabr	0.9723	Tabr	3	4	Tabr	0.9987
DAM___20140731_212316	10 kHz	Tabr/Epfu	5	9	Tabr	0.9436	Tabr	3	4	Tabr	0.9985

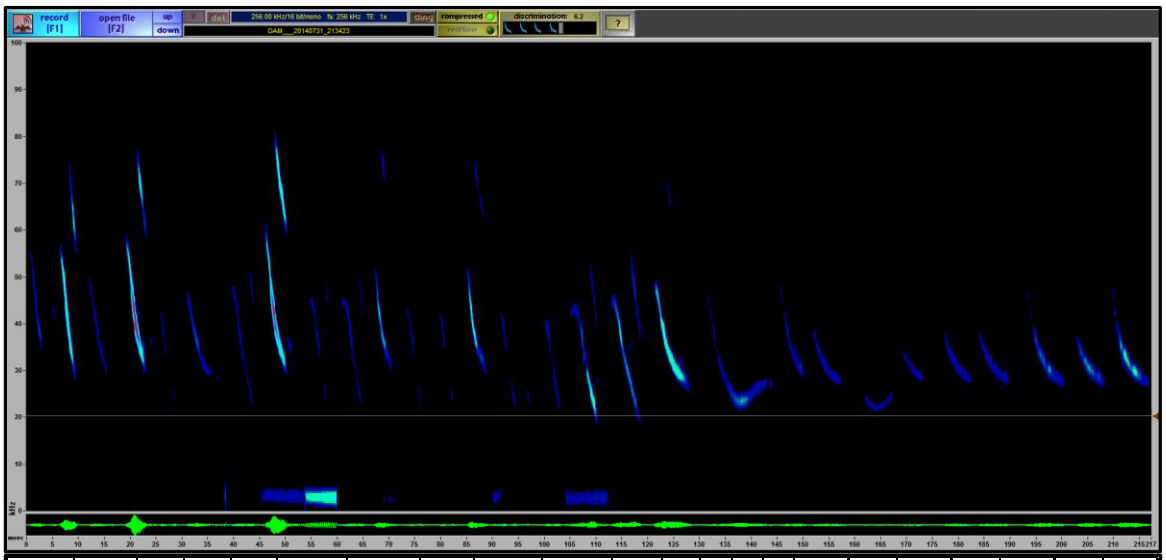
Figure 2. Sonogram, call characteristics and species classifications of call sequence #212316.



Call No.	Time In File (msec)	Fc (kHz)	Hi Freq (kHz)	Low Freq (kHz)	Freq @ MaxPwr (kHz)	Cal Duration (msec)	HiF to Knee Slope	Knee To Fc Slope	Slope @ Fc	Total Slope	Quality	Ambiguous Classification	Unacceptable Quality	Unacceptable Trend	Failed Post Classification Checks	Spp 1	Discriminate Probability	Spp 2	Discriminate Probability	Spp 3	Discriminate Probability
1	1,986.9	30.30	45.49	27.90	33.46	7.03	5.70	1.89	0.13	3.17	0.84					Tabr	0.9987				
2	2,234.2	29.82	44.55	27.14	32.68	7.88	4.65	1.53	0.04	2.45	0.68					Tabr	0.9995				
3	2,601.1	30.42	46.02	30.39	32.51	5.51	5.03	1.69	0.23	3.08	0.74					Tabr	1.0000				
4	2,948.4	31.38	49.18	29.13	38.30	6.78	5.70	1.92	0.11	3.85	0.88				x	Tabr	0.9983				
5	2,990.6	36.46	56.34	32.61	42.85	2.51	14.69	5.08	6.44	8.45	0.68				x	Mylu	0.8691	Myev	0.0939		
6	3,033.7	22.13	43.44	21.56	40.95	3.74	6.75	4.40	6.35	6.01	0.47		x		x	Coto	1.0000				
7	3,093.0	34.65	55.59	34.54	43.56	2.53	13.91	5.68	4.01	8.15	0.88				x	Tabr	0.9998				
8	3,115.6	29.83	48.52	24.09	42.95	3.67	4.69	8.30	6.05	7.32	0.60		x			Epfu	0.4705	Coto	0.4285		
9	3,170.2	31.63	42.15	24.51	42.14	5.30	2.88	8.23	7.01	5.56	0.55		x		x	Coto	1.0000				
10	3,189.7	23.43	44.27	23.35	39.14	3.15	7.27	5.49	5.34	7.10	0.61				x	Tabr	1.0000				
11	3,260.9	34.44	57.30	32.75	43.91	3.11	14.01	5.14	4.87	7.87	0.92				x	Epfu	0.8305	Anpa	0.0948		
12	3,283.8	30.48	49.17	24.45	44.88	4.30	2.15	7.56	5.12	6.77	0.82					Coto	1.0000				
13	3,345.5	29.92	43.95	24.06	43.66	6.26	1.36	6.95	5.07	5.43	0.68					Coto	1.0000				
14	3,367.9	25.32	48.42	23.64	44.01	4.34	6.99	3.86	4.19	6.32	0.79					Coto	0.9991				
15	3,446.9	29.98	47.14	23.69	44.33	5.92	1.23	5.86	3.22	5.64	0.83					Coto	0.9993				
16	3,469.7	26.82	50.14	25.48	40.59	4.60	7.58	3.14	3.32	5.79	0.81					Coto	0.9999				
17	3,543.2	29.49	46.63	25.16	44.25	6.38	5.24	1.57	2.74	5.05	0.81				x	Tabr	1.0000				
18	3,566.7	28.63	52.18	25.52	42.92	4.81	8.02	3.20	3.40	6.45	0.88				x	Epfu	0.9756				
19	3,642.9	35.93	59.71	34.77	43.74	2.93	14.33	5.21	4.87	8.20	0.95				x	Lano	0.9065				
20	3,668.8	29.43	52.71	24.94	43.71	4.62	7.08	4.51	4.64	6.85	0.89					Coto	1.0000				
21	3,712.7	30.43	51.08	28.76	31.84	5.50	7.51	2.25	0.03	5.24	0.86				x	Tabr	0.8565	Lano	0.1431		
22	3,761.6	30.29	48.15	25.71	44.39	5.29	5.94	2.11	3.46	5.74	0.85				x	Coto	1.0000				
23	3,821.0	30.50	50.63	26.24	47.34	5.30	7.38	3.40	0.26	6.34	0.52		x			Coto	0.5131	Myth	0.4869		
24	3,856.2	30.71	49.82	30.66	44.79	4.52	6.26	2.46	0.78	5.47	0.86					Epfu	0.9998				
25	3,954.5	29.56	49.45	29.56	44.64	5.18	6.23	2.52	0.10	4.96	0.90				x	Tabr	1.0000				
26	3,974.8	29.48	53.43	29.48	43.49	4.63	8.70	2.74	0.43	5.46	0.89					Epfu	0.9989				
27	4,037.6	30.21	50.19	26.42	37.65	5.25	6.61	3.12	3.08	5.73	0.89				x	Tabr	1.0000				
28	4,059.4	31.82	53.47	28.19	38.97	4.86	8.46	3.38	2.57	6.57	0.87				x	Tabr	1.0000				
29	4,100.2	27.53	49.31	25.11	38.93	4.09	7.36	5.58	4.52	6.94	0.88				x	Epfu	0.8854				
30	4,184.5	26.62	46.89	26.62	35.26	4.66	0.70	5.54	0.45	5.12	0.88				x	Epfu	0.8982				
31	4,910.1	31.35	49.50	28.26	33.31	3.65	8.22	3.90	5.65	6.27	0.56		x		x	Epfu	0.8679				

Filename	Filter	Reference View (Classify Option)					Full File (Sonobatch Option)				
		ByVote	#Maj	#Accpt	MeanClssn	DiscrProb	ByVote	#Maj	#Accpt	MeanClssn	DiscrProb
DAM___20140731_212339	unfiltered	Coto/Epfu	7	11	Coto	0.9999	Coto	7	9	Coto	0.9999
DAM___20140731_212339	5 kHz	Coto/Tabr	4	7	Coto	0.9999	Coto	6	8	Coto	0.9999
DAM___20140731_212339	10 kHz	Coto/Epfu	7	9	Coto	0.9995	Coto	7	9	Coto	0.9999

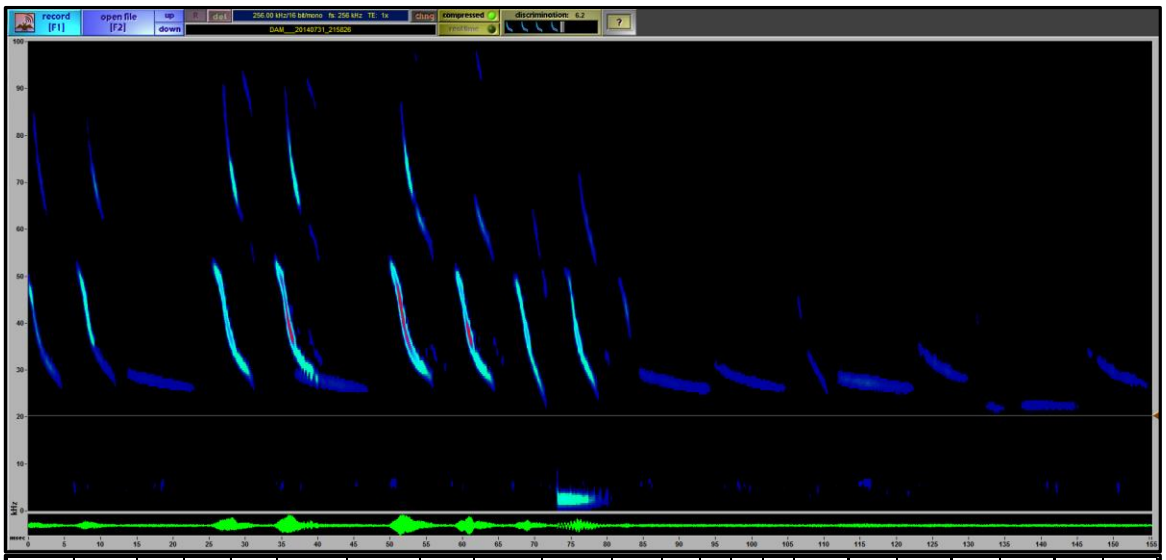
Figure 3. Sonogram, call characteristics and species classifications of call sequence #212339.



Call No.	Time In File (msec)	Fc (kHz)	Hi Freq (kHz)	Low Freq (kHz)	Freq @ MaxPwr (kHz)	Cal Duration (msec)	HiF to Knee Slope	Knee To Fc Slope	Slope @ Fc	Total Slope	Quality	Ambiguous Classification	Unacceptable Quality	Unacceptable Trend	Failed Post Classification Checks	Spp 1	Discriminate Probability	Spp 2	Discriminate Probability	Spp 3	Discriminate Probability
1	7,448	31.54	58.25	30.01	38.73	3.16	11.07	6.57	5.99	9.16	0.89				x	Epfu	0.8813				
2	7,644	28.71	57.49	28.27	45.35	3.06	11.32	6.67	6.26	10.00	0.93				x	Lano	0.8865				
3	7,764	29.91	51.39	21.50	37.14	5.62	6.55	3.92	0.10	6.00	0.74				x	Coto	0.9858				
4	7,842	31.06	58.84	29.79	41.01	3.80	10.30	4.82	5.02	8.07	0.94				x	Epfu	0.9741				
5	7,988	22.51	47.51	19.81	36.58	5.36	0.04	6.80	6.40	5.94	0.63				x	Myth	0.9999				
6	8,022	28.80	47.70	27.30	36.00	6.68	5.29	1.17	0.00	3.46	0.91				x	Tabr	0.8407	Lano	0.1151		
7	8,101	21.89	48.00	20.90	46.25	5.04	1.10	6.36	6.94	6.07	0.76					Myth	0.9999				
8	8,161	31.93	61.22	29.57	42.28	4.14	11.27	4.41	3.93	8.08	0.93				x	Epfu	0.9758				
9	8,198	19.85	45.34	19.46	44.17	4.60	0.44	7.50	5.66	6.42	0.69					Myth	1.0000				
10	8,325	20.40	44.63	19.46	38.27	5.00	0.16	7.17	6.16	5.64	0.80					Myth	0.9997				
11	8,408	33.18	57.61	29.45	42.57	4.03	12.17	5.14	3.24	8.81	0.90				x	Epfu	0.9975				
12	8,452	20.83	43.24	19.57	37.32	4.73	0.71	7.47	6.26	7.07	0.66					Myth	1.0000				
13	8,549	19.73	42.93	18.71	38.38	5.29	0.74	7.29	5.87	6.88	0.72					Myth	1.0000				
14	8,561	22.10	40.80	19.80	37.00	3.10	6.77	5.93	7.42	6.69	0.80				x	Coto	0.9999				
15	8,623	29.30	53.90	28.10	41.80	4.09	12.20	3.20	2.98	5.54	0.91				x	Epfu	0.9994				
16	8,670	21.90	42.83	19.47	39.07	4.80	0.67	7.03	7.10	6.57	0.77					Myth	0.9997				
17	8,771	21.02	40.26	20.27	38.91	4.62	1.08	7.21	5.66	6.49	0.78				x	Myth	0.9672				
18	8,863	22.38	42.94	18.42	22.94	5.55	0.43	6.43	4.08	6.28	0.89					Myth	1.0000				
19	8,935	22.47	44.76	17.77	38.05	5.75	5.44	4.71	4.66	5.25	0.84					Myth	0.9985				
20	9,007	28.79	47.70	26.21	37.77	6.67	5.91	2.12	1.12	4.00	0.92				x	Tabr	0.9032				
21	9,069	27.59	45.96	23.54	23.64	15.02	4.64	0.59	0.01	1.44	0.89		x			Laci	0.6799	Tabr	0.1713	Epfu	0.1487
22	9,122	30.33	48.42	29.19	30.53	5.31	6.07	2.54	0.07	4.81	0.82				x	Tabr	0.9032				
23	9,230	32.90	47.50	29.80	30.50	4.36	6.69	4.25	1.99	5.20	0.86			x	x	Epfu	0.6803	Anpa	0.3197		
24	9,312	28.20	43.10	22.10	23.30	14.62	3.70	0.92	0.03	1.08	0.72			x		Epfu	1.0000				
25	9,452	27.76	43.34	26.03	29.03	8.50	4.70	1.33	0.01	2.17	0.62			x		Tabr	0.9997				
26	9,556	28.92	50.59	25.84	31.52	8.33	7.42	2.15	0.05	3.66	0.79					Tabr	0.9966				
27	9,668	28.91	46.59	26.32	31.74	8.07	5.37	1.83	0.03	3.00	0.83			x		Tabr	1.0000				
28	9,786	26.44	50.08	26.16	29.90	8.52	6.18	1.28	0.32	2.63	0.90				x	Tabr	0.9314				
29	9,877	29.68	49.88	25.71	30.24	7.41	8.39	2.52	0.07	4.25	0.91					Tabr	0.9712				
30	9,973	28.58	50.33	25.73	32.84	8.05	7.50	1.79	0.07	3.45	0.92					Epfu	0.3096	Laci	0.3092	Tabr	0.1770

Filename	Filter	Reference View (Classify Option)					Full File (Sonobatch Option)				
		ByVote	#Maj	#Accpt	MeanClssn	DiscrProb	ByVote	#Maj	#Accpt	MeanClssn	DiscrProb
DAM___20140731_213423	unfiltered	MythEpfu	7	11	Myth	0.9999	Tabr	1	1		
DAM___20140731_213423	5 kHz	Myth	9	9	Myth	1.0000					
DAM___20140731_213423	10 kHz	Myth	9	10	Myth	1.0000					

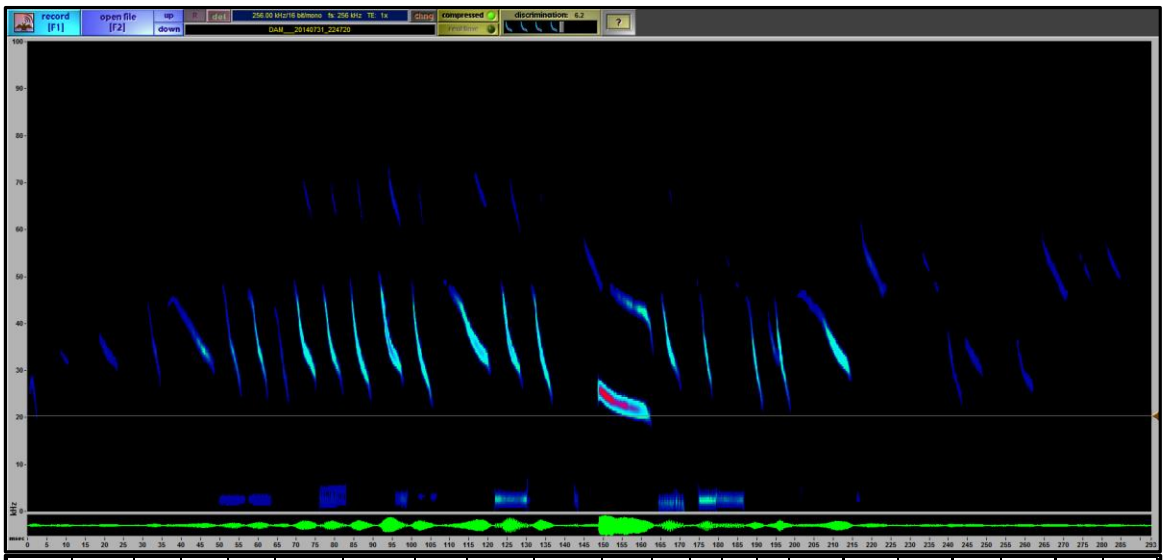
Figure 4. Sonogram, call characteristics and species classifications of call sequence #213423.



Call No.	Time In File (msec)	Fc (kHz)	Hi Freq (kHz)	Low Freq (kHz)	Freq @ MaxPwr (kHz)	Cal Duration (msec)	HiF to Knee Slope	Knee To Fc Slope	Slope @ Fc	Total Slope	Quality	Ambiguous Classification	Unacceptable Quality	Unacceptable Trend	Failed Post Classification Checks	Spp 1	Discriminate Probability	Spp 2	Discriminate Probability	Spp 3	Discriminate Probability
1	8	30.27	50.61	25.82	46.15	4.87	8.98	3.46	2.25	6.11	0.66	x			x	Epfu	0.9974				
2	132	30.72	52.69	26.96	45.02	5.50	7.43	2.73	0.10	6.23	0.78	x				Tabr	1.0000				
3	206	26.59	28.98	25.95	27.95	9.79	0.61	0.33	0.05	0.36	0.18			x		Tabr	0.9983				
4	306	34.13	52.79	34.10	36.73	3.13	3.03	7.67	3.14	6.68	0.85	x				Tabr	1.0000				
5	465	30.06	53.72	29.35	37.76	5.39	7.15	2.13	0.54	5.72	0.93	x				Tabr	1.0000				
6	582	28.68	53.29	27.94	44.46	5.84	6.99	1.97	1.25	4.73	0.91	x				Tabr	1.0000				
7	691	28.36	51.51	26.53	37.50	5.38	7.33	2.26	1.75	5.18	0.92	x				Tabr	0.9906				
8	747	24.28	49.42	22.50	37.43	4.60	7.12	4.43	5.71	6.43	0.89					Myth	0.9932				
9	793	26.02	51.52	24.26	36.70	4.74	8.28	3.40	5.12	6.37	0.86					Epfu	0.6845	Coto	0.2280		
10	911	34.38	49.69	34.32	43.42	2.27	5.31	8.95	1.61	7.66	0.49	x		x		Tabr	0.9989				
11	1,085	26.25	29.41	25.33	27.11	11.18	0.82	0.36	0.01	0.41	0.19			x		Tabr	0.9998				
12	1,388	26.42	32.42	26.00	29.46	10.90	0.89	0.39	0.01	0.64	0.18			x		Tabr	0.9997				
13	1,416	30.13	50.08	24.41	43.29	4.83	9.56	3.13	2.57	7.14	0.17	x		x		Epfu	0.9782				
14	1,659	26.55	28.14	25.83	27.04	10.60	0.32	0.19	0.04	0.24	0.34			x		Tabr	1.0000				
15	1,918	29.52	35.25	27.90	31.31	7.40	1.77	0.99	0.03	1.35	0.31			x		Tabr	0.9999				
16	2,039	22.11	22.54	21.39	22.35	7.52	0.05	0.61	0.11	0.05	0.12	x		x		Anpa	1.0000				
17	2,274	27.56	34.84	26.00	29.50	8.83	1.35	0.48	0.01	0.96	0.22			x		Tabr	0.9999				

Filename	Filter	Reference View (Classify Option)					Full File (Sonobatch Option)				
		ByVote	#Maj	#Accpt	MeanClssn	DiscrProb	ByVote	#Maj	#Accpt	MeanClssn	DiscrProb
DAM___20140731_215826	unfiltered	LoF	0	0	None	0.0000	LoF	0	0	None	0.0000
DAM___20140731_215826	5 kHz	LoF	1	1	None	0.0000	LoF	1	1	None	0.0000
DAM___20140731_215826	10 kHz	LoF	1	1	None	0.0000	LoF	1	1	None	0.0000

Figure 5. Sonogram, call characteristics and species classifications of call sequence #215826.



Call No.	Time In File (msec)	Fc (kHz)	Hi Freq (kHz)	Low Freq (kHz)	Freq @ MaxPwr (kHz)	Cal Duration (msec)	HiF to Knee Slope	Knee To Fc Slope	Slope @ Fc	Total Slope	Quality	Ambiguous Classification	Unacceptable Quality	Unacceptable Trend	Failed Post Classification Checks	Spp 1	Discriminate Probability	Spp 2	Discriminate Probability	Spp 3	Discriminate Probability
1	540	11.71	27.11	11.65	27.10	3.53	0.56	6.60	1.67	6.45	0.60	x	x		x	Noise	1.0000				
2	648	31.01	43.13	29.08	32.44	8.58	2.13	1.01	0.88	1.79	0.40		x			Tabr	1.0000				
3	1,189	32.51	40.35	29.03	34.71	7.06	1.89	1.12	0.00	1.74	0.68		x	x		Tabr	1.0000				
4	1,353	27.03	49.05	25.37	33.46	4.36	6.00	4.54	9.72	5.23	0.76					Epfu	0.7843	Lano	0.1988		
5	1,506	33.37	44.88	28.69	33.97	13.37	1.37	1.32	0.72	1.42	0.88				x	Anpa	1.0000				
6	1,534	26.72	50.10	24.05	33.95	5.44	5.58	3.71	6.52	4.72	0.80				x	Tabr	1.0000				
7	1,556	31.90	46.01	23.46	33.78	5.47	0.77	5.03	3.45	4.84	0.86				x	Tabr	1.0000				
8	1,684	26.86	43.99	22.78	33.21	4.32	1.58	6.29	5.07	5.38	0.74				x	Coto	0.7661	Myth	0.2339		
9	1,733	24.35	45.70	21.75	33.04	4.04	6.60	5.19	5.53	6.30	0.81				x	Myth	0.9020				
10	1,789	29.11	49.93	26.17	35.84	6.20	5.56	1.89	3.58	3.68	0.90				x	Tabr	1.0000				
11	1,818	30.39	48.70	24.66	33.80	5.68	6.14	2.30	2.14	4.68	0.86				x	Tabr	1.0000				
12	1,881	28.76	52.02	23.27	33.93	6.21	7.58	2.83	2.30	5.13	0.92					Anpa	0.4482	Tabr	0.2875	Epfu	0.1797
13	1,904	32.38	50.46	27.21	35.60	6.59	5.93	1.87	1.41	4.31	0.90				x	Tabr	1.0000				
14	1,930	29.81	50.43	22.41	32.76	5.70	8.90	3.89	2.43	5.97	0.89					Anpa	0.6556	Lano	0.2143		
15	1,987	32.91	48.80	29.20	35.38	13.57	0.88	1.77	0.94	1.65	0.94				x	Anpa	1.0000				
16	2,021	32.00	48.63	26.98	34.57	5.70	6.07	2.03	1.42	4.56	0.88				x	Tabr	1.0000				
17	2,070	29.51	48.01	22.88	34.32	6.07	5.61	2.64	2.53	5.32	0.92				x	Tabr	1.0000				
18	2,218	21.91	26.02	19.04	24.48	13.91	0.68	0.27	0.02	0.48	0.94					Tabr	0.5574	Laci	0.4420		
19	2,240	31.55	46.78	25.93	34.58	5.47	5.74	2.20	2.77	4.67	0.89				x	Tabr	0.9966				
20	2,346	26.79	47.71	23.51	34.31	3.45	9.10	5.11	6.04	6.91	0.89				x	Lano	0.8622				
21	2,364	23.44	47.51	21.03	34.05	4.62	9.72	4.23	4.39	5.60	0.92				x	Coto	0.9770				
22	2,458	22.57	45.59	22.11	32.96	4.81	0.71	5.75	4.22	5.61	0.93				x	Coto	0.6830	Myth	0.3170		
23	2,475	27.79	44.88	20.69	33.63	6.49	1.33	4.89	4.32	2.70	0.90				x	Coto	1.0000				
24	2,539	31.98	46.03	28.17	33.54	14.85	0.95	1.65	0.66	1.38	0.94				x	Anpa	1.0000				
25	2,580	46.86	67.05	46.60	52.60	7.34	8.90	1.85	0.02	2.46	0.84				x	Myca	0.0658	Myyu	0.3415		
26	2,775	46.70	62.39	46.61	53.29	6.55	6.08	1.88	0.05	2.35	0.48		x		x	Myca	0.9999				
27	2,812	25.64	42.01	20.51	34.69	4.72	6.16	2.97	2.84	4.59	0.75				x	Myth	0.9923				
28	2,872	28.79	39.55	28.28	32.97	6.98	1.83	1.45	1.31	1.55	0.68		x		x	Tabr	1.0000				
29	3,017	24.20	44.12	23.08	27.26	6.66	5.33	1.58	2.15	3.02	0.61		x			Lano	0.6558	Tabr	0.2191		
30	3,063	46.03	66.30	46.01	53.68	7.92	8.22	1.80	0.18	2.29	0.72				x	Myca	0.9637				
31	3,353	46.71	64.91	46.66	51.53	6.61	7.58	1.89	0.01	2.49	0.49		x		x	Labl	1.0000				
32	3,794	47.15	68.45	47.15	53.03	6.47	9.89	1.78	0.05	2.65	0.55		x		x	Myca	0.9999				

Filename	Filter	Reference View (Classify Option)					Full File (Sonobatch Option)				
		ByVote	#Maj	#Accpt	MeanClssn	DiscrProb	ByVote	#Maj	#Accpt	MeanClssn	DiscrProb
DAM___20140731_224720	unfiltered	LoF	1	1	None	0.0000	LoF	1	1	None	0.0000
DAM___20140731_224720	5 kHz	LoF	0	0	Tabr	0.9989	LoF	0	0	Tabr	0.9989
DAM___20140731_224720	10 kHz	CotoMyth	2	4	Tabr	0.9998	CotoMyth	2	4	Tabr	0.9998

Figure 6. Sonogram, call characteristics and species classifications of call sequence #224720.

ATTACHMENT C

CALIFORNIA NATURAL DIVERSITY DATABASE FORM

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 07/31/2014

For Office Use Only
Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Myotis thysanodes*

Common Name: fringed myotis

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 1 Subsequent Visit? (●) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # [X] No [ ] Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Steve Norton
Address: BonTerra Psomas, 2 Executive Circle, Suite 175, Irvine, CA 92614
E-mail Address: Steve.Norton@psomas.com
Phone: 714-444-9199

Plant Information

Phenology:

_____ % vegetative _____ % flowering _____ % fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

[ ] wintering [ ] breeding [ ] nesting [ ] rookery [ ] burrow site [ ] lek [ ] other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Los Angeles Landowner / Mgr: USFS (Angeles National Forest), LA County

Quad Name: Mt. Wilson Elevation: 1,280

T____ R____ Sec____, ____¼ of ____ ¼, Meridian: H ( ) M ( ) S ( ) Source of Coordinates (GPS, topo. map & type): Google Earth

T____ R____ Sec____, ____¼ of ____ ¼, Meridian: H ( ) M ( ) S ( ) GPS Make & Model: _____

DATUM: **NAD27** ( ) **NAD83** ( ) **WGS84** ( ) Horizontal Accuracy: _____ meters/feet

Coordinate System: UTM Zone 10 ( ) UTM Zone 11 ( ) ***OR*** Geographic (Latitude & Longitude) (●)

Coordinates: 34° 11' 1.50" N, 118° 1' 7.46" W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

The acoustic recording device was located on top of Santa Anita Dam to the east. A large, open body of water located on the upstream side of the Dam in a steep-walled canyon. The cliffs above the top of the Dam supported southern mixed chaparral.
The species was recorded acoustically recorded as foraging onsite at 9:23 PM.

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent (●) Good ( ) Fair ( ) Poor

Immediate AND surrounding land use: Water storage and flood protection; open space.

Visible disturbances: _____

Threats: _____

Comments:

Determination: *(check one or more, and fill in blanks)*

- [ ] Keyed (cite reference): _____
- [ ] Compared with specimen housed at: _____
- [ ] Compared with photo / drawing in: _____
- [X] By another person (name): Edward W. West, Ph.D.
- [ ] Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	[ ]	[ ]	[ ]
Habitat	[ ]	[ ]	[ ]
Diagnostic feature	[ ]	[ ]	[ ]

May we obtain duplicates at our expense? ( ) yes ( ) no

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 07/31/2014

For Office Use Only
Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Corynorhinus townsendii*

Common Name: Townsend's big-eared bat

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 1 Subsequent Visit? (●) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # [X] No [ ] Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Steve Norton
Address: BonTerra Psomas, 2 Executive Circle,
Suite 175, Irvine, CA 92614
E-mail Address: Steve.Norton@psomas.com
Phone: 714-444-9199

Plant Information

Phenology:

_____ % vegetative _____ % flowering _____ % fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

[ ] wintering [ ] breeding [ ] nesting [ ] rookery [ ] burrow site [ ] lek [ ] other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Los Angeles Landowner / Mgr: USFS (Angeles National Forest), LA County

Quad Name: Mt. Wilson Elevation: 1,280

T____ R____ Sec____, ____¼ of ____ ¼, Meridian: H ( ) M ( ) S ( ) Source of Coordinates (GPS, topo. map & type): Google Earth

T____ R____ Sec____, ____¼ of ____ ¼, Meridian: H ( ) M ( ) S ( ) GPS Make & Model: _____

DATUM: **NAD27** ( ) **NAD83** ( ) **WGS84** ( ) Horizontal Accuracy: _____ meters/feet

Coordinate System: UTM Zone 10 ( ) UTM Zone 11 ( ) ***OR*** Geographic (Latitude & Longitude) (●)

Coordinates: 34° 11' 1.50" N, 118° 1' 7.46" W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

The acoustic recording device was located on top of Santa Anita Dam to the east. A large, open body of water located on the upstream side of the Dam in a steep-walled canyon. The cliffs above the top of the Dam supported southern mixed chaparral.
The species was recorded acoustically recorded as foraging onsite at 9:23 PM.

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent (●) Good ( ) Fair ( ) Poor

Immediate AND surrounding land use: Water storage and flood protection; open space.

Visible disturbances: _____

Threats: _____

Comments:

Determination: *(check one or more, and fill in blanks)*

- [ ] Keyed (cite reference): _____
- [ ] Compared with specimen housed at: _____
- [ ] Compared with photo / drawing in: _____
- [X] By another person (name): Edward W. West, Ph.D.
- [ ] Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	[ ]	[ ]	[ ]
Habitat	[ ]	[ ]	[ ]
Diagnostic feature	[ ]	[ ]	[ ]

May we obtain duplicates at our expense? ( ) yes ( ) no

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 07/31/2014

For Office Use Only
Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Eumops perotis*

Common Name: Western mastiff bat

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 1 Subsequent Visit? (●) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # [X] No [ ] Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Steve Norton
Address: BonTerra Psomas, 2 Executive Circle,
Suite 175, Irvine, CA 92614
E-mail Address: Steve.Norton@psomas.com
Phone: 714-444-9199

Plant Information

Phenology:

_____ % vegetative _____ % flowering _____ % fruiting

Animal Information

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[ ] wintering [ ] breeding [ ] nesting [ ] rookery [ ] burrow site [ ] lek [ ] other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Los Angeles Landowner / Mgr: USFS (Angeles National Forest), LA County

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T____ R____ Sec____, ____¼ of ____ ¼, Meridian: H ( ) M ( ) S ( ) Source of Coordinates (GPS, topo. map & type): Google Earth

T____ R____ Sec____, ____¼ of ____ ¼, Meridian: H ( ) M ( ) S ( ) GPS Make & Model: _____

DATUM: **NAD27** ( ) **NAD83** ( ) **WGS84** ( ) Horizontal Accuracy: _____ meters/feet

Coordinate System: UTM Zone 10 ( ) UTM Zone 11 ( ) ***OR*** Geographic (Latitude & Longitude) (●)

Coordinates: 34° 11' 1.50" N, 118° 1' 7.46" W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

The acoustic recording device was located on top of Santa Anita Dam to the east. A large, open body of water located on the upstream side of the Dam in a steep-walled canyon. The cliffs above the top of the Dam supported southern mixed chaparral.
The species was recorded acoustically recorded as foraging onsite at 9:10 PM.

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent (●) Good ( ) Fair ( ) Poor

Immediate AND surrounding land use: Water storage and flood protection; open space.

Visible disturbances: _____

Threats: _____

Comments:

Determination: *(check one or more, and fill in blanks)*

- [ ] Keyed (cite reference): _____
- [ ] Compared with specimen housed at: _____
- [ ] Compared with photo / drawing in: _____
- [ ] By another person (name): _____
- [ ] Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	[ ]	[ ]	[ ]
Habitat	[ ]	[ ]	[ ]
Diagnostic feature	[ ]	[ ]	[ ]

May we obtain duplicates at our expense? ( ) yes ( ) no

ATTACHMENT D

SAMPLE EXCLUSION DESIGNS

For detailed information on bats in buildings and a list of professional bat excluders, visit Bat Conservation International at: www.batcon.org

Guidelines excerpted from Bat Conservation International (www.batcon.org):

Bats in Buildings: An Information and Exclusion Guide

by
Barbara French, Laura Finn and Mark Kiser
http://www.austinbathospital.com/gotbats.html

Introduction

As primary predators of night-flying insects, bats play a vital role in maintaining the balance of nature. A single little brown bat can catch 1,200 mosquito-sized insects in an hour, and big brown bats are important predators of some of America's most costly crop pests. Cucumber beetles, June beetles, bark beetles, stink bugs, leafhoppers, cutworm moths, corn earworm moths, armyworm moths, termites, assassin bugs, ants, roaches, crickets, and grasshoppers are just some of the many pests known to be consumed by America's bats. Yet, bat populations are in alarming decline due to decades of unwarranted human fear and persecution.

As traditional roosts in trees and caves have been destroyed, many of North America's bats have been forced to seek shelter in man-made structures. An understanding of the habits of these beneficial animals can help solve problems that sometimes develop when bats roost in buildings. The following pages provide details about safe, effective methods for permanently evicting bats from buildings when necessary. These methods help ensure the safety of both humans and bats.

Accidental Intruders

What if you find a bat in your home?

On occasion, a solitary bat may accidentally fly into a home, garage or other building through an open door or window. Such incidents often involve lost youngsters whose primary goal is a safe escape. As long as no direct contact with the bat has occurred, it can be released outside. These bats will usually leave on their own if a window or door to the outside is opened while others leading to the rest of the building are closed. Bats are rarely aggressive, even if chased, but may bite if handled. As with any wild animal, bats should not be touched with bare hands, and anyone bitten should immediately seek medical consultation.

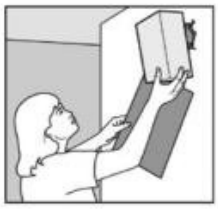
If a bat does not leave your home on its own, its exit can be hastened by waiting until it lands, and then covering it with a small box or other container. Slip a piece of cardboard between the wall and box, slide the bat into the box, then release the bat outside. You may also catch it by hand, using leather work gloves to avoid being bitten. Keep doors and windows to buildings closed, and window screens in good repair, to prevent bats from reentering.

Where do bats roost?

Bats may roost in attics, soffits, louvers, chimneys, under siding, eaves, roof tiles or shingles and behind shutters (see diagram). In sports stadiums and parking garages, bats sometimes roost in expansion joints between concrete beams. They can enter through openings as small as one-half inch in diameter (1.3 cm). Common points of entry include open windows or doors, broken or poorly-fitted screens, loose missing shingles or tiles, places where flashing or boards have come loose and locations where pipes or wiring enter buildings. Openings often occur where walls meet the eaves at the gable ends of an attic, where porches attach to the main part of a house, or where dormers meet the roof. Other points of entry are associated with siding. For example, cracks and crevices are often created where siding forms corners, at places where it meets windows, doors or chimneys (see diagram). Bats can sometimes be detected by the presence of black or brown stains from body oils droppings around cracks or crevices formed by ill-fitting building materials. Bat droppings may also appear on walls, under porches or decks, or on floors beneath dilapidated ceilings. Bat droppings are dark and do not contain any white material. Although they may resemble small hard rodent pellets, bat droppings are soft and easily crushed, revealing shiny insect parts.



or





or



or



Common entry points on homes and buildings include corners, eaves and louvers.

Providing a safe exit for bats

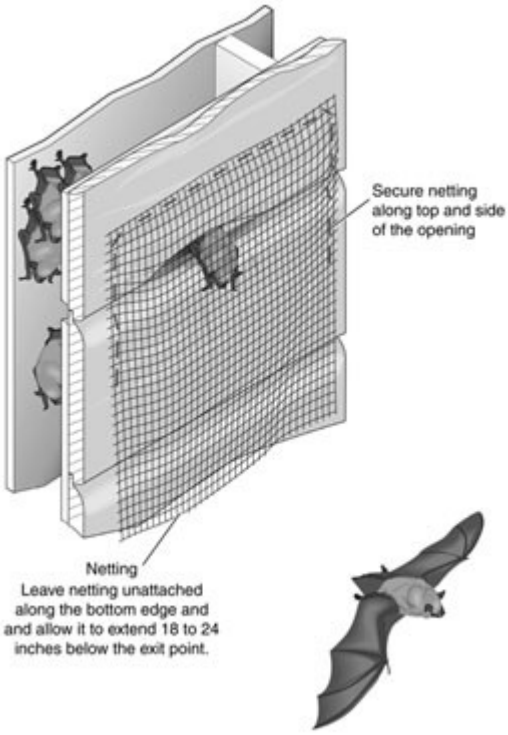
There is little reason to evict bats from buildings where they are not causing a nuisance. However, bats should be prevented from entering human living quarters. This can be accomplished by inspecting the inside of a building for small openings through which bats could enter. All openings connecting the attic or other roosting areas to inside living quarters should be sealed, although entry points on the outside of the building should be left open, allowing bats to exit. Draft-guards should be placed beneath doors to attics; electrical and plumbing holes should be filled with steel wool, caulking or weather-stripping. Bats have small teeth for eating insects; they do not gnaw through wood or other building materials like rodents. Caulking, flashing, screening or insulation can be used to seal most openings on the inside. Expanding urethane foam products should not be used to seal cracks where bats are active, because they can become caught in it. Caulk should also be applied early in the day so that it has time to dry before bats emerge in the evening.

In some instances, noise or odors from large colonies of bats can become a nuisance. When bats must be evicted from a building, netting or tubes that function as one-way valves must be placed over the openings bats use to enter and exit. These one-way valves allow bats to leave, but not reenter the building. Valves may be constructed from lightweight plastic netting (1/6 inch-0.4 cm-or smaller mesh), or plastic pipes or tubes. These exclusion devices should be left in place for five to seven days to ensure all bats have exited. It is not appropriate simply to wait for bats to fly out at night and then seal openings. Not all of the bats leave at the same time, and some bats may remain inside all night. Take weather conditions into consideration when deciding how long to leave the netting or tubes in place; there may be evenings (such as during storms), when no bats exit.

Bats often roost in buildings seasonally, including during maternity periods, and exclusions should not take place until young bats are able to fly. After the young are old enough to fly, all bats can be excluded. The maternity season begins as early as mid-April in the southernmost U.S., mid-June in the northern U.S. and Canada. Young bats are flying and exclusions can resume by late August. In late fall most house-dwellings bats either migrate to warmer climates or enter caves or abandoned mines to hibernate. However, a few species can hibernate in buildings, and in the mildest climates, they may even remain active year-round. If bats are present in cold regions during the winter, exclusions should be postponed until spring when they emerge to feed.

Exclusion is the **ONLY** effective solution for permanently removing bats from buildings. Trapping and relocating is ineffective since bats have excellent homing instincts and simply return, even when released at great distances. The use of pesticides against bats is illegal and counterproductive. Poisoning greatly increases the likelihood of bats coming into contact with people and pets.

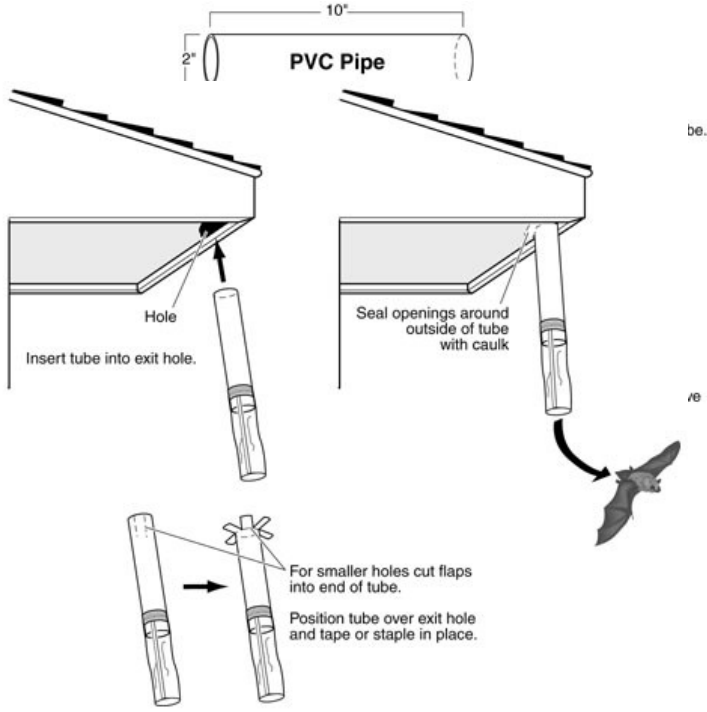
Naphthalene, the active ingredient in moth balls, and ultrasonic devices are often promoted as bat repellents. However, ultrasonic devices are ineffective against bats, and to be effective, naphthalene must be used in such large quantities that it poses a significant health hazard to humans.



Using Netting to Exclude Bats

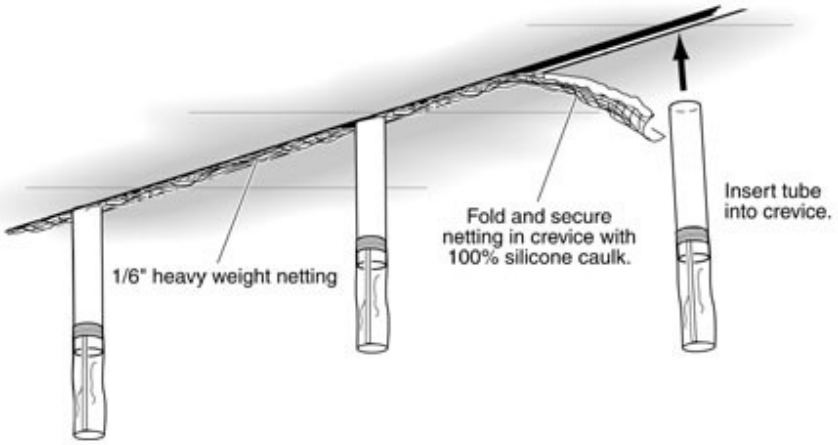
Bats sometimes enter buildings through openings on smooth surfaces of exterior walls or through louvers. In such cases, plastic or lightweight, flexible netting with 1/6 inch (0.4 cm) mesh or smaller, should be secured to the building along the top and sides of the opening as shown in the diagram. It should extend 18 to 24 inches (46 to 61 cm) below the bottom edge of the opening and should remain in place for a minimum of five to seven days to ensure all bats have exited. Then, openings should be permanently sealed with silicone caulking, caulk backing rod, hardware cloth, or heavy-duty netting. In some cases, sealing may require repair or replacement of old, deteriorated wood. When bats are using multiple openings to exit and enter, exclusion material should be placed on each opening unless it can be determined with certainty that all areas used by the bats are connected. If so, some openings can be sealed as described above, and netting can be placed over the openings used by the most bats. Even when all roosting areas are connected, bats will sometimes refuse to use alternative exits. In this case, exclusion material must be installed over all exits. After this has been done, watch to make sure the bats are able to exit safely. If they do not appear to be exiting, or appear to be having trouble doing so, make adjustments or add new valves as needed.

Using PVC pipe or Empty Caulking Tubes to Exclude Bats



There are a number of situations in which tubes work best as bat exclusion devices. Examples include openings used by bats on buildings constructed from materials that do not create smooth exterior walls, such as those found on brick or stone houses, and log cabins. Tubes also work best for holes located at corners where walls meet and on horizontal surfaces such as soffits. Exclusion tubes should have a 2-inch (5 cm) diameter and be approximately 10 inches (25.4 cm) in length. Exclusion devices can be made from PVC pipe or flexible plastic tubing. According to Laura Finn of Fly by Night, Inc., empty caulking tubes work well for this purpose. When using caulking tubes, both ends must be cut out. Use of a flexible plastic tube makes it easy to either squeeze one end of the tube so that it fits into a crevice, or cut one end of the tube into flaps that can be fit over an opening and stapled, nailed, or taped to the building (see diagram). Bats are unable to cling to the smooth surface of these tubes. Do not let the tube project more than 1/4-inch (6 mm) into the opening, ensuring that bats can easily enter the tube to exit. Caulking tubes must be thoroughly cleaned before use to prevent bats from sticking to wet caulk and because dried caulk creates a roughened surface, making it possible for bats to re-enter. Once the tube has been inserted over the hole, a piece of light weight, clear plastic can be taped around the end of the tube that projects to the outside (see diagram) to further reduce the likelihood of bats reentering, though this is typically not necessary.

Plastic sleeves collapse on themselves, preventing bats from reentering once they have crawled out through the tube. After the tube has been inserted into or over the opening used by bats, any spaces between the outer rim of the tube and the building must be sealed shut. Be sure also to seal shut any other openings in the building that bats could use to reenter. Leave the tube in place for a minimum of five to seven days to ensure all bats have exited. After the bats have been excluded, the tube should be removed and the opening permanently sealed.



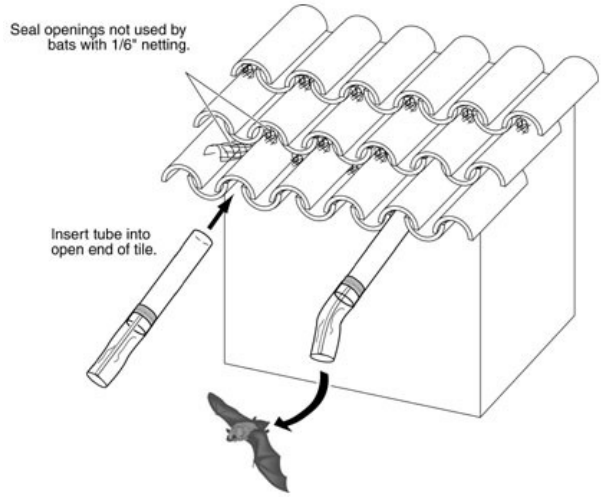
Some concrete parking garages have lengthy crevices used by bats. Multiple exclusion tubes will need to be placed every few feet along the length of each crevice; spaces between the tubes should be closed with heavy-weight (1/6 inch mesh) netting (see diagram). Fold the netting so that it fits into the crevice, and caulk it in place as shown in the diagram. The same procedure can be used in lengthy crevices created where flashing has pulled away from a wall.

Plastic tubes also work best for excluding bats from under Spanish (clay) or concrete roofing tile. Bats typically enter through open ends of the tiles on the lowest row, or through openings created where tiles overlap one another. Observe the building when bats fly out in the evening to determine which openings they use. Exclusion tubes should be placed in these openings (see diagram). Multiple exclusion tubes are often needed to exclude bats from problem roofs. Collapsible plastic sleeves should also be attached to the ends of the tubes. Heavy weight netting can be folded and inserted into openings where tiles overlap *(see diagram)*.

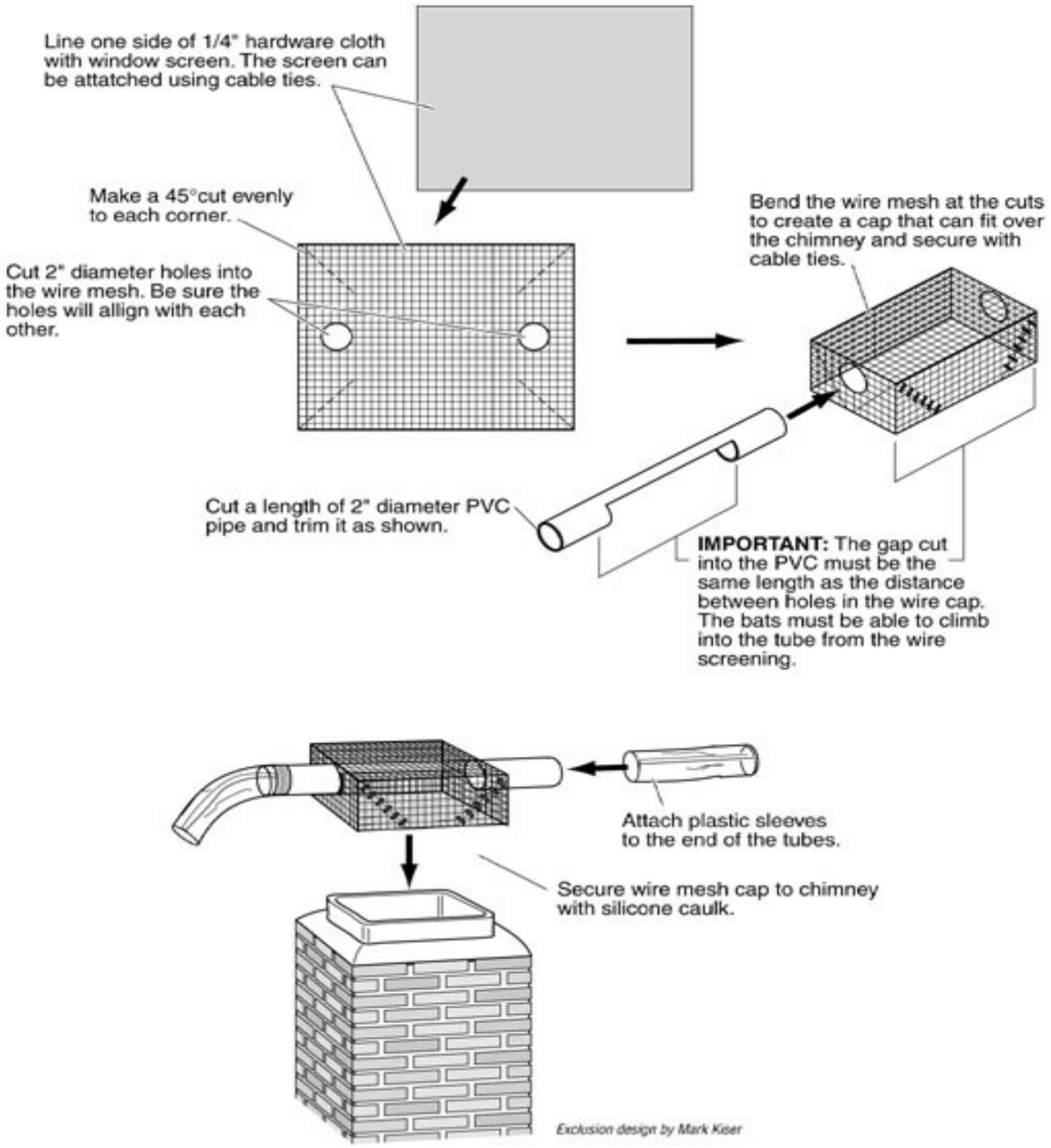
Tiles are sometimes temporarily removed to replace a layer of tar paper. When this is done, a layer of coarse fiberglass batting can be put over the tar paper and under the tiles. Constantine (1979) found that the fiberglass layer repelled bats, although he recommended against use of batting within 6 inches (15 cm) of open tile ends to prevent birds from pulling it out for nesting material.

Bats may also enter a building through spaces beneath corrugated or galvanized roofing sheets. These roofs can be sealed with a variety of materials such as caulk backing rod during months when bats are not present, or after they have been excluded from a building by use of exclusion tubes.

Special modifications may be needed when bats roost in chimneys or in separations between chimneys and roofs. If bats are roosting inside the chimney, construct a wire cage from 1/4-inch hardware cloth lined with window screen. A section of PVC pipe can be cut and then inserted through holes cut into the sides of the wire cage *(see diagram)*. Although bats are able to simply drop down and out of a vertically placed tube that extends below the roost, they are not able to grip the slick surface to crawl out if the tube extends upward above the roost. Therefore, the tubes should project



horizontally or down. A collapsible plastic sleeve should be placed over the ends of all exclusion tubes used on chimneys. Once the bats have been excluded, a chimney cap should be installed.



Bats Roosting on Porches at Night

Bats sometimes roost on porches or under overhangs briefly during the night while they digest the insects they have eaten. Non-toxic aerosol dog or cat repellents may be used to discourage bats from roosting in these areas. The spray should be applied by day when bats are not present (Aerosol repellents are not an adequate substitute for exclusion in the case of day roosts and should never be applied when bats are in a roost.) Mylar balloons or strips of aluminum foil hung from the porch ceiling and allowed to move in the breeze may also discourage bats from roosting in that area.

Bat Houses

It's always a good idea to provide bats with a new place to roost. For information on building or purchasing bat houses visit the North American Bat House Project Web site at www.batcon.org/bhra. You can also purchase *The Bat House Builder's Handbook* or the *Building Homes for Bats* video through the BCI catalog.

NOTE: For those residing in the United Kingdom, please note that bat exclusion without prior notification to the proper authorities is a punishable offense. The proper authorities to seek guidance from include: English Nature, Scottish Natural Heritage, The Countryside Council for Wales, or the Countryside and Wildlife Branch of the Department of the Environment in Northern Ireland.

ATTACHMENT J

JURISDICTIONAL DELINEATION REPORT

BonTerra PSOMAS

Jurisdictional Delineation Report

Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California

Prepared for
Los Angeles County Flood Control District
900 South Fremont Avenue
Alhambra, California 91803-1331

Prepared by
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October 15, 2014

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EXECUTIVE SUMMARY

The purpose of this report is to provide baseline data concerning the type and extent of jurisdictional resources for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project (hereinafter referred to as the "proposed Project"). Jurisdictional resources considered for this report include wetlands and non-wetland "waters of the U.S." regulated by the U.S. Army Corps of Engineers (USACE); waters regulated by the Los Angeles Regional Water Quality Control Board (RWQCB); as well as the bed, bank, and channel of all lakes, rivers, and/or streams (and associated riparian vegetation), as regulated by the California Department of Fish and Wildlife (CDFW).[1]

The jurisdictional delineation work was performed by BonTerra Regulatory Specialist Gary Medeiros and Regulatory Technicians David Hughes and Allison Rudalevige on April 23 and 25, 2013. The proposed Project is located in the cities of Arcadia and Monrovia, Los Angeles County, California on the U.S. Geological Survey's (USGS') Mount Wilson 7.5-minute quadrangle map.

Wetland features were analyzed based on the USACE's three-parameter approach in which wetlands are defined by the presence of hydrophytic vegetation, hydric soils, and the presence of wetland hydrology indicators. The limits of non-wetland "waters of the U.S." were identified by the presence of an ordinary high water mark (OHWM). The limits of CDFW jurisdictional waters were identified as the top of bank or the outer drip line of riparian vegetation.

Based on the results of the jurisdictional delineation field work, it was determined that the total jurisdictional resources in the Study Area are as follows:

- **USACE Jurisdiction.** 19.421 acres of non-wetland "waters of the U.S.".
- **RWQCB Jurisdiction.** 19.421 acres.
- **CDFW Jurisdiction.** 26.985 acres.

Based on the current limits of project disturbance, the following jurisdictional resources will be within the proposed Project Work Areas:

- **USACE Jurisdiction.** 3.392 acres.
- **RWQCB Jurisdiction.** 3.392 acres.
- **CDFW Jurisdiction.** 3.708 acres.

[1] The California Department of Fish and Game (CDFG) changed its name to the California Department of Fish and Wildlife (CDFW) effective January 1, 2013.

The following permits, agreements, and certifications, which involve work within areas under the jurisdiction of the USACE, the RWQCB, and the CDFW, are expected to be required before Project activities are initiated:

- USACE Section 404 Permit;
- RWQCB Section 401 Water Quality Certification; and
- CDFW Section 1602 Lake or Streambed Alteration Agreement (LSAA).

Please note that if the project involves any proposed modifications to an existing Corps project (either federally or locally maintained) that goes beyond those modifications required for normal operation and maintenance requires approval under 33 USC 408 hereafter referred to as Section 408.

1.0 INTRODUCTION

This Jurisdictional Delineation Report (report) was prepared for the Los Angeles County Flood Control District (LACFCD) to provide baseline data concerning the type and extent of resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW),[2] and the Regional Water Quality Control Board (RWQCB) for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project (hereinafter referred to as the "proposed Project"). This report is based on the jurisdictional delineation surveys performed on April 23 and 25, 2013.

1.1 PROJECT LOCATION AND DESCRIPTION

The Project is located in the cities of Arcadia and Monrovia, Los Angeles County, California. The Study Area for the proposed Project extends along Santa Anita Wash from just upstream of Santa Anita Dam (Dam) to the Santa Anita Debris Dam (Debris Dam) adjacent to Highland Oaks Drive (Exhibit 1). The Study Area is approximately 1.5 miles long and 115 acres total. The Study Area is located on the U.S. Geological Survey's (USGS') Mount Wilson 7.5-minute topographic quadrangle of the San Bernardino Meridian at Township 1 North, Range 11 West, Sections 10 and 15 (Exhibit 2). It is within the 831-square-mile Los Angeles Watershed (Hydrologic Unit Code 18070105). Open space in the City of Arcadia's Wilderness Park (Wilderness Park) and the Angeles National Forest occur north and east of the Study Area.

The Project has multiple components, including the Dam, Headworks and Wilderness Park Culvert Crossing, and Debris Dam.

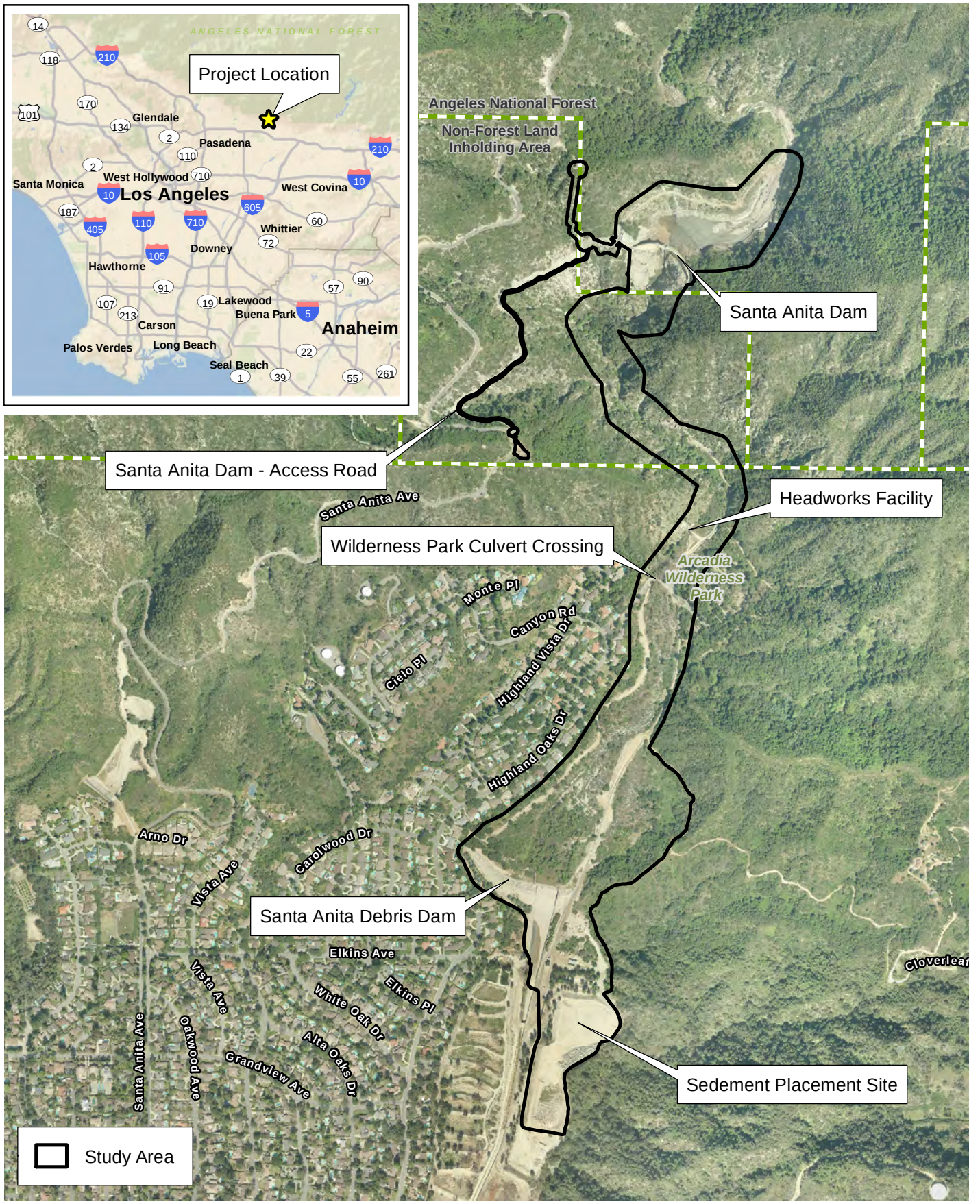
The Project would improve the LACFCD facilities to better reduce flood risk to downstream communities by modifying the Dam spillway to safely pass the Probable Maximum Flood (PMF) and remediate seismic safety issues at the Dam and Debris Dam. It would also enhance the sustainability of the local water supply and increase recharge to the groundwater basin by over 500 acre feet per year (afy) by restoring storage capacity at the Debris Dam, rehabilitate the Headworks for more reliable diversion of stormwater runoff to the spreading grounds, and modernize facilities and implement new monitoring and control systems. The Project would also improve all-weather access to the Arcadia Wilderness Park by constructing a new culvert crossing. The following describes each of the Project's components.

Dam

The Dam would be structurally altered to accommodate a new spillway with sufficient capacity to pass the probable maximum flood (PMF) of 26,100 cubic feet per second (cfs) in order to reduce the risk of Dam failure from uncontrolled overtopping during major storm events. The proposed improvements to the Dam would not result in changes to the existing maximum water surface elevation restrictions; therefore, the reservoir's capacity to retain water would not be altered by Project implementation.

The spillway modification would consist of cutting a "notch" in the Dam crest to allow the PMF to overtop in a controlled manner. The existing auxiliary spillway bowl and trash rack and existing emergency crest spillway would be removed. The proposed notch would be centered on the crest of the Dam, similar to the existing emergency crest spillway, and would require concrete removal from the Dam. An existing spillway on the far western edge of the Dam would remain and be

[2] The California Department of Fish and Game (CDFG) changed its name to the California Department of Fish and Wildlife (CDFW) effective January 1, 2013.



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Study Area

Exhibit 1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

1,000 500 0 1,000 Feet

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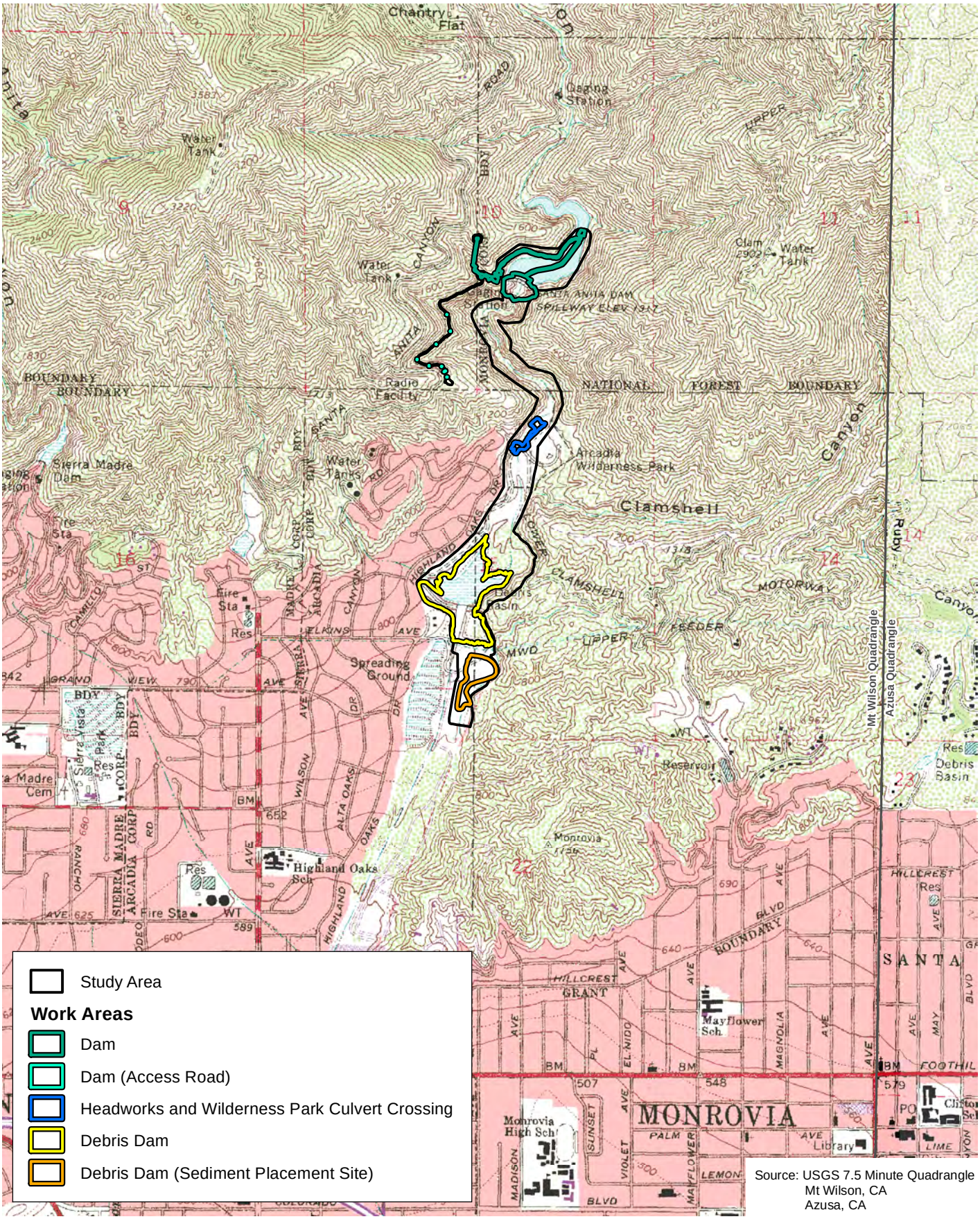

Local Vicinity

Exhibit 2

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

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unaltered by the Project; however, the existing auxiliary orifice spillway beneath the proposed new spillway would be removed.

A new pedestrian bridge would be constructed over the notch, and the existing hoist system would be upgraded to have a higher load capacity and re-aligned to accommodate the new spillway, including relocation of the lower hoist tower along the Dam crest (and potentially cantilevered of the back side, if necessary. The proposed improvements would not change the height of the Dam; the crest of the Dam will remain at an elevation of 1,325 feet above mean sea level (msl) and the parapet wall would remain at an elevation of 1,328 feet above msl.

To better manage stormwater runoff and to ensure reliability and efficiency of operations, six of the existing valves will be replaced (three control valves and three backup valves, along with new electrical and control systems. The Dam's structural concrete would be repaired to ensure that it meets acceptable standards consistent with the required seismic performance of the Dam.

The downstream canyon walls and the toe of the Dam would be re-armored with additional reinforced gunite or equivalent concrete erosion protection to dissipate the energy from the overtopping water as the flow cascades through the spillway notch and the orifice spillway or sluiceway. The flow would be directed onto the downstream armoring before flowing into the channel downstream of the Dam. The new re-amoring would reinforce the existing armoring that extends approximately 100 feet downstream from the toe of the Dam. The re-armoring would be held in position with tie-back anchors to be drilled and grouted into the bedrock. The tie-ins for the re-armoring may include superficial rock excavation, grading, and subsurface pressure grouting. The color of the material used for re-armoring would be the same as the existing concrete.

The Project would also include improvements to ancillary facilities of the Dam. The existing garage/storage shed would be demolished and replaced with a new three-bay garage (the third bay would house a new back-up generator). Additionally, the existing Dam Operator's house would be removed and replaced with a helipad to provide aerial access to the Dam in the event of an emergency. It is anticipated that the helipad would only be used one or two times per year. The addition of a helipad would allow for improved emergency access to the Dam, as well as the other facilities downstream, especially if access roads get obstructed. The existing relief quarters and control house would remain to serve as an office. Although the Dam Operator would no longer reside at the Dam, he/she would still be on-site daily and available on-call after hours. The Project would include remote control capabilities that provide redundant control options from multiple off-site locations. The Dam also has a built-in safety mechanism to automatically pass water through the Dam once the reservoir surface level reaches the DSOD restriction.

The existing potable water system that serves the Dam site would be replaced. The water system currently consists of a 60,000 gallon upper tank located off Chantry Flats Road that connects to two 5,000 gallon lower tanks located near the Dam access road via a pipeline that runs down the mountainside. The slope adjacent to the upper tank has erosion damage and would be repaired as part of the Project. To repair the slope, an approximately 216 square foot eroded gully located near the tank's foundation would be grubbed and stabilized with engineered fill and geotextile fabric, or the installation of support piles. The exposed portions of the existing water pipeline would be removed while any underground portions would be capped and abandoned in place. The replacement pipeline would run along the same general alignment as the existing pipeline. The two lower tanks would be removed and would not require replacement.

The existing manual swing gate at Chantry Flats Road that provides secured entry to the Dam access road would be replaced with a new electric slide gate. In order to provide electricity to the

gate and new lighting/intercom systems, a power line would be strung on up to seven new power poles to be installed along the outer edge of the Dam's access road, or where possible, in conduit along the inner slope of the access road.

Headworks and Wilderness Park Culvert Crossing

Headworks

The Headworks structure would be replaced and the associated earthen levee would be partially reconstructed to better manage the diversion of flows to the downstream spreading grounds and the downstream Debris Dam. A rehabilitation of the Headworks is needed to protect facilities from stormwater damage and to direct stormwater runoff to the spreading grounds for groundwater recharge.

Redevelopment of the Headworks would include reconstruction of the levee to ensure it can withstand flows produced by a 25-year storm event and replacement of the existing tainter gate (used to divert flows) with a new rubber diversion structure. The new rubber diversion structure would be a pneumatically operated (through the use of compressed air or compressed gas), bottom hinged, spillway gate system.

The majority of the existing Headworks structure would be demolished and removed, including the tainter gate, supporting walls, catwalk, and keys. The new facility would increase the width of the structure by approximately 20 feet in order to house the 34-foot rubber diversion structure. Operation of the rubber diversion structure would result in the retention of waters behind the levee to allow for the diversion of flows through the intake gates and into the existing 30-inch reinforced concrete pipe (RCP) leading to the Santa Anita Spreading Grounds and/or Sierra Madre Spreading Grounds. The pool created by the new rubber diversion structure would remain the same as under existing conditions. Construction of the new diversion structure would require work in the creekbed extending approximately 25 feet downstream of the Headworks, including the placement of new riprap on the downstream side.

The rehabilitation of the Headworks would also include a new control system, including remote operation capabilities, to increase efficiency of water conservation operations. Currently, the response time required for County personnel to drive to the Headworks and manually operate the tainter gate, along with the limited flow rates that can be bypassed, results in the loss of a water conservation opportunity. A new control system integrated with the control system of the other Project components would optimize water conservation. A control house for the rubber diversion structure would be constructed on the other side of the channel next to the access road.

The earthen levee would be reinforced and raised approximately five feet higher to match the height of the Headworks structure by removing and under-excavating the existing levee and rebuilding the new levee using a combination of imported fill and suitable material from the existing levee. It would then be recompacted to the proposed height. The access road leading to the facility would be modified to match the height of the reinforced earthen levee. The existing riprap on the upstream side of the levee would be reinforced. A subsurface conduit would be installed along the length of the levee to connect the rubber diversion structure to the control house on the other side.

Wilderness Park Culvert Crossing

In addition to the improvements at the Headworks, armoring of the roadway and construction of a replacement culvert crossing to the Wilderness Park is needed to ensure that the structure can

withstand flows produced by a larger storm event. The existing culvert crossing located approximately 450 feet downstream of the Headworks, including the concrete slab and corrugated metal culverts, would be removed and replaced with a new crossing structure.

The new culvert crossing may be wider than the existing structure by up to approximately ten feet. The new culvert crossing would be built on top of a new abutment and would be designed with a permanent guard rail and flexible pavement driving surface adequate for emergency vehicles. The new roadway elevation of the culvert crossing would be raised above the existing roadway elevation by approximately 4.5 feet to accommodate higher flows. Approximately 1,800 square feet of the roadways leading to and from the Culvert Crossing would be repaved and sloped to join the existing grade.

Approximately 30 feet of the channel upstream and downstream of the existing Culvert Crossing would be grubbed and graded to accommodate the new Culvert Crossing. It is anticipated that adequate vehicular and pedestrian access could be provided to the Arcadia Wilderness Park for the majority of the construction period for the Culvert Crossing, with only occasional closures required for periods of about a week or less at any give time during construction. Notification of any temporary closures would be posted at the entrance to the Wilderness Park. Those brief closures would avoid important events at the Wilderness Park, such as the overnight Boy Scout campouts every Friday and Saturday and youth day camps every weekday between mid-June to late-August. However, in order to provide a conservative analysis for impacts to Biological Resources (see Section 4.4 of this MND), the assembly of a temporary bypass crossing located north of the existing Culvert Crossing, which would require removal of a sycamore tree, has been assumed and assessed, to account for the event that the temporary crossing is used. Therefore, access to the Wilderness Park would be maintained throughout construction with minimal interruption to access.

Two existing sycamore tree located and within this area, a temporary crossing would be implemented to maintain vehicular access until construction is complete. Therefore, access to the Wilderness Park would be maintained throughout construction of the culvert crossing through the use of the temporary bridge. Two existing sycamore trees located adjacent to the crossing on the eastern shore of the Wash, south of the culvert crossing, would need to be removed. One sycamore located on the eastern shore of the Wash, north of the culvert crossing, may need to be removed, depending on whether or not the temporary bypass crossing is installed. In order to provide a conservative analysis, this technical report assumes that all three of the upstream and downstream sycamore trees would be removed.

The LACFCD may transplant the root ball(s) of the sycamores to a suitable riparian location, and/or utilize the woody debris from the sycamore to enhance habitat value at another nearby location, if determined to be feasible and if approved by the County and other appropriate parties. In addition, new sycamore trees would be planted within a 100-foot radius of the original location of any removed existing trees.

New riprap would be installed upstream and downstream of the culvert crossing. The roadways leading to and from the culvert crossing would be armored, 36 feet on the upstream side and 84 feet on the downstream side, to withstand flows and sloped to join the existing grade. The existing water and sewer lines that run through the current culvert crossing would need to be relocated to the new height of the structure. The sewer force main is on the downstream surface of the Culvert Crossing and the water line is on the upstream surface of the Culvert Crossing. Additionally, the fire hydrant, vault, water valve and standpipe would be demolished and relocated approximately 15 feet to the north in the case that the temporary bypass crossing is utilized. All utility trenching and relocations would remain within the area anticipated for impacts by the culvert

crossing construction activities, and there would be no changes in water/sewer quantities or demands as a result of the Project.

Debris Dam

Remediation of the seismic deficiencies at the Debris Dam would involve minor improvements to the existing structures, including the intake tower and embankment. As a result of the loss of water conservation capacity from the California Department of Water Resources, Division of Safety of Dams (DSOD) restrictions on the Dam, there is an increased need to capture as much stormwater runoff as possible in facilities below the Dam. As a result, the Debris Dam would also be enlarged by raising the existing spillway by 4 feet. Remediating the seismic deficiencies at the Debris Dam would result in the DSOD removing the operational restrictions on the facility, thereby restoring 119 acre-feet of water conservation capacity. Enlarging the Debris Dam would create an additional 40 acre-feet of additional storage capacity, for a total of 159 acre-feet. When captured stormwater is released from the Dam to the spreading grounds for groundwater recharge, the Debris Dam can then capture more runoff, which would allow for water storage capacity multiple times in a single season depending on the frequency, duration, and intensity of storm events.

The intake tower located in the Debris Dam is unable to resist seismic loading and would be strengthened or replaced. The improved intake tower would be connected to the existing 48-inch outlet pipe (being lined as part of this project). The outlet pipe has an existing junction box which is used to deliver water either into the spillway channel or into the spreading grounds. The upstream and downstream portions of the Debris Dam embankment and alluvial foundation material that are subject to potential liquefaction would be reinforced with structural buttressing. Currently, a cross-section of the Debris Dam resembles a triangle (e.g. sloped sides on the upstream and downstream sides of the dam) with a flat top (e.g. flattened to accommodate vehicular access).The top of the embankment ranges from an elevation of 796 feet above msl at its center to an elevation of 811 feet above msl at the western edge. The construction activities would involve the removal of the existing rip-rap exterior surface on portions of both the upstream (approximately 0.69 acre) and downstream (approximately 0.89 acre) slopes. Engineered fill materials beneath the riprap would be excavated and removed, and an engineered buttress would be constructed. Upon completion of construction activities, the sloped upstream and downstream surfaces of the Debris Dam would be reconfigured into a single stair-stepped terrace. The surface of the Debris Dam would be completed with a rip-rap similar to the existing condition.

As part of the improvements, six non-native deodar cedar trees (*Cedrus deodara*) located at the downstream toe of the embankment would be removed as mandated by DSOD to ensure the structural integrity of the Debris Dam.

A new automated outlet gate and control system would be constructed to modernize operations and to ensure compatibility with other Project components. Upon completion of these improvements, DSOD would issue a new certificate for the facility and remove the current operating restriction on the Debris Dam, which would increase the Debris Dam's available and allowable water conservation storage capacity from 0 acre-feet to 119 acre-feet.

In addition to the DSOD design approval requirements, the modification of the Debris Dam requires approval under 33 USC 408 (hereafter referred to as Section 408), which requires obtaining a permit from the U.S. Army Corps of Engineers (USACE). Under the terms of Section 408, any proposed modification to a USACE facility requires a determination that the proposed alterations is not injurious to the public interest and will not impair the usefulness of the facility.

Consultation with the USACE will be required to determine whether the modifications would be considered a "Minor" (Minor 408) or "Major" (Major 408) Modification.

An existing disturbed area south of the Debris Dam would be used as a Sediment Placement Site.

1.2 REGULATORY AUTHORITY

1.2.1 Summary of Regulations

U.S. Army Corps of Engineers

The USACE Regulatory Branch regulates activities that discharge, dredged or fill materials into "waters of the U.S." under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all "waters of the U.S." where the material (1) replaces any portion of a "waters of the U.S." with dry land or (2) changes the bottom elevation of any portion of any "waters of the U.S.". These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these Waters. The selection of disposal sites for dredged or fill material is done in accordance with Section 404(b)(1) guidelines, which were developed by the U.S. Environmental Protection Agency (USEPA).

Waters of the United States

"Waters of the U.S." can be divided into 3 categories: territorial seas, tidal waters, or non-tidal waters. The term "waters of the U.S." is defined by the *Code of Federal Regulations* (CFR, Title 33, Navigation and Navigable Waters; Part 328, Definition of waters of the United States; §328.3, Definitions) and includes:

1. All waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide.
2. All interstate waters including interstate wetlands.
3. All other waters such as intrastate lakes, rivers, or streams (including intermittent streams); mudflats; sand flats; wetlands; sloughs; prairie potholes; wet meadows; playa lakes; or natural ponds where the use, degradation, or destruction of which could affect interstate or foreign commerce.
4. All impoundments of waters otherwise defined as "waters of the U.S." under the definition.
5. All tributaries of waters identified above.
6. The territorial seas.
7. All wetlands adjacent to waters (other than waters that are themselves wetlands) identified above.

Ordinary High Water Mark

The landward limit of tidal "waters of the U.S." is the high-tide line. In non-tidal waters where adjacent wetlands are absent, jurisdiction extends to the ordinary high water mark (OHWM). In the absence of wetlands in non-tidal waters, the extent of jurisdictional limits is determined by the OHWM. The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence

of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR §328.3[e]). The OHWM limits will be further refined to define the "low flow channel" and extent of the "Active Floodplain" in accordance with the provisions of *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual* (Lichvar and McColley 2008); *Ordinary High Flows and the Stage-Discharge Relationship in the Arid West Region* (Curtiset al. 2011); and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010).

Wetlands

A wetland is a subset of jurisdictional waters and is defined by the USACE and the USEPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR §328.3[b]). Wetlands generally include swamps, marshes, bogs, and areas containing similar features. The definition and methodology for identifying wetland resources can be found in the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008c), a supplement to the USACE's *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). The methodology contained in this supplement was used to identify the type and extent of wetland resources associated with the proposed Project.

On June 19, 2006, a majority of the U.S. Supreme Court overturned 2 Sixth Circuit Court of Appeals decisions, finding that certain wetlands constituted "waters of the U.S." under the CWA. Justice Scalia argued that "waters of the U.S." should not include channels through which water flows intermittently or ephemerally, or channels that periodically provide drainage for rainfall. He also stated that a wetland may not be considered "adjacent to" remote "waters of the U.S." based on a mere hydrologic connection. On June 5, 2007, the USACE published a memorandum that provides guidance to both the USEPA regions and the USACE districts that implement the Supreme Court's decision in the Rapanos cases (which address the jurisdiction over "waters of the U.S." under the CWA) (USACE 2007a).[3] The memorandum includes a chart that summarizes its key points, which is intended to be used as a reference tool along with a complete discussion of issues and guidance furnished throughout the memorandum.

In summary, the USACE and the USEPA will assert jurisdiction over the following waters: (1) traditional navigable waters (TNW); (2) wetlands adjacent to a TNW; (3) relatively permanent, non-navigable tributaries of a TNW that typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and (4) wetlands that directly abut such tributaries.

The USACE and the USEPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: (1) non-navigable tributaries that are not relatively permanent; (2) wetlands adjacent to non-navigable tributaries that are not relatively permanent; and (3) wetlands adjacent to but that do not directly abut a relatively permanent, non-navigable tributary.

The USACE and the USEPA generally will not assert jurisdiction over the following features: (1) swales or erosional features (e.g., gullies or small washes characterized by low volume, infrequent, or short duration flow) and (2) ditches (including roadside ditches) excavated wholly within and draining only uplands and that do not carry a relatively permanent flow of water.

[3] Consolidated cases: *Rapanos v. United States* and *Carabell v. United States* refer to the U.S. Supreme Court's decision concerning USACE jurisdiction over "waters of the U.S." under the CWA.

The USACE and the USEPA will apply the significant nexus standard defined as follows:

1. A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs.
2. A significant nexus includes consideration of hydrologic and ecological factors.

Regional Water Quality Control Board

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB's jurisdiction extends to all "waters of the State" and to all "waters of the U.S.", including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide "certification that there is reasonable assurance that an activity which may result in the discharge to 'waters of the U.S.' will not violate water quality standards". Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the 9 RWQCBs' Basin Plans.

The Porter-Cologne Act provides the State with very broad authority to regulate "waters of the State" (which are defined as any surface water or groundwater, including saline waters). The Porter-Cologne Act has become an important tool in the post-SWANCC (Solid Waste Agency of Northern Cook Counties vs. Unites States Corps of Engineers) and Rapanos era with respect to the State's authority over isolated waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a "Report of Waste Discharge" (ROWD) when there is no federal nexus, such as under Section 404(b)(1) of the CWA. Although "waste" is partially defined as any waste substance associated with human habitation, the RWQCB interprets this to include fill discharge into water bodies.

<u>Regional Water Quality Control Plans</u>

There are 9 RWQCBs in California. The Study Area is located within RWQCB Region 4, the Los Angeles Region. The State Water Resources Control Board (SWRCB) and the RWQCB have adopted a Water Quality Control Plan (or "Basin Plan") for this region. The Basin Plan contains goals and policies, descriptions of conditions, and proposed solutions to surface and groundwater issues. The Basin Plan also establishes water quality standards for surface and groundwater resources and includes beneficial uses and levels of water quality that must be met and maintained to protect these uses. These water quality standards are implemented through various regulatory permits pursuant to CWA Section 401 for Water Quality Certifications and Section 402 for Report of Waste Discharge permits.

The Los Angeles Basin Plan indicates that the Study Area is located within the Los Angeles-San Gabriel Hydrologic Unit, Raymond Hydrologic Area, and Santa Anita Hydrologic Subarea (HSA). The Basin Plan provides Water Quality Objectives for Santa Anita Wash above the Santa Anita spreading grounds (Table 1).

TABLE 1
WATER QUALITY OBJECTIVES FOR SANTA ANITA WASH

Water Quality Objectives (mg/L)					
Total Dissolved Solids	**Sulfate**	**Chloride**	**Boron**	**Nitrogen**	**Sodium Adsorption Ratio**
250	30	10	–[a]	–[b]	–[a]

mg/L: milligrams per liter

[a] Agricultural supply is not a beneficial use of the surface water in the specified reach.
[b] site-specific objectives have not been determined.

Source: RWQCB 1994 (Table 3-8).

The Basin Plan identifies a number of beneficial uses, some or all of which may apply to a specific HSA, including: Municipal and Domestic Water Supply (MUN) waters; Agricultural Supply (AGR) waters; Industrial Process Supply (PROC) waters; Industrial Service Supply (IND) waters; Groundwater Recharge (GWR) waters; Freshwater Replenishment (FRSH) waters; Navigation (NAV) waters; Hydropower Generation (POW) waters; Water Contact Recreation (REC1) waters; Non-Contact Water Recreation (REC2) waters; Commercial and Sport Fishing (COMM) waters; Aquaculture (AQUA) waters; Warm Fresh Water Habitat (WARM) waters; Cold Fresh Water Habitat (COLD) waters; Inland Saline Water Habitat (SAL) waters; Estuarine Habitat (EST) waters; Wetland Habitat (WET) waters; Marine Habitat (MAR) waters; Wildlife Habitat (WILD) waters; Preservation of Biological Habitats (BIOL) waters; Rare, Threatened or Endangered Species (RARE) waters; Migration of Aquatic Organisms (MIGR) waters; Spawning, Reproduction and Development (SPWN) waters; and Shellfish Harvesting (SHEL) waters. Beneficial uses are defined in the Porter-Cologne Act as those uses of water that are necessary for tangible and intangible economic, social, and environmental benefits.

Beneficial or potential beneficial uses associated with the HSA encompassing the Study Area are described in detail below (RWQCB 1994); beneficial uses not described below do not apply to the HSA covering the Study Area.

- **MUN** waters support community, military, or individual water supply systems including, but not limited to, drinking water supply. Water from Santa Anita Wash is diverted at the mouth of Santa Anita Canyon for irrigation (LACDPW 2013).
- **GWR** waters are used for natural or artificial recharge of groundwater for purposes of future extraction; maintenance of water quality; or for halting saltwater intrusion into freshwater aquifers. Water from Santa Anita Wash is diverted at the Santa Anita Headworks by the City of Sierra Madre and LACDPW for spreading in the Sierra Madre Spreading Grounds and at the mouth of Santa Anita Canyon (LACDPW 2013).
- **REC1** waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, whitewater activities, fishing, and use of natural hot springs. Please note that while this beneficial use designation is assigned to surface water bodies in this Region, it should not be construed as encouraging recreational activities. Fishing may occur in the reservoir above the Dam.
- **REC2** waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking; sunbathing; hiking;

beachcombing; camping; boating; tidepool and marine life study; hunting; sightseeing; and aesthetic enjoyment in conjunction with the above activities. Please note that, while this beneficial use designation is assigned to surface water bodies in this region, it should not be construed as encouraging recreational activities. Public use adjacent to waters in the Study Area is present in Wilderness Park.

- **WARM** waters support warm water ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, or wildlife (including invertebrates). The Study Area provides suitable habitat for a variety of aquatic species.
- **COLD** waters support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife (including invertebrates). Deeper waters in the reservoir provide cold water habitat for a variety of aquatic species.
- **WILD** waters support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife. A variety of wildlife species have been observed utilizing habitat in the Study Area. One California Species of Special Concern, two-striped garter snake (*Thamnophis hammondii*), was observed in the Study Area (BonTerra 2012).
- **RARE** waters support the habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species designated under State or federal law as Rare, Threatened, or Endangered. The Study Area provides suitable or marginally suitable habitat for federally and/or State-listed species; however, no listed species have been observed during focused surveys of the Study Area.
- **SPWN** waters support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife. Green sunfish (*Lepomis cyanellus*) and rainbow trout (*Oncorhynchus mykiss*) were observed during focused fish surveys of the Study Area (BonTerra 2012).
- **WET** waters support wetland ecosystems including, but not limited to, preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife, and other unique wetland functions that enhance water quality, such as providing flood and erosion control, stream bank stabilization, and filtration and purification of naturally occurring contaminants. The Dam and the spreading grounds provide flood control for downstream ecosystems and communities.

California Department of Fish and Wildlife

The CDFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to *California Fish and Game Code* (§§1600–1616). Activities of State and local agencies as well as public utilities that are project proponents are regulated by the CDFW under Section 1602 of the *California Fish and Game Code;* this section regulates any work that will (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Because the CDFW includes streamside habitats under its jurisdiction that, under the federal definition, may not qualify as wetlands on a particular project site, its jurisdiction may be broader than that of the USACE. Riparian forests in California often lie outside the plain of ordinary high water regulated under Section 404 of the CWA, and often do not have all 3 parameters (wetland hydrology, hydrophytic vegetation, and hydric soils) sufficiently present to be regulated as a

wetland. However, riparian forests are frequently within CDFW regulatory jurisdiction under Section 1602 of the *California Fish and Game Code.*

The CDFW enters into a Lake or Streambed Alteration Agreement (LSAA) with a project proponent and can impose conditions on the agreement. The notification process involves the completion of the applications which will serve as the basis for the CDFW's issuance of a Section 1602 LSAA. Section 1602 of the *California Fish and Game Code* applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State.

The CDFW jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFW takes jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species, and watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

2.0 METHODOLOGY

The 3-parameter approach used to identify USACE wetlands is summarized in Sections 2.1 through 2.3; literature reviewed for the preparation of the delineation is outlined in Section 2.4; and the field delineation is outlined in Section 2.5.

2.1 VEGETATION

Hydrophytic vegetation (or hydrophytes) is defined as any macrophytic plant that "grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats" (Environmental Laboratory 1987). Specifically, these plant species have specialized morphological, physiological, or other adaptations for surviving in permanently saturated to periodically saturated soils where oxygen levels are very low or the soils are anaerobic. The USACE—as part of an interagency effort with the USEPA, the U.S. Fish and Wildlife Service (USFWS), and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)—has approved a new National Wetland Plant List (NWPL) (Lichvar and Kartesz 2009) to replace the *National List of Plant Species that Occur in Wetlands* (Reed 1988). The NWPL went into effect on June 1, 2012, and is to be used to determine whether the hydrophytic vegetation parameter is met when conducting wetland determinations under the Clean Water Act and the Wetland Conservation Provisions of the Food Security Act. The NWPL is also intended to be used for wetland restoration, establishment, and enhancement projects. This report utilized the indicator statuses for the Arid West Supplement portion of the NWPL.

The following revisions were made to the Reed (1988) pursuant to the NWPL:

1. The USACE eliminated the "probability-of-occurrence" categories (e.g., <1 percent, 1–33 percent, 34–66 percent, 67–99 percent, and >99 percent) due to the lack of numerical data to support these ratings.
2. The USACE determined that, because the wetland plant indicator statuses have shifted from a series of numerical categories to qualitative definitions, the use of +/– suffixes is difficult to apply accurately. Adding finer-scale +/– ratings implies there are data to support their assignments, which is generally not the case. Therefore, to improve the accuracy of the overall list, the USACE decided to drop the +/– suffixes.

Lichvar and Gillrich (2011) provide updated technical definitions of wetland plant indicator status categories as part of the procedures used in updating the NWPL:

- **Obligate Wetland (OBL):** These wetland-dependent plants (herbaceous or woody) require standing water or seasonally saturated soils (14 or more consecutive days) near the surface to assure adequate growth, development, and reproduction and to maintain healthy populations. These plants are of 4 types:
    - *submerged:* plants that conduct virtually all of their growth and reproductive activity under water.
    - *floating:* plants that grow with leaves and, most often, their vegetative and reproductive organs floating on the water surface.
    - *floating-leaved:* plants that are rooted in sediment but also have leaves that float on the water surface.

  - *emergent:* herbaceous and woody plants that grow with their bases submerged and rooted in inundated sediment or seasonally saturated soil and their upper portions, including most of the vegetative and reproductive organs, growing above the water level.

- **Facultative Wetlands (FACW):** These plants depend on and predominantly occur with hydric soils, standing water, or seasonally high water tables in wet habitats for assuring optimal growth, development, and reproduction and for maintaining healthy populations. These plants often grow in geomorphic locations where water saturates soils or floods the soil surface at least seasonally.
- **Facultative (FAC):** These plants can occur in wetlands or non-wetlands. They can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil hydrogen potential (pH), and elevation, and they have a wide tolerance of soil moisture conditions.
- **Facultative Upland (FACU):** These plants are not wetland dependent. They can grow on hydric and seasonally saturated soils, but they develop optimal growth and healthy populations on predominantly drier or more mesic sites. Unlike FAC plants, these plants are non-wetland plants by habitat preference.
- **Obligate Upland (UPL):** These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

The following are 3 procedures for determining hydrophytic vegetation: Indicator 1, "Dominance Test", using the "50/20 Rule"; Indicator 2, "Prevalence Index"; or Indicator 3, "Morphological Adaptation", as identified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008c). Hydrophytic vegetation is present if any indicator is satisfied. If none of the indicators are satisfied, then hydrophytic vegetation is absent unless (1) indicators of hydric soil and wetland hydrology are present and (2) the site meets the requirements for a problematic wetland situation.

- ***Dominance Test:*** Vegetative cover is estimated and is ranked according to its dominance. Dominant species are the most abundant species for each stratum of the community (i.e., tree, sapling/shrub, herb, or woody vine) that individually or collectively amount to 50 percent of the total coverage of vegetation plus any other species that, by itself, accounts for 20 percent of the total vegetation cover (also known as the "50/20 Rule"). These species are recorded on the "Wetland Determination Data Form – Arid West Region". The wetlands indicator status of each species is also recorded on the data forms based on the NWPL (Lichvar and Kartesz 2009). If greater than 50 percent of the dominant species across all strata are OBL, FACW or FAC species, the criterion for wetland vegetation is considered to be met.
- ***Prevalence Index:*** The prevalence index considers all plant species in a community, not just the dominant ones. The prevalence index is the average of the wetland indicator status of all plant species in a sampling plot. Each indicator status category is given a numeric code (OBL=1, FACW=2, FAC=3, FACU=4, and UPL=5) and is weighted by the species' abundance (percent cover). Hydrophytic vegetation is present if the prevalence index is 3.0 or less.

- ***Morphological Adaptation:*** Morphological adaptations, such as adventitious roots (i.e., roots that take advantage of the wet conditions) and shallow root systems, must be observed on more than 50 percent of the individuals of a FACU species for the hydrophytic vegetation wetland criterion to be met.

2.2 SOILS

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that is formed under conditions of saturation, flooding, or ponding that occurs long enough during the growing season to develop anaerobic conditions (or conditions of limited oxygen) at or near the soil surface and that favor the establishment of hydrophytic vegetation (USDA NRCS 2008). It should be noted that hydric soils created under artificial conditions of flooding and inundation sufficient for the establishment of hydrophytic vegetation would also meet this hydric soils indicator.

The soil conditions are verified by digging test pits along each transect to a depth of at least 20 inches (except where a restrictive layer occurs in areas containing hard pan, cobble, or solid rock). It should be noted that at some sites, it may be necessary to make exploratory soil test pits up to 40 inches deep to more accurately document and understand the variability in soil properties and hydrologic relationships on the site. Soil test pit locations are usually dug within the drainage invert or at the edge of a drainage course within vegetated areas. Soil extracted from each soil test pit is then examined for texture and color using the standard plates within the Munsell Soil Color Chart (1994) and recorded on the Data Form. The Munsell Soil Color Chart aids in designating soils by color labels based on gradations of 3 simple variables: hue, value, and chroma. Any indicators of hydric soils such as the following are also recorded on the Data Form: redoximorphic features (i.e., areas where iron is reduced under anaerobic conditions and oxidized following a return to aerobic conditions); buried organic matter; organic streaking; reduced soil conditions; gleyed (i.e., soils having a characteristic bluish-gray or greenish-gray in color) or low-chroma soils; or sulfuric odor. If hydric soils are found, progressive pits are dug along the transect moving laterally away from the active channel area until hydric soil features are no longer present within the top 20 inches of the soil.

2.3 HYDROLOGY

Wetlands hydrology is represented by either (1) all of the hydrological elements or characteristics of areas permanently or periodically inundated or (2) areas containing soils that are saturated for a sufficient duration of time to create hydric soils suitable for the establishment of plant species that are typically adapted to anaerobic soil conditions. The presence of wetland hydrology is evaluated at each intersect by recording the extent of observed surface flows, the depth of inundation, the depth to saturated soils, and the depth to free water in soil test pits. In instances where stream flow is divided into multiple channels with intervening sandbars, the entire area between the channels is considered within the OHWM. Therefore, an area containing these features would meet the indicator requirements for wetland hydrology.

2.4 LITERATURE

Prior to conducting the delineation and during the course of preparing this report, BonTerra Psomas reviewed the following documents to identify areas that may fall under agency jurisdiction: the USGS' Mount Wilson 7.5-minute quadrangle map; color aerial photography provided by Google Earth (various dates); the Report and General Soil Maps for the Angeles National Forest Area, California (USDA NRCS 2006); the National Hydric Soils List (USDA NRCS

2012); and the National Wetlands Inventory's Wetland Mapper (USFWS 2013). A description of this literature is provided below.

USGS Topographic Quadrangle. USGS quadrangle maps show geological formations and their characteristics; they describe the physical settings of an area through topographic contour lines and other major surface features. These features include lakes, streams, rivers, buildings, roadways, landmarks, and other features that may fall under the jurisdiction of one or more regulatory agencies. In addition, the USGS maps provide topographic information that is useful in determining elevations, latitude and longitude, and Universal Transverse Mercator Grid coordinates for a project site.

Santa Anita Wash, the Dam, and an unnamed debris basin (i.e., Debris Dam Reservoir) are the main features shown on the USGS Mount Wilson 7.5-minute quadrangle. In addition, Clamshell Canyon drainage enters Santa Anita Wash at the debris basin. Topography in the Study Area consists of a narrow canyon that opens up into the debris basin. Elevations range from approximately 1,300 feet above msl above the Dam to approximately 730 feet above msl at the southern end of the Study Area.

Color Aerial Photography. BonTerra reviewed an existing color aerial photograph prior to conducting the field delineation to identify the extent of any drainages and riparian vegetation occurring in the Study Area.

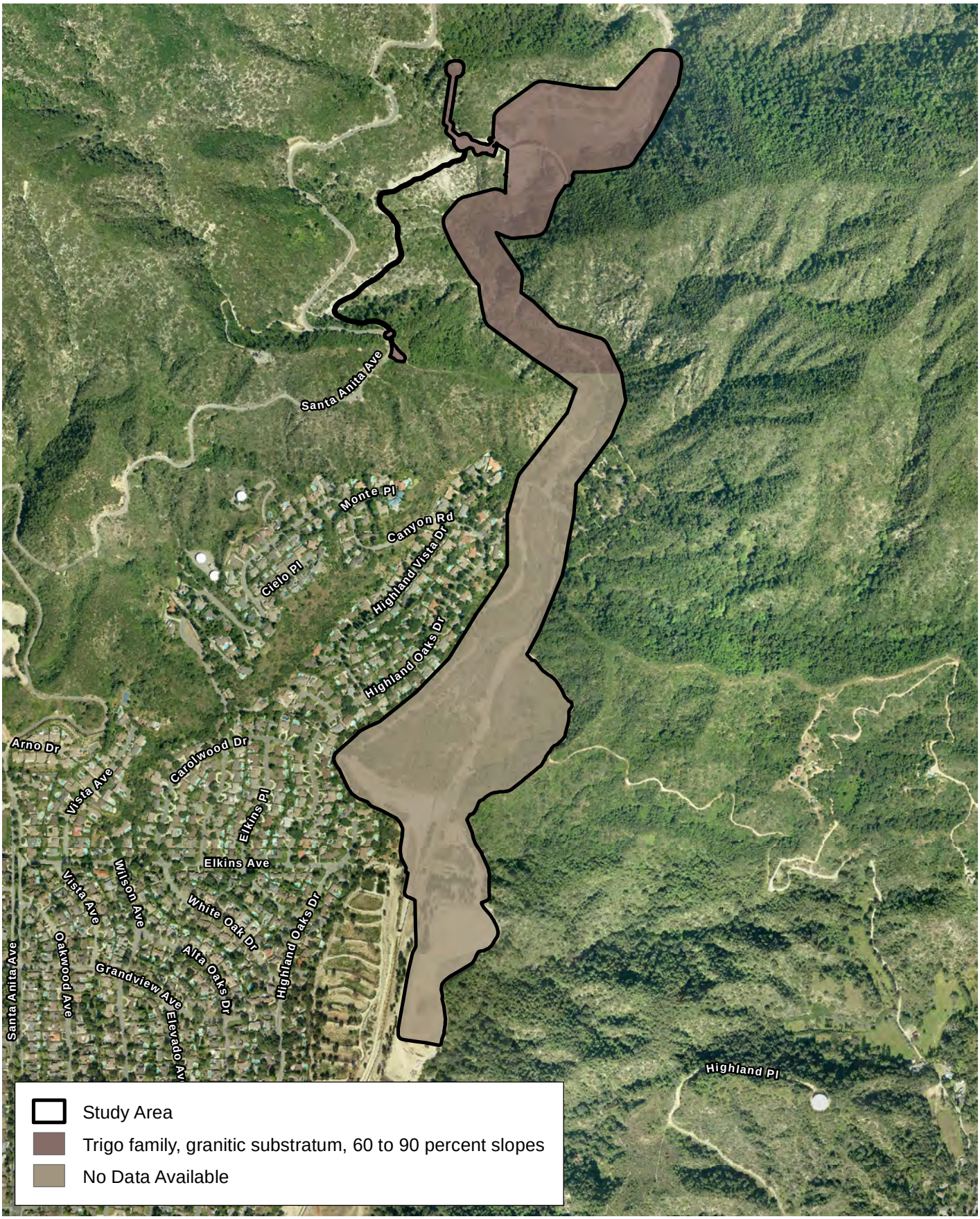
Aerial imagery from Google Earth shows that the reservoir above the Dam had been dewatered between March and July 2011; in other years, the reservoir was full. Above the Dam, vegetation grows along the canyon walls to the high water mark of the reservoir. Below the Dam, vegetation is present in the wash and throughout the debris basin. Downstream of the debris basin, Santa Anita Wash is channelized.

U.S. Department of Agriculture, Natural Resources Conservation Service. The presence of hydric soils is one of the chief indicators of jurisdictional wetlands. BonTerra reviewed U.S. Department of Agriculture (USDA) soil data for the Study Area (USDA NRCS 2006).

A formal soil survey has not been conducted for the southern portion of the Study Area. The following soil type has been mapped in the northern portion of the Study Area: Trigo family, granitic substratum, 60 to 90 percent slopes (Exhibit 3). This soil is not listed as "hydric" on the National Hydric Soils List (USDA NRCS 2012).

U.S. Fish and Wildlife Service, National Wetlands Inventory: The Wetlands Mapper shows wetland resources available from the Wetlands Spatial Data Layer of the National Spatial Data Infrastructure (USFWS 2013). This resource provides the classification of known wetlands following the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). This classification system is arranged in a hierarchy of (1) Systems that share the influence of similar hydrologic, geomorphologic, chemical, or biological factors (i.e., Marine, Estuarine, Riverine, Lacustrine, and Palustrine); (2) Subsystems (i.e., Subtidal and Intertidal; Tidal, Lower Perennial, Upper Perennial, and Intermittent; or Littoral and Limnetic); (3) Classes, which are based on substrate material and flooding regime or on vegetative life forms; (4) Subclasses; and (5) Dominance Types, which are named for the dominant plant or wildlife forms. In addition, there are modifying terms applied to Classes or Subclasses.

Multiple riparian and wetland resources are mapped in the Study Area (USFWS 2013), but the actual jurisdictional wetlands are determined in the field.



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Soil Types

Exhibit 3

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
W E
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1,000 500 0 1,000
Feet

BonTerra PSOMAS

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2.5 JURISDICTIONAL DELINEATION

In September 2008, the USACE issued the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.* This regional supplement is designed for use with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Both the 1987 Wetlands Manual and the Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of "waters of the U.S." and wetland resources. A 3-parameter approach is used to identify wetlands and requires evidence of wetland hydrology, hydrophytic vegetation, and hydric soils. Wetlands generally include swamps, marshes, bogs, and similar areas. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within the 3 parameters. However, problem areas may periodically or permanently lack certain indicators due to seasonal or annual variability of the nature of the soils or plant species on site. Atypical wetlands lack certain indicators due to recent human activities or natural events. Guidance for determining the presence of wetlands in these situations is presented in the regional supplement. Non-wetland "waters of the U.S." are delineated based on the limits of the OHWM, which can be determined by a number of factors including erosion, the deposition of vegetation or debris, and changes in vegetation.

It should be noted that the RWQCB shares USACE jurisdiction unless isolated conditions are present. If isolated waters conditions are present, the RWQCB takes jurisdiction using the USACE's definition of the OHWM and/or the 3-parameter wetlands methodology pursuant to the 1987 Wetlands Manual. The CDFW's jurisdiction is defined as the top of the bank to the top of the bank of the stream, channel, or basin or to the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake or other impoundment.

The analysis contained in this report uses the results of a field survey conducted by BonTerra Regulatory Technicians David Hughes and Allison Rudalevige on April 23, 2013, and by Mr. Hughes and BonTerra Regulatory Specialist Gary Medeiros on April 25, 2013. Jurisdictional features were delineated using a 1 inch equals 200 feet (1″ = 200′) scale aerial photograph with 2-foot topographic contours. The field survey included the collection of vegetation, soils, and hydrologic data from 11 sampling points in the Study Area; this information was recorded on Wetland Determination Data Forms (Attachment A). Representative photographs of the Study Area and sampling points are included in Attachment B. In addition, the OHWM limits (i.e., Active Floodplain) occurring in the Study Area were further verified using methodologies contained in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*, *A Delineation Manual* (Lichvar and McColley 2008) and *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) In the Arid West Region of the Western United States* (Curtis and Lichvar 2010).

3.0 JURISDICTIONAL DELINEATION

The following section provides a quantification of existing and impacted resources under the jurisdiction of the USACE, the RWQCB, and the CDFW within the Study Area. For the purposes of all impact discussions below, all impacts are categorized as being either permanent or temporary. Permanent impact areas are defined as changes to or removal of an existing vegetation type or "other areas," including disturbed or developed (e.g. paved) that are permanent as a result of Project implementation. These impact areas are labeled with a red boundary on relevant graphics.

Temporary access/impact areas are defined as areas that may be subject to traversing vehicles or other mobile equipment, staging of equipment, stockpiles of soil, minor soil disturbance where there is no permanent alteration to the existing grade (e.g. no permanent holes, trenches, or berms), and no vegetation or tree removal. These impact areas are labeled with a yellow boundary on relevant graphics.

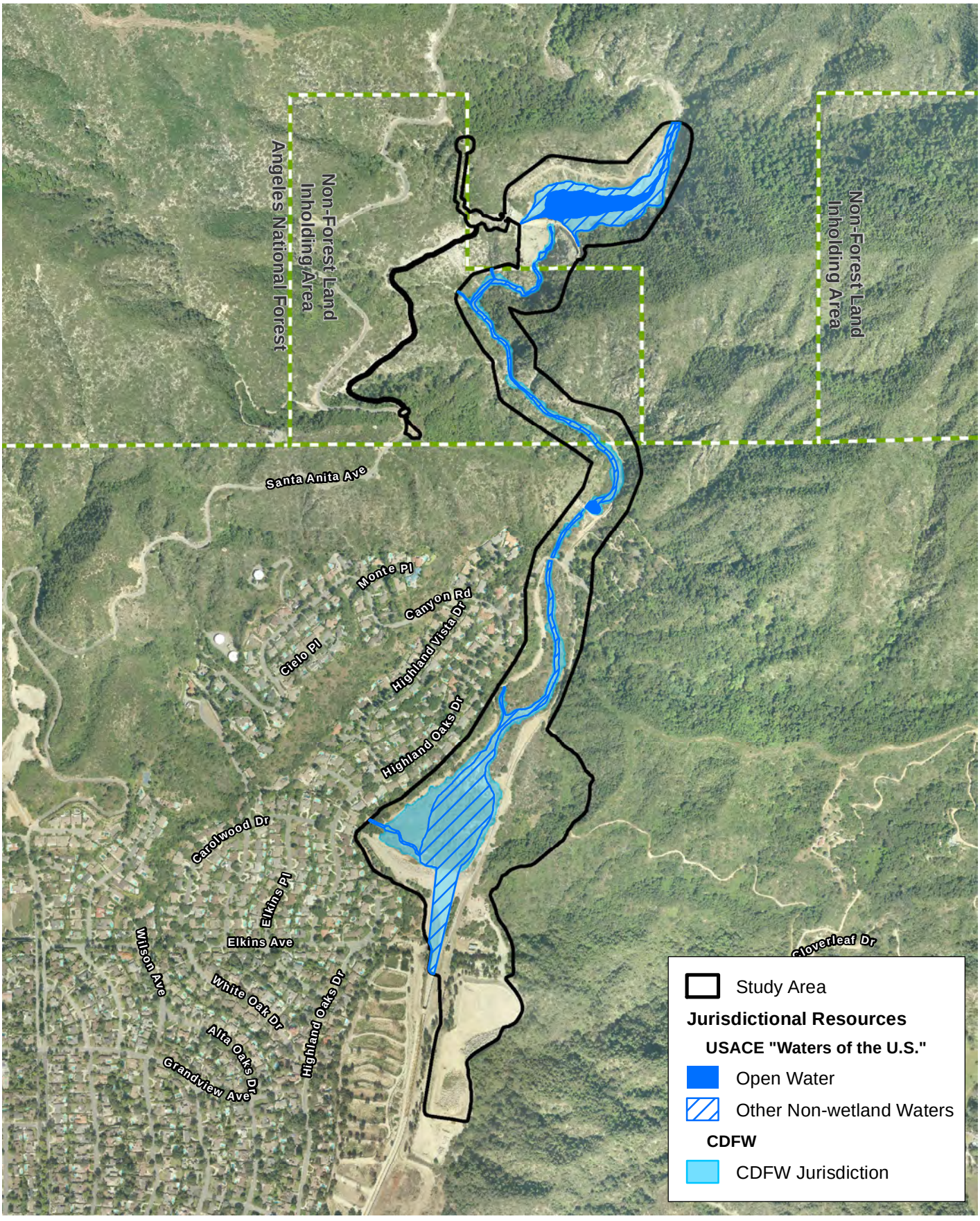
3.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

3.1.1 "Waters of the U.S." Determination (Non-wetland).

Santa Anita Wash meanders from its headwaters in the San Gabriel Mountains to the Rio Hondo, which joins the Los Angeles River (a TNW) at approximately 21 river miles (18 aerial miles) from the Study Area. The Los Angeles River drains into the Pacific Ocean in the City of Long Beach. Santa Anita Wash was modified by the construction of the Dam in 1927; it is channelized downstream of the debris basin. The portion of Santa Anita Wash upstream of the Santa Anita Headworks has relatively permanent flow; however, the amount of water released by the Dam is regulated, so the amount of surface water downstream of the headworks varies. Santa Anita Wash has the capacity to carry pollutants and flood waters downstream to a TNW. Therefore, the USACE would take jurisdiction over Santa Anita Wash as a relatively permanent, non-navigable tributary to a TNW (upstream of the headworks) and as a non-navigable tributary that is not relatively permanent (downstream of the headworks) that has a significant nexus with a TNW.

Non-wetland "waters of the U.S." are drainage features that conduct water at some point during the year, evidenced by the presence of an OHWM, but do not satisfy all three criteria to be considered a wetland. The limits of non-wetland "waters of the U.S." were defined by the presence of the OHWM. The amount of water in Santa Anita Wash is dependent on release of water from the Dam; however, evidence of OHWM was present throughout Santa Anita Wash. Evidence of OHWM observed during the delineation consists of the presence of mudcracks and the active area stripped of vegetation below the OHWM; drift deposits, wrack line, and water staining at the OHWM; and a change in vegetation community composition to upland species above the OHWM. The OHWM within the reservoir was considered to be the high water line. Arid West Ephemeral and Intermittent Streams OHWM Datasheets were completed for representative areas within the drainage that reflect the overall characteristics of the drainage and are contained in Attachment C.

Based on the field observations and data collected, approximately 19.421 acres of non-wetland "waters of the U.S." (consisting of 3.003 acres of open water and 16.418 acres of other non-wetland waters) occur in the Study Area (Exhibit 4; Table 2). Based on the current project limits of disturbance, a total of 3.392 acres of non-wetland "waters of the U.S." (0.576 acre open water; 2.816 acres other non-wetland waters) are within the work area (Exhibit 5; Table 2).



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Jurisdictional Resources

Exhibit 4

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
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1,000 500 0 1,000

Feet

Bonterra PSOMAS

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Angeles National Forest Non-Forest Land Inholding Area

Proposed Helipad Location

Santa Anita Dam

Angeles National Forest Non-Forest Land Inholding Area

Non-Forest Land Inholding Area

Study Area

Angeles National Forest Boundary

Work Areas

Permanent

Temporary Access

Jurisdictional Resources

USACE "Waters of the U.S."

Open Water

Other Non-wetland Waters

CDFW

CDFW Jurisdiction

Aerial Source: LAR-IAC 2011

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Project Work Areas – Jurisdictional Resources – Dam

Exhibit 5A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

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Proposed Helipad Location

Angeles National Forest Non-Forest Land Inholding Area

Access Road

Chantry Flats Rd

Non-Forest Land Inholding Area

Study Area

Angeles National Forest Boundary

Work Areas

Permanent

Temporary Access

Jurisdictional Resources

USACE "Waters of the U.S."

Open Water

Other Non-wetland Waters

CDFW

CDFW Jurisdiction

Aerial Source: LAR-IAC 2011

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Project Work Areas – Jurisdictional Resources – Dam (Access Road)

Exhibit 5B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

150 75 0 150 Feet

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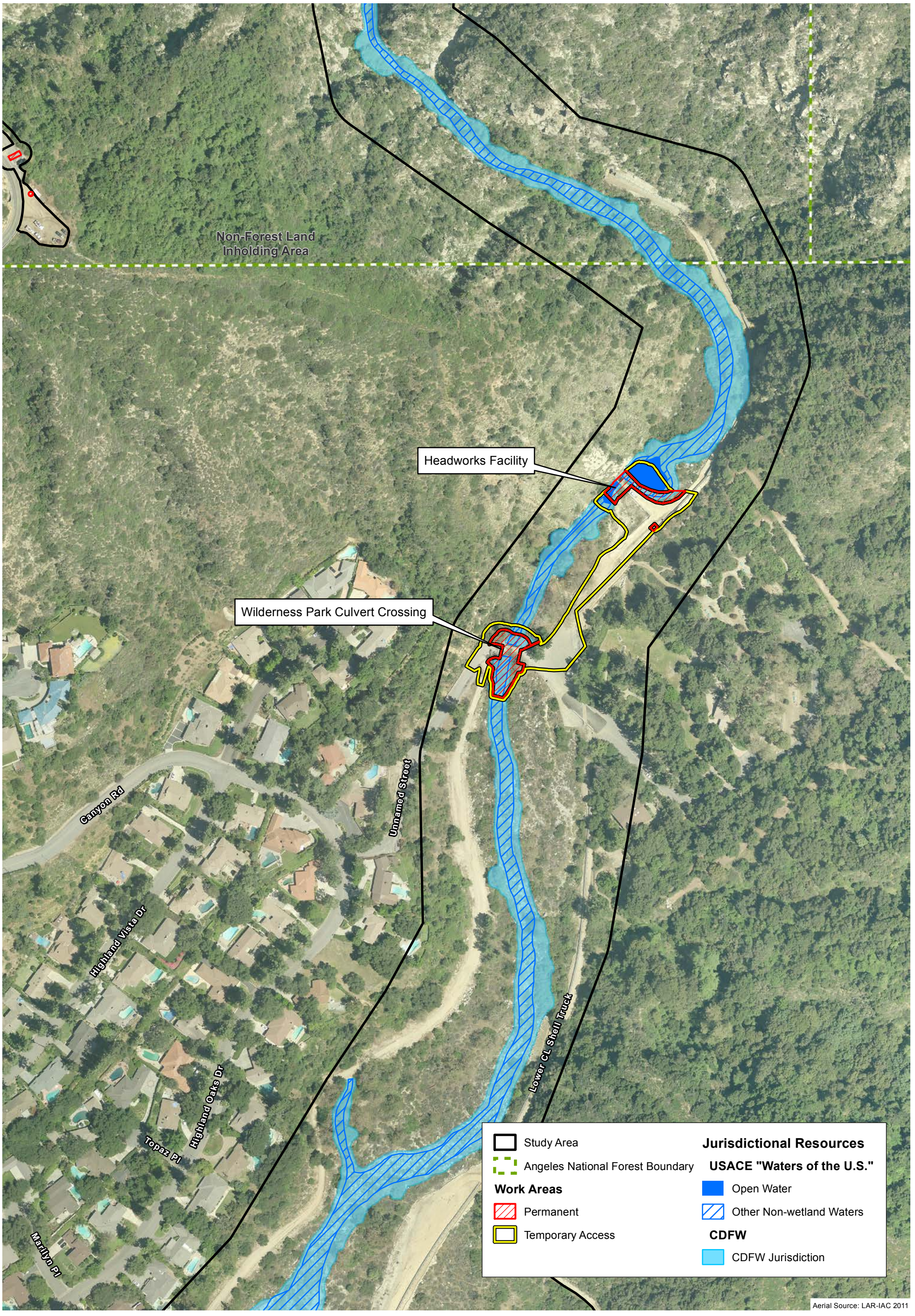

Project Work Areas – Jurisdictional Resources – Headworks and Wilderness Park Culvert Crossing Exhibit 5C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

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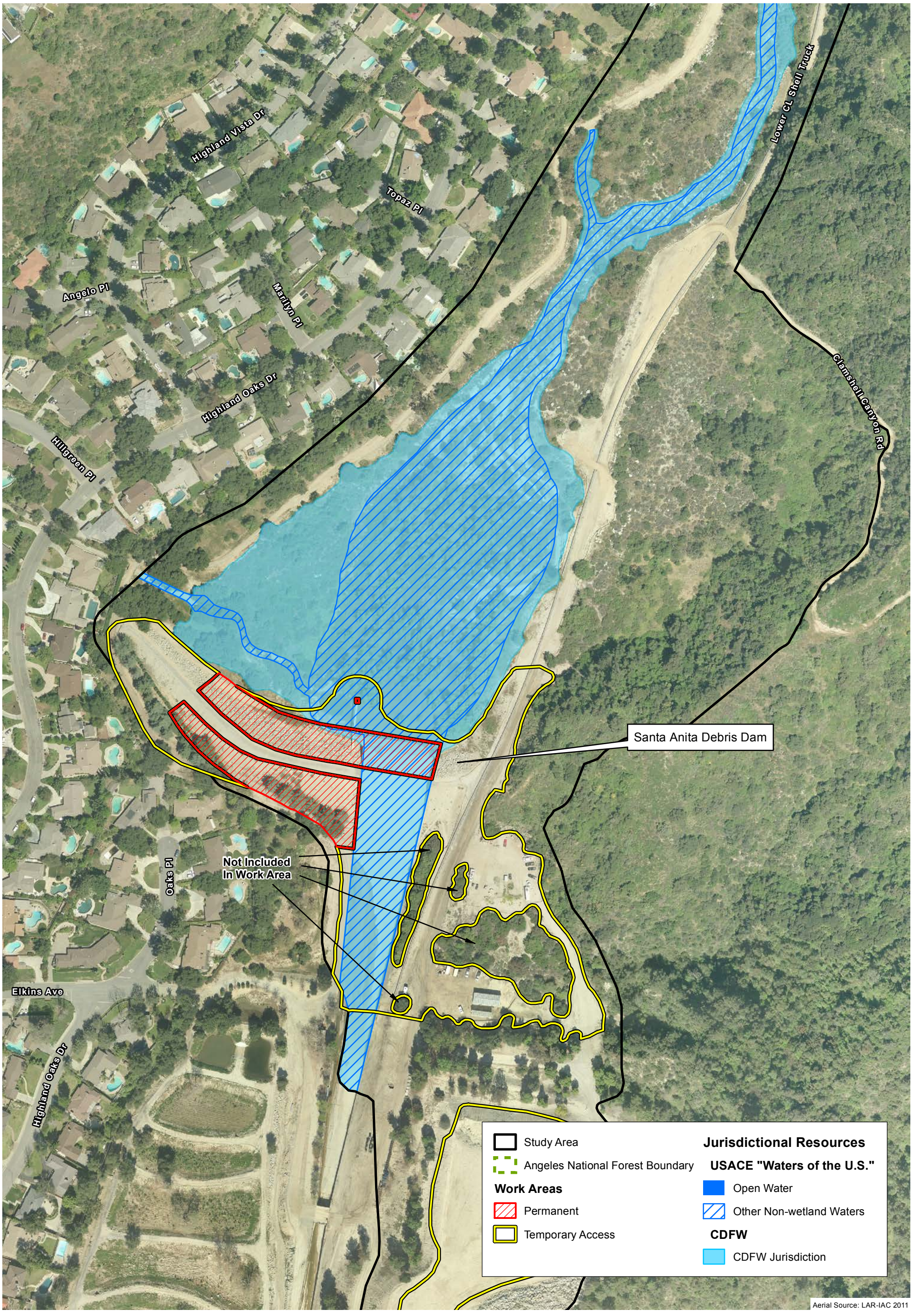

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Project Work Areas – Jurisdictional Resources – Debris Dam

Exhibit 5D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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Project Work Areas – Jurisdictional Resources – Debris Dam (Sediment Placement Site)

Exhibit 5E

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

(Rev: 9-22-2014 JAZ) H:\Projects\CoLADPW (DPW)\J166\Graphics\JD\Ex5_impacts.pdf

TABLE 2
SUMMARY OF JURISDICTIONAL RESOURCES IN THE STUDY AREA

Jurisdictional Resources	Existing (acres)	Dam		Headworks		Debris Dam		Total Permanent Structure (acres)	Total Temporary Access (acres)	Total (acres)
		Permanent Structure (acres)	Temporary Access (acres)	Permanent Structure – Headworks and Wilderness Park Bridge (acres)	Temporary Access (acres)	Permanent Structure (acres)	Temporary Access (acres)			
Total USACE Jurisdiction	19.421	0.000	0.958	0.100	0.113	0.324	1.897	**424**	**2.968**	**3.392**
Open Water	3.003	0.000	0.482	0.011	0.083	0.000	0.000	**0.011**	**0.565**	**0.576**
Other Non-wetland "Waters of the U.S."	16.418	0.000	0.476	0.089	0.030	0.324	1.897	**0.413**	**2.403**	**2.816**
Total RWQCB Jurisdiction	19.421	0.000	0.958	0.100	0.113	0.324	1.897	**0.424**	**3.533**	**3.392**
Total CDFW Jurisdiction	26.985	0.000	1.125	0.172	0.138	0.353	1.920	**0.525**	**3.183**	**3.708**

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife.

3.1.2 Wetlands Determination

As previously described in Section 2.0 of this report, an area must exhibit all 3 wetland parameters, as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008c) and the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) in order to be considered a jurisdictional wetland. Eleven sampling points were assessed for the presence of hydrophytic vegetation, hydric soils, and wetland hydrology (Table 3; Attachment A).

TABLE 3
SUMMARY OF SAMPLING POINT DATA

Sampling Point	Vegetated	Dominance Test Result*	Prevalence Index Result	Meets Hydrophytic Vegetation Criterion?	Meets Hydric Soil Criterion?	Meets Wetlands Hydrology Criterion?	Wetland?
1	Yes	75%	2.81	Yes	No	Yes	No
2	Yes	50%	2.12	Yes	No	Yes	No
3	Yes	100%	2.07	Yes	No	Yes	No
4	Yes	66.67%	3.25	Yes	No	Yes	No
5	Yes	50%	2.68	Yes	No	Yes	No
6	Yes	75%	2.84	Yes	No	Yes	No
7	Yes	80%	2.37	Yes	No	Yes	No
8	Yes	50%	2.13	Yes	No	Yes	No
9	Yes	25%	4.25	No	No	Yes	No
10	Yes	50%	3.4	No	No	Yes	No
11	No	N/A	N/A	No	No	Yes	No

* Percent of dominant species that are OBL, FACW, or FAC.

Vegetation

Vegetation in the Study Area includes coastal sage scrub, southern mixed chaparral, riparian forests and woodlands, mule fat scrub, coast live oak woodland, mixed woodland, ornamental, and ruderal.

Vegetation was assessed in representative areas at or below the OHWM. Many areas had an open tree canopy composed of species such as Goodding's black willow (*Salix gooddingii*) (FACW), white alder (*Alnus rhombifolia*) (FACW), or western sycamore (*Platanus racemosa*) (FAC). The understory was either sparsely vegetated or contained herbaceous species such as cocklebur (*Xanthium strumarium*) (FAC), crofton weed (*Ageratina adenophora*) (FACU), or willow weed (*Persicaria lapathifolia* [*Polygonum l.*]) (FACW). There were 10 sampling points that either passed the dominance test or had a prevalence index less than 3.0. Therefore, the hydrophytic vegetation criterion was met at 10 sampling points. Sampling Point 11 was located below the typical high water line of the reservoir, which is unvegetated.

Soils

Soil test pits were dug in representative areas at or below the OHWM. Soil in the Study Area was primarily sand, with some areas having a loamy component; organic matter was present in the ponded area above the Santa Anita Headworks. None of the soils identified at any of the sampling points exhibited indicators of hydric soil. Therefore, the hydric soil criterion was not met in the Study Area.

Hydrology

Multiple indicators of wetland hydrology (e.g., surface water, high water table, saturation, surface soil cracks, inundation visible on aerial imagery, water marks, drift deposits, FAC-Neutral Test) were observed at all of the sampling points. Therefore, the wetland hydrology criterion was met at all 11 sampling points.

Results

The three criteria for wetlands were not met at any sampling point in the Study Area. Therefore, wetland "waters of the U.S." are not present in the Study Area.

3.2 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD DETERMINATION

The RWQCB jurisdictional boundaries are defined as those determined for the USACE under "waters of the U.S.". However, the RWQCB takes jurisdiction over both connected and isolated waters. Isolated features (i.e., those that do not have a direct connection to a TNW or do not meet the "significant nexus" threshold) are under the jurisdiction of the RWQCB, but not the USACE.

No isolated waters are present in the Study Area; therefore, RWQCB jurisdiction is the same as that of the USACE. Therefore, approximately 19.421 acres under the jurisdiction of the RWQCB occur in the Study Area (Exhibit 4; Table 2). Based on the current project limits of disturbance, a total of 3.392 acres under the jurisdiction of the RWQCB (0.576 acre open water; 2.816 acres other non-wetland waters) are within Project Work Areas (Exhibit 5; Table 2).

3.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DETERMINATION

The limits of CDFW jurisdiction include not only the bed, bank, and channel of streambed features, but also the riparian habitat supported by a river, stream, or lake. The CDFW jurisdictional limits extend to the outer drip line of riparian trees in areas containing riparian vegetation. In areas that do not contain riparian habitat, the jurisdictional limits extend to the top of the stream bank. As a result, the CDFW jurisdictional limits overlap with the jurisdictional limits of the other agencies, but usually extend beyond the OHWM that defines USACE/RWQCB jurisdictional limits.

Approximately 26.985 acres of waters under the jurisdiction of the CDFW occur in the Study Area (Exhibit 4; Table 2). Based on the current project limits of disturbance, a total of 3.708 acres under the jurisdiction of the CDFW are within Project Work Areas (Exhibit 5; Table 2).

4.0 CONCLUSION OF REGULATORY APPROVAL PROCESS

4.1 REGULATORY PERMIT REQUIREMENTS

The following summarizes the various permits, agreements, and certifications that are expected to be required prior to initiation of Project activities that involve work within areas under the jurisdiction of the USACE, the RWQCB, and the CDFW.

- USACE Section 404 Permit;
- RWQCB Section 401 Water Quality Certification; and
- CDFW Section 1602 Lake or Streambed Alteration Agreement (LSAA).

It should be noted that all regulatory permit applications can be processed concurrently. The USACE permit would be issued subject to the receipt of the RWQCB's Section 401 Water Quality Certification. There is no filing fee for the Section 404 Permit. The Section 401 Water Quality Certification filing fee has a $944 base fee with additional fees based on the size of the dredge or fill unless the project qualifies for a flat fee. For low impact discharges (e.g., discharge of less than 0.1 acre, 200 linear feet, and 25 cubic yards), there is no charge above the base fee. For fill and excavation discharges, there is a rate of $4,059 per acre of discharge. For dredging discharges, there is a rate of $0.15 per cubic yard of dredge volume. For discharges to isolated waters the applicable fee is doubled, except for restoration projects. In addition, pursuant to Section 6103 of the *California Government Code*, public entities (such as the County) are exempt from the fees set forth in this schedule.

The CDFW's LSAA filing fee is based on project cost and length of permit authorization. For projects lasting 5 years or less, the maximum fee is $4,482.75 for projects costing $500,000 or more; the fee decreases as cost decreases. For projects lasting longer than 5 years, there is a base fee of $2,689.50 plus a maximum of $4,482.75. The current fee schedule can be found on the CDFW website at: http://www.dfg.ca.gov/habcon/1600/forms.html. The CDFW will not deem the application to be complete until the application fees have been paid and the agency is provided with a certified California Environmental Quality Act (CEQA) document and a signed copy of the receipt of County Clerk filing fees for the Notice of Determination (NOD). In addition, land use jurisdictions can no longer make "de minimis" findings if they determine that the project will not impact resources under the CDFW's jurisdiction. Therefore, the finding of "No Impact" to the CDFW jurisdictional resources must now be made by the CDFW prior to the payment of CDFW fees.

A detailed explanation of the regulatory permitting requirements for work within jurisdictional resources is provided in Sections 4.2 through 4.5.

4.2 U.S. ARMY CORPS OF ENGINEERS

Regulatory authorization in the form of an NWP is provided for certain categories of activities (e.g., repair, rehabilitation, or replacement of a structure or fill which was previously authorized; utility line placement; bank stabilization). The current set of NWPs became effective on March 19, 2012, and will expire in on March 18, 2017. NWPs authorize only those activities with minimal adverse effects on the aquatic environment and are valid only if the conditions applicable to the permits are met or waivers to these conditions are provided in writing from the USACE. Please note that waivers may require consultation with affected federal and State agencies, a lengthy process with no mandated processing time frames. If the NWP conditions cannot be met, an Individual Permit (IP) will be required. "Waters of the U.S." temporarily filled, flooded, excavated,

or drained but restored to pre-construction contours and elevations after construction are not included in the measurement of loss of "waters of the U.S.". The appropriate permit authorization will be based on the amount of impacts to "waters of the U.S.", as determined by the USACE.

The proposed Project may be authorized under NWP 3 (Maintenance), which includes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure. Activities authorized under paragraph (a) of the NWP (i.e., repair/rehabilitation/replacement of a previously authorized structure) do not require pre-construction notification. However, activities authorized under paragraph (b) of the NWP (i.e., removal of sediment/debris and/or placement of new or additional riprap) do require pre-construction notification. The complete description of NWP 3 is included as Attachment D. However, if the USACE does not concur in this NWP recommendation, an IP would then be required to authorize this project.

4.2.1 Jurisdictional Determinations

Pursuant to USACE Regulatory Guidance Letter (RGL) 08-02 (dated June 26, 2008), the USACE can issue 2 types of jurisdictional determinations to implement Section 404 of the CWA: Approved Jurisdictional Determinations and Preliminary Jurisdictional Determinations (USACE 2008a). An Approved Jurisdictional Determination is an official USACE determination that jurisdictional "waters of the U.S.", "Navigable waters of the U.S.", or both are either present or absent on a site. An Approved Jurisdictional Determination also identifies the precise limits of jurisdictional waters on a project site.

The USACE will provide an Approved Jurisdictional Determination when (1) an applicant requests an official jurisdictional determination; (2) an applicant contests jurisdiction over a particular water body or wetland; or (3) when the USACE determines that jurisdiction does not exist over a particular water body or wetland. The Approved Jurisdictional Determination then becomes the USACE's official determination that can then be relied upon over a five-year period to request regulatory authorization as part of the permit application.

In addition, an Applicant may decline to request an Approved Jurisdictional Determination and instead obtain a USACE IP or General Permit Authorization based on a Preliminary Jurisdictional Determination or, in certain circumstances (e.g., authorizations by non-reporting nationwide general permits), with no Jurisdictional Determination.

Preliminary Jurisdictional Determinations are non-binding, advisory in nature, and may not be appealed. They indicate that there may be "waters of the U.S." on a project site. An applicant may elect to use a Preliminary Jurisdictional Determination to voluntarily waive or set aside questions regarding CWA jurisdiction over a site, usually in the interest of allowing the applicant to move ahead expeditiously with the permitting process. The USACE will determine what form of Jurisdictional Determination is appropriate for a particular project site. It is anticipated that a Preliminary Jurisdictional Determination will be adequate; therefore, this form is included as Attachment E.

On January 31, 2007, the USACE published a memorandum clarifying the Interim Guidance for amendments to the National Historic Preservation Act and the Advisory Council on Historic Preservation (ACHP) implementing regulations (USACE 2007b). The Interim Guidance applies to all Department of the Army requests for authorization/verification, including Individual Permits (standard permits and letters of permission) and all Regional General Permits (RGPs) and NWPs. The State or Tribal Historic Preservation Officer (SHPO/THPO) has 30 days to respond to a determination that a proposed activity, that otherwise qualifies for an NWP or RGP, has no effect or no adverse effect on a historic property. If the SHPO/THPO does not respond within 30 days of

notification, the Los Angeles District may proceed with verification. If the SHPO/THPO disagrees with the District's determination, the District may work with the SHPO/THPO to resolve the disagreement or request an opinion from the ACHP. The USACE will submit the Draft Jurisdictional Delineation Report to the SHPO/THPO for review prior to initiating the actual regulatory process.

The USACE Regulatory Branch Offices will coordinate with the USEPA Regional Office and USACE Headquarters (HQ), as outlined in its January 28, 2008, memorandum entitled the "Process for Coordinating Jurisdictional Delineations Conducted Pursuant to Section 404 of the Clean Water Act in Light of the *Rapanos* and *SWANCC* Supreme Court Decisions" (USACE 2008b). The guidance provided in this memorandum is quoted as follows:

1. Effective immediately, unless and until paragraph 5(b) of the June 5, 2007, Rapanos guidance coordination memorandum is modified by a joint memorandum from Army and EPA, we will follow these procedures:
    a. For jurisdictional determinations involving significant nexus determinations, USACE districts will send copies of draft jurisdictional delineations via e-mail to appropriate EPA regional offices. The EPA regional office will have 15 calendar days to decide whether to take the draft jurisdictional delineation as a special case under the January 19, 1989, "Memorandum of Agreement Between the Department of the Army and the USEPA Concerning the Determination of the Section 404 Program and the Application of the Exceptions under Section 404(f) of the Clean Water Act." If the EPA regional office does not respond to the district within 15 days, the district will finalize the jurisdictional determination.
    b. For jurisdictional determinations involving isolated waters determinations, the agencies will continue to follow the procedure in paragraph 5(b) of June 5, 2007, coordination memorandum, until a new coordination memorandum is signed by USACE and EPA. (In accordance with paragraph 6 of the June 5, 2007, coordination memorandum, this is a 21-day timeline that can only be changed through a joint memorandum between agencies).
2. Approved JDs are not required for non-reporting NWPs, unless the project proponent specifically requests an approved JD. For proposed activities that may qualify for authorization under a State Programmatic General Permit (SPGP) or RGP, an approved JD is not required unless requested by the project proponent.
3. The USACE will continue to work with EPA to resolve the JDs involving significant nexus and isolated waters determinations that are currently in the elevation process.
4. USACE districts will continue posting completed Approved JD Forms on their web pages.

Please note that if the USACE determines that the drainages are jurisdictional and would be impacted by project implementation, the Applicant will be required to obtain a CWA Section 401 Water Quality Certification from the RWQCB before the USACE will issue the Section 404 permit. That is, the USACE may issue a "Denial Without Prejudice" as part of the issuance of the Section 404 permit that makes the permit valid once the Section 401 Water Quality Certification is issued. If the USACE determines that the impacted drainage is not jurisdictional, the Applicant will be required to obtain RWQCB authorization under the provisions of a Report of Waste Discharge (ROWD).

Please also note that the USACE has prepared Draft Guidelines on Identifying Waters Protected by the Clean Water Act (Act) to implement the U.S. Supreme Court's decisions concerning the extent of waters covered by the Act (*Solid Waste Agency of Northern Cook County v. USACE* [SWANCC] and *Rapanos v. United States* [Rapanos]). The review period for the draft guidelines ended in July 2011. It is not certain when the USEPA and the USACE will revise and finalize the guidelines and undertake rulemaking consistent with the Administrative Procedure Act. However, once this occurs, the result will be a "nonbinding guidance" for the identification of resources under the jurisdiction of the USACE. The final guidance will not affect jurisdictional delineations that have already received approval from the USACE.

4.3 REGIONAL WATER QUALITY CONTROL BOARD

As noted above, issuance of the USACE Section 404 permit would be contingent upon the approval of a Section 401 Water Quality Certification from the Los Angeles RWQCB. Also, the RWQCB requires certification of the project's CEQA documentation before it will approve the Section 401 Water Quality Certification or ROWD. The RWQCB, as a responsible agency, will use the project's CEQA document to satisfy its own CEQA-compliance requirements.

Upon acceptance of a complete permit application, the RWQCB has between 60 days and 1 year to make a decision regarding the permit request. That is, USACE regulations indicate that the RWQCB has 60 days from the date of receipt of a completed application that requests water quality certification to make a decision (33 CFR §325.2[b][1][ii]). The USACE District Engineer may specify a longer time (up to 1 year) or shorter time based on his/her determination of a reasonable processing time (33 CFR §325.2[b][1][ii]). If the RWQCB determines that more than 60 days are needed to process the request, it has the option of requesting additional time from the USACE. Also, the RWQCB has the option of issuing a "Denial Without Prejudice", which does not mean that the request is denied, but that it requires more information in order to make a decision. This effectively stops the processing clock until this information is provided.

The RWQCB is required under *California Code of Regulations* (CCR) (Title 23, §3858[a]) to have a "minimum 21 day public comment period" before any action can be taken on the Section 401 application. This period closes when the RWQCB acts on the application. Since projects often change or are revised during the Section 401 permit process, the comment period can remain open. The public comment period starts as soon as an application has been received. Generally, the RWQCB Section 401, USACE Section 404, and CDFW Section 1602 permit applications are submitted at the same time. However, the RWQCB Section 401 Water Quality Certification may take longer to process.

The RWQCB requires the Applicant to address urban storm water runoff during and after construction in the form of Best Management Practices (BMPs). These BMPs are intended to address the treatment of pollutants carried by storm water runoff and are required in all complete applications. The notification/application for a CWA Section 401 Water Quality Certification must also address compliance with the Basin Plan. Please note that the application would also require the payment of an application fee, which would be based on project impacts.

4.4 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The CDFW regulates all work (including initial construction and ongoing operation and maintenance) that may substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake through its Lake or Streambed Alteration Program. An Applicant must enter into an agreement with the CDFW to ensure no net loss of wetland values and acreages.

Impacts resulting from Project implementation will require a Section 1602 LSAA. The LSAA must address the initial construction and long-term operation and maintenance of any structures (such as a culvert or a desilting basin) within any river, stream, or lake that may require periodic maintenance if these are included in the project design.

Prior to construction, a notification (LSAA application) must be submitted to the CDFW that describes any proposed streambed alteration contemplated by the proposed Project. In addition to the formal application materials and the fee, a copy of the appropriate environmental document (e.g., Mitigated Negative Declaration) should be included in the submittal, consistent with CEQA requirements. The CDFW will prepare a draft LSAA, which will include standard measures to protect sensitive plant and wildlife resources during project construction and during ongoing operation and maintenance of any project element that occurs within a CDFW jurisdictional area.

If an LSAA is required, the CDFW may want to conduct an on-site inspection. The CDFW then prepares a draft Agreement, which will include measures to protect fish and wildlife resources that will be directly or indirectly impacted by project construction. The draft agreement will be transmitted to the Applicant within 60 calendar days of the CDFW's determination that the notification is complete. It should be noted that the 60-day timeframe may not apply to long-range agreements.

The Applicant has 30 calendar days to notify the CDFW concerning the acceptability of the proposed terms, conditions, and measures. If the Applicant agrees with these terms, conditions, and measures, the agreement must be signed and returned to the CDFW. The agreement becomes final once the CDFW executes it and an LSAA is issued. Please note that all application fees must be paid and the final certified CEQA documentation must be provided prior to the CDFW's execution of the agreement.

If the CDFW does not respond in writing concerning the completeness of the Notification within 30 days of its submittal, the Notification automatically becomes complete. If the CDFW does not submit a draft LSAA to the Applicant within 60 days of the determination of a completed Notification package, the CDFW will issue a letter that either (1) identifies the final date to transmit a draft LSAA or (2) indicates that an LSAA was not required. The CDFW will also indicate that it was unable to meet this mandated compliance date and that, by law, the Applicant is authorized to complete the project without an LSAA as long as the applicant constructs the project as proposed and complies with all avoidance, minimization, and mitigation measures described in the submitted Notification package. Please note that if the project requires revisions to the design or project construction, the CDFW may require submittal of a new notification/application with an additional 90-day permit process.

4.5 RECOMMENDATIONS

Based on the conclusions of this Jurisdictional Delineation Report, the following recommendations are identified:

1. Schedule a pre-application meeting with USACE, CDFW, and RWQCB staff to discuss site conditions; biological and jurisdictional resources; the proposed Project; impacts to these resources resulting from the proposed Project; proposed minimization measures and the mitigation program to offset these impacts; and the regulatory permit process, including concurrence from the USACE that a Preliminary Jurisdictional Determination is appropriate.

2. Prepare and process a USACE Section 404 Permit; an RWQCB Section 401 Water Quality Certification; a CDFW Section 1602 LSAA; and the appropriate jurisdictional determination form approved by the USACE. It should be noted that if a Section 408 Permit is determined to be required the USACE District Engineer, it may be processed concurrently with the Section 404 Permit.

Prior to initiation of Project activities, the Los Angeles County Flood Control District (LACFCD) shall obtain all necessary permits for impacts to USACE, the RWQCB, and the CDFW jurisdictional areas. Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process. Potential mitigation options may include (1) payment to a mitigation bank or regional riparian enhancement program (e.g., invasive plant or wildlife species removal); (2) removal of exotic species from onsite LACDPW facilities; and/or (3) restoration of riparian habitat either on site or off site at a ratio of no less than 1:1, determined through consultation with the U.S. Forest Service (USFS), the USACE, the RWQCB, and the CDFW. Mitigation ratios for mitigation from impacts to USACE "waters of the U.S." would be identified through the completion of the USACE mitigation checklist pursuant to the USACE's Standard Operating Procedure for Determination of Mitigation Ratios (USACE 2012). If the USFS requires a restoration plan to mitigate for impacts on USFS lands, a restoration plan detailing the methodology and performance standards will be prepared in accordance with requirements specified by the USFS, the USACE, the RWQCB, and the CDFW. If a restoration plan is required for Project impacts to jurisdictional features not on USFS lands, a restoration plan will be prepared in accordance with requirements specified in permits/agreements issued by the USACE, the RWQCB, and the CDFW.

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ATTACHMENT A

WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 1

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): CA Lat: 34.17089 Long: -118.02188 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: PEMCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Sampling point located in a debris basin in Santa Anita Creek downstream of the Santa Anita Dam. The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	20	yes	FACW
2. Tamarix ramosissima	5	yes	UPL
3.			
4.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Xanthium strumarium	80	yes	FAC
2. Juncus sp.	25	yes	FACW*
3. Ricinus communis	5	no	FACU
4. Cuscuta sp.	2	no	UPL
5.			
6.			
7.			
8.			
	112	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	80	x 3 =	240
FACU species	5	x 4 =	20
UPL species	7	x 5 =	35
Column Totals:	137 (A)		385 (B)

Prevalence Index = B/A = 2.81

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

* Juncus species are typically listed as FACW or OBL; considered FACW for purposes of dominance test and prevalence index.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR4/1	100					loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation visible on Google Earth aerials dated 1/8/2008, 3/27/2005, and 5/30/1994.

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 2

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): CA Lat: 34.17118 Long: -118.02168 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: PFOCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	85	yes	FACW
2.			
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Cyperus sp.	5	yes	FACU*
2. Xanthium strumarium	1	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	6	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	1	x 3 =	3
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	91 (A)		193 (B)

Prevalence Index = B/A = 2.12

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Cyperus species are listed as FACU to OBL; considered FACU for purposes of dominance test and prevalence index.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					sand	
8-11	10YR 4/1	100					sand	
11-20	10YR 4/2	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation visible on Google Earth aerials dated 1/8/2008, 3/27/2005, and 5/30/1994.

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 3

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): CA Lat: 34.17143 Long: -118.02219 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: PFOCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	70	yes	FACW
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Xanthium strumarium	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	75 (A)		155 (B)

Prevalence Index = B/A = 2.07

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 3/2	100					clayey silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation visible on Google Earth aerials dated 1/8/2008, 3/27/2005, and 5/30/1994.

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 4

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): stream bed Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): CA Lat: 34.17334 Long: -118.02074 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Sampling point in Santa Anita Wash. The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus racemosa	10	yes	FAC
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Baccharis salicifolia	20	yes	FAC
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Pennisetum setaceum	5	yes	UPL
2. Polypogon monspeliensis	1	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	6	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	36 (A)		117 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/2	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 8

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 5

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): stream bed Local relief (concave, convex, none): none Slope (%): 2-5

Subregion (LRR): CA Lat: 34.17756 Long: -118.01900 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: Rp1FO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rhombifolia	65	yes	FACW
2.			
3.			
4.			
	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Ricinus communis	10	yes	FACU
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Persicaria cf. lapathifolium [Polygonum l.]	30	yes	FACW
2. Ageratina adenophora	25	yes	FACU
3. Cyperus sp.	5	no	FACU*
4. Stipa miliacea [Piptatherum m.]	5	no	UPL
5.			
6.			
7.			
8.			
	65	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 35 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	5	x 5 =	25
Column Totals:	140 (A)		375 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Cyperus species are listed as FACU to OBL; considered FACU for purposes of dominance test and prevalence index.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 14

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0

Water Table Present? Yes ✓ No ____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 6

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): CA Lat: 34.17805 Long: -118.01809 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Baccharis salicifolia	5	yes	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Persicaria cf. lapathifolia [Polygonum l.]	30	yes	FACW
2. Artemisia douglasiana	10	yes	FAC
3. Melilotus indicus	10	yes	FACU
4. Lactuca serriola	5	no	FACU
5. Ricinus communis	5	no	FACU
6.			
7.			
8.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	15	x 3 =	45
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	65 (A)		185 (B)

Prevalence Index = B/A = 2.84

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					mucky sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 6

Hydric Soil Present? Yes ___ No ✓

Remarks:

approximately 1/2 inch of organic matter on the surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 7

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR): CA Lat: 34.17838 Long: -118.01788 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	35	yes	FACW
2. Alnus rhombifolia	25	yes	FACW
3. Platanus racemosa	15	yes	FAC
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Baccharis salicifolia	15	yes	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Ageratina adenophora	2	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	2	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 98 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	92 (A)		218 (B)

Prevalence Index = B/A = 2.37

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 4

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0

Water Table Present? Yes ✓ No ____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/23/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 8

Investigator(s): Allison Rudalevige, David Hughes Section, Township, Range: 10, T1N, R11W

Landform (hillslope, terrace, etc.): stream bed Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR): CA Lat: 34.1798 Long: -118.0188 Datum: NAD83

Soil Map Unit Name: Trigo family, granitic substratum, 60 to 90 percent slopes NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rhombifolia	90	yes	FACW
2.			
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Ageratina adenophora	5	yes	FACU
2. Cyperus sp.	1	no	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	6	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 94 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column Totals:	96 (A)		204 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Cyperus species are listed as FACU to OBL; considered FACU for purposes of dominance test and prevalence index.

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/4	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 7

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/25/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 9

Investigator(s): Gary Medeiros, David Hughes Section, Township, Range: 15, T1N, R11W

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): CA Lat: 34.16893 Long: -118.02022 Datum: NAD83

Soil Map Unit Name: N/A NWI classification: PSSA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Sambucus nigra ssp. caerulea	10	yes	FAC
2. Quercus agrifolia	5	yes	UPL
3.			
4.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Baccharis salicifolia	5	yes	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron diversilobum	20	yes	UPL
2.			
	20	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column Totals:	40 (A)		170 (B)

Prevalence Index = B/A = 4.25

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/4	100					gravelly sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock/cobble

Depth (inches): 5

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/25/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 10

Investigator(s): Gary Medeiros, David Hughes Section, Township, Range: 10, T1N, R11W

Landform (hillslope, terrace, etc.): plunge pool Local relief (concave, convex, none): concave Slope (%): 0-5

Subregion (LRR): CA Lat: 34.183286 Long: -118.019557 Datum: NAD83

Soil Map Unit Name: Trigo family, granitic substratum, 60 to 90 percent slopes NWI classification: PFOA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation. The site is immediately downstream of the plunge pool.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ficus carica	40	yes	FACU
2. Salix gooddingii	30	yes	FACW
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Baccharis salicifolia	20	yes	FAC
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Ageratina adenophora	50	yes	FACU
2. Urtica dioica	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	30	x 3 =	90
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	150 (A)		510 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
N/A								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 0

Hydric Soil Present? Yes ____ No ✓

Remarks:

No soil. The substrate is rock (plunge pool).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Anita Dam City/County: Arcadia/Los Angeles Sampling Date: 4/25/2013

Applicant/Owner: LACDPW State: CA Sampling Point: 11

Investigator(s): Gary Medeiros, David Hughes Section, Township, Range: 10, T1N, R11W

Landform (hillslope, terrace, etc.): reservoir Local relief (concave, convex, none): none Slope (%): 5-10

Subregion (LRR): CA Lat: 34.184998 Long: -118.016877 Datum: NAD83

Soil Map Unit Name: Trigo family, granitic substratum, 60 to 90 percent slopes NWI classification: PUBHh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The 2012-2013 water year has had below normal precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

The sampling point is located below the typical high water line of the reservoir; however, water levels this year are unusually low. This area is unvegetated.

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/4	100					sand	
1-20	N 2.5/	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): adjacent

Water Table Present? Yes ✓ No _____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 2

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

ATTACHMENT B

SITE PHOTOGRAPHS



View from the top of the Santa Anita debris dam overlooking the debris dam reservoir, facing north.



View from the northern end of Santa Anita Debris Dam Reservoir, facing south.



View from the northern end of Santa Anita Debris Dam Reservoir, facing north.



View from the west side of Santa Anita Wash, facing east, looking at a pipe conveying storm water flow from Lower Clamshell Truck road.



View from the west side of Santa Anita Wash, facing northeast, looking at the bridge and pipe culverts downstream from the Santa Anita Headworks.



View from south of the Santa Anita Headworks, facing north.

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Site Photographs

Attachment B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(05/02/2013 JAZ) R:\Projects\CoLADPW-S\J166\Graphics\JD\AttC1_SP.pdf & H:\PAS\Projects\CoLADPW\J166\Graphics\JD\AttB1_SP.pdf



View from the top of Santa Anita Dam, facing northeast.



View from the top of Santa Anita Dam, facing southwest.



View from the bottom of Santa Anita Reservoir, facing south, looking at Santa Anita Dam.



View of a side drainage approximately 500 feet downstream of Santa Anita Dam, facing west.



View of a side drainage approximately 1,000 feet downstream of the Santa Anita Dam, facing west.

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Site Photographs

Attachment B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

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Sampling Point 1.



Sampling Point 2.



Sampling Point 3.



Sampling Point 4.



Sampling Point 5.



Sampling Point 6.

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Site Photographs

Attachment B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

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Sampling Point 7.



Sampling Point 8.



Sampling Point 9.



Sampling Point 10.



Sampling Point 11.

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Site Photographs

Attachment B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

ATTACHMENT C

OHWM DATASHEETS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Santa Anita Dam
Project Number: CoLADPW J166
Stream: Santa Anita debris basin
Investigator(s): David Hughes, Allison Rudalevige

Date: 4/23/2013 **Time:**
Town: Arcadia **State:** CA
Photo begin file#: **Photo end file#:**

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed?

Location Details: Soil pit #1

Projection: Lat/Long **Datum:** NAD 83
Coordinates: 34.17089° / -118.02188°

Potential anthropogenic influences on the channel system:
Sampling location is within debris basin that traps sediment. [redacted] Santa Anita dam is upstream

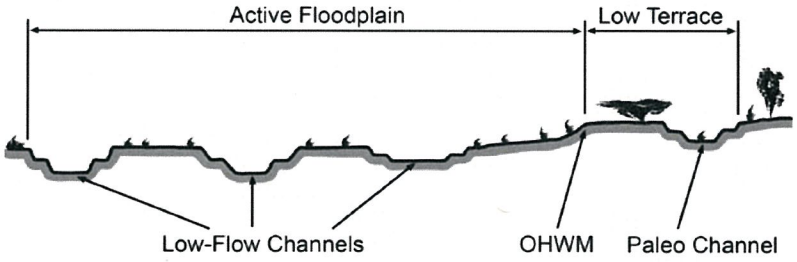
Brief site description:
Area is within Santa Anita debris/desilting basin

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

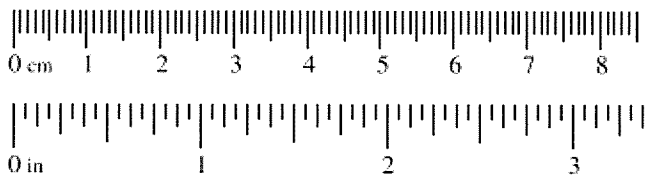


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☒ GPS
   - ☐ Other:

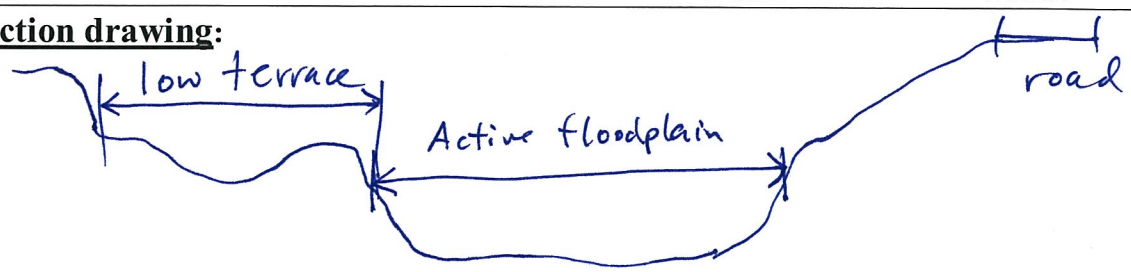
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☒ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM is identified by change in vegetation to west (mule fat on bank, above which is CSS species) To the east, OHWM is flood limits on bank.

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 90 % Tree: 20 % Shrub: 5 % Herb: 80 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel does not readily exist in basin. Basin is flat bottomed with deep sand deposition.

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 34.17111°/-118.02239

Characteristics of the floodplain unit:
Average sediment texture: sand
Total veg cover: 80 % Tree: 60 % Shrub: 5 % Herb: 70 %
Community successional stage:
- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:
- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:
Active floodplain limits based on limits of inundation within basin.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 34.17166°/-118.02317

Characteristics of the floodplain unit:
Average sediment texture: sandy silt
Total veg cover: 100 % Tree: 10 % Shrub: 90 % Herb: 10 %
Community successional stage:
- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:
- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:
A low terrace area exists west of the active floodplain with upland native plant species, mostly sage scrub.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Santa Anita Dam
Project Number: COLADOW J166
Stream: Santa Anita Wash
Investigator(s): David Hughes, Allison Rudalevige

Date: 4/23/2013 **Time:**
Town: Arcadia **State:** CA
Photo begin file#: **Photo end file#:**

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Soil pit #4

Projection: 34.17334 **Datum:** NAD 83
Coordinates: 118.02074

Potential anthropogenic influences on the channel system:
Santa Anita dam is upstream, therefore hydrology is managed.

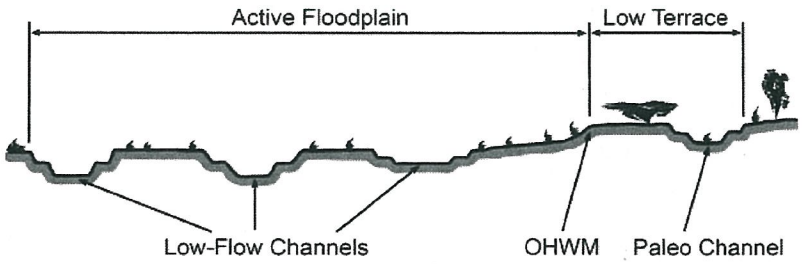
Brief site description:
Area is upstream of Santa Anita debris/desilting basin, channel contains large boulders with deep sand

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2011
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [ ] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

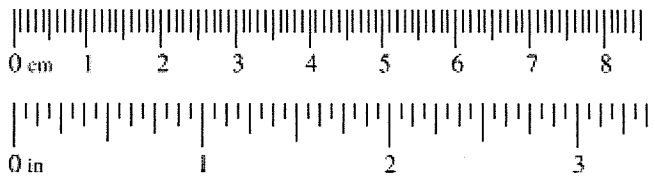


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [X] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [ ] GPS
   - [ ] Other:

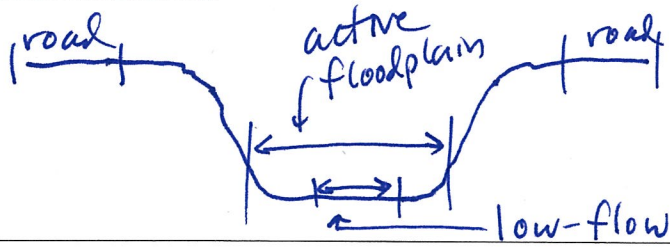
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: 34.17334, 118.02074

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: scour, shelving
- ☐ Other: _____

Comments:

channel is well-defined, with steep banks

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: 34.17334, 118.02074

Characteristics of the floodplain unit:

Average sediment texture: sand, rock

Total veg cover: 10% Tree: 0 % Shrub: 5 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☒ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 34.17334, 116.02074

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 25 % Tree: 10 % Shrub: 20 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

channel has very steep banks, therefore no low terrace area exists.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Santa Anita Dam
Project Number: CoLADPW J166
Stream: Santa Anita Canyon
Investigator(s): David Hughes, Allison Rudalevige

Date: 4/23/2013 **Time:**
Town: Arcadia **State:** CA
Photo begin file#: **Photo end file#:**

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details: Soil pit #5

Projection: ~~NAD 83~~ **Datum:** NAD 83
Coordinates: 34.17756° / 118.0190°

Potential anthropogenic influences on the channel system:
Managed hydrology; Santa Anita Dam is upstream as is a weir (immediately upstream of this location).

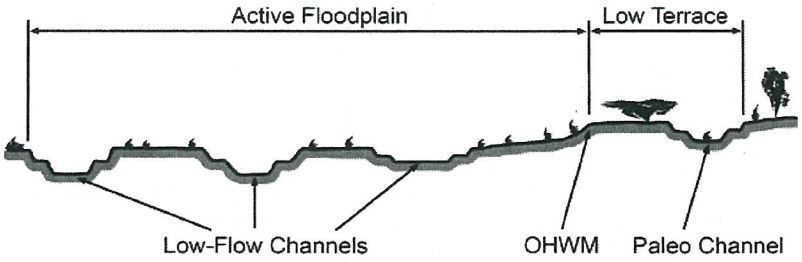
Brief site description:
Site is a shallow stream with running water adjacent to Arcadia Wilderness Park

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 2011
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

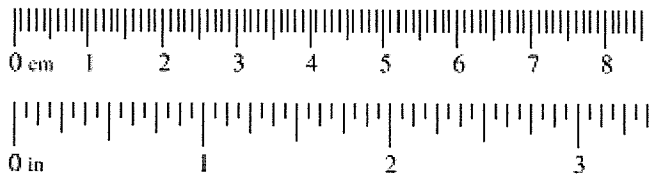


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

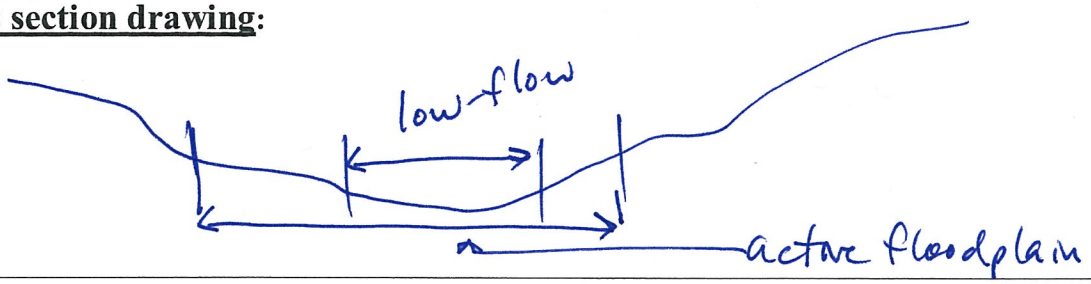
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: 34.17756° / 118.0190°

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: Scour, shelving
- ☐ Other: _____

Comments:

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: 34.17756° / 118.0190°

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 90 % Tree: 60 % Shrub: 10 % Herb: 30 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

low-flow channel had surface flow at time of survey.

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 34.17756° / 118.0190°

Characteristics of the floodplain unit:

Average sediment texture: silt

Total veg cover: 90 % Tree: 60 % Shrub: 10 % Herb: 30 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Santa Anita Dam
Project Number: COLADPW 1166
Stream: Santa Anita Canyon
Investigator(s): David Hughes, Allison Rudalevige

Date: 4/23/2013 **Time:**
Town: Arcadia **State:** CA
Photo begin file#: **Photo end file#:**

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details: Soil pit #8

Projection: Lat/longs **Datum:** NAD 83
Coordinates: 34.1798, -118.0188

Potential anthropogenic influences on the channel system:
Managed hydrology - Santa Anita Dam is upstream

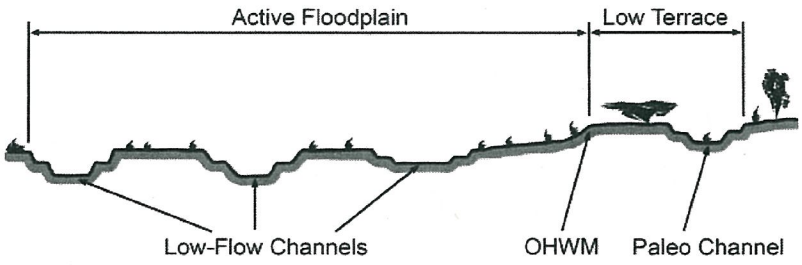
Brief site description:
Area is at end of access road, north of Arcadia Wilderness Park, flowing stream, alder woodland

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 2011
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

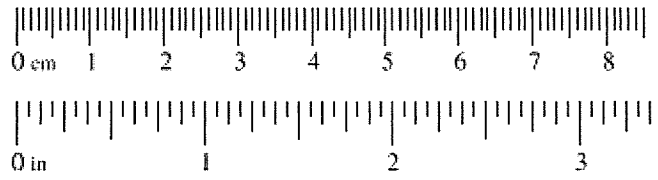


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

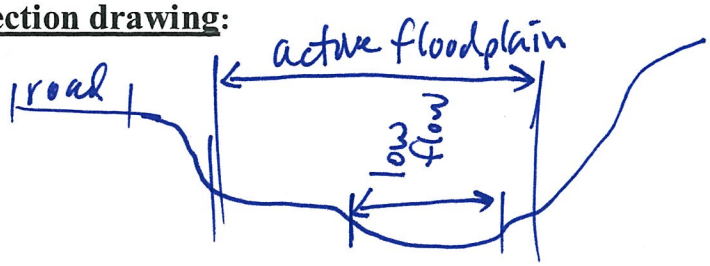
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: 34.1798, 118.0188

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: shelving, wrackline
- ☐ Other: _____

Comments:

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: 34.1798; 118.0188

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 90 % Tree: 90 % Shrub: 0 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

flowing water at time of survey.

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 34.1798°, 116.0188°

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 90 % Tree: 90 % Shrub: 0 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☒ Other: scour, wrackline
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

no low terrace.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Santa Anita Dam
Project Number: CoLADPW 1166
Stream: Santa Anita Canyon
Investigator(s): David Hughes, Gary Medeiros

Date: 4/25/13
Town: Arcadia
Photo begin file#:

Time:
State: CA
Photo end file#:

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details: upper end of Santa Anita Reservoir

Projection: lat/long **Datum:** NAD 83
Coordinates: 34.18499, 118.01687

Potential anthropogenic influences on the channel system:
Site is at upper end of Santa Anita Reservoir, within inundation footprint, subject to sediment removal.

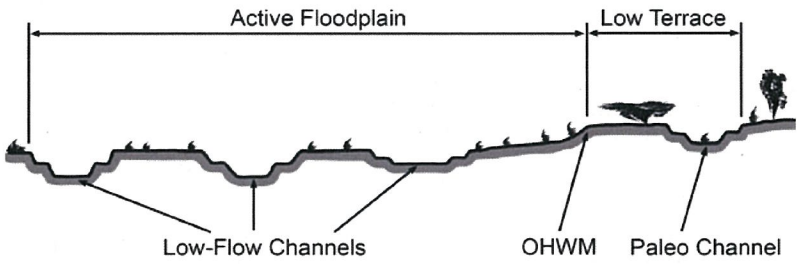
Brief site description:
upper end of reservoir, minimally vegetated due to inundation.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

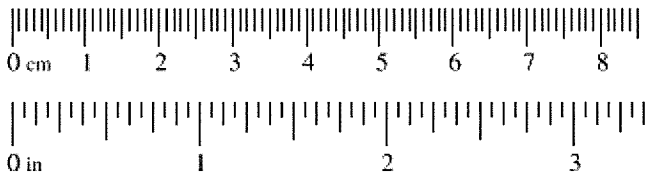


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

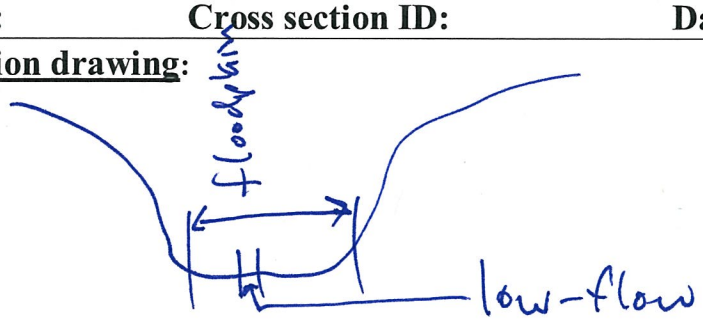
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: 34.18499, 118.01687

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

site is within narrow canyon, OHWM defined by inundation water marks

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: 34.18499, 118.01687

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☒ Other: flowing water
- ☐ Other: _____
- ☐ Other: _____

Comments:

flowing water at time of survey

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 34.18499, 118.01687

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☒ Other: water marks
- ☐ Other: _____
- ☐ Other: _____

Comments:

active floodplain delineated by water marks on canyon sides

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

no low terrace - site is within narrow canyon.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Santa Anita DB
Project Number: CoLADPW J166
Stream: trib to Santa Anita Wash
Investigator(s): DTH, GAM

Date: 4/25/13
Town: Arcadia
Photo begin file#:

Time: 0830
State: CA
Photo end file#:

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details: Soil pit 9

Projection: lat/long **Datum:** NAD 83
Coordinates: 34.1689° / 118.0202

Potential anthropogenic influences on the channel system:
land cleared for staging / storage by County DPW

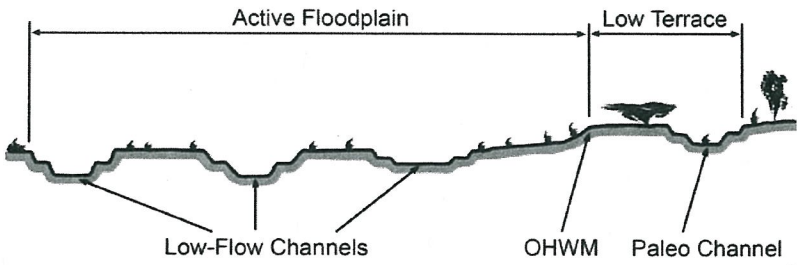
Brief site description:
ephemeral side channel, downstream of desilting basin

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

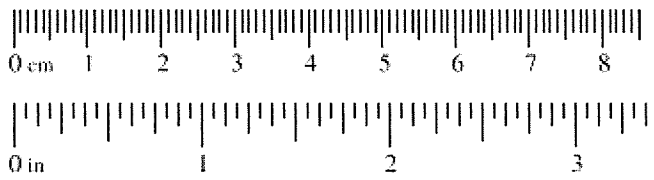


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

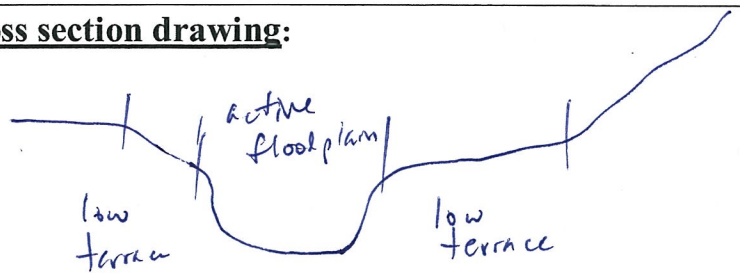
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64		
		Pebble	
0.157	4		
		Granule	
0.079	2.00		
		Very coarse sand	
0.039	1.00		
		Coarse sand	
0.020	0.50		
		Medium sand	Sand
1/2 0.0098	0.25		
		Fine sand	
1/4 0.005	0.125		
		Very fine sand	
1/8 0.0025	0.0625		
		Coarse silt	
1/16 0.0012	0.031		
		Medium silt	
1/32 0.00061	0.0156		Silt
		Fine silt	
1/64 0.00031	0.0078		
		Very fine silt	
1/128 0.00015	0.0039		
		Clay	Mud



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: ~~Wypt 091~~ 34.1689, 118.0202

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: gravelly sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

low-flow channel is unvegetated, has layer of oak litter

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

active floodplain largely is identical with low-flow channel

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: 20 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

low terrace largely unvegetated, modest coverage of Sambucus nigra, Quercus agrifolia, Po. Sw oak, mule fat.

ATTACHMENT D

NATIONWIDE PERMIT SUMMARY

The following is a summary of Nationwide Permit 3 (Maintenance):

NWP 3. Maintenance. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and/or the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization. The placement of new or additional riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer.

(c) This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Sections 10 and 404)

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

General Condition 31. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either: (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information: (1) Name, address and telephone numbers of the prospective permittee; (2) Location of the proposed project; (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans); (4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the

special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate; (5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan. (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. (2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5. (3) In cases of where the prospective permittee is not a Federal agency, the

district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act. (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

ATTACHMENT E

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

District Office: | File/ORM #: | PJD Date:

State: CA | City/County: Arcadia and Monrovia/Los Angeles

Nearest Waterbody: Santa Anita Dam Reservoir

Location: TRS, LatLong or UTM: T1N, R11W, sec 10
11 406152 mE, 3783039 mN

Name/ Address of Person Requesting PJD:
Matt Frary, P.E.
Water Resources Division
Los Angeles County Department of Public Works
900 South Fremont Ave, 2nd Floor
Alhambra, CA 91803-1331

Identify (Estimate) Amount of Waters in the Review Area:

Non-Wetland Waters: [ ] linear ft [ ] width [19.42] acres — Stream Flow: [Perennial]

Wetlands: [0.00] acre(s) — Cowardin Class: [ ]

Name of Any Water Bodies on the Site Identified as Section 10 Waters: Tidal: [ ] Non-Tidal: [ ]

☐ Office (Desk) Determination
☐ Field Determination: Date of Field Trip: [ ]

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: BonTerra Consulting 2013
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite quad name: Mt. Wilson 7.5-minute quadrangle
- ☑ USDA Natural Resources Conservation Service Soil Survey. Citation: USDA NRCS, Angeles National Forest Area, CA
- ☑ National wetlands inventory map(s). Cite name: Online mapper for Study Area, 2013.
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is:
- ☑ Photographs: ☑ Aerial (Name & Date): Aerials Express 2009; Google Earth various dates
  ☑ Other (Name & Date): Site photographs; BonTerra Consulting 2013
- ☐ Previous determination(s). File no. and date of response letter:
- ☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Appendix A - Sites

District Office	Los Angeles District	File/ORM #		PJD Date:	
State	CA	City/County	Arcadia and Monrovia/Los Angeles	Person Requestinq PJD	Matt Frary, P.E.

Site Number	Latitude	Longitude	Cowardin Class	Est. Amount of Aquatic Resource in Review Area	Class of Aquatic Resource
1	34.17089	-118.02188	Palustrine, emergent		Non-Section 10 non-wetlanc
2	34.17118	-118.02168	Palustrine, forested		Non-Section 10 non-wetlanc
3	34.17143	-118.02219	Palustrine, forested		Non-Section 10 non-wetlanc
4	34.17334	-118.02074	Riverine		Non-Section 10 non-wetlanc
5	34.17756	-118.01900	Riverine		Non-Section 10 non-wetlanc
6	34.17805	-118.01809	Riverine		Non-Section 10 non-wetlanc

Notes:

Information on Additional Sites:
7; latitude 34.17838 longitude -118.01788; Riverine; Non-Section 10 not-wetlands
8; latitude 34.1798 longitude -118.0188; Riverine; Non-Section 10 non-wetlands
9; latitude 34.16893 longitude -118.02022; Palustrine, scrub-shrub; Non-Section 10 non-wetlands
10; latitude 34.183286 longitude -118.019557; Palustrine, forested; Non-Section 10 non-wetlands
11; latitude 34.184998 longitude -118.016877; Palustrine, unconsolidated bottom; Non-Section 10 non-wetlands