Year 4 Annual Monitoring Report
for the
Devil's Gate Reservoir Restoration Project
(Phase 1) Onsite Habitat Mitigation

Pasadena, Los Angeles County, California

Prepared for:

Los Angeles County Public Works

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
ACWM	Agricultural Commissioner Weights and Measures
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
City	City of Pasadena
CSS	Coastal sage scrub
HRP	Habitat Restoration Plan
ISHB	Invasive shot hole borer beetle
JPL	Jet Propulsion Laboratory
LACPW	Los Angeles County Public Works
LBVI	Least Bell's vireo
LSAA	Lake or Streambed Alteration Agreement
msl	Mean sea level
PMA	Permanent Maintenance Area
Project	Devil's Gate Reservoir Habitat Restoration Project
RAFSS	Riversidean Alluvial Fan Sage Scrub
RE	Restoration Ecologist
Reservoir	Devil's Gate Reservoir

1.0 INTRODUCTION

Los Angeles County Public Works (LACPW) completed Phase 1 of habitat restoration implementation for the Devil's Gate Reservoir Habitat Restoration Project (Project) on February 13, 2020. Habitat restoration is being implemented to comply with the compensatory mitigation requirements in Conditions 3.1, 3.2, and 3.5 of the Lake or Streambed Alteration Agreement (LSAA) (Notification No. 1600-2015-0263-R5 dated March 21, 2017) executed between the California Department of Fish and Wildlife (CDFW 2017) and the Los Angeles County Flood Control District. Two amendments to the LSAA were issued by the CDFW in response to modifications to the boundaries of the Project (dated July 17, 2018) and to address the proposed offsite mitigation component (dated July 16, 2018). The LSAA and the LSAA amendment for the onsite mitigation are included in Appendix A.

Implementation of habitat mitigation was conducted according to the Final Habitat Restoration Plan (HRP) for the Project (dated November 2018), which addresses the impact areas associated with the Project and the onsite compensatory mitigation areas at the Project site (ECORP 2018a). According to the HRP, onsite compensatory mitigation will include the creation, restoration, and enhancement of native habitats with the purpose of providing quality habitat for an abundance of wildlife, including the least Bell's vireo (*Vireo bellii pusillus*), which is listed as endangered under the federal and California Endangered Species Acts and (CDFW 2018).

Implementation of habitat mitigation for Phase 1 was conducted in mitigation areas DG-1, DG-1 WOUS, DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5. A small portion of Phase 1 mitigation areas DG-1, DG-3A, and DG-4 were included in the temporary impacts around the perimeter of the Project and are actively being restored following the completion of the side slopes configuration. A small, unrestored portion of DG-3A is currently being used for staging of construction equipment and for maintenance access and will either be restored following the completion of the Project or will become a permanent access route for maintenance activities. In addition, the portion of DG-3A that surrounds Altadena Drain suffered major erosion during Year 3 and continued to have significant erosion during Year 4. LACPW is working on design plans to redirect high intensity flows to the Reservoir and repair the erosion. DG-3B is to be added as a result of a legal settlement and restoration of this area will be included in a future phase of restoration implementation pending the revision of the HRP.

The initial sediment removal for the Project, which included an estimated initial removal of 1.7 million cubic yards of sediment to establish a Permanent Maintenance Area (PMA), was completed in 2021. The purpose of the Project is to restore flood capacity and establish a Reservoir management system to maintain the flood control capacity of the Reservoir. Subsequently, annual maintenance and episodic maintenance were initiated in September of 2022 and are being conducted on an annual basis in the established PMA to remove accumulated sediment and to ensure continued flood control capacity. Removal of sediment will not occur outside of the boundaries of the PMA.

This Year 4 Annual Monitoring Report has been prepared to address the onsite habitat mitigation requirements pursuant to the LSAA for the Project. This report documents the progress of onsite mitigation that the LACPW is responsible for implementing and maintaining for a period of five years for

riparian habitats and ten years for upland habitat. Annual reports will be provided until established success criteria have been met and CDFW has deemed the mitigation successful.

1.1 Project Location

The Project is located in the City of Pasadena (City) in Los Angeles County on the Pasadena U.S. Geological Survey California 7.5′ topographic quadrangle (Figure 1). More specifically, the Project is located within the upper portion of the Arroyo Seco Watershed within the City's Hahamongna Watershed Park (Figure 2).

The Project site is located along an approximately 4,754-feet linear section of the Arroyo Seco drainage and alluvial fan, which is an area subject to change and disturbance due to erosion and sediment movement resulting from runoff that flows south from the Angeles National Forest. The elevation of the Project site ranges from approximately 985 feet above mean sea level (msl) behind the dam to approximately 1,100 feet above msl at the northern end.

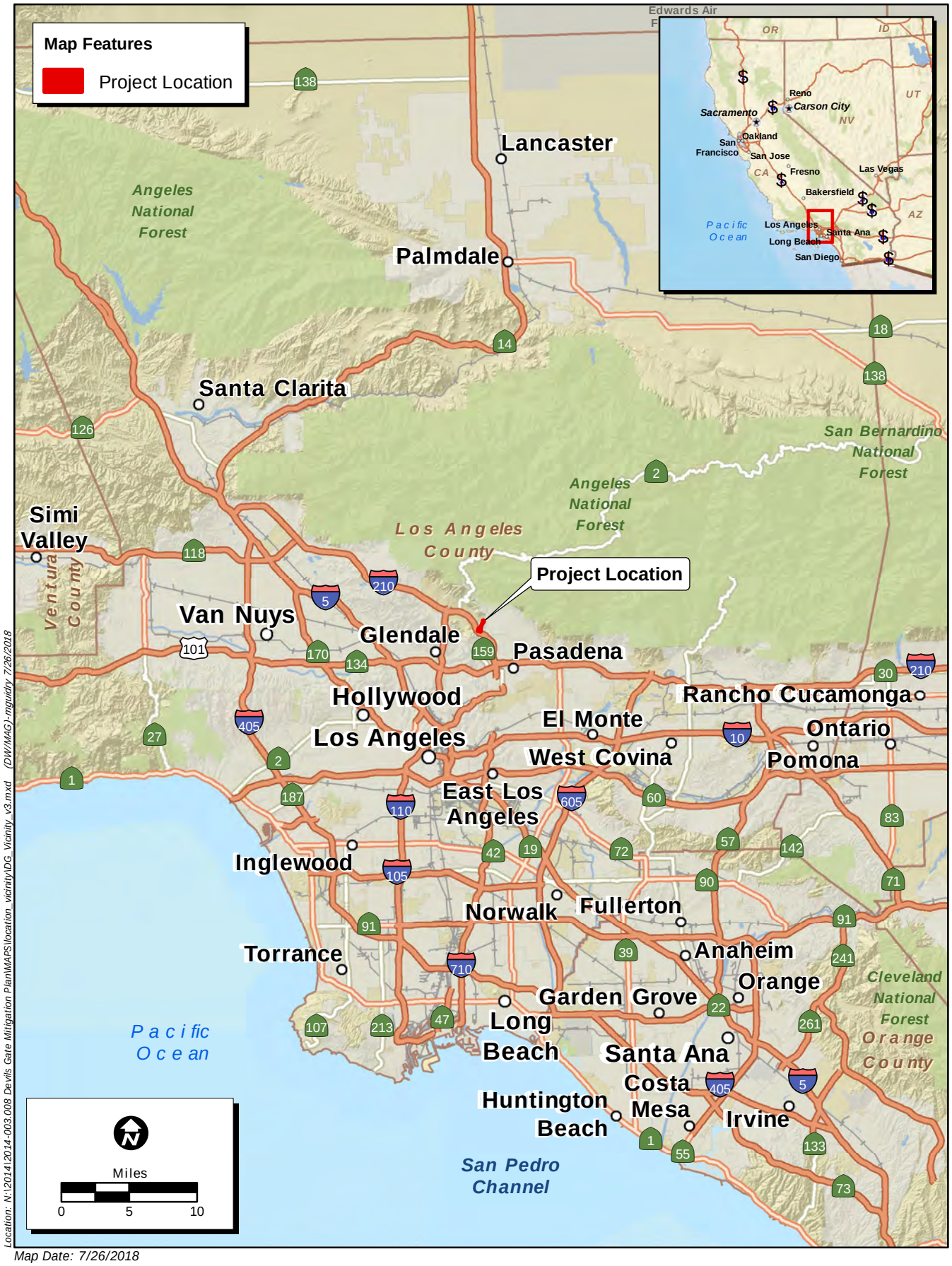
2.0 ONSITE HABITAT MITIGATION OVERVIEW

2.1 General Location of Mitigation Areas

The Phase 1 onsite habitat mitigation areas (hereafter referred to as mitigation areas) are located to the east and west of the Devil's Gate Reservoir (Reservoir) just outside of the PMA for the Project (Figure 3). Mitigation areas DG-1, DG-1 WOUS, DG-2A, DG-2B, and DG-3A are located on the east side of the Reservoir and mitigation areas DG-4, DG-4B, DG-4C, and DG-5 are located on the west side of the Reservoir. The mitigation areas are encompassed by the Hahamongna Watershed Park, which is heavily used for recreational activities such as hiking, bird watching, horseback riding, and disc golf.

2.2 Mitigation Requirements

The LSAA issued by the CDFW for the Project on March 21, 2017 provided a breakdown of the required onsite and offsite compensatory mitigation for permanent impacts (Condition 3.1) as well as the mitigation required for the temporary impacts of the Project (Condition 3.2). The LSAA amendment issued on July 17, 2018 addressed a revision to the Project boundary that changed the overall impacts of the Project. In addition, the LSAA amendment included a revision to Condition 3.1, which addressed the changes in the required onsite mitigation. LACPW is currently in the process of preparing an LSAA amendment application that will account for changes to the permitted Project boundary resulting from clearing that occurred outside of the permitted Project boundary and to comply with the conditions of the finalized legal settlement. The conditions of the legal settlement resulted in minor changes to the Project boundary and a conversion of some permanent impact areas to temporary impacts. The HRP, which will be revised following the issuance of the amended LSAA, will incorporate all changes related to the legal settlement. Future annual reports will be based on the revised HRP requirements.



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Map Date: 7/26/2018

Service Layer Credits: Sources: Esri, USGS, NOAA

Figure 1. Project Vicinity

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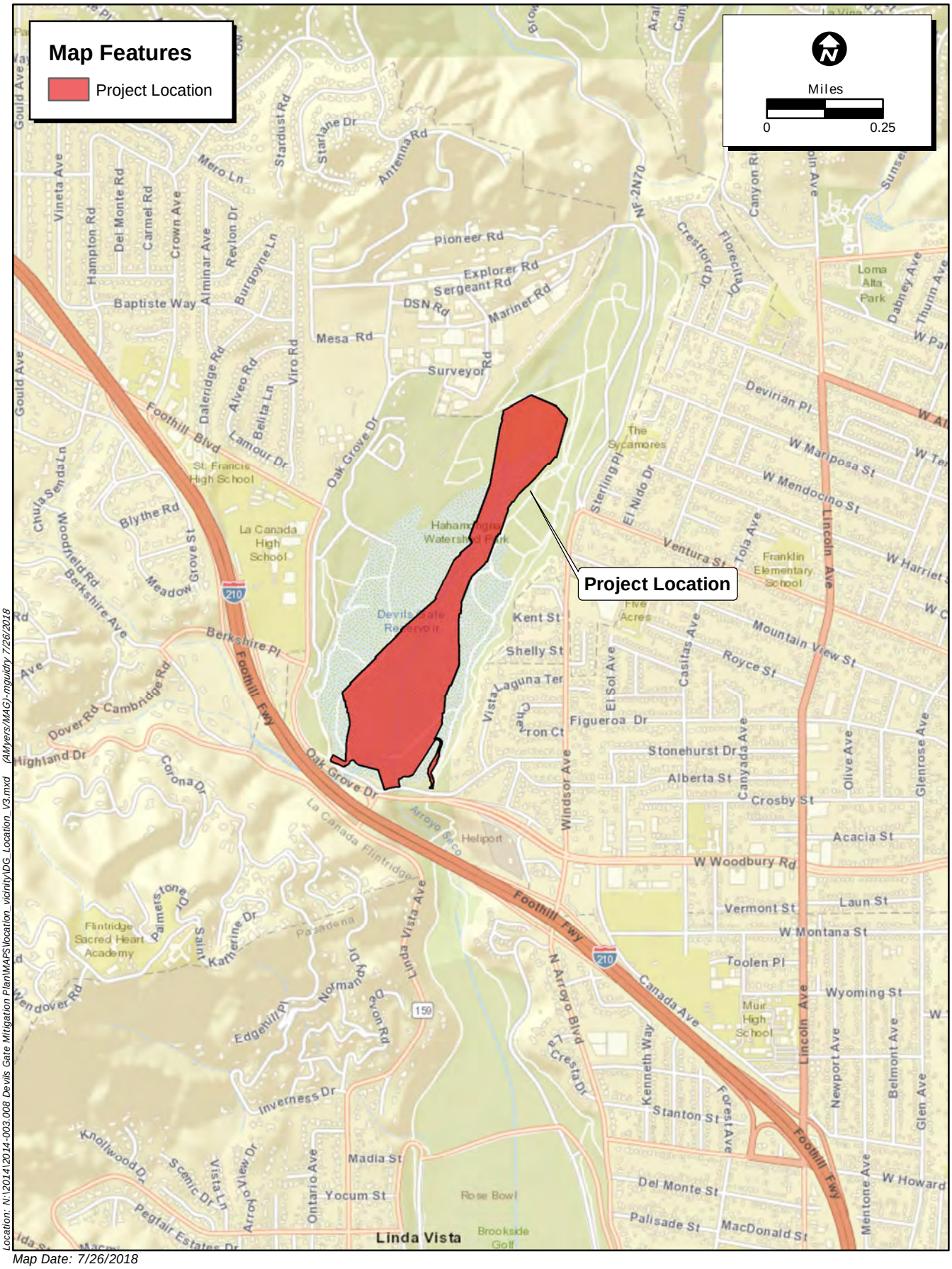
2014-003.008 Devil's Gate Sediment Removal Project



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Map Date: 7/26/2018
Source: ESRI

Figure 2. Project Location

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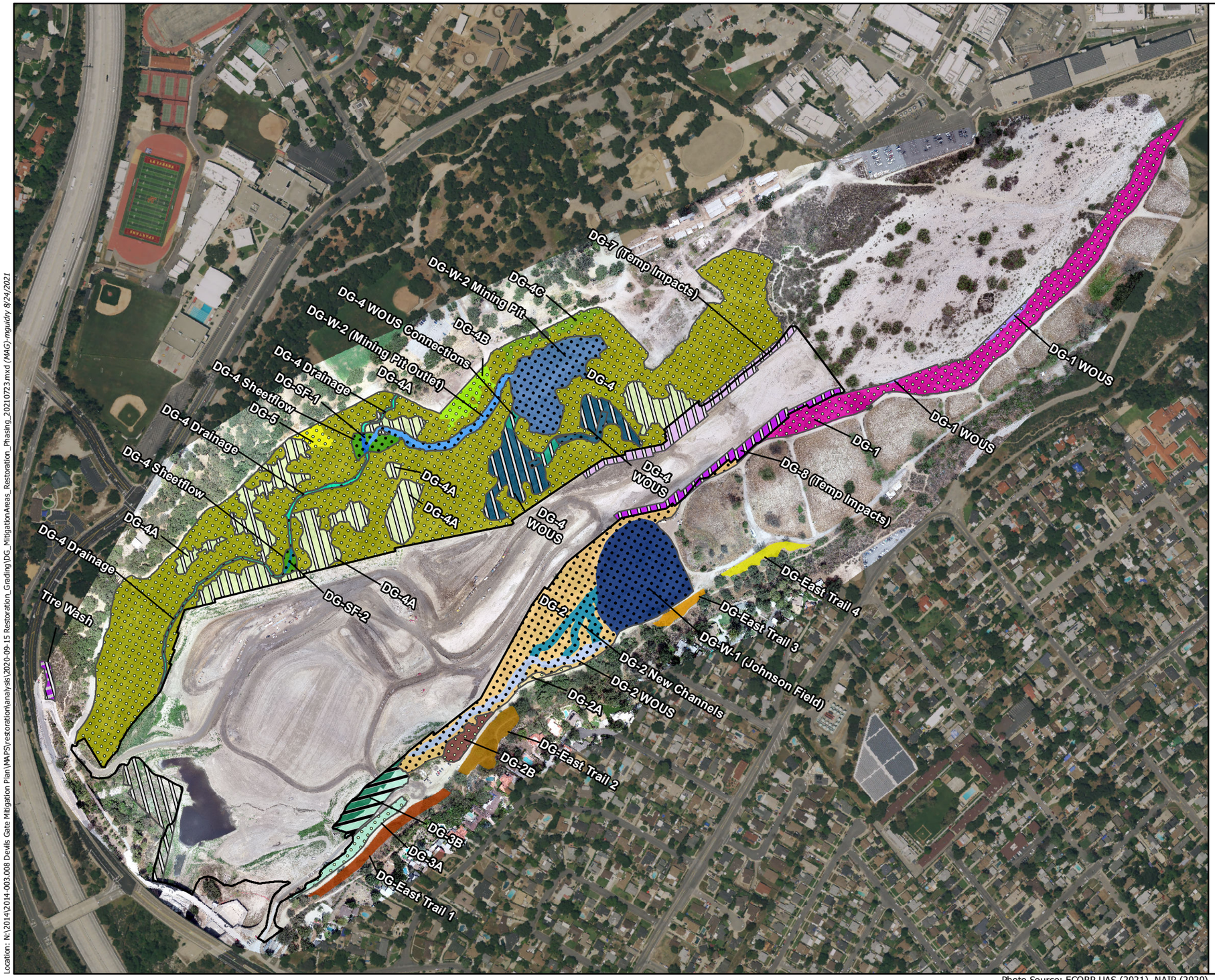
2014-003.013 Devil's Gate Sediment Removal Project

Figure 3.
Onsite Habitat Mitigation Areas



Map Features

- Final Design Boundary

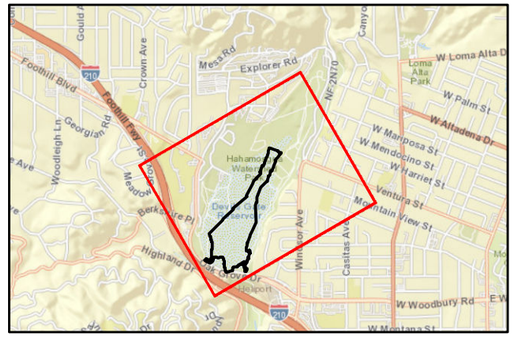
Restoration Phasing

- Phase 1 - Completed
- Phase 2 – Completed
- Future Phase 3
- Future Phase 4

Mitigation Areas

- DG-1
- DG-1 WOUS
- DG-2
- DG-2 New Channels
- DG-2 WOUS
- DG-2A
- DG-2B
- DG-3A
- DG-3B
- DG-4
- DG-4 Drainage
- DG-4 Sheetflow
- DG-4 WOUS
- DG-4 WOUS Connections
- DG-4A
- DG-4B
- DG-4C
- DG-5
- DG-7 (Temp Impacts)
- DG-8 (Temp Impacts)
- DG-East Trail 1
- DG-East Trail 2
- DG-East Trail 3
- DG-East Trail 4
- DG-SF-1
- DG-SF-2
- DG-W-1 (Johnson Field)
- DG-W-2 (Mining Pit)
- DG-W-2 (Mining Pit Outlet)
- Tire Wash

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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2014-003.008 Devils Gate Mitigation Plan

Scale in Feet
0 500

Photo Source: ECORP UAS (2021), NAIP (2020)

Map Date: 8/24/2021

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\restoration\analysis\2020-09-15 Restoration_Grading\DG_MitigationAreas_Restoration_Phasing_20210723.mxd (MAG)-mguidry 8/24/2021

The original design of the onsite mitigation for the Project, which is what this annual report is based upon, included the creation, restoration, and enhancement of 69.94 acres subject to CDFW jurisdiction located outside of the PMA. The 69.94 acres of mitigation is required to compensate for permanent impacts to 41.98 acres of CDFW jurisdiction.

The LSAA also requires mitigation for temporary impacts to 16.17 acres by delaying the impacts to these areas until the third year of sediment removal and replanting them within 24 months of the impacts. In addition, the Episodic Maintenance Area, or side slopes of the PMA, which encompasses 7.34 acres according to the original design, will be replanted with native vegetation, including shrub and annual species associated with riparian scrub and alluvial scrub vegetation communities. Allowing the side slopes of the Annual Maintenance Area to support native vegetation will provide additional compensatory mitigation by creating a riparian scrub buffer habitat between the areas that are actively managed in the annual maintenance area and the compensatory mitigation areas. The side slopes may be periodically affected by recontouring if large sediment deposits bury portions of the side slopes. In this case, the sediment will be removed, and the side slopes will be recontoured and allowed to naturally revegetate.

Onsite compensatory mitigation will include invasive and nonnative weed abatement, planting with native container stock, planting pole cuttings for specific species, seeding with native seed material, and maintaining and monitoring each mitigation area for a period of five years for riparian areas and 10 years for upland areas, or until all success criteria have been met.

2.3 Ownership Status

The mitigation areas are located on land owned by the City.

2.4 Mitigation for Impacts to Protected Trees

During the course of construction for the Project, unavoidable impacts to trees protected under the City of Pasadena City Trees and Tree Protection Ordinance and/or the County of Los Angeles Oak Tree Ordinance occurred. A total of 0.606 acre of direct and indirect impacts to native tree canopy protected under the City's Trees and Tree Protection Ordinance, including 0.025 acre of impacts to western sycamore (*Platanus racemosa*), 0.159 acre of impacts to Fremont's cottonwood (*Populus fremontii*), and 0.421 acre of impacts to coast live oak (*Quercus agrifolia*), occurred as a result of the clearing in the Initial Sediment Removal Area and access road construction. In addition, impacts to coast live oak canopy that occurred during construction activities must be addressed under the County of Los Angeles Oak Tree Ordinance. Per Condition 2.11 of the LSAA and Mitigation Measure BIO-7 (MM-BIO-7) of the Revised Final Environmental Impact Report (ECORP 2017), protected trees impacted during construction activities will be replaced at a 1:1 ratio by canopy acreage. In addition, per Condition 2.11 (B) of the LSAA, all oak trees that had their root protection zone encroached upon during construction activities shall be monitored annually for five years and also during Years 7 and 10. During Phase 1 of restoration activities, a total of 686 Fremont's cottonwoods (1-gallon containers) and 474 coast live oaks (300 acorns and 174 1-gallon containers) were planted. Due to concerns with the polyphagous shot hole borer beetle (*Euwallacea* sp.) infestations in populations of western sycamore, this species was not planted during Phase 1 of restoration activities. If conditions allow, this species will be planted during future phases of restoration.

3.0 SUMMARY OF ONSITE HABITAT MITIGATION ACTIVITIES

Habitat restoration implementation was conducted by Natures Image and Gothic Landscape (Gothic), with oversight by Carley (Lancaster) Adams (Restoration Ecologist, ECORP Consulting, Inc. [ECORP]), Josh Corona-Bennett (Senior Restoration Ecologist, ECORP), Mari Quillman (Biological Resources Program Manager, ECORP), Michael Walsh (Biologist, Stillwater Sciences), Wendy Katagi (Senior Manager, Watershed & Ecosystem Restoration Services, Stillwater), Dick Rol (Principal Landscape Architect, ICF International), and Anthony DeJulio (Vice President, ICF). ECORP and ICF are contractors to LACPW, Nature's Image is a subcontractor to ECORP, and Stillwater and Gothic are subcontractors to ICF. Implementation of habitat restoration for Phase 1 was conducted in mitigation areas DG-1 WOUS, DG-1, DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5. A total of six vegetation communities were included in the Phase 1 habitat restoration effort including Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance), Black Willow Thickets (*Salix gooddingii* Woodland Alliance), Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance), California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance), Scale Broom Scrub (*Lepidospartum squamatum* Shrubland Alliance), and California Sagebrush – California Buckwheat Scrub (*Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance). Habitat restoration implementation commenced on November 19, 2018 with nonnative and invasive plant removal and follow-up weed abatement efforts. Following the weed abatement efforts, soil ripping was conducted for mitigation area DG-5 to decompact the soil and to prepare the area for container plant installation and seed application. Following initial weed abatement efforts and soil ripping, container plant installation and seed application commenced in all Phase 1 mitigation areas. Implementation for Phase 1 was completed on February 13, 2020. A brief description of the habitat restoration implementation is provided in the following sections.

3.1 Site Preparation

Site preparation activities primarily consisted of nonnative weed removal. Initial nonnative weed abatement activities commenced on November 19, 2018 and were completed on February 20, 2019. Follow-up weed abatement efforts commenced immediately following the completion of the initial weed abatement effort and have been ongoing for the Phase 1 mitigation areas. Pre-planting nonnative and invasive plant removal was conducted using a combination of hand-pulling, weed whips, and hula hoes. During the pre-planting weed removal efforts, all nonnative and invasive plant species that had gone to flower or seed were removed by hand or by using hand tools, placed on tarps, and disposed of in an onsite dumpster. Onsite dumpsters were picked up regularly and the nonnative and invasive plant materials were disposed of at an appropriate facility located outside of the Project site.

Species targeted during the initial nonnative and invasive plant removal included wild oat (*Avena fatua*), black mustard (*Brassica nigra*), red brome (*Bromus madritensis* ssp. *rubens*), poison hemlock (*Conium maculatum*), red-stemmed filaree (*Erodium cicutarium*), eucalyptus (*Eucalyptus sp.*), foxtail barely (*Hordeum murinum*), perennial pepperweed (*Lepidium latifolium*), and horehound (*Marrubium vulgare*). Even though these plant species were targeted for removal, all species of nonnative or invasive plants listed in the HRP were removed if they were encountered.

In addition to nonnative weed removal, jute netting was installed on the slopes of DG-3A in preparation for planting. The jute netting was installed to help stabilize the soil and prevent erosion in this mitigation area.

3.2 Irrigation Strategy

A temporary aboveground poly-tube irrigation system with drip emitters was installed for mitigation areas DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DB-4C, and DG-5. Because container plants and pole cuttings were not installed in mitigation areas DG-1 or DG-1 WOUS, an irrigation system was not installed for these areas. The irrigation system was installed and inspected prior to the planting of container plants and pole cuttings. The irrigation system is currently connected to a municipal water source and was fitted with a meter, pressure regulator, and back-flow preventer. Emitters were positioned within the planting basins of each container plant and pole cutting. The irrigation for the Phase 1 areas was terminated in February of 2023 according to Section 4.6 of the HRP which states that supplemental irrigation will continue to be applied for a period of no more than three years. However, if it is determined that the mitigation areas need to have the irrigation resumed (e.g., due to severe drought), these areas will be irrigated for a longer period of time to meet the success standards.

3.3 Seeding

Upon completion of the initial weed abatement effort, the seeding process, which consisted of broadcast seeding, commenced on April 4, 2019. Seed used for the Project was procured from S&S Seeds Inc. and only seed materials collected within the acceptable geographic regions described in Section 4.9 of the HRP was used. Broadcast seeding was completed using hand-crank spreaders or it was simply spread by-hand. Seed was applied evenly throughout each mitigation area and incorporated into the soil to a depth of approximately 0.5 inch using bow rakes. To the extent possible, seed was applied during the fall, winter, or other periods when sufficient rainfall was expected to occur. In addition to the seed procured from S&S seeds, a total of 300 coast live oak acorns were installed by ECORP in mitigation area DG-3A. The coast live oak acorns were procured from Psomas and were collected within the Lower Arroyo Seco (between State Route-134 and South Pasadena) and public rights-of-way (i.e., streets/swales) in the cities of Arcadia, Monrovia, Pasadena, and Sierra Madre.

3.4 Container Plant Installation

The container plant installation process commenced on August 8, 2019, after completion of the initial weed abatement effort. Container plants used for the Project were procured from Tree of Life Nursery and Rancho Santa Ana Botanic Garden and only container plants grown from seed collected within the acceptable geographic regions described in Section 4.9 of the HRP were used. Prior to installation, all plant material was inspected by the Restoration Ecologist (RE) to ensure that container stock was healthy and did not show signs of having pests or disease. Container stock determined to be in poor condition was rejected by the RE.

Container plant installation followed the methods described in Section 4.11 of the HRP. Container plants were planted using standard horticultural practices. Planting holes for all container plants, except oak

trees, were dug to a width twice the size of the root ball and to a depth slightly deeper than the depth of root ball so that the root crown was 1 inch below grade following installation. Oak trees were planted in a manner that the root crown was 0.5 to 1 inch above grade following installation (after soil settled following watering). Prior to installation, all plants were thoroughly watered in their containers and the soil in each of the planting holes was wetted with a minimum of one gallon of water. Planting holes were backfilled with native soil and irrigation basins were formed around the base of each planting. Basins were constructed to be a minimum of 2 feet wide and with a ridge no less than 4 inches. Rocks greater than 2 inches in diameter were removed to the extent possible from the backfill soil. Fertilizer was not added to the backfill soil. Soil was tamped-in by hand to collapse air pockets in the backfill. All container plants were irrigated with a minimum of 1 gallon of water immediately following installation and basin creation. Container plants were planted in ecologically appropriate locations throughout the site and as directed by the RE.

In addition to container plants being installed in the Phase 1 areas, willow and mulefat stakes were also collected and installed in DG-3A and DG-4. Willow and mulefat stakes were collected from suitable donor sites in the Arroyo Seco north of the Project site. Additional willow and mulefat stakes were collected from the mitigation areas where existing vegetation was dense enough to withstand stake collection. Willow and mulefat stake collection followed the methods described in Section 4.10 of the HRP. To ensure establishment success, cuttings were harvested from live, dormant plants (i.e., willows) in late fall and early winter before the buds started to break. Willow and mulefat stakes were approximately 3 to 4 feet long and from 1- to 2-inch diameter at their base. A diagonal cut was made at the base of each stake and the top was cut horizontally to differentiate the rooting end from the above ground end to aid in installation. Lateral branches were also removed during harvesting. The willow stakes were stored (no longer than two weeks) in buckets filled with water and in a cool shaded location until they were ready for planting. Immediately prior to installation, the stakes were dipped in a rooting hormone and then installed in pre-watered holes approximately 2 feet deep or with more than half of the cutting underground. The holes were backfilled and the soil around the stake tamped-in to ensure good soil to stem contact and no air pockets. The willow stakes were watered immediately following installation. All cuttings were provided with a drip emitter from the irrigation system.

3.5 Site Protection

To delineate the site and deter trespassers from entering the mitigation areas, Environmentally Sensitive Area signs were installed and in 2021 and wooden post fencing connected with cables was installed along the boundaries of the mitigation areas (Figure 4). In addition, public outreach to recreational users of the area was conducted to educate the public on the restoration efforts. Lastly, stinging and thorny vegetation, including California blackberry (*Rubus ursinus*), California wild rose (*Rosa californica*), and stinging nettle (*Urtica dioica*), were planted in the mitigation areas to further deter entry.

Figure 4. Proposed Trails & Site Protection Map

Map Features

- Final Design Boundary
- Routine Annual Maintenance Area
- Arroyo Seco Trail
- Seasonal Trail
- Bike Trail
- Other Trail
- Proposed Park Access Sign Location
- Proposed ESA Sign Location
- Quick Release Maintenance Vehicle Access
- Proposed Site Protection Fencing (5,030 ft.)

Mitigation Areas

- DG-1
- DG-1 WOUS
- DG-2
- DG-2 New Channels
- DG-2 WOUS
- DG-2A
- DG-2B
- DG-3A
- DG-3B
- DG-4
- DG-4 Drainage
- DG-4 Sheetflow
- DG-4 WOUS
- DG-4 WOUS Connections
- DG-4A
- DG-4B
- DG-4C
- DG-5
- DG-7 (Temp Impacts)
- DG-8 (Temp Impacts)
- DG-East Trail 1
- DG-East Trail 2
- DG-East Trail 3
- DG-East Trail 4
- DG-SF-1
- DG-SF-2
- DG-W-1 (Johnson Field)
- DG-W-2 (Mining Pit)
- DG-W-2 (Mining Pit Outlet)

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Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\meeting_maps_and_analysis\2017-04-13_Trails\DG_Approved_Trails_V8.mxd (MAG)-mguidry 6/30/2021

2014-003.008 Devil's Gate Sediment Removal Project

Scale in Feet
0 200 400

Photo Source: ECORP UAS (2021), NAIP (2020)

Map Date: 6/29/2021

4.0 SUMMARY OF YEAR 4 MAINTENANCE ACTIVITIES

4.1 Maintenance of Onsite Habitat Mitigation Areas

Maintenance for the onsite habitat mitigation areas was conducted by Natures Image and Gothic, with oversight by Carley Lancaster (RE, ECORP), Josh Corona-Bennett (Senior RE, ECORP), Mari Quillman (Biological Resources Program Manager, ECORP), Michael Walsh (Biologist, Stillwater Sciences), Wendy Katagi (Senior Manager, Watershed & Ecosystem Restoration Services, Stillwater), Dick Rol (Principal Landscape Architect, ICF International), and Anthony DeJulio (Vice President, ICF). Maintenance activities during Year 4 focused mainly on nonnative weed abatement and native plant survival. In addition, maintenance was performed for minor pest control, erosion control, and vandalism during Year 4.

4.1.1 Nonnative Weed Abatement

Prior to the commencement of restoration activities, many of the mitigation areas showed high levels of nonnative weed infestation (e.g., DG-4). Maintenance in the form of nonnative weed abatement commenced immediately following the initial weed abatement effort and has been ongoing for all of Years 1, 2, 3, and 4. Nonnative plant species controlled during Year 4 included wild oat, black mustard, red brome, poison hemlock, red-stemmed filaree, foxtail barely, perennial pepperweed, horehound, curly dock (*Rumex crispus*), and tamarisk (*Tamarix ramosissima*).

During Year 1, herbicide application was employed for a brief period from February 22, 2019 to March 18, 2019; however, herbicide application was suspended due to public concerns and the Los Angeles County Board of Supervisors subsequently placed a moratorium on use of glyphosate at all County facilities until further notice. During the brief period of herbicide application, only herbicide registered for aquatic use and approved for use in wetland habitat restoration by the regulatory agencies (i.e., Roundup Custom™) was used. A blue marking dye was added to allow for the identification of areas sprayed. In addition, following the suspension of herbicide use, a hot water vapor machine was used to treat nonnative weeds in areas where native growth was minimal.

In addition, the stumps of the eucalyptus trees that were felled during the initial nonnative weed abatement effort and treated with copper nails during Year 1 were cut back on a regular basis when observed to be re-sprouting. Nonnative weed cover, especially perennial pepperweed, is a significant problem in portions of the mitigation areas. Because perennial pepperweed can produce dense colonies through seed germination and underground rhizomes (rhizomatous roots), removal of this species without the use of systemic herbicide is very difficult. A full list of nonnative plant species that have been detected within the mitigation areas is included in Appendix B.

During the Year 4 maintenance period, nonnative plant species were removed from mitigation areas with hand tools. If weeds had formed flowers or seeds prior to removal, the maintenance crew carefully contained the removed material to reduce the spread of seeds.

4.1.2 Supplemental Planting

Supplemental planting for the Phase 1 mitigation areas occurred for select locations during the Phase 3 implementation effort in the spring of 2023. Supplemental planting for mitigation areas DG-4 and DG-4C was conducted in areas where container plants showed a higher mortality rate due to reasons such as heavy rainfall causing erosion and long periods of inundation, dodder, and nonnative weed infestation. During the supplemental planting effort, a total of 107 container plants and 65 stakes were installed in the DG-4 mitigation area and a total of 11 container plants and 13 stakes were installed in the DG-4C mitigation area. All of the other Phase 1 mitigation areas had sufficient survival rates and did not require supplemental planting.

4.1.3 Irrigation Maintenance

The irrigation for the Phase 1 areas was terminated in February of 2023 according to Section 4.6 in the HRP and therefore irrigation maintenance was not performed for the Phase 1 areas during Year 4.

4.1.4 Pest Control

Only minor herbivory of container plants was observed in the mitigation areas during Year 4. Most of the metal cages that were installed around the container plants during previous years were removed because the container plants are now well established and are unlikely to be significantly impacted by minor herbivory.

4.1.5 Erosion Control

Only minor erosion control for the Phase 1 mitigation areas was implemented during Year 4. Maintenance of the jute netting installed in DG-3A during site preparation was conducted on an as-needed basis. In addition, erosion of plant basins was addressed during regular maintenance activities. It should be noted that severe erosion in the DG-3A mitigation area surrounding Altadena Drain continued to worsen during Year 4, especially during periods of heavy rainfall that occurred between October 2022 and February 2023. LACPW is working on design plans to redirect high intensity flows to the Reservoir and repair the erosion in DG-3A; however, this work is still in the planning stage and was not implemented during Year 4.

4.1.6 Vandalism

Vandalism to the mitigation areas and the irrigation system was generally not observed in the Phase 1 mitigation areas during Year 4. Only minor damage to container plants, including broken branches and trampled basins, was observed. This appeared to generally be the result of pedestrian traffic through the mitigation areas.

5.0 SUMMARY OF YEAR 4 MONITORING ACTIVITIES

5.1 Monitoring of Onsite Habitat Mitigation areas

Monitoring activities during Year 4 included both horticultural monitoring and botanical monitoring. Horticultural monitoring was performed quarterly during Year 4. Horticultural monitoring included

monitoring soil moisture, irrigation system function, native plant germination, container plant health, nonnative plant species presence, invasive plant species presence, herbivory/pests/disease, erosion issues, and site damage. Photo documentation of the mitigation areas occurred as necessary. In addition to horticultural monitoring, botanical monitoring was conducted in the summer of Year 4. Monitoring events that occurred during Year 4 and the remainder of Year 3 (following the Year 3 botanical monitoring event) are listed in Table 1.

Table 1. Onsite Habitat Mitigation Site Monitoring Events

Date	Monitoring Type
02/10/23	Horticultural Monitoring
05/22/23	Horticultural Monitoring
07/06/23	Botanical Monitoring
07/07/23	Botanical Monitoring
07/11/23	Botanical Monitoring
07/12/23	Botanical Monitoring
07/13/23	Botanical Monitoring
07/19/23	Botanical Monitoring
07/26/23	Botanical Monitoring
07/27/23	Botanical Monitoring
07/28/23	Botanical Monitoring
08/01/23	Botanical Monitoring
08/02/23	Botanical Monitoring
08/23/23	Horticultural Monitoring
08/25/23	Botanical Monitoring

5.2 Horticultural Monitoring Summary

5.2.1 Soil Moisture and Irrigation Functionality

Soil moisture levels were assessed throughout the mitigation areas during the horticultural monitoring visits. Soil moisture depth was typically determined using a handheld garden trowel to dig below the surface. In addition to assessing soil moisture, irrigation lines were inspected for functionality. Minor issues with the irrigation system, including misplaced emitters, animal damage to the irrigation line, and vandalism were observed during January and February 2023 of Year 4. These issues were immediately brought to the attention of Natures Image or Gothic and were resolved in a timely manner. Soil moisture depth varied throughout the year and provided insight into the water-holding capacity of the soil. Soils in the mitigation areas were draining sufficiently, but some areas drained more slowly than others.

5.2.2 Native Plant Germination

Multiple native plant species were observed to be germinating in the mitigation areas during Year 4. Native plant germination appeared to be from both the seed mix and natural recruitment. Native plant species observed germinating in the mitigation areas during the Year 4 monitoring included annual

bursage (*Ambrosia acanthicarpa*), California sagebrush (*Artemisia californica*), miniature suncup (*Camissoniopsis micrantha*), common sandaster (*Corethrogyne filaginifolia*), chaparral yucca (*Hesperoyucca whipplei),* ladies' tobacco (*Pseudognaphalium californicum*), two-color rabbit-tobacco (*Pseudognaphalium biolettii*), scale broom (*Lepidospartum squamatum*), mugwort (*Artemisia douglasiana*), deerweed (*Acmispon glaber*), California poppy (*Eschscholzia californica*), telegraph weed (*Heterotheca grandiflora*), thick leaved yerba santa (*Eriodictyon crassifolium*), tarragon (*Artemisia dracunculus*), caterpillar phacelia (*Phacelia cicutaria*), common phacelia (*Phacelia distans*), chia (*Salvia columbariae*), mulefat (*Baccharis salicifolia*), Douglas' nightshade (*Solanum douglasii*), California rose (*Rosa californica*), cobweb thistle (*Cirsium occidentale*), western ragweed (*Ambrosia psilostachya*), evening primrose (*Oenothera elata*), Jimson weed (*Datura wrightii*), beardless wildrye (*Elymus triticoides*), Canada horseweed (*Erigeron canadensis*), and California buckwheat (*Eriogonum fasciculatum*).

5.2.3 Container Plant Health

Container plant health varied throughout the year, with spring showing the most prolific growth. Seasonal dieback of the willow species (*Salix* sp.) and Fremont's cottonwoods was observed during both the horticultural monitoring visits during the fall and winter months. Overall, the container plants are healthy and have become well established. Replacement container plants installed during the spring of 2023 were also observed to be healthy and were starting to become established.

5.2.4 Nonnative and Invasive Plant Species

Nonnative plant species presence within the mitigation areas varied during Year 4 and was most abundant during the spring. Perennial pepperweed is very dense and established in some of the mitigation areas, especially portions of DG-4. Because perennial pepperweed can produce dense colonies through seed germination and underground rhizomes (rhizomatous roots), removal of this species without the use of systemic herbicide is very difficult. Nonnative plant species encountered within the mitigation areas during Year 4 were removed using hand tools, including hula hoes and weed whips. All planting basins were hand-weeded to avoid damage from mechanical tools.

5.2.5 Herbivory, Plant Pests, and Plant Disease

Herbivory issues were typically not observed in the Phase 1 mitigation areas during Year 4. The Phase 1 container plants are at a stage where they are well established and minor herbivory should not have a significant impact on the plants. While none of the Phase 1 areas showed any significant signs of pests or disease, some of the Phase 2 mitigation areas had confirmed presence of the polyphagous invasive shot hole borer beetle (ISHB) and LACPW worked with the Los Angeles Agricultural Commissioner Weights and Measures (ACWM) to remove infested trees.

On October 19, 20, and 24, 2022, a total of 163 ISHB infested trees were removed from the mitigation areas in DG-4, DG-4 WOUS (part of phase 3) and DG-W-2 (mining pit [part of Phase 2]) including five amplifier trees and 158 trees with low to moderate infestation that were dead or in a condition unlikely to recover. Trees were removed by one worker felling trees using a chainsaw and the remaining crew members hauling the felled trees out by hand. Trees removed from the mitigation area were brought to and put through a woodchipper staged near the Hahamongna Watershed Park parking lot. Removed

trees were chipped down to 1 inch and spread along a clear plastic tarp and covered with an additional clear plastic tarp to commence the solarization process. Logs were placed on top of the tarp to avoid the spread of chipped trees and vandalism. The tarps were left in place for a period of six months to kill any remaining ISHB beetles and larvae and have started to be removed after receiving confirmation from ACWM.

Lastly, dodder (*Cuscuta* sp.) was observed to be an issue in several of the mitigation areas. Species most affected by dodder included willows and blue elderberry (*Sambucus nigra* ssp. *caerulea*). Although many species of dodder are native, this parasitic plant can be harmful to younger shrubs and trees that are not yet established and can even cause mortality. Following observations of dodder within the mitigation areas, removal of this species from affected plants was implemented during weed abatement efforts.

5.2.6 Erosion Issues

Erosion issues were observed within the Phase 1 mitigation areas during Year 4, including continued severe erosion to the DG-3A mitigation area surrounding Altadena Drain. The steeper slopes in DG-3A were also observed to be affected by erosion. In addition, significant scouring and scarp formation was observed in DG-1 WOUS. Erosion in these areas occurred during the rainy season between October 2022 and February 2023. Rainfall during this period continued to carve a channel that flows to the south of Altadena Drain before connecting to the Reservoir where severe berm erosion continues to occur. Repairs to jute netting, irrigation lines, and plant basins were conducted during Year 4 on an as-needed basis.

5.2.7 Photo Documentation

Photo documentation occurred throughout Year 4 during the horticultural and botanical monitoring. Permanent photo points were established during the Year 1 botanical monitoring and have been used during subsequent monitoring years to document the progress of the mitigation areas. Photo documentation completed during botanical monitoring is included as Appendix C.

5.3 Botanical Monitoring Summary

5.3.1 Botanical Monitoring Methods

Botanical monitoring for Year 4 was conducted during the spring and summer. Container plant survival was determined by counting all container plants that were dead, missing, or in a condition unlikely to survive. If a volunteer or recruit of the same species originally planted was determined to be growing within the planting basin (or within 1 meter of that basin) of a dead container plant, then that plant was counted toward the survival total. Native and nonnative plant cover was determined using a modified point-line intercept method along established transect lines (Elzinga et al. 2001). During Year 1, a total of 25 transect lines were established randomly throughout the mitigation areas (Figure 5). In addition, a total of 7 transect lines were established in undisturbed reference sites with similar vegetation communities as the mitigation areas (Figure 6). The start and end of each transect line was marked using steel rebar topped with a plastic orange cap and Global Positioning System coordinates were recorded using an iPad equipped with ArcGIS software to document the start and end locations of each transect. The number of

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 1 of 8

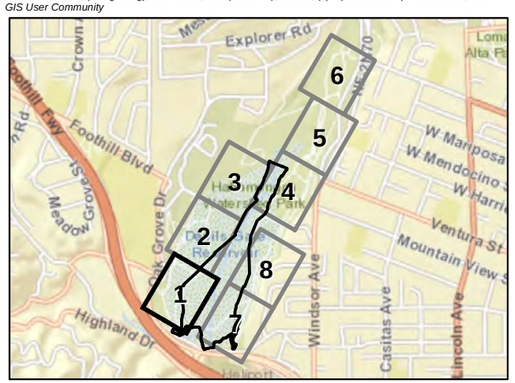
Map Features

- Final Design Boundary
- Photo Location and Direction
- Transect Start
- Transect End
- Restoration Transect

Mitigation Areas

- DG-4
- DG-4 Drainage
- DG-4 Sheetflow
- DG-4A
- DG-SF-2

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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ENVIRONMENTAL CONSULTANTS

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\restorationanalysis\2020-11-10 Restoration_Monitoring\DG_Restoration_Monitoring_20201118.mxd (MAG)-mguidry 12/8/2020

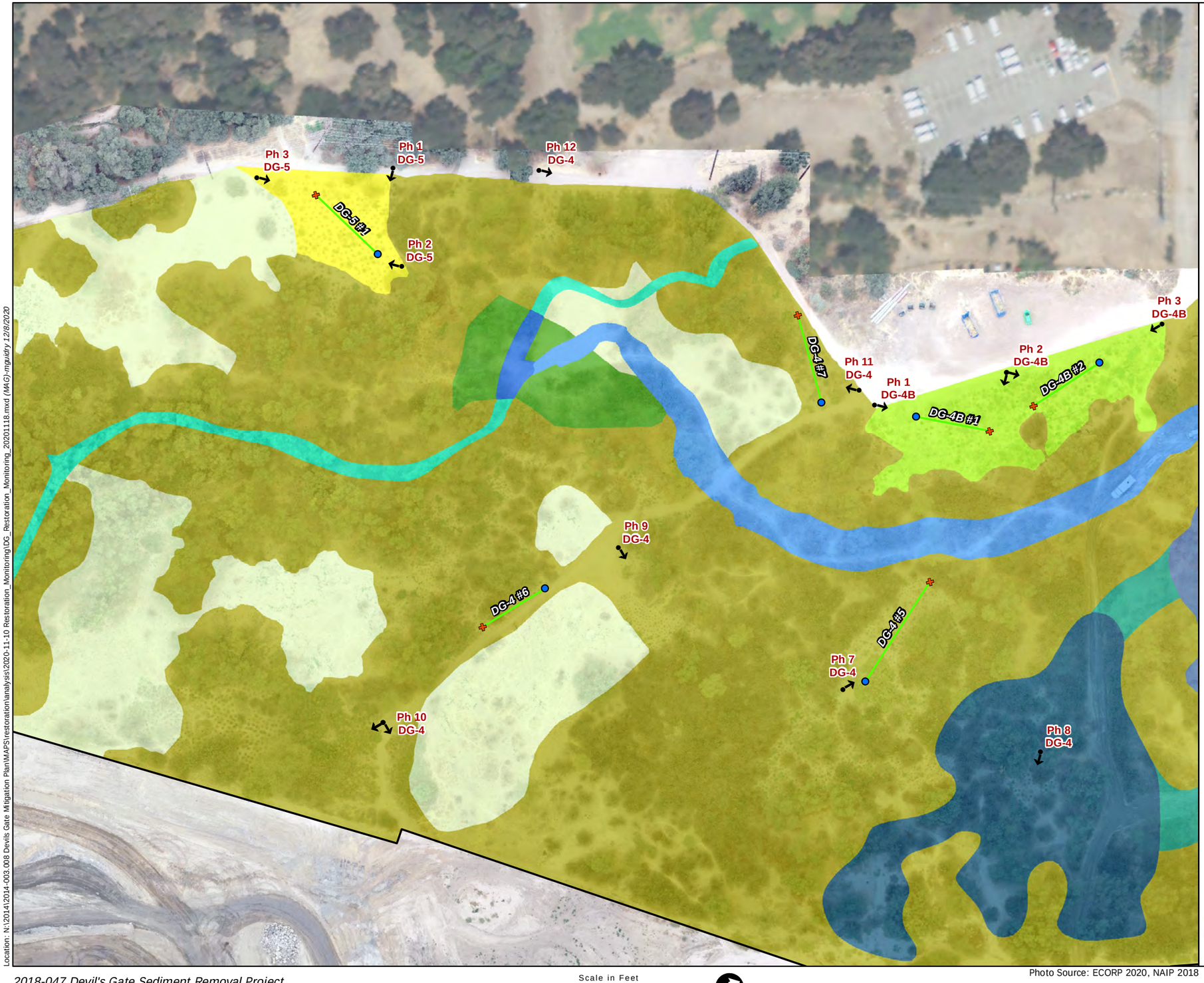
2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 2 of 8



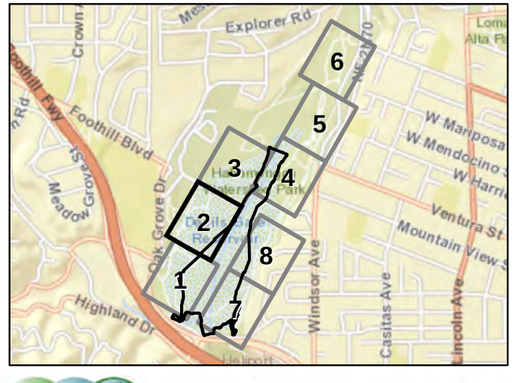
Map Features

- Final Design Boundary
- Photo Location and Direction
- Transect Start
- Transect End
- Restoration Transect

Mitigation Areas

- DG-4
- DG-4 Drainage
- DG-4 Sheetflow
- DG-4 WOUS
- DG-4 WOUS Connections
- DG-4A
- DG-4B
- DG-5
- DG-SF-1
- DG-W-2 (Mining Pit)
- DG-W-2 (Mining Pit Outlet)

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 3 of 8

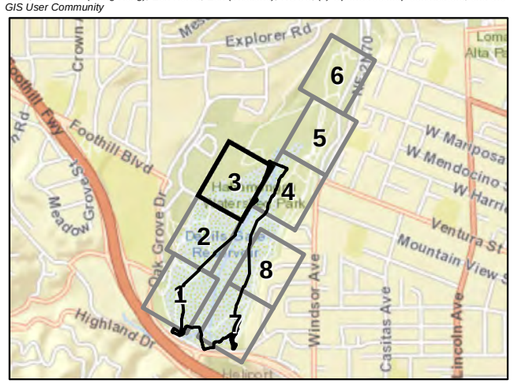
Map Features

- Final Design Boundary
- Photo Location and Direction
- Transect Start
- Transect End
- Restoration Transect

Mitigation Areas

- DG-4
- DG-4 WOUS
- DG-4 WOUS Connections
- DG-4A
- DG-4C
- DG-7 (Temp Impacts)
- DG-W-2 (Mining Pit)
- DG-W-2 (Mining Pit Outlet)

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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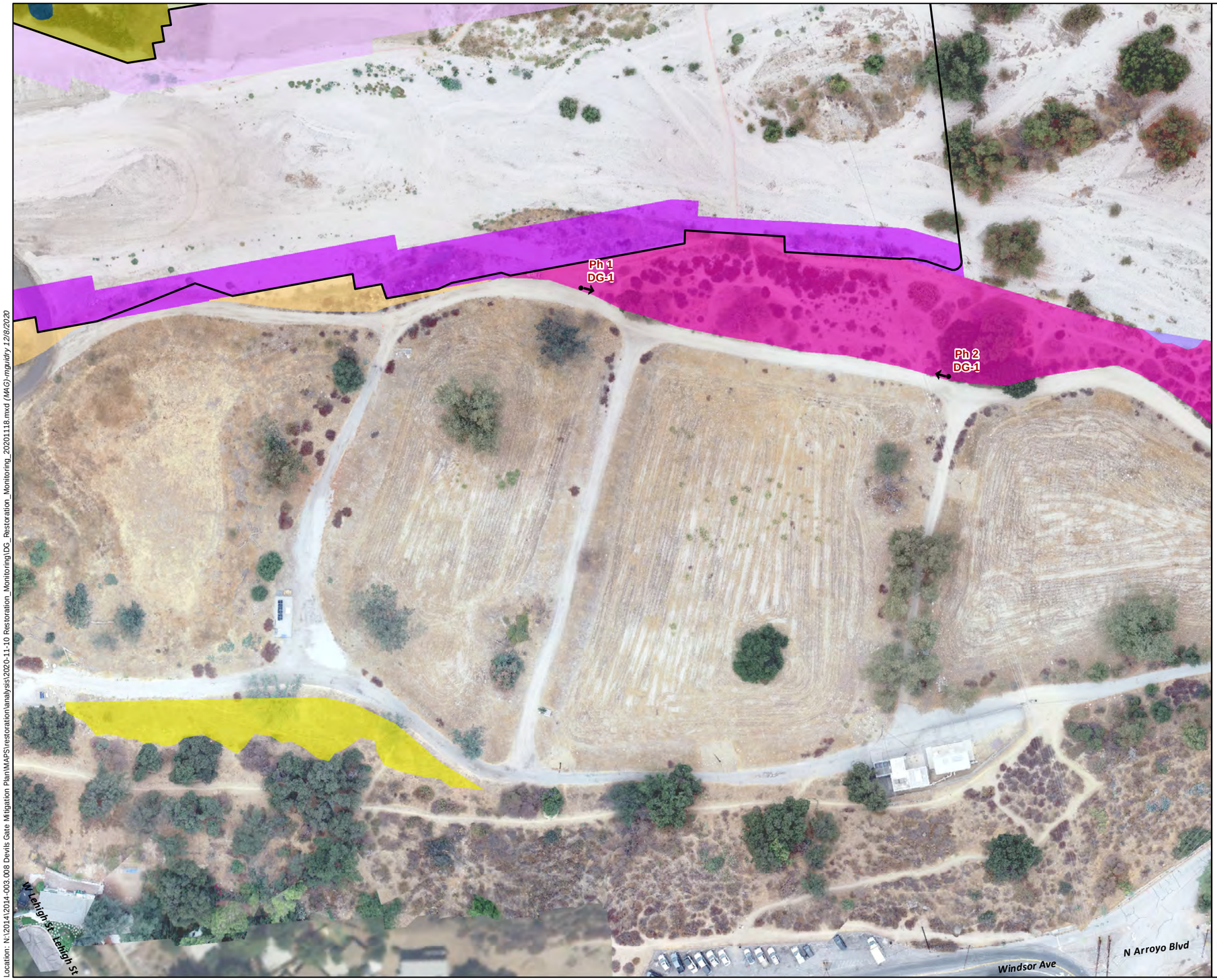
2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 4 of 8



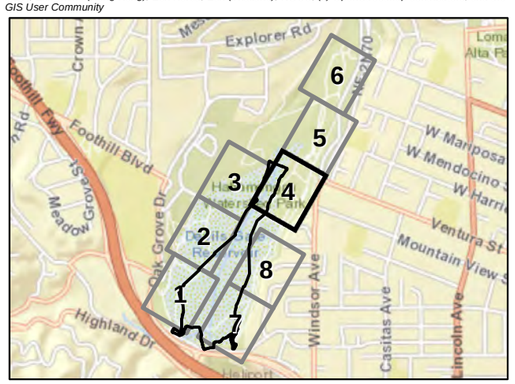
Map Features

- Final Design Boundary
- Photo Location and Direction

Mitigation Areas

- DG-1
- DG-1 WOUS
- DG-2
- DG-4
- DG-4 WOUS
- DG-4A
- DG-7 (Temp Impacts)
- DG-8 (Temp Impacts)
- DG-East Trail 4

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 5 of 8

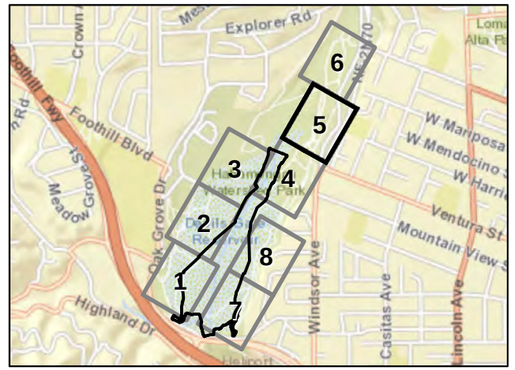
Map Features

- Photo Location and Direction
- Transect Start
- Transect End
- Restoration Transect

Mitigation Areas

- DG-1
- DG-1 WOUS

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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Scale in Feet
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Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\restoration\analysis\2020-11-10 Restoration_Monitoring\DG_Restoration_Monitoring_20201118.mxd (MAG)-mguidry 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
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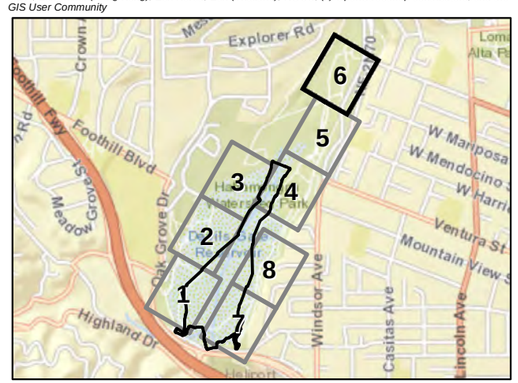
Map Features

- Photo Location and Direction
- Transect Start
- Transect End
- Restoration Transect

Mitigation Areas

- DG-1

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
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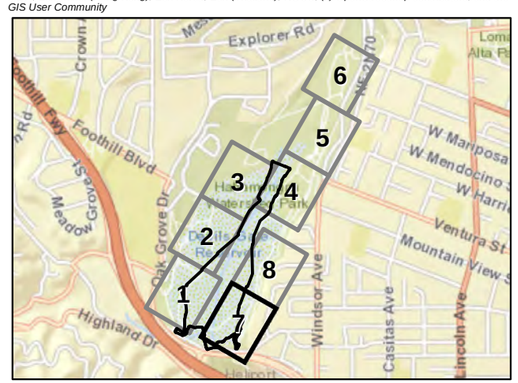
Map Features

- Final Design Boundary
- Photo Location and Direction
- Transect Start
- Transect End
- Restoration Transect

Mitigation Areas

- DG-2
- DG-2 WOUS
- DG-3A
- DG-3B
- DG-East Trail 1

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\restorationanalysis\2020-11-10 Restoration_Monitoring\DG_Restoration_Monitoring_20201118.mxd (MAG)-mguidry 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 8 of 8

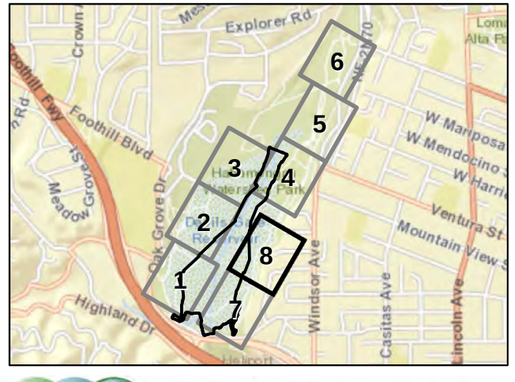
Map Features

- Final Design Boundary
- Photo Location and Direction
- Transect Start
- Transect End
- Restoration Transect

Mitigation Areas

- DG-2
- DG-2 New Channels
- DG-2 WOUS
- DG-2A
- DG-2B
- DG-East Trail 1
- DG-East Trail 2
- DG-East Trail 3
- DG-W-1 (Johnson Field)

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\restoration\analysis\2020-11-10 Restoration_Monitoring\DG_Restoration_Monitoring_20201118.mxd (MAG)-mguidry 12/8/2020

2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Figure 6.
Transcect Locations Reference Sites

Map Features

- Final Design Boundary [1]
- Reference Site
- Reference Transect
- Transect Start
- Transect End

Riparian Scrub Reference Site

RAFSS Reference Site

Sage Scrub Reference Site

Oak Woodland Reference Site

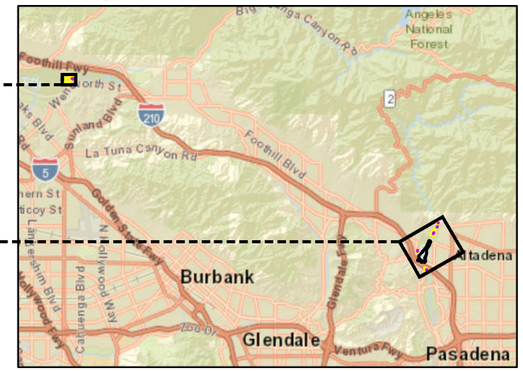
Riparian Woodland Reference Site

Least Bell's Vireo Reference Site

Scale in Feet
0 500

Feet
0 700

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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2014-003.008 Devil's Gate Sediment Removal Project

Photo Source: ECORP UAS, NAIP 2018
[1] LADPW

Map Date: 11/13/2020

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\restoration\analysis\2020-11-10 Restoration_Monitoring\DG_Reference_Transects_20201106.mxd (MAG)-mguidry 11/18/2020

In addition, per Condition 2.11 (B) of the LSAA, all oak trees that had their root protection zone encroached upon during construction activities were assessed visually for their health and vigor during the botanical monitoring visit. Coast live oak was the only species of oak impacted during construction activities and the monitoring was conducted for tree tag numbers 3, 32 through 38, 52, and 72 from Tables 1 and 2 in the Oak Tree Inventory Report for the Reservoir dated November 2018 (ECORP 2018b). In addition, one coast live oak that did not have its root protection zone impacted during construction activities, tree tag number 39, was also assessed during the monitoring.

Reference sites were established during Year 1 for Riversidean Alluvial Fan Sage Scrub (RAFSS), Coastal Sage Scrub (CSS), oak woodland, riparian scrub, riparian woodland, and least Bell's vireo (LBVI) habitats. Reference sites were relatively undisturbed and had vegetation composition similar to the goal vegetation communities for the mitigation areas. The reference site for the LBVI habitat was selected in an area of undisturbed riparian habitat with mature riparian trees and a well-established understory. In addition, the reference site for LBVI habitat was selected in occupied habitat where the species has been known to be present for the past several years. Data for the reference sites was not collected during Year 4 and the data from Year 1 will be used for comparison.

Data was collected along each transect at every 0.5 meter (sampling location), starting at 0.5 meter. Each plant species that intersected the transect tape at each sampling location was recorded. A sampling dowel was used to assist in determining which plant species intersected the transect tape at each sampling location. In situations where the canopy of a plant intersected the transect tape at a sampling location, that species was also recorded; this included tree species with an overhead canopy. If only one plant species intersected the transect tape at any sampling location, that species received one tally mark. In situations where multiple plant species intersected the transect tape at a sampling location, those plant species received a fraction of a tally mark dependent on the number of species that intersected the transect tape at that sampling location.

Bare ground, rock, and litter were also recorded along each transect in areas that had no plant overlap. Species occurrences along each transect line was totaled and divided by the number of sampling points and multiplied by 100 to derive the percent cover (total cover) along each transect. Species richness was determined for each mitigation area and reference site by documenting the native species that occurred within a belt transect. The belt transects extended 1 meter to the left and right of each of the 25 transects within the mitigation areas and the 7 transects within the reference sites.

Per the requirements of Section 7.1.4 in the HRP, groundwater data collected by the City and the Jet Propulsion Laboratory (JPL) was provided to ECORP for the 2023 monitoring year. Data provided by the City was collected at three wells on the east side of the Devil's Gate Reservoir towards the northern portion of the Project area. This data was collected on April 12, 2023 and includes the depth in feet from the reference elevation to the static water surface (i.e., static water level). Data provided by JPL was collected at 25 wells to the north, east, and west of the Devil's Gate Reservoir. This data was collected on October 22, 2022, January 27, 2023, and June 2, 2023 and includes water level data in feet above msl.

5.3.2 Botanical Monitoring Results

The botanical monitoring included determining results for survivorship of the container plantings, percent native and nonnative cover, and species richness of the vegetation communities in the mitigation areas, the vegetation communities in the LBVI areas, and at the reference sites. In addition, groundwater data was obtained from the City of Pasadena. The results are included in the following sections.

5.3.2.1 Container Plant Survivorship

Year 4 survival counts were conducted during the annual botanical monitoring. Overall, plant mortality for Year 4 was found to be low with survivorship ranging from 71.8 to 96.1 percent in the mitigation areas. The overall survivorship percentage for container plants in the Phase 1 restoration areas was 93.1 percent. The container plant survival data is listed in Table 2.

Table 2. Container Plant Survivorship

Mitigation Area	Container Plants	Year 1	Year 2	Year 3	Year 4	Year 5[3]
DG-2A	Number Planted	120	120[2]	120[2]	120[2]	NA
	Number of Mortalities	8	0	0	0	NA
	Survivorship (%)[1]	93.3	93.3	93.3	93.3	NA
DG-2B	Number Planted	456	456[2]	456[2]	456[2]	NA
	Number of Mortalities	24	0	0	2	NA
	Survivorship (%)[1]	94.7	94.7	94.7	94.3	NA
DG-3A	Number Planted	687	687[2]	687[2]	687[2]	NA
	Number of Mortalities	172	12	4	6	NA
	Survivorship (%)[1]	74.9	73.2	72.6	71.8	NA
DG-4	Number Planted	10,581	10,581[2]	10,581[2]	10,753[2]	NA
	Number of Mortalities	514	51	6	8	NA
	Survivorship (%)[1]	95.1	94.7	94.6	94.6	NA
DG-4B	Number Planted	648	648[2]	648[2]	648[2]	NA
	Number of Mortalities	22	0	3	0	NA
	Survivorship (%)[1]	96.6	96.6	96.1	96.1	NA
DG-4C	Number Planted	542	542[2]	542[2]	566[2]	NA
	Number of Mortalities	44	10	3	0	NA
	Survivorship (%)[1]	91.9	90.0	89.5	89.9	NA
DG-5	Number Planted	312	312[2]	312[2]	312[2]	NA
	Number of Mortalities	46	0	0	6	NA
	Survivorship (%)[1]	85.3	85.3	85.3	83.3	NA
Overall	**Number Planted**	**13,346**	**13,346[2]**	**13,346[2]**	**13,542[2]**	NA
	Number of Mortalities	**830**	**73**	**16**	**22**	NA
	Survivorship (%)[1]	**93.7**	**93.2**	**93.1**	**93.1**	NA

[1]If a volunteer or recruit of the same species originally planted was determined to be growing within the planting basin (or within 1 meter of that basin) of a dead container plant, then that plant was counted toward the survival total.
[2]Cumulative number of plants installed.
[3]To be determined.

5.3.2.2 Percent Native and Nonnative Cover – Mitigation Areas

Native cover for the Phase 1 mitigation areas continued to show improvements during Year 4. Overall native cover (perennial plus annual) increased during Year 4 for the CSS, oak woodland, riparian, and LBVI mitigation areas. The overall native cover for the RAFSS mitigation area decreased from the Year 3 results, which was the result of heavy scouring in the channel caused by heavy storm flows during the 2022-2023 rainy season. Nonnative cover during Year 4 was higher than normal in the riparian habitat and likely a result of increased rainfall during the 2022-2023 rainy season. Invasive cover for the mitigation areas ranged from 0 percent to 1.98 percent during the annual monitoring. The higher than normal Cal-IPC moderate to invasive cover was a result of increased rainfall during the 2022-2023 rainy season, which supported nonnative growth. As result of the increased rainfall during 2022-2023, DG-1 WOUS experienced heavy scouring that significantly decreased native cover. As native cover increases and nonnative seed banks are depleted from continual weed abatement, it is expected that nonnative weed cover will continue to decrease during future monitoring years. It should be noted that due to inaccessibility at Altadena Drain, Transect 4 for DG-3A could not be assessed during the Year 4 monitoring event.

Table 3 presents a summary of Year 4 native (perennial/annual) and nonnative cover data for the mitigation areas. The average overall native perennial cover in the RAFSS mitigation areas was zero percent with zero percent cover of native annuals, nonnatives, and invasive plants. For the CSS mitigation areas, the average overall native perennial cover was 61.3 percent, the native annual cover was 9.5 percent, and the percent cover of nonnative/invasive plants species was 0.2 and 1.3 percent, respectively. For the oak woodland mitigation areas, the average overall native perennial cover was 76.1 percent, the native annual cover was 7.6 percent, and the percent cover of nonnative/invasive plants species was 0.0 percent, respectively. For the riparian mitigation areas, the average overall native perennial cover was 59.1 percent, the native annual cover was 11.7 percent, and the percent cover of nonnative/invasive plant species was 3.3 and 1.8 percent, respectively. Finally, in the LBVI mitigation areas, the average overall native perennial cover of 78.1 percent, the native annual cover was 8.9 percent, and the percent cover of nonnative/invasive plants was 0.1 and 1.9 percent, respectively.

Table 3. Percent Native/Nonnative Cover Mitigation Areas

Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2 (%)	Year 3 (%)	Year 4 (%)	Year 5[1]
Riversidean Alluvial Fan Sage Scrub (RAFSS)						
DG-1 WOUS Transect 1 (35 m)	Perennial	45.0	46.4	25.0	0	NA
	Annual	0.0	0.7	0.0	0	NA
	Nonnative	0.0	0.0	0.0	0	NA
	Invasive[2]	0.0	1.4	0.0	0	NA
RAFSS Overall[3]	**Perennial**	**45.0**	**46.4**	**25.0**	**0**	NA
	Annual	**0.0**	**0.7**	**0.0**	**0**	NA
	Nonnative	**0.0**	**0.0**	**0.0**	**0**	NA
	Invasive[2]	**0.0**	**1.4**	**0.0**	**0**	NA

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year 1 (%)**	**Year 2 (%)**	**Year 3 (%)**	**Year 4 (%)**	**Year 5[1]**
Coastal Sage Scrub (CSS)						
DG-1 Transect 1 (45 m)	Perennial	55.6	54.4	49.4	55.6	NA
	Annual	0.0	0.0	5.0	6.7	NA
	Nonnative	0.0	0.0	0.0	0	NA
	Invasive[2]	3.3	2.2	0.0	0	NA
DG-1 Transect 2 (50 m)	Perennial	35.5	57.0	44.7	39.7	NA
	Annual	14.1	2.5	11.3	16.8	NA
	Nonnative	1.8	0.0	0.0	0.0	NA
	Invasive[2]	7.7	3.5	0.0	2.5	NA
DG-1 Transect 3 (50 m)	Perennial	64.1	55.5	59.5	58.3	NA
	Annual	0.0	3.0	6.5	7.2	NA
	Nonnative	1.0	0.5	0.0	0.0	NA
	Invasive[2]	7.9	1.4	0.0	1.5	NA
DG-4 Transect 1 (50 m)	Perennial	39.0	61.8	88.2	98.7	NA
	Annual	5.0	16.8	8.8	0.8	NA
	Nonnative	1.5	0.0	2.0	1.0	NA
	Invasive[2]	5.5	4.3	0.0	1.0	NA
DG-4 Transect 2 (40 m)	Perennial	10.0	44.4	53.8	54.1	NA
	Annual	0.0	0.0	1.3	16.3	NA
	Nonnative	0.0	0.0	0.0	0.0	NA
	Invasive[2]	5.0	1.9	0.0	1.9	NA
CSS Overall[3]	**Perennial**	**40.8**	**54.6**	**59.1**	**61.3**	NA
	Annual	**3.8**	**4.5**	**6.6**	**9.5**	NA
	Nonnative	**0.9**	**0.1**	**0.4**	**0.2**	NA
	Invasive[2]	**5.9**	**3.0**	**0.0**	**1.3**	NA
Coast Live Oak Woodland						
DG-3A Transect 1 (20 m)	Perennial	26.7	48.3	61.3	70.4	NA
	Annual	26.3	13.0	11.3	7.0	NA
	Nonnative	11.0	2.7	0.0	0.0	NA
	Invasive[2]	0.0	2.0	0.0	0.0	NA
DG-3A Transect 2 (25 m)	Perennial	18.3	51.3	52.3	81.8	NA
	Annual	24.7	16.7	19.7	8.1	NA
	Nonnative	17.0	1.0	0.0	0.0	NA
	Invasive[2]	0.0	1.0	0.0	0.0	NA
Coast Live Oak Woodland Overall[3]	**Perennial**	**22.5**	**49.8**	**56.8**	**76.1**	NA
	Annual	**25.5**	**14.8**	**15.5**	**7.6**	NA
	Nonnative	**14.0**	**1.8**	**0.0**	**0.0**	NA
	Invasive[2]	**0.0**	**1.5**	**0.0**	**0.0**	NA

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year 1 (%)**	**Year 2 (%)**	**Year 3 (%)**	**Year 4 (%)**	**Year 5[1]**
Riparian						
DG-3A Transect 3 (20 m)	Perennial	15.0	25.0	31.3	40.0	NA
	Annual	15.0	27.5	16.3	5.0	NA
	Nonnative	10.0	2.5	0.0	0.0	NA
	Invasive[2]	0.0	0.0	0.0	0.0	NA
DG-3A Transect 4[4] (10 m)	Perennial	57.5	90.9	NA	NA	NA
	Annual	7.5	0.0	NA	NA	NA
	Nonnative	5.0	0.0	NA	NA	NA
	Invasive[2]	0.0	9.2	NA	NA	NA
DG-4 Transect 4 (30 m)	Perennial	33.3	70.8	76.4	79.1	NA
	Annual	19.2	4.2	20.3	6.6	NA
	Nonnative	0.0	0.0	2.5	0.0	NA
	Invasive[2]	4.2	3.3	2.5	4.1	NA
DG-4 Transect 8 (30 m)	Perennial	21.9	35.0	46.4	58.3	NA
	Annual	5.8	0.0	18.6	23.6	NA
	Nonnative	10.6	1.7	1.4	10.0	NA
	Invasive[2]	0.0	0.0	0.6	1.3	NA
Riparian Overall[3]	**Perennial**	**31.9**	**55.4**	**51.3**	**59.1**	NA
	Annual	**11.9**	**7.9**	**18.4**	**11.7**	NA
	Nonnative	**6.4**	**1.0**	**1.3**	**3.3**	NA
	Invasive[2]	**1.1**	**3.1**	**1.0**	**1.8**	NA
Least Bell's Vireo (LBVI)						
DG-2A Transect 1 (20 m)	Perennial	32.5	35.0	65.0	89.5	NA
	Annual	35.0	20.0	7.5	10.4	NA
	Nonnative	0.0	1.25	1.3	0.0	NA
	Invasive[2]	5.0	6.25	1.3	0.0	NA
DG-2A Transect 2 (20 m)	Perennial	7.5	22.5	50.0	61.3	NA
	Annual	42.5	27.5	2.5	11.6	NA
	Nonnative	0.0	0.0	0.0	0.0	NA
	Invasive[2]	7.5	2.5	0.0	2.0	NA
DG-2B Transect 1 (20 m)	Perennial	9.2	46.3	86.3	83.7	NA
	Annual	60	18.8	1.3	5.0	NA
	Nonnative	0.8	0.0	0.0	0.0	NA
	Invasive[2]	5.0	0.0	0.0	3.7	NA
DG-2B Transect 2 (20 m)	Perennial	15.7	31.7	54.6	89.1	NA
	Annual	55.0	42.1	35.4	3.3	NA
	Nonnative	0.7	0.0	0.0	2.5	NA
	Invasive[2]	6.7	3.8	0.0	0.0	NA
DG-4 Transect 3 (20 m)	Perennial	33.0	52.0	69.4	83.7	NA
	Annual	0.0	0.0	4.6	6.2	NA
	Nonnative	0.0	0.0	3.7	0.0	NA
	Invasive[2]	13.0	8.0	3.7	2.5	NA

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year 1 (%)**	**Year 2 (%)**	**Year 3 (%)**	**Year 4 (%)**	**Year 5[1]**
DG-4 Transect 5 (40 m)	Perennial	25.6	30.0	53.8	52.7	NA
	Annual	8.8	0.0	0.0	1.0	NA
	Nonnative	0.0	0.0	0.0	0.0	NA
	Invasive[2]	4.4	1.3	0.0	3.7	NA
DG-4 Transect 6 (25 m)	Perennial	49.0	64.0	87.0	92.0	NA
	Annual	3.0	1.0	5.0	7.0	NA
	Nonnative	0.0	0.0	0.0	0.0	NA
	Invasive[2]	2.0	5.0	0.0	1.0	NA
DG-4 Transect 7 (30 m)	Perennial	22.8	48.9	77.8	89.4	NA
	Annual	13.9	11.1	7.2	6.9	NA
	Nonnative	0.0	0.0	0.0	0.0	NA
	Invasive[2]	0.0	0.0	0.0	1.9	NA
DG-4B Transect 1 (25 m)	Perennial	34.0	55.7	72.0	72.0	NA
	Annual	6.0	9.3	4.0	3.3	NA
	Nonnative	0.0	1.0	0.0	0.0	NA
	Invasive[2]	2.0	4.0	0.0	2.6	NA
DG-4B Transect 2 (25 m)	Perennial	39.0	54.3	69.3	91.3	NA
	Annual	5.0	13.7	10.7	5.0	NA
	Nonnative	0.0	1.0	0.0	0.0	NA
	Invasive[2]	4.0	1.0	0.0	1.6	NA
DG-4C Transect 1 (25 m)	Perennial	12.0	15.0	27.3	57.3	NA
	Annual	39.0	51.0	54.7	32.6	NA
	Nonnative	13.0	0.0	3.0	0.0	NA
	Invasive[2]	2.0	0.0	3.0	0.0	NA
DG-4C Transect 2 (25 m)	Perennial	29.0	30.0	54.0	61.2	NA
	Annual	21.0	10.0	12.0	23.0	NA
	Nonnative	0.0	0.0	5.0	0.0	NA
	Invasive[2]	0.0	0.0	0.0	3.6	NA
DG-5 Transect 1 (25 m)	Perennial	27.0	47.8	88.3	92.9	NA
	Annual	5.0	45.6	1.7	0.8	NA
	Nonnative	0.0	0.0	0.0	0.0	NA
	Invasive[2]	0.0	0.0	0.0	2.9	NA
LBVI Overall[3]	**Perennial**	**25.9**	**41.0**	**65.8**	**78.1**	NA
	Annual	**22.6**	**19.2**	**11.3**	**8.9**	NA
	Nonnative	**1.1**	**0.3**	**1.2**	**0.1**	NA
	Invasive[2]	**4.0**	**2.4**	**0.7**	**1.9**	NA

[1]To be determined.
[2]Invasive designation refers to nonnative plant species that have a California Invasive Plant Council (Cal-IPC) invasive plant rating of Moderate or High threat to wildlands.
[3]Average of all transects. Some minor discrepancies due to rounding error.
[4]Could no be assessed due to inaccessibility around Altadena Drain

5.3.2.3 Percent Native and Nonnative Cover – Reference Sites

Table 4 presents a summary of the native and nonnative cover data for the reference sites. It should be noted that this data was collected during Year 1 for the Phase 1 mitigation areas. The average overall perennial cover in the RAFSS reference site was 24.0 percent with zero percent cover of native annuals and 2.0 percent cover of nonnative/invasive annual plants. For the CSS reference sites, the average overall native perennial cover was 70.3 percent, the native annual cover was zero percent, and the percent cover of nonnative/invasive plants species was 14.7. For the oak woodland reference site, the average overall native perennial cover was 99.0 percent with zero percent cover of native annuals and nonnative/invasive plants. For the riparian reference sites, the average overall native perennial cover was 75.4 percent, the native annual cover was 1.5 percent, and the percent cover of nonnative/invasive plants was 19.0. Finally, for the LBVI reference sites, the average overall native perennial cover of 93.9 percent, the native annual cover was 1.9 percent, and the percent cover of nonnative/invasive plants was 1.3 percent.

Table 4. Percent Native/Nonnative Cover Reference Sites

Transect	Vegetation Type	Year 1 (%)	Year 2[2]	Year 3[2]	Year 4[2]	Year 5[2]
Riversidean Alluvial Fan Sage Scrub (RAFSS)						
RAFSS Reference	Perennial	24.0	NA	NA	NA	NA
	Annual	0.0	NA	NA	NA	NA
	Nonnative	2.0	NA	NA	NA	NA
RAFSS Overall[1]	**Perennial**	**24.0**	NA	NA	NA	NA
	Annual	**0.0**	NA	NA	NA	NA
	Nonnative	**2.0**	NA	NA	NA	NA
Coastal Sage Scrub (CSS)						
CSS Reference	Perennial	70.3	NA	NA	NA	NA
	Annual	0.0	NA	NA	NA	NA
	Nonnative	14.7	NA	NA	NA	NA
CSS Overall[1]	**Perennial**	**70.3**	NA	NA	NA	NA
	Annual	**0.0**	NA	NA	NA	NA
	Nonnative	**14.7**	NA	NA	NA	NA
Coast Live Oak Woodland						
Coast Live Oak Woodland Reference	Perennial	99.0	NA	NA	NA	NA
	Annual	0.0	NA	NA	NA	NA
	Nonnative	0.0	NA	NA	NA	NA
Coast Live Oak Woodland Overall[1]	**Perennial**	**99.0**	NA	NA	NA	NA
	Annual	**0.0**	NA	NA	NA	NA
	Nonnative	**0.0**	NA	NA	NA	NA
Riparian						
Riparian Scrub Reference	Perennial	92.0	NA	NA	NA	NA
	Annual	2.5	NA	NA	NA	NA
	Nonnative	3.5	NA	NA	NA	NA
Riparian Woodland Reference	Perennial	58.8	NA	NA	NA	NA
	Annual	0.5	NA	NA	NA	NA
	Nonnative	34.4	NA	NA	NA	NA
Riparian Overall[1]	**Perennial**	**75.4**	NA	NA	NA	NA
	Annual	**1.5**	NA	NA	NA	NA

Table 4. Percent Native/Nonnative Cover Reference Sites						
Transect	**Vegetation Type**	**Year 1 (%)**	**Year 2[2]**	**Year 3[2]**	**Year 4[2]**	**Year 5[2]**
	Nonnative	**19.0**	NA	NA	NA	NA
Least Bell's Vireo (LBVI)						
LBVI Reference 1	Perennial	96.5	NA	NA	NA	NA
	Annual	1.5	NA	NA	NA	NA
	Nonnative	1.0	NA	NA	NA	NA
LBVI Reference 2	Perennial	91.3	NA	NA	NA	NA
	Annual	2.3	NA	NA	NA	NA
	Nonnative	1.5	NA	NA	NA	NA
LBVI Overall[1]	**Perennial**	**93.9**	NA	NA	NA	NA
	Annual	**1.9**	NA	NA	NA	NA
	Nonnative	**1.3**	NA	NA	NA	NA

[1]Average of all transects.
[2]Reference data was not required for Years 2-5 per USFWS.

5.3.2.4 Native Species Richness – Mitigation Areas

Native species richness was determined for each mitigation area during the Year 4 botanical monitoring event and included all germinating native plants and natural recruits. Native species richness was relatively high for the mitigation areas during Year 4 due to a high diversity of germination and natural recruitment. Table 5 shows the native species richness for the mitigation areas. Native species richness was found to be eight for the RAFSS mitigations areas, 42 for the CSS mitigation areas, 22 for the oak woodland mitigation areas, 32 for the riparian mitigation areas, and 37 for the LBVI mitigation areas.

Table 5. Native Species Richness Mitigation Areas					
Mitigation Area	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5[2]**
Riversidean Alluvial Fan Sage Scrub (RAFSS)					
DG-1 WOUS (RAFSS)	5	9	6	8	NA
RAFSS Overall[1]	**5**	**9**	**6**	**8**	NA
Coastal Sage Scrub (CSS)					
DG-1 (CSS)	16	17	30	36	NA
DG-4 (CSS)	14	22	18	17	NA
CSS Overall[1]	**25**	**34**	**38**	**42**	NA
Coast Live Oak Woodland					
DG-3A (Coast Live Oak Woodland)	17	22	17	22	NA
Coast Live Oak Woodland Overall[1]	**17**	**22**	**17**	**22**	NA
Riparian					
DG-3A (Riparian)	13	19	16	13	NA
DG-4 (Riparian)	15	23	27	27	NA

Table 5. Native Species Richness Mitigation Areas					
Mitigation Area	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5[2]**
Riparian Overall[1]	**22**	**33**	**29**	**32**	NA
Least Bell's Vireo (LBVI)					
DG-2A (LBVI)	17	26	21	22	NA
DG-2B (LBVI)	18	18	20	20	NA
DG-4 (LBVI)	19	26	25	26	NA
DG-4B (LBVI)	19	18	18	21	NA
DG-4C (LBVI)	16	19	19	21	NA
DG-5 (LBVI)	13	17	15	15	NA
LBVI Overall[1]	**31**	**39**	**36**	**37**	NA

[1]Total native species observed across all mitigation areas.
[2]To be determined.

5.3.2.5 Native Species Richness – Reference Sites

For the purposes of this report, the Year 1 data for the reference sites will be used. Table 6 shows the native species richness for the reference sites when they were assessed during Year 1. Native species richness was found to be 10 for the RAFSS reference site, 5 for the CSS reference site, 3 for the oak woodland reference site, 20 for the riparian reference site, and 22 in the LBVI reference sites.

Table 6. Native Species Richness Reference Sites					
Reference Site	**Year 1**	**Year 2[1]**	**Year 3[1]**	**Year 4[1]**	**Year 5[1]**
Riversidean Alluvial Fan Sage Scrub (RAFSS)	10	NA	NA	NA	NA
Coastal Sage Scrub (CSS)	5	NA	NA	NA	NA
Coast Live Oak Woodland	3	NA	NA	NA	NA
Riparian	20	NA	NA	NA	NA
Least Bell's Vireo (LBVI)	22	NA	NA	NA	NA

[1]Reference data was not required for Years 2-5 per USFWS.

5.3.2.6 Oak Tree Monitoring

A total of 11 coast live oak trees were assessed for their health and vigor during the Year 4 botanical monitoring including 10 trees that had their root protection zone encroached upon during construction activities (tree tag numbers 3, 32 through 38, 52, and 72) and one tree that did not (tree tag 39). All of the coast live oak trees that had their root protection zone encroached upon during construction activities were found to be in similar health as they were prior to construction. Most of these trees were found to be in fair health (tree tag numbers 32 through 38, 52, and 72) and one was found to be in good health (tree tag number 3). The one coast live oak that was assessed even though it did not have its root project zone encroached upon during construction activities (tree tag number 39) was found to be in poor health

and was experiencing severe branch failure and dieback. The cause of the branch failure and dieback is unclear; however, it does not appear to be the result of the Project.

5.3.2.7 Groundwater Data

Groundwater data collected by the City on April 12, 2023 (Year 4) is presented in Table 7. Groundwater data collected by JPL on October 22, 2022, January 27, 2023, and June 2, 2023 (Year 4) is presented in Table 8.

Table 7. City of Pasadena Groundwater Monitoring Results

Well Name	Reference Elevation (feet)	Static Water Level (feet) by Year				
		1	2	3	4	5[1]
Arroyo	1,092.71	169	182	187	138	NA
52	1,076.76	152	165	171	122	NA
Ventura	1,069.82	143	163	165	113	NA

[1]Year 5 to be determined.

Table 8. JPL Groundwater Monitoring Results

Well Name	Datum (feet above msl)	Year 4[1]		
		October 2022	January 2023	June 2023
MW-1	1116.70	1073.89	1092.13	1093.80
MW-3	1100.34	915.50	945.76	1002.81
MW-4	1082.84	917.93	955.61	1015.98
MW-5	1071.60	DRY	943.00	1013.86
MW-6	1188.52	DRY	DRY	979.66
MW-7	1212.88	DRY	DRY	1005.44
MW-8	1139.53	DRY	DRY	1010.09
MW-9	1106.02	1068.63	1088.12	1088.65
MW-10	1087.71	DRY	DRY	999.78
MW-11	1139.30	999.85	999.76	1032.36
MW-12	1102.14	918.78	974.69	1022.79
MW-13	1183.47	DRY	DRY	996.97
MW-14	1173.47	930.15	939.29	979.44
MW-15	1120.66	1072.22	1090.76	1091.66
MW-16	1236.27	DRY	DRY	999.87
MW-17	1191.21	905.48	921.38	1014.53
MW-18	1225.41	911.21	915.07	984.16
MW-19	1142.94	910.79	918.22	977.79
MW-20	1165.05	894.72	896.82	931.52
MW-21	1059.10	927.08	940.89	984.83

Table 8. JPL Groundwater Monitoring Results

Well Name	Datum (feet above msl)	Year 4[1]		
		October 2022	January 2023	June 2023
MW-22	1176.98	923.76	936.22	990.25
MW-23	1108.84	922.94	930.12	983.33
MW-24	1200.94	923.92	924.02	1003.86
MW-25	934.52	686.29	686.68	689.36
MW-26	1059.08	907.29	912.18	935.32

[1]Year 5 to be determined.
Note: msl = mean sea level

6.0 ACHIEVEMENT OF PERFORMANCE STANDARDS

The performance standards for the Phase 1 mitigation areas, as listed in the approved HRP, are provided in Table 9 for reference. Based on the results of the botanical monitoring, the Year 4 performance standards for survivorship have been met for all mitigation areas where container plants were installed. Performance standards for nonnative cover in regard to Cal-IPC moderate to high threat invasive species was not achieved for LBVI, CSS, and other riparian habitats. Performance standards for nonnative cover were achieved by coast live oak woodland and RAFSS habitats. The performance standard for native cover was met for the CSS, coast live oak woodland, riparian, and LBVI habitats; however, this standard was not achieved for the RAFSS habitat. There is no Year 4 performance standard for native plant species richness; however, all communities except the RAFSS have met the Year 5 performance standard. The performance standard for structural patch richness will be assessed during Year 5 using the California Rapid Assessment Method following the completion of the Phase 3 implementation. There is no Year 4 standard for wildlife use monitoring; however, general and focused wildlife surveys were conducted throughout Year 4.

Table 9. Performance Standards for Onsite Mitigation Areas

Category	Performance Standard	Description (Year 4)	Achieved
Physical-2	Sediment/Topographic Stability	Formation of substantial rills and gullies is minimized and normal sheet flow during inclement weather does not cause substantial sediment transport to lower elevations.	NO
Flora-1	Survivorship	▪ Tree, shrub, and herb strata container plants will have the following survival requirements: Year 4: 80% Survival	YES[1]

Table 9. Performance Standards for Onsite Mitigation Areas			
Category	**Performance Standard**	**Description (Year 4)**	**Achieved**
Flora-2	Native Plant Cover	▪ Combined tree, shrub, and herb strata container plants will have the following native plant cover requirements: ▪ Least Bell's Vireo (LBVI) Habitat ▪ Year 4: 55% ▪ Other Riparian Habitat ▪ Year 4: 55% ▪ RAFSS & CSS Habitat: ▪ Year 4: 55% ▪ Coast Live Oak Woodland Habitat: ▪ Year 4: 40%	LBVI Habitat: YES Other Riparian Habitat: YES RAFSS Habitat: NO CSS Habitat: YES Coast Live Oak Woodland: YES
Flora-3	Nonnative Plant Cover	▪ Combined tree, shrub, and herb strata container plants will have the following native plant cover requirements: ▪ LBVI Habitat: ▪ Year 4: Not more than 5% ▪ All Other Habitat Mitigation Areas: ▪ Year 4: Not more than 10% annual herbaceous species/grasses; 5% woody species/perennial herbs; 1% Cal-IPC moderate or high threat invasive species.	LBVI Habitat: NO (Cal-IPC) Other Riparian Habitat: NO (Cal-IPC) RAFSS: YES CSS: NO (Cal-IPC) Coast Live Oak Woodland: YES
Flora-4	Native Plant Species Richness	▪ By Year 5 mitigation areas must have 100% of the species richness present in the respective reference sites.	LBVI Habitat: YES Other Riparian Habitat: YES RAFSS: NO CSS: YES Coast Live Oak Woodland: YES

[1] If including volunteer or recruits of the same species growing within the dead plant's basin (or within 1 meter of that basin), this criterion has been achieved.

6.1 Sediment/Topography Stability

The formation of substantial erosional rills and gullies is required to be minimized in the mitigation areas and normal sheet flow during inclement weather should not cause substantial sediment transport to lower elevations. While the majority of the Phase 1 mitigation areas did not have substantial erosional rills or gully formation, the portions of DG-3A that surround Altadena Drain continued to experience severe erosion that has led to the formation of a gully at the southern end of DG-3A where it exits into the reservoir.

6.2 Container Plant Survivorship

Container plant survival is required to be a minimum of 80 percent at the end of Year 4. Out of the 13,542 container plants installed during Phase 1 of restoration activities and during supplemental planting, approximately 12,601 container plants were noted as still alive during Year 4. This is a 93.1 percent survivorship, which is approximately 13.1 percent higher than the performance standard. In addition, additional supplemental planting is anticipated to occur during the fall/winter of 2023/2024.

6.3 Native Plant Cover

At the end of Year 4, native plant cover is required to be at least 55 percent for LBVI, riparian, RAFSS, and CSS habitats, and 40 percent for coast live oak woodland habitat. The Year 4 performance standard for native plant cover was achieved for all habitat types except the RAFSS, with 78.1 percent native cover for LBVI habitat, 59.1 percent native cover for riparian habitat, zero percent native cover for RAFSS habitat, 61.3 percent native cover for CSS, and 76.1 percent for coast live oak woodland.

6.4 Nonnative Plant Cover

Nonnative plant cover during Year 4 is required to be less than 5 percent in LBVI habitat. In all other habitat types, nonnative plant cover has the following Year 4 performance standards: no more than 10 percent annual herbaceous species/grasses, no more than 5 percent woody species/perennial herbs, and no more than 1 percent Cal-IPC Moderate or High threat invasive species. The Year 4 performance standard for nonnative plant cover was achieved for all mitigation areas. Nonnative cover for these areas ranged from zero to 3.3 percent and invasive cover ranged from zero to 1.9 percent.

Year 4 nonnative plant cover in regard to Cal-IPC species is required to be 1 percent for moderate or high threat invasive species. Year 4 performance standard for nonnative plant cover in regard to Cal-IPC species was not achieved for LBVI, CSS and other riparian habitats. Nonnative plant cover in regard to Cal-IPC species were 1.9 for LBVI, 1.3 for CSS and 1.8 for other riparian habitats. The higher than normal Cal-IPC moderate to invasive cover was a result of increased rainfall during the 2022-2023 rainy season, which supported nonnative growth. Eradication of problematic invasive weeds, such as perennial pepperweed, over large areas can be very difficult without the use of systemic herbicides.

6.5 Native Plant Species Richness

Native plant species richness is required to be 100 percent of the species richness present in the respective reference sites by the end of Year 5. While there is no Year 4 performance standard, this criterion is required to be assessed every year to ensure the mitigation areas are trending towards meeting the Year 5 performance standard. The Year 5 performance standard for native plant species richness has already been met for the LBVI, riparian, CSS, and coast live oak woodland habitats. The RAFSS habitat experienced an increase from Year 3 and is trending towards meeting Year 5 performance standards.

7.0 DISCUSSION

The habitat mitigation areas performed well during Year 4. Minor issues with the irrigation system, vandalism, pests, and herbivory were observed during the Year 4 monitoring efforts; however, these issues were minor and should not impede the success of the mitigation areas. Erosion in most of the Phase 1 mitigation areas was minor; however, severe erosion in the DG-3A mitigation area surrounding Altadena Drain continued to worsen during the stormy season and LACPW is working on design plans to redirect high intensity flows to the reservoir and repair the erosion. In addition, scouring resulting from high storm flows and the formation of scarps was observed in the DG-1 WOUS mitigation area. During the 2023 annual maintenance activities associated with the sediment removal project, deposited sediment will be removed and the vertical scarps will be repaired and the need for adaptive management activities will be assessed to address issues associated with erosion in mitigation areas.

The achievement of the Year 4 performance standards by the mitigation areas and associated habitats are listed in Table 10.

Table 10. Status of Year 4 Performance Standard Achievement

Habitat Type	Container Plant Survivorship	Native Plant Cover	Nonnative Plant Cover	Nonnative Cal-IPC Cover (< or = 1%)	Native Plant Species Richness
LBVI Riparian	Yes	Yes	Yes	No	Yes
Other Riparian	Yes	Yes	Yes	No	Yes
RAFSS	NA	No	Yes	Yes	No
CSS	Yes	Yes	Yes	No	Yes
Coast Live Oak Woodland	Yes	Yes	Yes	Yes	Yes

The Phase 1 mitigation areas have met the Year 4 performance standard for container plant survivorship. The Year 4 performance standard for native cover was met for the LBVI riparian, other riparian, CSS, and coast live oak woodland habitats. However, this standard was not achieved for the RAFSS community, which was due to the high storm flows scouring the vegetation in the mitigation area. The overall Year 4

performance standard for plant cover of nonnative weedy species and grasses was achieved for the Phase 1 mitigation areas. However, the requirement of 1 percent or less of Cal-IPC moderate or high threat invasive species was only met for the RAFSS and coast live oak woodland habitats. This performance standard was not achieved for the LBVI riparian, other riparian, or CSS habitats. The performance standard of 1 percent or less was not achieved, but the cover of invasive species in these three habitats was under 2 percent. Achieving the Year 4 performance standard of 1 percent or less cover for Cal-IPC moderate or high threat invasive species is likely not feasible without the use of herbicide to control these species. The Year 4 performance standards do not have a requirement for native plant species richness; however, all communities except the RAFSS have already met the Year 5 performance standard. The performance standard for structural patch richness will be assessed during Year 5 using the California Rapid Assessment Method following the completion of the Phase 3 implementation. There is no Year 4 standard for wildlife use monitoring; however, general and focused wildlife surveys were conducted throughout Year 4.

Maintenance activities including weed abatement, irrigation repair, basin repair, and erosion control will continue to be conducted on a regular basis during Year 5. Additional supplemental planting of container plants in the Phase 1 mitigation areas will occur during the Phase 3 planting effort (fall/winter 2023-2024) and will help to increase the level of native cover in the mitigation areas. In addition, weed abatement efforts will continue to reduce competition from nonnative and invasive weeds in the mitigation areas.

8.0 REFERENCES

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LIST OF APPENDICES

APPENDIX A

Streambed Alteration Agreement Notification No. 1600-2015-0263-R5

California Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 636-3160
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

March 21, 2017

Christopher Stone
Los Angeles County Flood Control District
900 S. Freemont Ave.
Alhambra, CA 90803
cstone@dpw.lacounty.ca.gov

Dear Mr. Stone:

Final Lake or Streambed Alteration Agreement, Notification No. 1600-2015-0263-R5, Devil's Gate Dam Sediment Removal and Management Project

Enclosed is the final Lake and Streambed Alteration Agreement (Agreement) for the Devil's Gate Dam Sediment Removal and Management Project (Project). Before the California Department of Fish and Wildlife (CDFW) may issue an Agreement, it must comply with the California Environmental Quality Act (CEQA). In this case, CDFW acting as a responsible agency filed a Notice of Determination (NOD) within five working days of signing the Agreement. The NOD was based on information contained in the Final Environmental Impact Report, dated October 2014, prepared by the lead agency.

Under CEQA, the filing of an NOD triggers a 30-day statute of limitations period during which an interested party may challenge the filing agency's approval of the Project. You may begin the Project before the statute of limitations expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this letter, please contact Mr. Matt Chirdon, Senior Environmental Scientist at (805) 640-1165 or by email at matthew.chirdon@wildlife.ca.gov.

Sincerely,

Betty J Courtney

Betty Courtney
Environmental Program Manager

Cc: Grace Yu, LACFCD mailto:gyu@dpw.lacounty.ca.gov

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
SOUTH COAST REGION 5
3883 RUFFIN ROAD
SAN DIEGO, CALIFORNIA 92123

LAKE and STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2015-0263-R5
Arroyo Seco Tributary to Los Angeles River

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT
DEVIL'S GATE DAM AND RESERVOIR SEDIMENT REMOVAL PROJECT

This Lake and Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Los Angeles County Flood Control District (Permittee) as represented by Christopher Stone.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on December 11, 2015, that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project is located within Devil's Gate Dam and on the Arroyo Seco, the Permittee's flood control reservoir, a tributary to the Los Angeles River, in the County of Los Angeles, State of California; Latitude 34.185747, Longitude 118.175487. The Project is located in the City of Pasadena, northwest of the intersection of Oak Grove Dr. and Windsor Avenue (Thomas Guide Page 535, E6: Pasadena. U.S. Geological Survey (USGS) map [Pasadena], base and meridian San Bernardino; Assessor's Parcel Number(s) (5823004900, 5823003909, 5823003907, 5823003910, 5823015902, and 582301490).

PROJECT DESCRIPTION

Definitions. The following definitions shall govern this Agreement.

Non-native vegetation. Generally treated in this Agreement as semi-natural stands as described in the Manual of California Vegetation 2nd edition(MCV)[1], but some assemblages of non-native plants present within project area may not be presently defined in the MCV. These semi-natural stands can occur across a variety of environmental settings and are characterized by dominate cover of non-native, invasive, noxious, and/or nuisance plant species. The amount of non-native vegetation observed as part of relative cover will vary depending on whether observed vegetation is a woodland, shrubland, or grassland stand, but for purposes of this Agreement native vegetation will not contribute greater than 20 percent relative cover to the stand.

Perennial Woody Vegetation. Defined as an above ground stem consisting of hardened, thickened, vascular tissue (xylem) under the bark (tough tissue (including phloem)) covering the wood (hardened xylem) of subshrubs, shrubs, or trees. The stem typically has buds that survive the dormant season (winter) completing life cycle (germination through death) in more than two years or growing seasons.

Adjacent. Within 500 feet.

Ground Disturbance. Activities associated with staging, access, excavation, sediment removal, grading, or disking that disturb surface of soil.

Protected Species. A species Fully Protected under State law; a species listed under the California Endangered Species Act (Fish & G. Code § 2050 et seq.) and/or Endangered Species Act (16 U.S.C. § 1531 et seq.); a species identified by CDFW as a Species of Special Concern; or any other species for which take is prohibited under State or federal law.

Suitable Habitat. Habitat where there is at least low potential that an identified Protected Species or group of Protected Species may occur.

Suitable Nesting Habitat. Habitat where there is at least low potential that nesting birds may utilize the vegetation or structures for nesting.

Initial Vegetation Removal. The first instance of removal of vegetation, native or non-native, during Initial Sediment Removal Program.

Vegetation Management. Includes subsequent removal of vegetation either during the Initial Sediment Removal Program, Routine Annual Maintenance, Episodic Maintenance, or Habitat Restoration. Activities may involve use of hand tools, mechanically operated hand tools, or heavy equipment with mowing or grapple attachments. This may include use of motor operated winches for removal of large debris.

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[1] Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens.2009. *A Manual of California Vegetation.* California Native Plant Society. Sacramento, CA.

Project Start. The Project start date associated with the Sediment Removal Program where Permittee starts Initial Vegetation Removal or Ground Disturbance activities whichever occurs first.

Project Initiation. The Project start date each year where Permittee starts vegetation or ground disturbing activities whichever occurs first.

Excavation. The removal of sediment and debris from the Initial Sediment Removal Area and during Routine Annual or Episodic Maintenance using excavators or other heavy equipment to remove large volumes of sediment and debris from designated areas before graders and scrapers conduct final grading.

Days. This Agreement computes the time periods in Days in accordance with Code of Civil Procedure section 12. That section provides:" The time in which any act provided by law is to be done is computed by excluding the first day, and including the last, unless the last day is a holiday, and then it is also excluded." Saturdays and Sundays are holidays (See Code of Civ. Proc., §§ 10, 135).

Initial Sediment Removal Area. The 68.63 acre area where the initial excavation of sediment and debris will occur.

Permanent Maintenance Area. The 51.78 acre area to be maintained for flood capacity. This includes the Routine Annual Maintenance Area and the Episodic Maintenance Area.

Routine Annual Maintenance Area. The 40.80 acre area where annual maintenance of the facility will occur (see Exhibit B).

Episodic Maintenance Area. The 10.98 acre area side slope proposed at 3:1(V:H) grade (see Exhibit B). where occasional maintenance will occur. This area is within the Permanent Maintenance Area, abuts Routine Annual Maintenance Area and forms transitional habitat with Habitat Restoration Area.

Habitat Restoration Area. The 77.01 acre area in the reservoir subject to minor land alteration, vegetation management, and planting of native plants. This area is outside the Permanent Maintenance Area (See Exhibit E).

Sediment Removal Program

This phase of project is limited to the restoration of a public facility, through excavation within the 68.63 acre Initial Sediment Removal Area (see Exhibit B, Work Plan Map) and transition to long term Permanent Maintenance Area, composed of a total of 51.78 acres that consists of 40.80 acres for Routine Annual Maintenance, and 10.98 acres for Episodic Maintenance Areas for the term of this Agreement. Sediment removal will not involve expansion of use beyond that of the designed facility. The proposed initial excavation is to mechanically remove 2.4 Million Cubic Yards (MCY) of post-fire debris from the Initial Sediment Removal Area within Devil's Gate Reservoir. The location of the Initial Sediment Removal Area was selected to maximize the efficient removal of post-fire debris while at

the same time, avoid and minimize sensitive habitats and sensitive species impacts. Sediment levels behind Devil's Gate Dam will be brought down to 986 feet above mean sea level (msl) to eliminate the threat to the dam outlet works and comply with standards as set by the State Water Resources Division of Safety of Dams (DSOD). The Initial Sediment Removal Area will then slope upwards to 995 feet above msl where the basin will constrict and increase in elevation to 1,040 feet above msl, and widen again to meet final elevation of 1,060 feet above msl approximately 4,700 linear feet upstream from the dam. Devil's Gate Reservoir is routinely drained after every storm; therefore, it will not be necessary to drain the facility for non-routine activities.

The Initial Sediment Removal Area will be accessed via a new maintenance road to the east of the reservoir. Trucks will access this maintenance road directly from Oak Grove Drive. The access road will have a total width of 16 feet and paved with asphalt or concrete for 250 linear feet. Once the access road reaches the reservoir bottom the access road will end and construction vehicles may access areas necessary for vegetation and sediment removal before exiting by western leg of access road constructed from the reservoir inlet to (see Exhibit A) an existing dirt access road to the west of the dam off of Oak Grove Drive that will be widened for its entire length to a width of 16 feet. In addition, this western access road will be paved with asphalt or concrete for 250 linear feet south of the West Rim Trail to Oak Grove Drive to accommodate construction vehicles.

The reservoir will be drained of water prior to the start of Initial Sediment Removal Area activities. Excavation[2] and off-site removal of sediment will only occur during dry period of the year Monday through Friday from April 15 until December 31 barring storm events. If surface water inflows are present during period of excavation a Surface Water Diversion Plan will be provided to CDFW (see Condition 2.27).

The 2.4 MCY of sediment and debris in the 68.63 acres Initial Sediment Removal Area includes established native and non-native vegetation that will be removed. Vegetation and organic debris will be separated from the sediment and hauled to Scholl Canyon Landfill in the City of Glendale. Project Start is estimated to take place in the Fall of 2017. In subsequent years of sediment removal vegetation and organic debris will be hauled to Scholl Canyon Landfill.

Construction equipment will include, but not limited to, mechanical equipment such as front loaders with four-yard buckets, bulldozers, excavator, grader, water truck, and tender trucks. Vehicles expected to be used for sediment removal are double dump trucks with 18 cubic yard (CY) capacity or equivalent.

Permanent Maintenance Program

Once excavation is complete for this project, annual maintenance of the facility will occur within the 40.80 acre Routine Annual Maintenance Area (see Exhibit B). Vegetation management and sediment removal within the 40.80 acre Routine Annual Maintenance Area will occur for the life of this Agreement. Excavation over the lifetime of the project within the 40.80 acre Routine Annual Maintenance Area will be hauled to disposal sites previously authorized by Permittee (see Figures

[2] Excavation involving no off site hauling of vegetation and sediment will be confined to April 15 to December 31 Monday through Friday from 0700 to 1800 hours Standard Time (1900 hours during Daylight Savings Time), and on Saturday between 0800 to 1700 hours during Standard and Daylight Savings Time.

2.5-2,-3-4 from Final Environmental Impact Report). Trucks hauling sediment will access the reservoir from an existing maintenance road east of Devil's Gate Dam and exit via a proposed upgraded access road on the western edge of Devil's Gate Dam that will exit on to Oak Grove Drive (see Exhibit A). Vegetation within the Routine Annual Maintenance Area will be mowed or grubbed annually over a 2 to 12 week period in late summer or early fall.

Episodic Maintenance within the 10.98 acre (horizontal projection) Episodic Maintenance Area will initially include planting with appropriate native plants and thereafter annual undesirable plant control (using herbicides, hand tools, and mechanically operated hand tools (i.e., chainsaws and motor powered winches). In the event of a large debris flow or hyper concentrated flood[3] Episodic Maintenance would involve the need for sediment excavation/trucking off site. The types of equipment involved in excavation may include those similar to the initial sediment removal phase including, but not limited to, front loaders with four-yard buckets, bulldozers, excavator, grader, water truck, and tender trucks. Vehicles expected to be used for sediment hauling include double dump trucks with an 18 cubic yard (CY) capacity or equivalent.

After Episodic Maintenance the side slopes would be returned to the proposed 3:1(V:H) grade, and the 10.98 acre area will be subject to the continuing annual undesirable plant control. Because this area is restricted from a general right of public access, and will be subject to undesirable plant control, it is anticipated to be revegetated naturally after periodic large debris flow or hyper concentrated floods.

The 77.01 acres of habitat in the reservoir, referred to as the Habitat Restoration Area will not be impacted for Permanent Maintenance Program activities, but would be subject to on-going restoration as identified in approved Habitat Restoration and Management Plans (see Conditions 3.9 and 3.10) for the site. Activities proposed include minor surface alteration of the land, vegetation management, and application of herbicides.

Restoration Activities
Pursuant to the annual Interim Measures Project (Agreement Number 1600-2006-0204-R5) the Permittee has been maintaining the access road and removing up to 25,000 CY of sediment from the upstream dam face annually and stockpiling the sediment at Johnson Field. Sediment stockpiled at Johnson Field from the Interim Measures Project activities will be removed and hauled offsite. After the removal of sediment, Johnson Field will be restored to support riparian habitat as part of a Habitat Restoration Plan (see Exhibit E and Condition 3.9).

The 77.01 acres of habitat in the reservoir, referred to as the Habitat Restoration Area (see above), will be subject to minor surface alteration of the land, vegetation management, and application of herbicides to be approved in Habitat Restoration and Management Plans (see Conditions 3.9 and 3.10 for the site).

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[3] **Debris flow:** A mix of water and debris, which may include particles ranging in size from clay to boulders and may contain woody debris and other materials, that flows down a stream channel or steep slope, sometimes at great velocity, and contains more than 60 percent debris (less than 40 percent water) by volume.
Hyper-concentrated flood: A moving mixture of sediment and water containing between 20 and 60 percent sediment by volume.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include:

Amphibians. western toad (*Bufo boreas*), California treefrog (*Hyla cadaverina*), Sierra Madre yellow-legged frog (*Rana muscosa*);

Reptiles: Common side-blotch lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), two- striped garter snake (*Thamnophis hammondii*), coast range newt (*Taricha tarosa tarosa*), western pond turtle (*Actinemys marmorata*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*); coast patch-nosed snake (*Salvodora* hexalepis);

Birds: burrowing owl (*Athene cunicularia*), southwestern willow flycatcher (*Empidonax traillii extimus*), California quail (*Callipepla californica*), snowy egret (*Egretta thula*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferous*),rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), white-throated swift (*Aeronautes saxatilis*), yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens)*, loggerhead shrike (*Lanius ludovicianus*) least Bell's vireo (*Vireo bellii pusillus*), belted kingfisher (*Megaceryle alcyon)* American kestrel (*Falco sparverius*), Bewick's wren (*Thryomanes bewickii*), swallows (*Hirundinidae*), sparrows (*Emberizidae*), finches (*Fringillidae*), wood warblers (*Parulidae*) and numerous other bird species;

Mammals: pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), southern grasshopper mouse (*Onchomys torridus ramona*), American badger (*Taxidea taxus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), desert cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), western gray squirrel (*Sciurus griseus*), California ground squirrel (*Spermophilus beecheyi*), grey fox (*Urocyon cinereoargenteus*); and,

Native Plants: Nevin's barberry (*Berberis nevinii*), Plummer's mariposa lily (*Calochortus plummerae*), Greata's aster (*Symphyotrichum gretae*), Parry's spineflower (*Chorizanthe parryi var. parryi*), slender-horned spineflower (*Dodecahema leptoceras*), mesa horkelia (*Horkelia cuneata ssp. puberula*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Parish's gooseberry (*Ribes divaricatum var. parishii*), black willow thickets, mulefat thickets, riparian herbaceous, coast live oak woodland, scale broom scrub, and all other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area. These resources are further detailed and more particularly described in the document(s): "Devil's Gate Reservoir Sediment Removal and Management Project Final Environmental Impact Report " dated October 2014, prepared for Los Angeles County of Department of Public Works by Chambers Group; "Lake and Streambed Alteration Notification Package – Devil's Gate Dam and Reservoir Sediment Removal Project" dated December 11, 2015, prepared for CDFW by Permittee complete with all attachments and exhibits, Revised vegetation mapping and impact analysis for Devil's Gate Dam and Sediment Removal Project dated May 19, 2016 by ECORP Consulting, Inc., revised assessment of temporary impact areas and incorporation of Episodic Maintenance area dated May 5, 2016.

Project Impacts
The adverse effects the project could have on the fish or wildlife resources identified above include a total of 68.63 acres subject to Department jurisdiction to implement the Initial Sediment Removal. After Initial Sediment Removal 51.78 acres will be maintained for flood capacity through Routine Annual Maintenance and Episodic Maintenance (see above). Additionally, in order to implement compensatory mitigation for the project, 77.01 acres subject to the Department's jurisdiction outside the Permanent Maintenance Area, will be subject to minor surface alteration of the land, vegetation management, and application of herbicides. The following impacts would occur to vegetation communities within the 68.63 acres necessary for Initial Sediment Removal.

Total Permanent Project Impacts
Permanent impacts to 40.80 acres of vegetation communities and land cover classifications from initial sediment removal include the removal of 16.27 acres of *Salix gooddingii* Alliance (black willow thickets), 1.82 acres *Lepidospartum squamatum* Alliance (Scalebroom scrub), 8.03 acres *Baccharis salicifolia* shrubland Alliance (mulefat thickets), 9.88 acre *Lepidium latifolium-Conium maculatum* herbaceous semi-natural stand, 2.45 acre *Conium maculatum* herbaceous semi-natural stand, 2.33 acres non-native or disturbed (including 1.0 acre *Xanthium strumarium* herbaceous stand, 1.33 acres disturbed (trails/barren/IMP Area), 0.02 acre *Artemisia californica-Eriogonum fasciculatum* California sagebrush-California buckwheat scrub. Additionally, there are expected permanent impacts to individual California live oak trees (*Quercus agrifolia*) that vary from direct impacts, resulting in complete removal to a limited number of individual trees, and indirect impacts to individual oaks that are currently undetermined. The number of oaks subject to complete removal and indirect impact are undetermined at this time because the area's hilly topography may not result in any significant effect or project disturbance may be avoided all together based on project design modifications made from incorporating avoidance of oak trees identified in project tree monitoring report required prior to Project Start.

Total Temporary Project Impacts
Temporary impacts to 27.83 acres subject to Department jurisdiction consisting of vegetation communities and land cover classifications will occur from Initial Sediment Removal, worksite access, and installation of side-slopes in Episodic Maintenance Area. These areas contain 12.70 acres *Lepidospartum squamatum* Alliance (Scalebroom scrub), 5.89 acres of *Salix gooddingii* Alliance (black willow thickets), 3.41acres *Baccharis salicifolia* shrubland Alliance (mulefat thickets), 1.97 acres disturbed (trails/barren/IMP Area), 1.24 acre *Lepidium latifolium-Conium maculatum* herbaceous semi-natural stand, 1.70 acres *Conium maculatum* herbaceous semi-natural stand, 0.50 acre *Xanthium strumarium* herbaceous stand, 0.27 acre *Quercus agrifolia* coast live oak (trees), 0.07 acre *Eucalyptus (globulus, camaldulensis)* Semi-natural stand, 0.08 acre *Artemisia californica-Eriogonum fasciculatum* California sagebrush-California buckwheat scrub.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures
Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the Project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the project site at any time to verify compliance with the Agreement.

1.5 Payment of Outstanding Fees.

a. California Code of Regulations, Title 14, section 699.5, establishes fees for each maintenance project. Fees applicable to activities undertaken pursuant to this Agreement will be those currently in effect at the time of the activity. The 2015 paid fees include a $2,947.50 base fee for a long term routine maintenance agreement and $ 4,912.25 for separate Sediment Removal Program (defined in Project Description).

b. The annual per project fee for each routine maintenance year (July 1 to June 30) shall be paid by August 1 of the following routine maintenance year for work performed the previous routine maintenance year. For example, the annual per project fee for maintenance year July 1, 2017 to June 30, 2018 will be paid by August 1, 2018.

1.6 Project Initiation and Completion. The Permittee shall notify CDFW, by e-mail at R5LSAcompliance@wildlife.ca.gov, at least five (5) days prior to Project Initiation (see Definitions) and at least five (5) days prior to completion of construction (project) activities, each time project activities occur. Notification shall be sent to CDFW's South Coast Office at the address above, ATTN: Streambed Alteration Program – SAA # 1600-2015-0263-R5 or to R5LSACompliance@wildlife.ca.gov.

1.7 Implement as Proposed Unless Directed Differently by Agreement. The agreed work includes activities associated with the Project Location and Project Description that is provided above. Specific work areas and mitigation measures are described on/in the plans and documents submitted by the Permittee with the Notification Package, including, and shall be implemented as proposed unless directed differently by this Agreement.

1.8 Designated Biologist(s). The Permittee shall submit to CDFW for its review and approval a list of biological monitors (Designated Biologists) including their names, qualifications, business address, contact information, and the proposed disciplines/species for which they are proposed to provide monitoring. CDFW will respond in written format with concurrence as to the disciplines the Designated Biologists are approved to handle (birds, construction monitoring, fish, plants, mammals). The Designated Biologist shall be knowledgeable and experienced in the biology and natural history of local fish and wildlife resources present at the project site. The Designated Biologist shall be responsible for monitoring at specifically designated locations and conducting other project activities, including, but not limited to, preconstruction surveys.

1.9 Designated Biologist Authority. The Designated Biologist shall have the responsibility to concurrently notify the Permittee and CDFW of any activity that is not in compliance with this Agreement, and/or to recommend to Permittee any reasonable measure to avoid or minimize impacts to fish and wildlife resources. Neither the Designated Biologist nor CDFW shall be liable for any costs incurred as a result of compliance with this measure. This includes cease-work orders issued by CDFW.

1.10 Permitting and Safeguards. Permittee's notification for this Agreement indicated permits/certification were applied for from the Army Corps of Engineers and the Regional Water Quality Control Board, for this project, should such permits/certification be required, a copy shall be submitted to CDFW.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

2.1 Work Period. Initial Vegetation Removal work within the Initial Sediment Removal Area shall be confined to the period starting September 15 to February 1, in the year(s) of 2017 to 2019, unless otherwise requested by Permittee and approved by CDFW in writing. Excavation shall be confined to April 15 to December 31 Monday through Friday from 0700 to 1800 hours Standard Time (1900 hours during Daylight Savings Time), and on Saturday between 0800 to 1700 hours during Standard and Daylight Savings Time. Routine Annual Maintenance or Episodic Maintenance work involving vegetation management and/or excavation is specifically addressed in Conditions 2.40 to 2.72 below.

2.2 Conditional Work during Rainfall Event. No Excavation work shall occur during an anticipated rainfall event. For purposes of this Agreement, "rainfall event" means events producing more than ¼ inch per 24 hour period. No Excavation work shall occur during a dry-out period of 24 hours after a rainfall event. Permittee shall monitor the National Weather Service (NWS) 72-hr forecast for the project area. All erosion control measures shall be initiated prior to all rainfall events.

2.3 General Preconstruction Survey. Prior to Project Start a Designated Biologist shall conduct a preconstruction survey no more than three (3) days and no less than one (1) day before proposed activities for the presence of fish, wildlife, or plants within the Initial Sediment Removal

Area and adjacent areas with accessible Suitable Habitat and establish protective measures in accordance with other conditions of the Agreement hereunder.

2.4 Leave Wildlife Unharmed. If any Protected Species (see Condition 2.8) are encountered and do not passively relocate, the Permittee shall contact CDFW immediately or proceed as described in Incidental Take Permits or Protected Species Plan that may authorize impacts or relocation (see Conditions 2.9 and 2.10). To greatest extent practicable, if any non-protected wildlife is encountered during the course of project (as defined in Project Description), said wildlife shall be allowed to leave the construction area unharmed including relocation by a Designated Biologist.

2.5 Movement of Terrestrial Species. To the greatest extent practical, any newly constructed structure including but not limited to temporary and permanent fencing, shall be designed, constructed and maintained such that it does not constitute a barrier to movement of wildlife unless intended to be wildlife exclusionary fencing. This includes but is not limited to the ingress and egress of wildlife across, under, over, and around structures. If any aspect of the proposed project results in a long term reduction of wildlife movement, the Permittee shall be responsible for all future activities and expenditures necessary, as determined by CDFW, to secure passage of wildlife across, under, over, and around the structure.

2.6 Bypass Flow Required. When conducting activities authorized by this Agreement, the Permittee shall allow sufficient water at all times to bypass dam to downstream reaches to maintain aquatic life below the Dam.. This bypass requirement shall not apply during periods when Dam operation is necessary to regulate flows to prevent downstream flooding. If Permittee desires a change in the operation of the Dam from the abovementioned operation, then Permittee shall request and receive an approved amendment to this Agreement.

2.7 Limitations on Authorization for Water Use. This agreement does not authorize any diversion or use of water. All facilities that the Permittee owns, operates, or controls shall be operated and maintained in accordance with current law and applicable water rights.

Biological Resources

2.8 Protected Species Defined. This Agreement does not authorize take, incidental or otherwise, of any protected species. For the purpose of this Agreement, "protected species" means the following: a species fully protected under state law; a species listed under the California Endangered Species Act (Fish & G. Code § 2050 et seq.) and/or Endangered Species Act (16 U.S.C. § 1531 et seq.); a species identified by CDFW as a species of special concern; or any other species for which take is prohibited under state or federal law.

2.9 CESA Listed Species Exception. This Agreement does not authorize take for least Bell's vireo, southwestern willow flycatcher, or other species listed under CESA. Prior to removing, trimming, brushing, or damaging vegetation in the stream zone in areas containing habitat suitable for CESA-listed species, the Permittee shall consult with CDFW in accordance with the procedures described in CESA (Fish & G. Code § 2080 *et seq.*). Minimization measures pertaining to least

Bell's vireo and Southwestern willow flycatcher are addressed in CESA Incidental Take Permit number 2081-2016-031-05.

2.10 Protected Species Avoidance and Minimization Measures. The Permittee shall have a Designated Biologist survey the proposed work area to verify the presence or absence of protected species. The results of these surveys shall be provided to CDFW, along with copies of all field notes, prior to Project Initiation. The survey technique shall be approved by CDFW in writing. CDFW will provide written response within no more than 18 days of Permittee submittal. The biologist shall have all required permits.

a. Protected Species Plan. The Permittee shall submit to CDFW for its review and approval a Protected Species Plan for the species listed in Table 1.0 below. Permittee shall receive written approval (email, letter, or fax) prior to Project Initiation. The Permittee shall have the Designated Biologist on site daily when protected species may be present to ensure that no impacts occur to protected species that are not authorized.

Table 1.0: List of Protected Species to be addressed in Protected Species Plan.

Common name	Scientific name
slender-horned spineflower	(*Dodecahema leptoceras*)
two- striped garter snake	(*Thamnophis hammondii*)
coast range newt	(*Taricha tarosa tarosa*)
southwestern pond turtle	(*Actinemys marmorata*)
burrowing owl	(*Athene cunicularia)*
yellow warbler	(*Dendroica petechia*)
pallid bat	(*Antrozous pallidus*)
western mastiff bat	(*Eumops perotis californicus*)
western yellow bat	(*Lasiurus xanthinus*)
Coast patch-nosed snake	(*Salvadora hexalepis)*
southwestern willow flycatcher	*(Empidonax traillii extimus)*
Least Bell's vireo	*(Vireo bellii pusillus)*
Yellow-breasted chat	*(Icteria virens*)
Loggerhead shrike	(*Lanius ludovicianus*)

b. Dead or Injured Protected Species. Any dead or injured protected species found along roads or in project areas shall be reported to CDFW within 48 hours. The biologist shall report the location, cause of death, species found, and any other relevant information.

c. Seasonal and Other Restrictions. The Permittee shall not conduct any vegetation removal or ground disturbance within 1000 linear feet of least Bell's vireo or southwestern willow flycatcher habitat (see Exhibit C, LBVI suitable habitat) from March 1 through September 15 until consultation under Condition 2.9 above, is complete, and any take authorization is issued pursuant to FGC Section 2080 *et. seq*. Permittee may conduct project activities, unless

otherwise prohibited elsewhere in this Agreement, greater than 1000 linear feet of occupied or suitable least Bell's vireo or southwestern willow flycatcher species habitat from March 1 to September 15 until avoidance, minimization, and compensatory mitigation measures are authorized and distances prescribed in this Agreement are superseded. After any take authorization is issued all requirements of this Condition, 2.10 (c), shall be superseded by CESA Incidental Take Permit number 2081-2016-031-R5

d. Notification to the California Natural Diversity Database. If any Protected Species are observed in project surveys, the Designated Biologist shall have responsibility to submit a California Native Species Field Survey Form and survey map to be submitted to the Natural Diversity Database within 5 working days of the sightings. The form is available online at http://www.dfg.ca.gov/biogeodata/cnddb/. Instructions for completing and submitting the form are available at http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp .

2.11 Inventory of Native Oak Trees. Within 90 days prior to Project Start the Permittee shall submit to the CDFW a complete inventory of native oak trees, by species and Diameter at Breast Height (DBH) that will be directly removed or have root protective zone impacted (see Condition 2.11a) by the project. The removal of oak trees that are approved by CDFW shall be conducted to be in compliance with other Conditions of this Agreement and any other federal, state, or local laws or ordinances protecting trees. Nothing in this Agreement authorizes Permittee to conduct removals in violation of existing federal, state, or local laws or ordinances protecting trees and shall be responsible for maintaining compliance with federal, state, or local laws or ordinances protecting trees. The Permittee shall replace trees that cannot be directly avoided, deemed to be in fair health, and not designated as seedling or sapling (less than 3" DBH). CDFW shall determine final replacement amounts for native oak trees based on inventory, and it shall be no less than 1:1 by acreage or greater than 1:1 if mitigated by individual tree. CDFW will review the Inventory of Trees and provide written direction on what native oak trees identified within in undeveloped areas subject to Oak Tree Root zone avoidance and monitoring (if any).

a. Oak Tree Root Avoidance. Heavy equipment shall not encroach on the root protection zone, nor shall equipment or soil be staged/stockpiled in the root protection zone. For purposes of this Agreement, the root protection zone shall be identified by a certified arborist. In cases where a certified arborist has not identified the root protection zone, the root protection zone shall extend from the dripline outward no less than 1.5 times the distance from the drip line to the trunk within undeveloped areas. Permittee shall flag root protection zones as off-limits where identified above, prior to starting work. If the oak tree is not directly removed, but the root protective zone is encroached the Permittee shall monitor pursuant to sub-measure (b) below.

b. Oak Tree Monitoring. All oak trees that have root protection zone encroached shall be monitored for survival annually for 5 years with subsequent reports in years 7 and 10. Any tree that does not survive by year 10 shall be replaced in method determined by CDFW. Replacement trees/plants shall be monitored for survival and growth requirements for 10 years after planting. Oak tree planting shall be achieved through small-sized container stock (1-to 5 gallon or liner) and/or caged acorns (3 acorns/site). Replacement oaks shall be caged for the first 5 years or until the main trunk reaches height of 10 feet.

2.12 Initial Vegetation Removal Seasonal Restrictions. The Permittee shall not conduct Initial Vegetation Removal within areas regulated by this Agreement from February 1st to September 15th to avoid impacts to bird nesting season. Pursuant to Condition 4.9, Permittee may conduct ground disturbing activities including Excavation and on-site habitat restoration between February 1st to September 15th.

2.13 Nesting Bird Avoidance and Impact Minimization. The Permittee shall not take or destroy nests (or eggs) of birds that are designated under Federal and California State laws, MBTA and FGC Section 3503, 3503.5, 3505, 3513. The Permittee in consultation with Designated Biologist shall employ bird exclusionary devices prior to February 1st and maintain through September 15th. If Excavation, on- site habitat restoration, or other ground disturbing activities must occur from February 1st through September 15th, the Designated Biologist shall begin bird nesting surveys 30 days prior to the direct or indirect disturbance of Suitable Nesting Habitat and continue the surveys on a weekly basis, with the last survey being conducted no more than three (3) days prior to the proposed ground disturbance. If Excavation, on-site habitat restoration, or other ground disturbing activities must occur from February 1st to September 15th Permittee shall implement a Nesting Bird Management Plan (see condition 4.9) to facilitate avoidance and minimization of impacts to nesting birds. The Nesting Bird Management Plan shall be submitted to CDFW for review and comment no less than 30 days before the start of Excavation, on-site habitat restoration, or other ground disturbing activities within the breeding season.

2.14 Bat Roost Avoidance and Impact Minimization. To avoid the direct loss of bats that could result from removal of trees and/or structures that may provide day or night roost habitat (e.g., in cavities or under loose bark), the Permittee shall implement the following measures for all Initial Vegetation Removal and structure removal authorized under this Agreement:

a. Permittee should avoid suitable bat roosting tree/structure removal from March 1st to September 30th to avoid impacts to bat maternity season. Trees and/or structures determined to be maternity roosts shall be left in place until the end of maternity season or until Designated Biologist verifies no pregnant females and young in non-volant stage are present. Where suitable bat roosting tree and vegetation removal is restricted elsewhere in this Agreement the more restrictive condition shall apply.

b. To minimize disturbance to night roosts the Permittee shall not allow tree removal activities or conduct work activities within 100 feet of bridges between 0700 hours and 1800 hours Standard Time (1900 hours during Daylight Savings Time) at any time of the year work is conducted.

c. Bird exclusion netting shall not be used on underside of bridges, unless agreed to in writing (email, letter, fax) by CDFW.

d. Lights shall not be used under bridges.

e. Combustion equipment, such as generators, pumps, and vehicles, shall not be parked

or operated under bridges.

f. Personnel shall not be present under bridges from ½ hour before sunset to ½ hour after sunrise.

g. No less than 30 days before scheduled Initial Vegetation Removal and structure removal Permittee shall have a the Designated Biologist approved by CDFW, specifically for bats, conduct a pre-construction reconnaissance survey to identify those trees and/or structures proposed for disturbance that could provide hibernacula, roosting, or nursery colony habitat for bats.

h. Trees that are observed to have bat roosts shall not be sawed up or mulched immediately. A period of at least 24 hours, and preferably 48 hours at discretion of Designated Biologist and/or CDFW, shall elapse prior to such operations to allow bats to escape.

i. If bats are not detected, but the Designated Biologist determines that roosting bats may be present at any time of year, it is preferable to slowly push any tree/structure down under operator's control using heavy machinery rather than felling it with a chainsaw. In order to ensure the optimum warning for any roosting bats that may still be present, the tree should be pushed lightly two to three times, with a pause of approximately 30 seconds between each nudge to allow bats to become active. The tree should then be pushed to the ground slowly and should remain in place until it is inspected by the Designated Biologist and submeasure h above is implemented. Bats should be allowed to escape prior to demolition of structures. This may be accomplished by placing one way exclusionary devices into areas where bats are entering a building that allow bats to exit but not enter the structure.

j. The Designated bat biologist shall document all pre-construction reconnaissance survey activities, and prepare a summary report including a map of confirmed locations of bat roosts to CDFW upon completion of pre-construction reconnaissance survey.

2.15 Educational Program. Permittee shall conduct an Education Program for all persons employed or otherwise working on the Initial Sediment Removal prior to performing any work on site. The program shall consist of a presentation from a Designated Biologist that includes a discussion of the biology of the habitats and species identified in this Agreement, including invasive species see Condition 2.15a, and present at this site. The Designated Biologist shall also include as part of the education program information about the distribution and habitat needs of any Protected Species that may be present, legal protections for those species, penalties for violations and project-specific protective measures included in this Agreement. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to their performing work on site. The Permittee shall prepare and distribute wallet-sized cards or a fact sheet that contains this information for workers to carry on site. Upon completion of the education program, employees shall sign a form stating they attended the program and understand all protection measures. These forms shall be filed at the worksite offices and be available to CDFW upon request. The Education Program shall be repeated

annually for part of the project extending more than one (1) year. Copies of program materials shall be maintained at the project site for workers to reference as needed.

a. Invasive Species Education Program. Permittee shall include invasive species in Education Program for all persons working on the Initial Sediment Removal prior to the performing any work on site. The program shall consist of a presentation from a Designated Biologist that includes a discussion of the invasive species currently present within the project site as well as those that may pose a threat to or have the potential to invade the project site. The discussion shall include a physical description of each species and information regarding their habitat preferences, local and statewide distribution, modes of dispersal, and impacts. The program shall also include a discussion of BMPs to be implemented at the project site to avoid the introduction and spread of invasive species into and out of the project site.

2.16 Project Lighting. Permittee's work activities shall be limited to daylight hours. If lighting is required to complete project activities or to illuminate equipment storage/staging areas at night the lighting shall not illuminate adjacent Suitable Habitat. Light fixtures near streams shall incorporate shields to direct light away from Suitable Habitat.

2.17 Disturbance or Removal. Disturbance or removal of vegetation shall not exceed the limits approved by this Agreement. Any disturbed portions of any stream channel or reservoir margin outside of the project limits shall be restored to their original condition under the direction of CDFW.

2.18 Disturbance or Removal for Access Areas. Disturbance, removal, or trimming of vegetation for equipment access and construction shall not exceed the limits approved by this Agreement.

2.19 Temporary Disturbance. The Permittee shall restore all areas within the reservoir temporarily impacted by construction, such as staging areas and temporary access areas. Temporary impact areas altered during the project and identified for restoration designated as DG-7-9, and DG-3B (see Exhibit E, Habitat Restoration Areas) shall be returned to natural contours without creating a possible future bank erosion problem.

2.20 Stockpiled Vegetation. Vegetation removed from the Initial Sediment Removal Area shall not be stockpiled in the low flow channel of the lake/stream. Any materials placed in seasonally dry portions of the lake/stream that may be washed downstream shall be removed from these areas prior to inundation by high flows. The sites selected on which to push this material out of the stream should be selected in compliance with the other provisions of this Agreement. Where possible, brush piles shall be left outside the channel in upland areas to provide wildlife habitat, except where rodent populations may be deemed a nuisance (e.g. near residential properties). Brush piles shall not be placed in areas that may impact sensitive floral resources or dormant seeds.

2.21 Demarcate Work Area Boundary. In consultation with the Designated Biologist, the Permittee or assignee shall demarcate the outer perimeter of the work area to prevent damage to adjacent habitat, and to provide visual orientation to its limits. Marking shall be in place during all periods

of operation. All persons employed or otherwise working on the project site shall be instructed about the restrictions that the marking represents.

2.22 Non-native Vegetation. Permittee shall remove non-native vegetation from the work area and shall dispose of it in a legal manner; in all cases it shall be placed in a manner which prevents its reestablishment in the Waters of the State, and in such a manner so that it does not negatively affect other sensitive native habitat communities.

2.23 Staging and Storage Areas. Staging/storage areas for equipment and materials shall be located outside of the low flow channel of the stream/lake. Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

2.24 Work Site Access. Access to the work site for Initial Sediment Removal shall be limited to two sites. One site is a new maintenance road to the east of the Reservoir accessed directly from Oak Grove Drive. The access road will allow for one-way traffic into the Reservoir. The second site is from the west via existing dirt access road from Oak Grove Drive which shall be modified to allow easy and safe access on and off site (see Exhibit A).

2.25 Fill and Spoil. Fill length, width, and height dimensions shall not exceed those of the original design/installation or the original naturally occurring topography, contour, and elevation. Fill shall be limited to the minimal amount necessary to accomplish the agreed activities. Except as otherwise specified in this Agreement, fill construction materials other than on-site alluvium, shall consist of clean silt-free gravel or river rock.

2.26 Cover Trenches and Other Hazards. All steep-walled trenches or excavations used during the project shall be covered at all times except when being actively used, to prevent entrapment of wildlife (e.g., reptiles and small mammals). If trenches cannot be covered, exclusion fencing shall be installed around the trench or excavation. Open trenches, or other excavations, shall be inspected by the Designated Biologist daily and immediately before backfilling.

2.27 Surface Water Diversion. In the event vehicles/equipment are to be driven/operated within the reservoir/stream when surface water inflow is present, the entire surface water flow shall be diverted around the work area. The Permittee shall notify CDFW of its intent to access the reservoir/stream and submit to CDFW for its review and approval a Surface Water Diversion Plan prior to diversion activities. This plan shall address, at a minimum, the location of upstream and downstream diversion points, access point to the reservoir/ stream, and method and duration of diversion. Construction of the barrier and/or the new channel shall normally begin in the downstream area and continue in an upstream direction, and the flow shall be diverted only when construction of the diversion is completed. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area. The enclosure and the supportive material shall be removed when the work is completed and removal shall normally proceed from downstream in an upstream direction.

a. Continuous Flow. Surface Water Diversions shall be done in a manner that shall prevent pollution and/or siltation from Initial Sediment Removal Area and shall provide flows to downstream reaches. Flows to downstream reaches shall be provided during all times that the natural flow would have supported aquatic life. Said flows shall be sufficient quality and quantity, and of appropriate temperature to support fish and other aquatic life both above and below the diversion. Normal flows shall be restored to the affected stream immediately upon completion of work at that location.

b. Temporary Dam. Any temporary dam or other artificial obstruction for Surface Water Diversion shall be built pursuant to FGC Section 5937, and only from materials such as clean gravel which will cause little or no siltation, and shall be approved by the CDFW prior to construction.

Pollution, Sedimentation, and Litter

2.28 Pollution and Litter Laws. The Permittee shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the Permittee to insure compliance.

2.29 Trash Receptacles. Permittee shall install and use fully covered trash receptacles with secure lids (wildlife proof) to contain all food, food scrapes, food wrappers, beverage and other miscellaneous trash. Trash containers shall be emptied daily and removed from the project site when construction is complete.

2.30 Emergency Spill Response Plan Required. Permittee shall submit to CDFW an Emergency Spill Response Plan prior to the start of ground disturbance. The plan shall identify the actions that shall be taken in the event of a spill of petroleum products, or other material harmful to aquatic or plant life, and the identification and uses of emergency response materials.

2.31 Spill Containment. All activities performed in or near a stream shall have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill. If a spill occurs the Permittee shall immediately notify the California Emergency Management Agency at 1-800-852-7550 and immediately initiate the cleanup activities. CDFW shall also be notified by the Permittee and consulted regarding clean-up procedures.

2.32 Equipment and Vehicles. Any equipment or vehicles driven and/or operated within or adjacent to the stream/lake shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

2.33 Stationary Equipment. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream/lake shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as extra boom, absorbent pads, skimmers, shall be on site prior to the start of construction.

2.34 Equipment Maintenance. No equipment maintenance shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas under any flow.

2.35 Cement and Concrete. Cement and concrete shall not be poured within 150 feet of a stream during the rainy season. The Permittee shall monitor the 7-day forecast; cement or concrete materials may be poured only if a 7-day clear window is predicted. Cement shall not be poured in or near a flowing stream, to reduce the potential for significant adverse impacts to the stream, water, or biota.

2.36 Turbidity and Siltation. All equipment that enters the streambed or habitat associated with the stream shall be clean and dry. Upon CDFW determination that turbidity/siltation levels resulting from project-related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective CDFW approved control devices are installed, or abatement procedures are initiated.

Invasive Species

2.37 Prohibited Plant Species. Permittee shall not plant, seed or otherwise introduce invasive exotic plant species. Prohibited exotic plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: http://cal-ipc.org/paf/.

2.38 Unlawful to Possess Dreissenid Mussels. Pursuant to California Code of Regulations (CCR) Title 14 Section 681 and FGC Section 2301 it is unlawful for any person to possess, import, ship, or transport in the state live or dead dreissenid mussels except as authorized in a permit issued by the CDFW. A Restricted Species Permit pursuant to CCR Title 14 Section 671.1 is required for the collection, possession, and/or research of live dreissenid mussels.

2.39 Clean Equipment Prior to Entering Area Regulated by Agreement. All Equipment shall be free of materials deleterious to aquatic life including noxious and nuisance weeds, aquatic invasive species, oil, grease, hydraulic fluid, soil and other debris. The Permittee or their designee shall follow equipment washing guidelines (see sub-measures below) and complete the Certification of Clean Equipment (see Exhibit D). The Certification of Clean Equipment shall be completed by the Permittee for all Equipment prior to project equipment initially entering areas regulated by this Agreement.

a. Exemption for Haul Trucks. Permittee or designee shall ensure that all haul trucks (e.g. double-dump trucks with 18 cy capacity) comply with Condition 2.39 upon initial entry to areas regulated by this Agreement. Permittee shall ensure that all haul truck operators have received Education Program training (see Condition 2.15) and understand how to avoid contamination of haul truck and maintain truck free of materials deleterious to aquatic life including noxious and nuisance weeds, aquatic invasive species, oil, grease, hydraulic fluid, soil and other debris.

b. Other Project Equipment. Except for trucks used for hauling sediment (see Condition

2.39a above) Permittee or designee shall require operators of equipment to Re-certify equipment upon reentry to Areas Regulated by this Agreement. Permittee or designee shall require operators of equipment subject to recertification that are reentering after contact with water and/or wet soil from a stream or lake in areas outside those regulated under this Agreement to follow equipment washing guidelines (see sub-measures below). If requested by CDFW the Permittee shall submit copies of the Certification of Clean Equipment by email to R5LSACompliance@wildlife.ca.gov.

c. Inspection of Project Equipment. Permittee shall inspect all vehicles, tools, waders and boots, and other project-related equipment and remove all visible soil/mud, plant materials, and animal remnants prior to initially entering Areas regulated by this Agreement, and upon Equipment Operator recertification following Decontamination.

d. Decontamination of Project Equipment. Permittee shall decontaminate all tools, waders and boots, vehicles, trailers, and other equipment that will be used in Areas regulated by this Agreement and make contact with water or wetted soils prior to initially entering and upon reentering with verification that subsequent decontamination is required with the following specific guidance. Permittee shall decontaminate project gear and equipment utilizing one of three methods: drying, using a hot water soak, or freezing, as appropriate to the type of gear or equipment. For all methods, Permittee shall begin the decontamination process by thoroughly scrubbing equipment, paying close attention to hard to reach and clean areas with a stiff-bristled brush to remove all plant, seeds, soil, and other organisms. To decontaminate by drying, Permittee shall allow equipment to dry thoroughly (i.e., until there is a complete absence of water and all plant, seeds, and soil), preferably in the sun, for a minimum of 48 hours. To decontaminate using a hot water soak, Permittee shall immerse equipment in 140°F or hotter water and soak for a minimum of 5 minutes. To decontaminate by freezing, Permittee shall place equipment in a freezer 32°F or colder for a minimum of 8 hours. Repeat decontamination is required only if the equipment/clothing is removed from the site, used in contact with water or wet soil within a different watershed, and returned to the project site.

e. Decontamination of Vehicles and Equipment. Permittee shall decontaminate vehicles and other project-related equipment too large to immerse in a hot water bath by pressure washing with hot water a minimum of 140°F at the point of contact or 155°F at the nozzle. Additionally, Permittee shall flush watercraft engines and all areas that could contain standing water (e.g., storage compartments) for a minimum of 10 minutes. Following the hot water wash, Permittee shall dry all vehicles, watercraft, and other large equipment as thoroughly as possible. Repeat Decontamination is required only if vehicles and/or equipment is removed from the site used in contact with water or wet soil within a different watershed, and returned to the project site.

f. Decontamination Sites. Permittee shall perform decontamination of vehicles, watercraft, and other project gear and equipment in a designated location where runoff can be contained and not allowed to pass into CDFW jurisdictional areas and other sensitive habitat areas. Cleaning of equipment may occur at a location that contains and recycles resulting waste water.

g. Notification of Invasive Species. Permittee shall notify CDFW immediately if an invasive species not previously known to occur within the project site is discovered during project activities by submitting a completed Suspect Invasive Species Report (available online at: https://www.wildlife.ca.gov/Conservation/Invasives/Report) and photos to the Invasive Species Program by email at: invasives@wildlife.ca.gov. Notification may also be provided by calling (866) 440-9530. Upon receiving notification, CDFW will provide Permittee with guidance for further action as appropriate to the species.

ROUTINE ANNUAL AND EPISODIC MAINTENANCE PROGRAM CONDITIONS

2.40 All Administrative Conditions Applicable. Under Routine and Episodic Maintenance Program all Conditions in Section 1.0 of this Agreement shall be complied with by Permittee.

2.41 Routine Annual and Episodic Maintenance. Permittee shall implement Routine Annual and Episodic Maintenance in conformance with the Project Description and the following Conditions in this Agreement. The Permittee shall remove all human generated debris, such as cuttings, garbage and trash. The Permittee shall remove washed out culverts, and other construction materials, that the Permittee places within, or where they may enter the stream. Routine Annual Maintenance activities shall be limited to the inspection, routine maintenance (e.g., fence repair, minor maintenance of access roads, graffiti removal, trash removal, weed abatement, etc.) sediment removal, and vegetation management (annually) within the approved Routine Annual Maintenance Area (40.80 acres) footprint. Vegetation may be mowed annually and when necessary for capacity reasons the root zone may be grubbed. Sediment removal may be implemented by: 1) sediment excavation and hauling off site; and 2) Flow-Assisted Sediment Transport (FAST). Episodic Maintenance within the 10.98 acre (horizontal projection) side slope area may include annual undesirable plant control (including herbicides, hand tools, and mechanically operated hand tools (e.g., chainsaws and motor powered winches), and in the event of a large debris flow or hyper concentrated flood sediment excavation/trucking off site. If additional major maintenance/repair work is required a separate Agreement is required for said repairs.

2.42 Work Period. Vegetation Management work shall be confined to September 15 to February 1 starting approximately in 2023 until 2037. The general days and hours of the week that Permittee should conduct Routine Annual Maintenance is Monday through Friday from 0700 to 1800 hours Standard Time (1900 hours during Daylight Savings Time), and on Saturday between 0800 to 1700 hours during Standard and Daylight Savings Time..

Biological Resources

2.43 Protected Species Defined. This Agreement does not authorize take, incidental or otherwise, of any protected species. For the purpose of this Agreement, "protected species" means the following: a species fully protected under state law; a species listed under the California Endangered Species Act (Fish & G. Code § 2050 et seq.) and/or Endangered Species Act (16 U.S.C. § 1531 et seq.); a species identified by CDFW as a species of special concern; or any other species for which take is prohibited under state or federal law.

2.44 CESA Protected Species Exception. This Agreement does not authorize take for least Bell's vireo, southwestern willow flycatcher, or other species protected by CESA. Prior to removing, trimming, brushing, or damaging vegetation in the stream zone in areas containing habitat suitable for CESA-listed species, the Permittee shall consult with CDFW in accordance with the procedures described in CESA (Fish & G. Code § 2080 et seq.). Minimization measures pertaining to least Bell's vireo and Southwestern willow flycatcher are addressed in CESA Incidental Take Permit number 2081-2016-031-05.

2.45 Protected Species Avoidance and Minimization Measures. The Permittee shall have a Designated Biologist survey the proposed work area to verify the presence or absence of protected species. The results of these surveys shall be provided to CDFW, along with copies of all field notes, prior to Routine Annual and/or Episodic Maintenance. The survey technique shall be approved by CDFW in writing. CDFW will provide written response within no more than 18 days of Permittee submittal. The biologist shall have all required permits.

a. Protected Species Plan. The Permittee may utilize the previously approved Protected Species Plan (see Condition 2.10a) without subsequent approvals from CDFW. The Protected Species Plan may be updated at any time by CDFW or the Permittee with prior approval of CDFW. The Protected Species Plan shall be submitted to CDFW for its review and approval for the species listed in Table 1.0 below. Permittee shall receive written approval (email, letter, or fax) prior to Routine Annual Maintenance and/or Episodic Maintenance. The Permittee shall have the Designated Biologist on site daily when protected species may be present to ensure that no impacts occur to protected species that are not authorized.

Table 1.0: List of Protected Species to be addressed in Protected Species Plan.

Common name	Scientific name
slender-horned spineflower	(*Dodecahema leptoceras*)
two- striped garter snake	(*Thamnophis hammondii*)
coast range newt	(*Taricha tarosa tarosa*)
southwestern pond turtle	(*Actinemys marmorata*)
burrowing owl	(*Athene cunicularia*)
yellow warbler	(*Dendroica petechia*)
pallid bat	(*Antrozous pallidus*)
western mastiff bat	(*Eumops perotis californicus*)
western yellow bat	(*Lasiurus xanthinus*)
Coast patch-nosed snake	(*Salvadora hexalepis*)
southwestern willow flycatcher	(*Empidonax traillii extimus*)
Least Bell's vireo	(*Vireo bellii pusillus*)
Yellow-breasted chat	(*Icteria virens*)
Loggerhead shrike	(*Lanius ludovicianus*)

b. Dead or Injured Protected Species. Any dead or injured protected species found along roads or in project areas shall be reported to CDFW within 48 hours. The biologist shall report the location, cause of death, species found, and any other relevant information.

c. Seasonal and Other Restrictions. The Permittee shall not conduct any grading, excavation or other vegetation management activities within 1000 linear feet of least Bell's vireo or southwestern willow flycatcher habitat (see Exhibit C, LBVI suitable habitat) from March 1 through September 15th until consultation under Condition 2.44, is complete, and any take authorization is issued pursuant to FGC Section 2080 *et. seq*. Permittee may conduct project activities greater than 1000 linear feet of occupied or suitable protected species habitat from March1 through September 15 until avoidance, minimization, and compensatory mitigation measures are authorized and distances prescribed in this Agreement are superseded. After any take authorization is issued all requirements, of this Condition 2.45c, shall be superseded by CESA Incidental Take Permit number 2081-2016-031-R5.

2.46 Nesting Birds.

a. To avoid impacts to nesting birds no vegetation management shall occur during February 1st through September 15th, the "restricted work period". Other Routine Annual and Episodic Maintenance authorized activities should not take place within areas regulated by this Agreement within the "restricted work period".

b. If avoidance of the restricted work period is not feasible, vegetation management and other authorized activities may occur between February 1st through September 15th if a Designated Biologist, approved by CDFW pursuant to Condition 1.8 conducts focused surveys for active nests within seven (7) days of the proposed activity, the final survey no more than 48 hours prior to work in the area. The study area shall extend into Suitable Habitat adjacent to construction limits.

c. The results of the survey shall be retained by the Permittee prior to any project activities in the form of a written report and shall include the following information:

i. Dates of survey;
ii. Total field time of survey efforts;
iii. Map of survey routes, names of investigators; and,
iv. Location of any active nests that were found.

d. If the survey identifies an active nest, a buffer shall be established between the construction activities and the active nest so that nesting activities are not interrupted. The buffer shall be delineated by temporary fencing if site conditions allow and does not create additional disturbance, and shall be in effect throughout construction or until the nest is no longer active.

e. The buffer shall be a minimum of 300 feet (500 feet for raptors) of a non-CESA/ESA listed nesting migratory bird nest, and 500 feet of a CESA/ESA listed bird nest. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient

levels of human activity, screening vegetation, or possibly other factors.

f. Absent a 300/500 foot no impact buffer, the Permittee shall prepare and submit to CDFW a Nesting Bird Management Plan that includes survey results and establishes the necessary buffers to avoid take of nest as defined in FGC 3503 and 3503.5, see Condition 4.9.

g. The Nesting Bird Management Plan design shall be based upon site conditions, project activities, and species present or likely to be present during all construction activities. The buffer(s) shall be determined based upon the life history of the individual species, species sensitivity to noise, vibration, and general disturbance, current site conditions (screening vegetation, terrain, etc.), ambient levels of human activity, the various project-related activities necessary to construct the project, and other features.

h. Permittee, or any person acting on behalf of Permittee, is not relieved from complying with FGC sections 3503 (bird nests and eggs) and 3503.5 (birds of prey).

2.47 Notification to the California Natural Diversity Database. If any Protected Species are observed in project surveys, the Designated Biologist shall have responsibility to submit a California Native Species Field Survey Form and survey map to be submitted to the Natural Diversity Database within 5 working days of the sightings. The form and instructions for completing and submitting the form are available online at https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data.

2.48 Leave Wildlife Unharmed. If any Protected Species (see Condition 2.43) are encountered and do not passively relocate, the Permittee shall contact CDFW immediately or proceed as described in Incidental Take Permits or Protected Species Plan that may authorize impacts or relocation (see Condition 2.45a). To greatest extent practicable, if any non-protected wildlife is encountered during the course of project (as defined in Project Description), said wildlife shall be allowed to leave the construction area unharmed including relocation by a Designated Biologist.

a. Minimization of Stranding During Reservoir Draining. Once Permanent Maintenance Program is initiated (i.e. all Initial Sediment Removal is completed), and at the end of the storm season (October 1- April 15), any pool of surface water behind the dam should be released downstream at a rate such that the water elevation within the reservoir should be gradually reduced over a 30-45 day period, if feasible. This requirement shall not apply during periods when Dam operation is necessary to regulate flows to prevent downstream flooding.

2.49 Bypass Flow Required. When conducting activities authorized by this Agreement the Permittee shall allow sufficient water at all times to bypass dam to downstream reaches to maintain aquatic life below the Dam. This bypass requirement shall not apply during periods when Dam operation is necessary to regulate flows to prevent downstream flooding. If Permittee desires a change in the operation of the Dam from the abovementioned operation, then Permittee shall request and receive an approved amendment to this Agreement.

2.50 Limitations on Authorization for Water Use. This agreement does not authorize any diversion or use of water. All facilities that the Permittee owns, operates, or controls shall be operated and maintained in accordance with current law and applicable water rights.

2.51 Project Lighting. Lighting required for project activities shall not illuminate adjacent suitable vegetation. Light fixtures near streams shall incorporate shields to direct light away from Suitable Habitat.

Pollution, Sedimentation, and Litter

2.52 Conditional Work during Rainfall Event. No excavation work shall occur during an anticipated rainfall event. For purposes of this Agreement, "rainfall event" means events producing more than ¼ inch per 24 hour period. No excavation work shall occur during a dry-out period of 24 hours after a rainfall event. Permittee shall monitor the National Weather Service (NWS) 72-hr forecast for the project area. All erosion control measures shall be initiated prior to all rainfall events.

2.53 Spill Containment. All activities performed in or near a stream shall have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill. If a spill occurs the Permittee shall immediately notify the California Emergency Management Agency at 1-800-852-7550 and immediately initiate the cleanup activities. CDFW shall also be notified by the Permittee and consulted regarding clean-up procedures.

2.54 Pollution and Litter Laws. The Permittee shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the Permittee to insure compliance.

2.55 Staging and Storage Areas. Staging/storage areas for equipment and materials shall be located outside of the low flow channel of the stream/lake. Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

2.56 Discharge of Silty/Turbid Water Prohibited. To extent practicable, silty/turbid water resulting from maintenance activities shall not be discharged into the stream or into storm drains. Such water shall be sufficiently settled to avoid substantial adverse impacts to aquatic life prior to discharge below Dam into the stream channel. Upon CDFW determination that turbidity/siltation levels resulting from maintenance activities are in excess of existing conditions prior to maintenance at the time and constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective CDFW approved control devices are installed or abatement procedures are initiated.

2.57 Surface Water Diversion. In the event vehicles/equipment are to be driven/operated within the reservoir/stream when surface water inflow is present, the entire surface water flow shall be diverted around the work area. The Permittee shall notify CDFW of its intent to access the reservoir/stream and submit to CDFW for its review and approval a Surface Water Diversion

Plan prior to diversion activities. This plan shall address, at a minimum, the location of upstream and downstream diversion points, access point to the reservoir/ stream, and method and duration of diversion. Construction of the barrier and/or the new channel shall normally begin in the downstream area and continue in an upstream direction, and the flow shall be diverted only when construction of the diversion is completed. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area. The enclosure and the supportive material shall be removed when the work is completed and removal shall normally proceed from downstream in an upstream direction.

2.58 Maintenance of Access Roads. The Permittee may remove herbaceous vegetation, fallen trees, and branches from approved access roads. Permittee should conduct maintenance of access roads between September 15th and February 1st, and may conduct maintenance of access roads between July 1st and September 15th if Permittee implements measures in the Nesting Bird Management Plan (see Condition 4.9). Minor pruning of trees and brush interfering with vehicle access and/or growing into access roads is also acceptable.

2.59 Repair of Slopes within Permanent Maintenance Area. The Permittee may repair damage to slopes within Routine Annual Maintenance Area. Fills needed to repair slopes shall not extend beyond the dimensions that existed prior to needing repair. Fills shall consist of on-site alluvium containing clean sand and rock. Repair work shall be accomplished with minimum amount of disturbance to slope that existed prior to needing repair. New sites requiring bank protection, expansions in the size of protected sites, or changes in the materials to be used, are not covered by this Agreement. This Condition does not address repairs to Episodic Maintenance Area. Repairs to Episodic Maintenance Area slopes shall be in accordance with Project Description in response to a large debris flow or hyper concentrated flood. Repairs to slopes in Routine Annual Maintenance Area or Episodic Maintenance Area not specifically described in this Agreement shall be subject to a separate notification and Agreement.

2.60 Vegetation Management and Sediment Removal. Except as otherwise permitted in this Agreement, the removal of sediment, vegetation, and vegetative debris from the Permanent Maintenance Area is prohibited. The Permittee may remove all human generated debris, such as vegetative cuttings, garbage and trash.

2.61 On-going Maintenance of Mitigation Site. The on-site Habitat Restoration and Episodic Maintenance Areas shall be maintained by the Permittee for the benefit of wildlife throughout the life of the project. The Permittee shall not remove or trim native vegetation except to the extent required by Habitat Restoration and Management Plans (see Condition 4.1). Native vegetation within on-site Habitat Restoration or Episodic Maintenance Areas shall not be trimmed or removed for purposes of aesthetics or recreational access. Except as otherwise permitted in this Agreement, any trimming or removal of native vegetation shall be subject to the Permittee obtaining a separate Streambed Alteration Agreement.

2.62 Rodenticides. The Permittee or its assignee shall not apply rodenticides without CDFW approval to areas regulated by this Agreement. Permittee may propose an Integrated Pest Management Plan for the CDFW review and approval.

2.63 Herbicide Approved for Use Near Water. The Permittee shall only use an herbicide approved for use in an aquatic environment. Great care shall be taken to avoid contact with any native vegetation, and it shall only be applied on calm days (wind less than 5 miles per hour) to prevent airborne transfer of herbicide. No herbicides shall be used where Threatened or Endangered species would be directly exposed to liquid solution. Herbicide mixing sites shall only be located at existing road sites outside of the stream. All removed vegetation shall be disposed of properly, outside the flood plain. Spoil sites of Arundo or other exotic species shall not be located within a flowing stream or where it will cover aquatic or riparian vegetation.

a. Adjuvants. Only adjuvants and non-ionic surfactants registered for aquatic use shall be used. Non-ionic surfactants containing Nonylphenol (NP) and nonylphenol ethoxylates (NPEs) shall not be used.

b. Pre-emergent Herbicide. Permittee shall not use pre-emergent herbicide without prior written approval by CDFW. Permittee may propose method and species targeted for pre-emergent herbicide use within an Integrated Pest Management Plan (see also Condition 4.13) or if approved as part of Habitat Management Plan (see Condition 4.1) approved in writing by CDFW.

c. Herbicide Spray Dye. Permittee shall ensure all herbicide sprays utilized within and within 25 feet of CDFW jurisdictional waters and sensitive habitat areas contain a dye (registered for aquatic use by California Department of Pesticide Regulation (CDPR) to prevent overspray.

d. Pest Control Advisor Recommendation. CDFW recommends Permittee obtain a Pest Control Advisor's (PCA) recommendation and register it with the County Agricultural Commissioner where application will occur prior to applying herbicide in streambed areas. The Permittee may have additional requirements or recommendations necessary for application on municipal/government property and Permittee shall supply CDFW with written notifications or copies of paperwork required by other local, State, or Federal agencies related to pesticide use.

e. Herbicide Use in Conformance with Applicable Laws. Nothing in this Agreement represents a PCA recommendation that allows for an action that conflicts with herbicide use regulations. All herbicide use conditions for mixing, application and clean-up shall conform to all applicable Federal, State, and local regulations. Any application of herbicide shall be done by a licensed or certified applicator in accordance with all applicable, federal, state, and local laws.

f. Pesticide Use Bordering Anadromous Fish Supporting Waters. The Arroyo Seco is considered an anadromous fish supporting water according to current law.[4] The Permittee shall

[4] The 9th District Court Order for *Washington Toxics Coalition, et al v. EPA*, establishes pesticide buffer zones adjacent to anadromous fish supporting waters in Washing, Oregon, and California. For more info on this, see http://www.epa.gov/oppfead1/endanger/litstatus/final-4th-biop.pdf or http://www.cdpr.ca.gov/docs/endspec/espdfs/Buffers_Website_Info.pdf. The Permittee may confirm the locations of anadromous fish supporting waters, pesticide use limitations, and buffers zones via the internet at http://www2.epa.gov/endangered-species/salmon-mapper.

observe the no-spray buffer zones for pesticides with active ingredients listed below, subject to update, in Table 2.0 near anadromous fish supporting waters. The Permittee shall confirm the list of prohibited active ingredients and ensure that pesticide use conditions are consistent with the law. The no-spray buffers for ground application shall be no less than 20 yards and 100 yards for aerial application of the following pesticides, or as subsequently amended.

Table 2.0. *List of Prohibited Active Ingredients within buffer zones as of the date of execution of this Agreement.*

carbaryl	1,3-dichloropropene
chlorpyrifos	bromoxynil
diazinon	metolachlor
malathion	prometryn
methomyl	

INVASIVE SPECIES

2.64 Unlawful to Possess Dreissenid Mussels. Pursuant to California Code of Regulations (CCR) Title 14 Section 681 and FGC 2301 it is unlawful for any person to possess, import, ship, or transport in the state live or dead dreissenid mussels except as authorized in a permit issued by the CDFW. A Restricted Species Permit pursuant to CCR Title 14 Section 671.1 is required for the collection, possession, and/or research of live dreissenid mussels.

2.65 Invasive Species Education Program.

a. Permittee shall conduct an Invasive Species Education Program for all persons working within the project site prior to the commencement of any project maintenance activities. Additionally, this instruction shall be included for any new workers starting work after initial commencement of project maintenance activities prior to their performing any work within the project site.

b. The program shall consist of a presentation from a Designated Biologist, pursuant to noticing and review process in Condition 1.8 that includes a discussion of the invasive species currently present within the project site as well as those that may pose a threat to or have the potential to invade the project site. The discussion shall include a physical description of each species and information regarding their habitat preferences, local and statewide distribution, modes of dispersal, and impacts.

c. The program shall also include a discussion of BMPs to be implemented at the project site to avoid the introduction and spread of invasive species into and out of the project site. Permittee shall provide a translator for non-English speaking on-site workers, if necessary.

d. The program shall be repeated annually for projects extending more than one year. Copies of program materials shall be maintained at the project site for workers to reference as needed. For this requirement an electronic copy of the program materials shall suffice.

2.66 Invasive Aquatic Species. Permittee shall conduct project activities in a manner that prevents the introduction, transfer, and spread of invasive species, including plants, animals, and microbes (e.g., algae, fungi, parasites, bacteria, etc.), from one project site and/or watershed to another. Prevention BMPs and guidelines for invasive plants can be found on the California Invasive Plant Council's website at: http://www.cal-ipc.org/ip/prevention/index.php and for invasive mussels and aquatic species can be found at the Stop Aquatic Hitchhikers website: http://www.protectyourwaters.net/.

2.67 Inspection of Project Equipment. Permittee or Permittee's appointee shall inspect all vehicles, tools, waders and boots, and other project-related equipment and remove all visible soil/mud, plant materials, and animal remnants prior to entering and exiting areas regulated by this Agreement or upon initial entry into the Upper Los Angeles River Watershed (designated by boundaries as represented in the Watershed Boundary Dataset (WBD) included with the California-statewide National Hydrography Dataset (NHD) for Hydrologic Unit Codes 10 (HUC-10)) and pursuant to sub-conditions below:

a. Permittee may choose to implement a quarantine by watershed (designated by Upper Los Angeles River Watershed in Exhibit F) of all vehicles, tools, waders and boots, and other project-related equipment that move among stream/riparian areas where decontamination is not necessary, pursuant to Agreement Conditions and Exhibit F. All vehicles, tools, waders and boots, and other project-related equipment maintained in accordance to quarantine may be transported and used between Reaches designated as "low" risk, areas regulated by this Agreement, and within the same watershed without decontamination pursuant to this Agreement Conditions 2.68 through 2.70 between sites. Permittee would not be relieved from compliance with Agreement Condition 2.66 if implementing this Condition. The Permittee shall implement this condition through:

b. Permittee shall propose a quarantine plan for CDFW review and approval for documenting chain of custody. The purpose of quarantine plan is to document methods and materials for all vehicles, tools, waders and boots, and other project-related equipment proposed for temporary or permanent use in quarantine areas in accordance with Agreement Condition 2.67 *et seq.* AND;

c. Permittee shall perform initial decontamination and make written record of decontamination by methods in Conditions 2.68, 2.69, and 2.70 of all the vehicles, tools, waders and boots, and other project-related equipment. This documentation shall be made available to CDFW upon request AND;

d. Subsequent to initial decontamination, upon entry to watershed, all the vehicles, tools, waders and boots, and other project-related equipment used within wetted areas and wetted soils shall remain continuously within the same watershed (designated by Exhibit F) and in reaches designated as low risk (see Exhibit F Table 1.0). Exhibit F Table 1.0 designates risk under column "Aquatic Invasive Species Risk".

Permittee shall not implement Condition 2.67 *et. seq.* without prior approval by CDFW.

2.68 Decontamination of Project Equipment. Permittee shall decontaminate all tools, waders and boots, and other equipment that will enter the streambed and make contact with water or wetted soils prior to entering and when designated after exiting in areas regulated by this Agreement.

If equipment is operating to avoid contact with water or wetted soils, then it is otherwise permissible to conduct the work without specialized decontamination procedures for aquatic invasive animal species (Conditioned in this Agreement), but such activities would need to be in compliance with other Conditions of this Agreement and any other federal, state, or local laws or ordinances. For example, general conditions in the existing Agreement to make sure visible dirt, mud, and plant materials are removed from equipment prior to entering the stream, but don't require the specialized thermal, freezing, and/or drying methods developed for aquatic invasive animal species.

If decontamination for aquatic invasive animal species is applicable, Permittee shall decontaminate project gear and equipment, as appropriate to the type, utilizing one of the following four methods:

a. Drying. Permittee shall allow equipment to dry thoroughly and verify there is a complete absence of water on equipment and all sources of standing water in the equipment. Permittee shall dry all equipment for a minimum of either 48 hours, preferably in the sun, or minimum calculated dry time using "Dry Time Estimator" accessible at http://www.100thmeridian.org/Emersion.asp using whichever time period is greater. These guidelines provide a minimum quarantine time that Permittee may need to adjust upward if situation includes additional contributing factors (e.g., humidity, exposure, wind).

b. Hot Water Soak. Permittee shall immerse equipment in 140° F or hotter water and soak for a minimum of five (5) minutes;

c. Hot Water Wash. Decontaminate project-related tools and vehicles by pressure washing with hot water at a minimum of 140°F at the point of contact or 155°F at the nozzle; or,

d. Freezing. Permittee shall place equipment in a freezer 32°F or colder for a minimum of 8 hours.

For all methods, Permittee shall begin the decontamination process by thoroughly scrubbing equipment, paying close attention to small crevices such as boot laces, seams, net corners, etc., with a stiff-bristled brush to remove all organisms. Repeat decontamination is required only if the

equipment/clothing is removed from the site, used within a different watersheds, and returned to the project site.

2.69 Decontamination of Equipment. If decontamination for aquatic invasive animal species is applicable and Permittee finds it infeasible to use one of the methods identified above in Condition 2.68 Permittee shall:

a. Decontaminate vehicles and other project-related equipment too large to immerse in a hot water bath by pressure washing with hot water a minimum of 140°F at the point of contact or 155°F at the nozzle.

b. Permittee shall flush equipment engines and all areas that could contain standing water (e.g. storage compartments) for a minimum of ten (10) minutes.

c. Dry all vehicles, watercraft, and other large equipment as thoroughly as possible, following the hot water wash.

2.70 Decontamination of Vehicles. If decontamination for aquatic invasive animal species is applicable and Permittee finds it infeasible to use one of the methods identified above in Condition 2.68, Permittee shall:

a. Decontaminate vehicles by pressure washing with hot water at a minimum of 140°F at the point of contact or 155°F at the nozzle;

b. Flush all areas that could contain standing water (e.g. storage compartments) for a minimum of 10 minutes;

c. Vehicles decontaminated by pressure washing shall be dried as thoroughly as possible, following the hot water wash; or,

d. In lieu of 2.70 (a) or (b) the Permittee may take the vehicles to a car wash for washing and decontamination. Permittee shall dry all vehicles for a minimum of either 48 hours, preferably in the sun, or minimum calculated dry time using "Dry Time Estimator" accessible at www.100thmeridian.org/Emersion.asp using whichever time period is greater.

2.71 Decontamination Sites. If decontamination for aquatic invasive animal species is applicable, Permittee shall perform decontamination of vehicles, watercraft, and other project gear and equipment in a designated location where runoff can be contained and not allowed to pass into CDFW jurisdictional areas and other sensitive habitat areas.

2.72 Notification of Invasive Species. Permittee shall notify CDFW immediately if an invasive species not previously known to occur within the project site is discovered during project activities by one of the following methods:

a. Email the CDFW Invasive Species Program at invasives@wildlife.ca.gov including

photos and a completed Suspect Invasive Species Report (available online at: https://www.wildlife.ca.gov/Conservation/Invasives/Report);

b. Telephone by calling (866) 440-9530; or,

Upon receiving notification, CDFW will provide Permittee with guidance for further action as appropriate to the species.

3. Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement each measure listed below.

3.1 Mitigation for Permanent Impacts. The Permittee shall mitigate the permanent impacts at a location and in a manner to be approved by CDFW. The Permittee has a total Compensatory Mitigation Requirement outlined in Table 3.0. The Permittee has proposed compensatory mitigation to partially mitigate the permanent impacts with restoration of habitats bordering the Permanent Maintenance Area and within Hahamonga Watershed Park. The Permittee shall propose an off site compensatory mitigation plan for an additional 25.6 acres of native habitats. The remaining 25.6 acres should consist of the creation of willow and mulefat thickets (composing approximately 50-93% of the site) and alluvial shrubland. Any remaining acres of compensatory mitigation may be in the form of restoration and may by composed of riparian herbaceous habitats associated with intermittently or seasonally flooded ponds, wetlands, seeps, swales, or margins of riparian areas. In lieu of the restoration, or creation CDFW may consider enhancement and/or preservation of habitat classifications for a larger area.

Table 3.0 *Compensatory Mitigation [Permanent] Requirements for Creation and Restoration*

IMPACTS TO VEGETATION COMMUNITIES	**COMPENSATORY MITIGATION REQUIREMENT**			
	PERMANENT IMPACTS	**Creation**	**Restoration**	**Total**
Salix gooddingii Woodland Alliance	16.27	16.27	22.31	38.58
Baccharis salicifolia Shrubland Alliance	8.03	8.03	4.83	12.86
Lepidospartum squamatum Shrubland Alliance	1.82	1.82	7.28	9.1
Artemisia californica –Eriogonum fasciculatum Shrubland Alliance	0.02	0.02	0.04	0.06
Conium maculatum Herbaceous Semi-Natural Alliance*	2.45	0.00	1.23	1.23
Lepidium latifolium – Conium maculatum Herbaceous Semi-Natural Alliance*	9.88	0.00	4.94	4.94
Xanthium strumarium Herbaceous Alliance (Unofficial Alliance)	1.00	0.00	1.50	1.50
Disturbed/Developed	1.33	0.00	0.00	0.00
TOTAL COMPENSATORY MITIGATION REQUIRED		26.14	42.13	68.27
TOTAL PERMANENT IMPACTS	**40.80**			

* *Conium maculatum* Herbaceous Semi-Natural Alliance and *Lepidium latifolium – Conium*

maculatum Herbaceous Semi-Natural Alliance are considered non-native plants and restoration designated in Table 3.0 (above) is proposed with California native plants.

3.2 Mitigation for Temporary Impacts. The total of 27.83 acres of temporary impacts, described in detail in the Project Description, shall be established and maintained pursuant to the following requirements:

a. The Permittee shall mitigate the temporary impacts to 16.85 acres of vegetation and habitat communities located in restoration areas designated (DG3B, DG 7, DG 8, DG 9, See Exhibit E) by delaying impacts to temporary impact areas until 3rd year of sediment removal project and implement restoration pursuant to Habitat Restoration Plan (see Condition 3.9, below) with 24 months of impacts (see Condition 3.5), and maintained pursuant to Habitat Management Plan (see Condition 3.10).

b. The 10.98 acre (horizontal projection, see Exhibit B) Episodic Maintenance Area will include initially planting with appropriate native plants and thereafter annual undesirable plant control (including herbicides, hand tools, and mechanically operated hand tools (i.e., chainsaws and motor powered winches), and in the event of a large debris flow or hyper concentrated flood Episodic Maintenance would involve the need for sediment excavation/trucking off site. After Episodic Maintenance the side slopes would be returned to proposed 3:1(V:H) grade, and the 10.98 acre area will be subject to the continuing annual undesirable plant control.

3.3 Conceptual Off-site Mitigation Package. The Permittee shall submit to CDFW for its review and approval a Conceptual Off-site Mitigation Package prior to Project Start. Prior to initiation of any vegetation or ground disturbing project activities a final mitigation package shall receive written approval by CDFW, and Permittee shall request an amendment of this Agreement to incorporate the specific location(s), amount of acreage, and existing and proposed vegetation communities to be restored from final mitigation package. The Conceptual Off-site Mitigation Package shall include adequate information for each proposed site for CDFW to evaluate it's suitability as compensatory mitigation for project impacts. The Permittee shall develop the mitigation proposal, including the entity (e.g., the Santa Monica Mountains Conservancy or The Nature Conservancy) to maintain the site in perpetuity and submit to CDFW for approval. The acquisition/restoration site(s) and acreages shall be within the Los Angeles River watershed and be approved by CDFW. The mitigation site shall be consistent with the stream and vegetation communities lost on the subject project site as a result of the Permittee's project-related activities.

3.4 Establish Permanent Cross-Section. Permittee shall establish single cross section, established by monument, at upstream limit of Permanent Maintenance Area to document condition and be comparable over time. The annual monitoring of cross section should be conducted immediately following the high flow season and include the physical measurements of the site, photos from a fixed photographic station, and if applicable results from interviews with local persons, Permittee, or Permittee's assignees that had important observations. The cross-section and photographic station shall be monitored and reported to CDFW according to the following sub-measures.

a. Initial Monitoring. Permittee shall monitor cross section annually for the first 5 years following Initial Sediment Removal, estimated at 2.4 mcy plus any additional annual deposits, and as soon as feasible after the first major high flow event. If major high flow event occurs in the first 5 years of monitoring then frequency of future monitoring will be adjusted by CDFW based on consultation with Permittee. Monitoring frequency adjustments shall be based on results of annual monitoring and high flow observations.

b. Long-term Monitoring. Permittee shall monitor cross section every once every 5 years and immediately after a major high flow event for the duration of this Agreement.

3.5 Restoration of temporary impacts. The Permittee shall restore temporary impacts specified in Condition 3.2 within 24 months of initial vegetation removal in temporary impact areas, and initiate restoration planting or seeding during appropriate seasonal time frame to maximize growth and survival. If after 24 months restoration has not occurred, and CDFW determines that the delay has a substantial adverse effect, CDFW shall require additional mitigation to address the extent, severity, and duration of new impacts to fish and wildlife resources.

3.6 Financial Security. Prior to Project Start the Permittee shall establish in favor of CDFW an Original Security, in an estimated principal sum sufficient to pay for the cost of the Permittee's mitigation obligations under this Agreement. Any revisions to the Original Security by the Permittee shall be conducted according to Condition 3.8. After CDFW approves the Original Security, then the Permittee shall prepare a draft Security and submit it to CDFW for its written approval. The Security shall allow CDFW to immediately draw on the Security if CDFW determines in its sole discretion that the Permittee has failed to meet its mitigation obligations.

3.7 Approval of Financial Security. After CDFW approves the draft Original Security, it will notify the Permittee, after which the Permittee may finalize and execute the Security. Upon receipt of the Original Security in the principal sum in the form approved by CDFW, CDFW shall notify the Permittee that it may begin the project, provided the Permittee has complied with any other pre-project requirements specified in this Agreement.

3.8 Renewal or Replacement of Security. If the Permittee has not met its mitigation obligations within 60 days prior to the Security's expiration date, the Permittee shall confirm with the institution holding the funds that the expiration date will be extended. If the bank elects not to extend the expiration date, the Permittee shall establish a new Security to replace the original in the same principal sum, unless CDFW agrees otherwise. The new Security shall be subject to CDFW's approval following the same procedure described above. The Permittee shall have in place a Security at all time until Permittee receives CDFW written approval it has met its mitigation obligation.

a. Upon CDFW's written request the Permittee shall revise the Original Security within 60 days. The Permittee may request revisions to Original Security to account for refined estimated costs from Final Conceptual Off-site Mitigation Package, Habitat Restoration Plan, and Habitat Management Plan, once approved by CDFW. Any revisions to the Original Security by the Permittee shall require a written request explaining the need for revision, a revised cost

estimate, and CDFW's written approval. After CDFW approves revisions to the Original Security, then the Permittee shall prepare a revised draft Security and submit it to CDFW for its written approval pursuant to Condition 3.6.

3.9 Habitat Restoration Plan. The Permittee shall submit to CDFW a Habitat Restoration Plan prior to Initial Vegetation Removal. Permittee shall not conduct Initial Vegetation Removal until Habitat Restoration Plan receives CDFW written approval. This plan shall address all temporarily impacted areas within the Initial Sediment Removal Area and on-site compensatory mitigation project areas. Restoration involves planting seed and/or container stock, and maintaining (i.e., weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period of five years (or less if the restoration meets all success criteria). The plan shall include, at a minimum: 1) recontouring the land; 2) measures to alleviate soil compaction; 3) pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, hydroseeding, and hand-broadcasting seed (where appropriate); 4) the native plant species to be used, container sizes, and seeding rates; 5) collection, storage and replacement of the topsoil (if it was collected); 6) seed collection procedures and permits needed; 7) planting schedule; 8) a description of the irrigation methodology; 9) measures to control non-native or nuisance vegetation and non-native invasive animals on site; 10) specific success criteria; 11) a detailed monitoring program including Adaptive Management Program; 12) contingency measures should the success criteria not be met; and 13) identification of the party responsible for meeting the success criteria and providing for restoration.

3.10 Habitat Management Plan. The Permittee shall submit to CDFW for its review and approval a Habitat Management Plan. This plan shall address both on-site and off-site mitigation properties, that includes: 1) legal description of all parcels, a location map, and a plat map showing easements 2) management specifications, 3) baseline biological and hydrology data for all parcels, 4) designation of land management entity, 5) a Property Analysis Record, or equivalent, with assumptions specified, and 6) designation of responsible parties, and the entity or entities identified to hold and manage the land in perpetuity. The management specification shall provide: 1) information on public uses and facilities and operations found on the property; 2) CEQA documentation for any management practices or activities which are not exempt; 3) avoidance measures under CESA for any state-listed species found on the property; 4) a complete description of the management goals needed to protect, enhance, manage and conserve the habitat values for which the property was acquired which includes long-term as well as immediate management goals ; 5) Adaptive Management Program (e.g. include monitoring for non-native and invasive animals to determine when and what control measures should be implemented); 6) general operations and maintenance staffing and equipment and associated costs; 7) start-up or infrastructure costs; 8) management constraints (physical or political); 9) acceptable public uses; 10) anticipated public use or natural resource conflicts; and 11) document any additional agreements, memoranda of understanding, Department internal coordination for state listed species or Section 7 consultations under the federal Endangered Species Act, or cooperative management agreements.

4. Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Habitat Restoration and Management Plans. The Permittee shall submit a draft Habitat Restoration and draft Habitat Management Plan, as described in Conditions 3.9 and 3.10 above, to CDFW for review and written approval prior to Initial Vegetation Removal. CDFW will provide written response within 20 days of Permittee submittal. The Permittee shall not proceed with Initial Vegetation Removal until receiving written approval of Final Habitat Restoration and Habitat Management Plans by CDFW.

4.2 Mitigation Monitoring Report. The Permittee shall provide a Mitigation Monitoring Report to CDFW every (4) four years in accordance with FGC section 1605(g), with the first (4) four-year period beginning on the effective date of this Agreement. Upon receipt of the Mitigation Monitoring Report, CDFW shall comply with the provisions of FGC §1605(g)(3). If the Permittee fails to provide timely Mitigation Monitoring Reports as required by this Agreement and FGC Section 1605(g), CDFW may suspend or revoke this Agreement. The Mitigation Monitoring Report shall be delivered to CDFW no later than 90 days prior to the end of each (4) four-year period, and shall include all of the following:

a. A copy of the original Agreement;

b. The status of the activities covered by this Agreement;

c. An evaluation of the success or failure of the measures in this Agreement to protect the fish and wildlife resources that the activities may substantially adversely affect; and,

d. A discussion of any factors that could increase the predicted adverse impacts on fish and wildlife resources, and a description of the resources that may be adversely affected;

4.3 Mitigation Proposal. The Permittee shall submit a Conceptual Mitigation Package as described in Condition 3.3 above to CDFW for review within 60 days of execution of this Agreement. CDFW will provide written response within 30 days of Permittee submittal. The final Mitigation Package shall receive written approval by CDFW prior to Project Start.

4.4 Initial Sediment Removal Area Site As-Built Report. The Permittee shall submit a report to CDFW within 60 days of completion of final site preparation and planting, acknowledging the completion of the installation phase and documenting the as-built status of the area subject to temporary impact and project restoration. The report shall include a plan or map diagram showing the restored area and the final as-built locations of structural improvement listed in Project Description. Photographs from representative vantage points shall also be included to document the final site conditions.

4.5 Mitigation Site As-Built Report. The Permittee shall submit a Mitigation Site As-Built Report to CDFW within 60 days of completion of the Habitat Restoration Plan installation phase. The report shall include a plan or map diagram showing the restored area and the final as-built

locations of structural improvement listed in Project Description. Photographs from representative vantage points shall also be included to document the final site conditions

4.6 List of Designated Biologists. The Permittee shall submit a proposed list of Designated Biologists to CDFW for review 60 days prior to Project Start (see Condition 1.8). CDFW will provide written response within 18 days of Permittee submittal, unless otherwise agreed to by CDFW in writing (email, letter, fax). The Permittee may utilize any of the Designated Biologists with the appropriate qualifications from the approved list without subsequent approvals from CDFW. The list may be updated at any time by CDFW or the Permittee with the prior approval of CDFW.

4.7 Inventory of Native Oaks. The Permittee shall submit an Inventory of Native Oak Trees to CDFW for review within 90 days prior to Project Start. CDFW will provide written response within 18 days of Permittee submittal, unless otherwise agreed to by CDFW in writing (email, letter, fax). The inventory shall identify oak trees by species with Diameter at Breast Height over 3" (DBH) that will be directly removed or have root protection zone impacted as described in Condition 2.11.

4.8 Oak Tree Reports. The Permittee shall submit an Oak Tree Report to CDFW annually for 5 years with an additional report at years 7 and 10 for native oaks after encroachment in root protective zone (see Condition 2.11 above) or restoration/planting. This report shall cover the monitoring of existing native oaks after encroachment and creation, enhancement, and the revegetation of native oaks, and shall include the survival, % cover, and height of both tree and shrub species. The number by species of plants replaced, an overview of the revegetation effort, and the method used to assess these parameters shall also be included. Photos from designated photo stations shall be included.

4.9 Nesting Bird Management Plan. If necessary, the Permittee shall submit a Nesting Bird Management Plan to CDFW for Project activities that may occur between February 1^{sl} through September 15th as described in Conditions 2.12, 2.13, and 2.46. The plan shall include survey results and establish the necessary buffers to avoid take of nests as defined in FGC Sections 3503 and 3503.5. The Nesting Bird Management Plan shall be submitted to CDFW prior to any work between February 15th through September 15th.

4.10 Protected Species Plan. The Permittee shall submit a Protected Species Plan as described in Condition 2.10a to CDFW for review 60 days prior to the proposed Project Start. CDFW will provide written response within 18 days of Permittee submittal. The final Protected Species Plan shall receive written approval by CDFW prior to ground disturbing activities.

4.11 Surface Water Diversion Plan. If necessary, the Permittee shall submit a Surface Water Diversion Plan to CDFW for review as described in Condition 2.27. The plan shall be consistent with the terms and conditions of this Agreement. CDFW will provide written response within 18 days of Permittee submittal. The final Surface Water Diversion Plan shall receive written approval by CDFW prior to diversion activities. Any changes in the original project description or approved Surface Water Diversion Plan shall be coordinated with the CDFW. Coordination shall include the negotiation of additional Agreement provisions.

4.12 Emergency Response Plan The Permittee shall submit an Emergency Response Plan to CDFW prior to start of ground disturbance as described in Condition 2.30. The plan shall identify the actions that shall be taken in the event of a spill of petroleum products, or other material harmful to aquatic or plant life, and the identification and uses of emergency response materials.

4.13 Integrated Pest Management Plan. If necessary, the Permittee shall submit an Integrated Pest Management Plan to CDFW for review as described in Condition 2.62. The plan shall be consistent with the terms and conditions of this Agreement. The final Integrated Management Plan shall receive written approval by CDFW prior to implementation.

4.14 Monitoring of Permanent Cross-Section. Pursuant to duration and frequency specified in Condition 3.4, the monitoring reports for initial monitoring shall be submitted to CDFW by July 1st of each year monitoring is required.

4.15 Written Release from Monitoring Obligation. The Permittee shall not be released from these maintenance and monitoring obligations until such time as the Permittee has requested and received written concurrence from CDFW that the success criteria have been met in the Habitat Restoration Plan.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or CDFW specifies by written notice to the other.

To Permittee:

Los Angeles County Flood Control District
ATTN: Christopher Stone
900 S. Freemont Ave.
Alhambra, CA 91803
FAX (626) 979-5436
cstone@dpw.lacounty.gov

To CC:

Los Angeles County Flood Control District
ATTN: Ken Zimmer
900 S. Freemont Ave.
Alhambra, CA 91803
FAX (626) 979-5436
kzimmer@dpw.lacounty.gov

Los Angeles County Flood Control District

ATTN: Sree Kumar
900 S. Freemont Ave.
Alhambra, CA 91803
FAX (626) 458-4150
skumar@dpw.lacounty.gov

To CDFW:

Department of Fish and Wildlife
South Coast Region
3883 Ruffin Rd.
San Diego, CA 92123
Attn: Lake and Streambed Alteration Program
Notification #1600-2015-0263-R5
(858) 467-4299
R5LSACompliance@wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq.* (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request the Agreement to be extended for one (1) 5 year extension, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (FGC section 1605(f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at https://www.wildlife.ca.gov/Conservation/CEQA/Fees.

TERM

This Agreement shall expire on March 31, 2037, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

A. Exhibit A. [Access Road Detail]
B. Exhibit B [Work Plan Map]
C. Exhibit C [LBVI suitable habitat]
D. Exhibit D [Certification of Clean Equipment]
E. Exhibit E [Habitat Restoration Areas]
F. Exhibit F [Map of Upper Los Angeles River Watershed & Table 1]

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

Christopher Stone — March 01, 2017

Christopher Stone
Assistant Deputy Director

Date

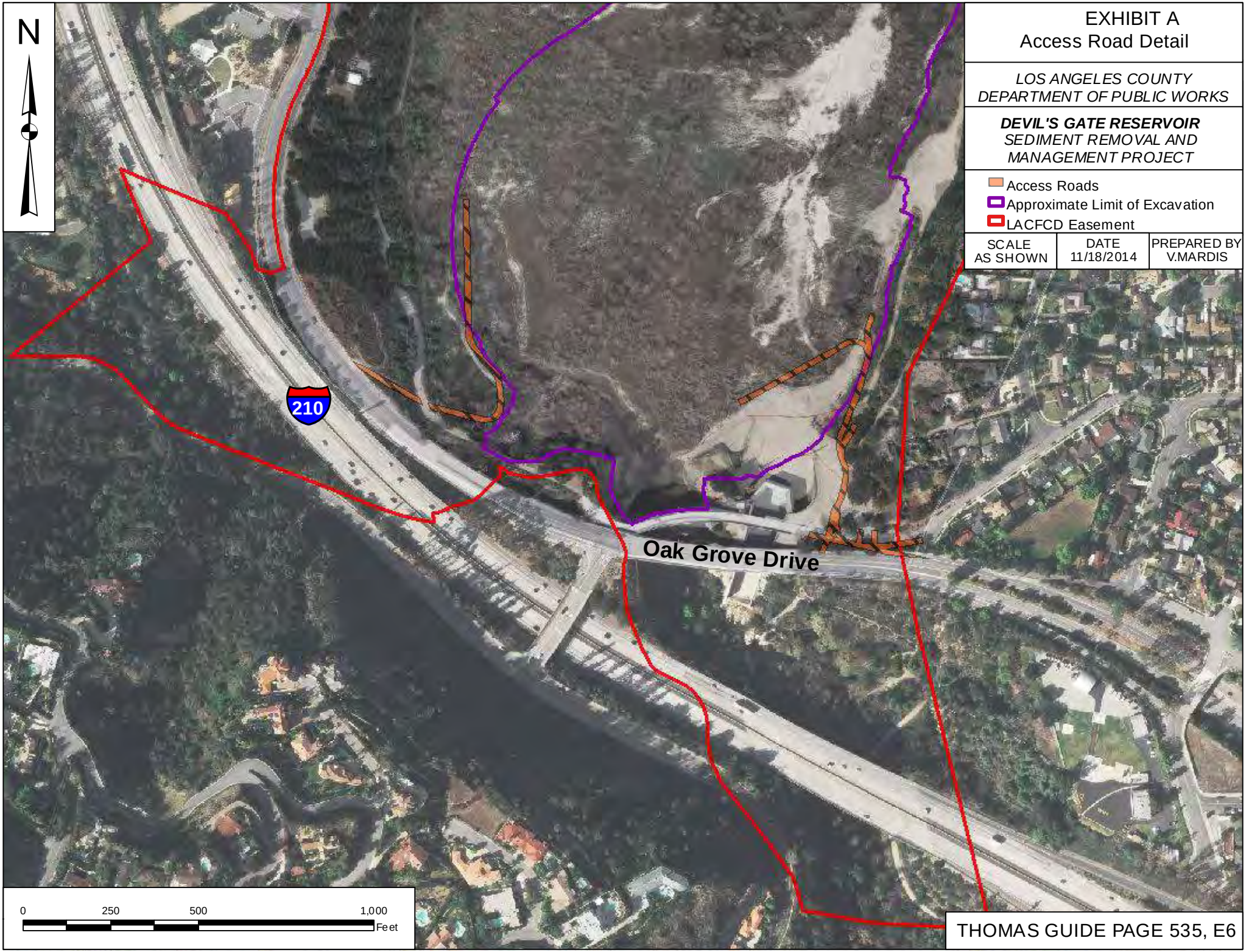
FOR DEPARTMENT OF FISH AND WILDLIFE

Betty J Courtney — March 21, 2017

Betty Courtney
Environmental Program Manager

Date

Prepared by: Matthew Chirdon
Senior Environmental Scientist (Specialist)


N
EXHIBIT A
Access Road Detail
LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
DEVIL'S GATE RESERVOIR
SEDIMENT REMOVAL AND
MANAGEMENT PROJECT
Access Roads
Approximate Limit of Excavation
LACFCD Easement
SCALE
AS SHOWN
DATE
11/18/2014
PREPARED BY
V.MARDIS
210
Oak Grove Drive
0
250
500
1,000
Feet
THOMAS GUIDE PAGE 535, E6

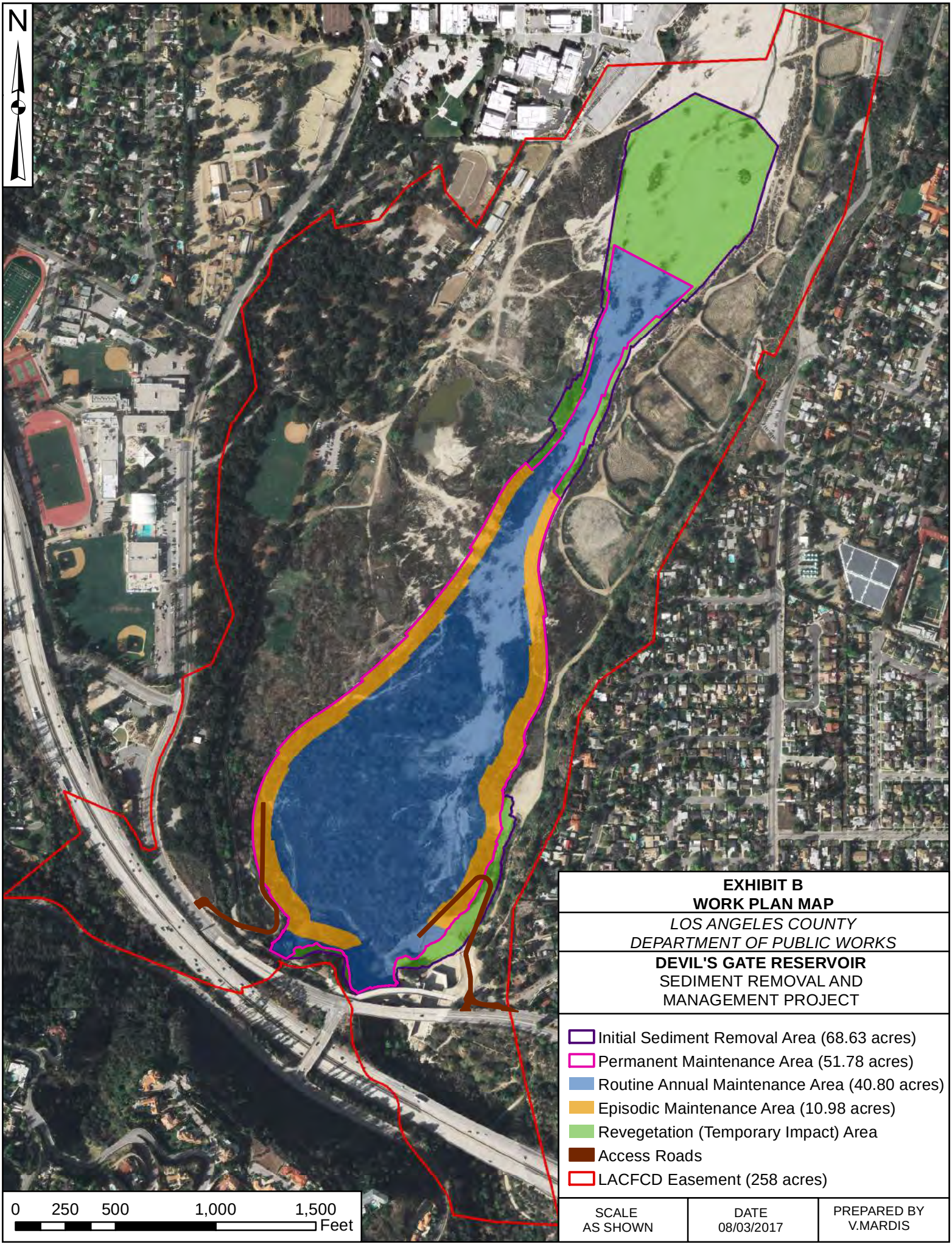


EXHIBIT B
WORK PLAN MAP

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS

DEVIL'S GATE RESERVOIR
SEDIMENT REMOVAL AND
MANAGEMENT PROJECT

- Initial Sediment Removal Area (68.63 acres)
- Permanent Maintenance Area (51.78 acres)
- Routine Annual Maintenance Area (40.80 acres)
- Episodic Maintenance Area (10.98 acres)
- Revegetation (Temporary Impact) Area
- Access Roads
- LACFCD Easement (258 acres)

SCALE	DATE	PREPARED BY
AS SHOWN	08/03/2017	V.MARDIS

Exhibit C

Vegetation Communities (2016)

Map Features

Initial Project Footprint [1]

Annual Maintenance Footprint [1]

Access Roads[1]

Vegetation Name

- Artemisia californica - Eriogonum fasciculatum Shrubland Alliance
- Baccharis salicifolia Shrubland Alliance
- Brassica nigra and other mustards Herbaceous Semi-Natural Alliance
- Conium maculatum Herbaceous Semi-Natural Alliance 30% Lepidium latifolium
- Depression/Bare ground
- Disturbed
- Eucalyptus (globulus, camaldulensis) Woodland Semi-Natural Alliance
- Fraxinus velutina Forest Alliance
- Landscaped
- Lepidium latifolium Herbaceous Semi-Natural Alliance
- Lepidium latifolium-Conium maculatum Herbaceous Semi-Natural Alliance
- Lepidospartum squamatum Shrubland Alliance
- Lepidospartum squamatum Shrubland Alliance - Sparse
- Platanus racemosa Woodland Alliance Disturbed
- Quercus agrifolia Woodland Alliance
- Rumex crispus Herbaceous Semi-Natural Alliance
- Salix gooddingii Woodland Alliance
- Salix gooddingii Woodland Alliance - Sparse
- Xanthium strumarium Herbaceous Alliance

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\Vegetation\Vegetation\v1\DG_Vegetation_Ecorp2016.mxd (MAG)-mguidry 5/19/2016

2014-003.008 Devil's Gate Sediment Removal Project

DRAFT - FOR REVIEW ONLY

Scale in Feet
0 600

Photo Source: NAIP 2014
[1] LADPW

Map Date: 5/19/2016

CERTIFICATION OF CLEAN EQUIPMENT

Project Name:_____

Lake or Streambed Alteration Agreement Notification Number: 1600- - -R5

I certify that the following equipment is clean of soil, seeds, vegetative matter, other debris, or adult, juvenile, or eggs of aquatic invasive animals, and has been decontaminated. Cleaning and decontamination was performed outside of the bed, bank, or channel of a stream and the bed or shore of a lake. Rinse water was properly contained and disposed of according to applicable federal, state, and local laws and ordinances enacted and in force at the time.

Equipment Description	License Plate/Identification #		Cleaning Location	Date Cleaned	Comments * Repeat decontamination is required only if the equipment/clothing is removed from the site, exposed to contaminants listed in certification statement (above), and returned to the project site
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			
		IN			
		OUT			

_____ _____

Signature of Permittee or designee Date

Certification is needed any time equipment is moved into Project work area and prior to leaving the Project work area for this Project.

Exhibit E

Devil's Gate Mitigation Areas

Map Features

- Initial Project Footprint [1]
- Annual Maintenance Footprint [1]
- Side Slopes [1]
- Access Roads[1]

Waters of the U.S.[2]

- Non-wetland Waters of the U.S.
- Wetland Waters of the U.S.

Mitigation Areas

- DG-1 (5.90 acres)
- DG-2 (5.15 acres)
- DG-2A (0.10 acres)
- DG-2B (0.38 acres)
- DG-3A (1.13 acres)
- DG-3B (Alta Dena) (0.62 acres)
- DG-4 (30.59 acres)
- DG-4A (5.59 acres)
- DG-4B (0.54 acres)
- DG-4C (0.45 acres)
- DG-4D (2.32 acres)
- DG-5 (0.26 acres)
- DG-6 (1.46 acres)
- DG-7 (Temp Impacts) (1.41 acres)
- DG-8 (Temp Impacts) (0.87 acres)
- DG-9 (Temp Impacts) (14.12 acres)
- DG-Park-Drainage (0.03 acres)
- DG-SF-1 (0.06 acres)
- DG-SF-2 (0.03 acres)
- DG-W-1 (3.44 acres)
- DG-W-2 (2.13 acres)
- DG-W-2 (Outlet) (0.13 acres)

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

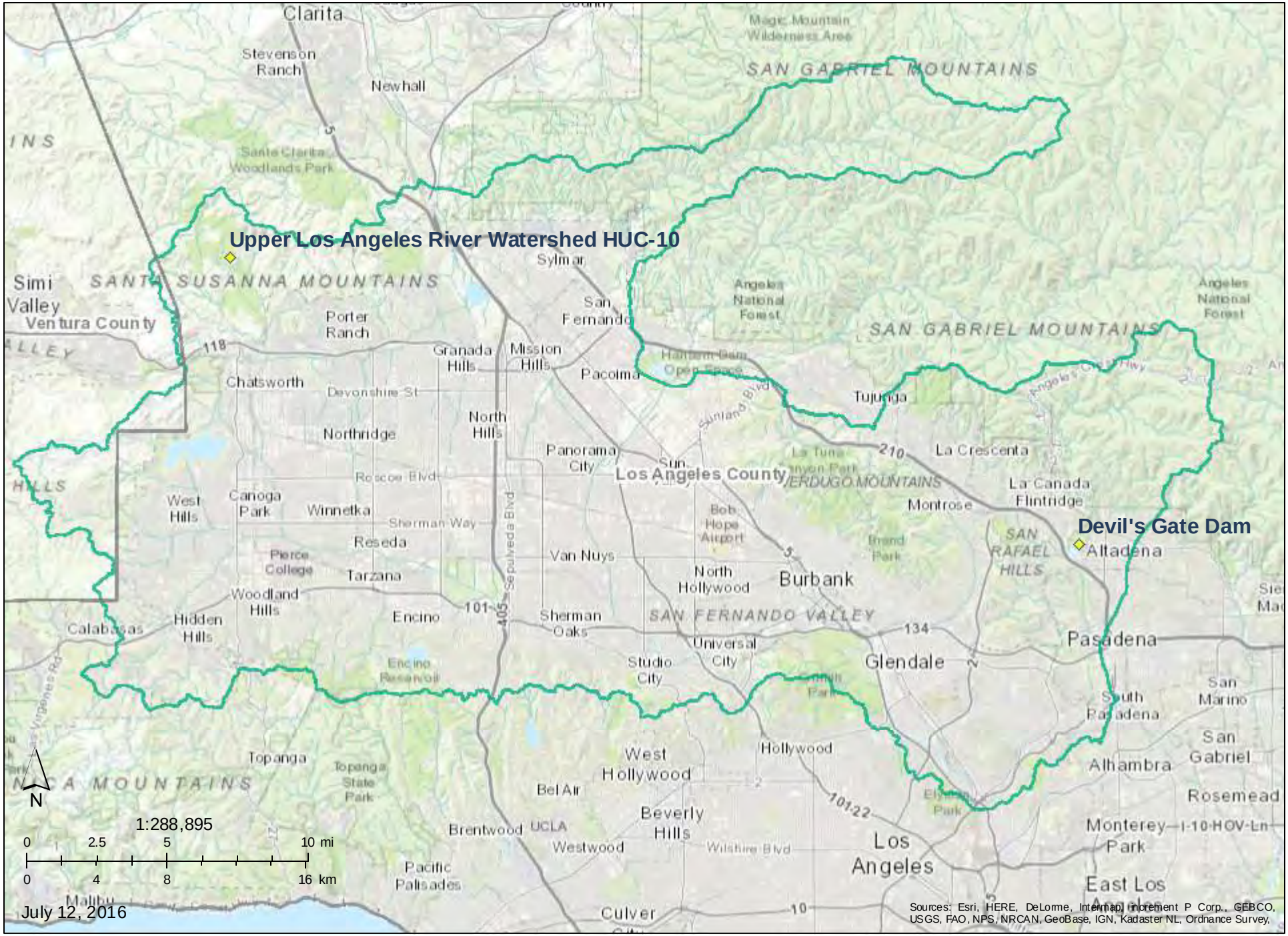
2014-003.008 Devils Gate Mitigation Plan

Scale in Feet
0 600

Photo Source: NAIP 2014
[1] LADPW
[2] ECORP and Chambers

Map Date: 7/7/2016

Exhibit F



Author: mchirdon

Printed from http://bios.dfg.ca.gov. See attached Table for sites that need decontamination

Exhibit F

Table 1
Reaches Requiring Decontamination for Streambed Alteration Agreement 1600-2015-0263-R5
Los Angeles County Flood Control District Soft-Bottomed Channels and Devil's Gate Dam Long-Term Agreement

Waters Name	Area (acres)	Length (feet)	Latitude	Longitude	Cross streets	Latitude	Longitude	Cross Streets	Aquatic Invasive Species Risk	Decon--taminate Prior	Decon-taminate After	Watershed HUC-10
1 - Bell Creek-MTD 963 M.C.I.	0.9	197	34.20267	-118.65899	962' u/s of Highlander Rd	34.20242	-118.65843	766' u/s of Highlander Rd	LOW	YES*	YES†	Upper Los Angeles
2 - Dry Canyon (Calabasas) PD T1845	1.24	1549	34.14711	-118.63044	676' u/s Park Ora	34.15177	-118.63181	870' d/s Park Ora	LOW	YES*	YES†	Upper Los Angeles River
3 - Santa Susana Ck M.C.I.	0.06	99	34.27091	-118.60975	5560' N of Devonshire St	34.27096	-118.60990	5635' N or Devonshire St	LOW	YES*	YES†	Upper Los Angeles River
4 - Browns Creek	3	1303	34.27161	-118.59078	1895' u/s of Rinaldi St	34.27502	-118.59174	556' u/s of Rinaldi St	LOW	YES*	YES†	Upper Los Angeles River
5 - Caballero Creek M.C.I. (West Fork)	1.3	654	34.14974	-118.53685	890' u/s of Reseda Blvd	34.15061	-118.53665	238' u/s of Reseda Blvd	LOW	YES*	YES†	Upper Los Angeles River
6 - Caballero Creek M.C.I. (East Fork)	0.35	164	34.14991	-118.53642	588' u/s of Reseda Blvd	34.15027	-118.53674	428' u/s of Reseda Blvd	LOW	YES*	YES†	Upper Los Angeles River
7 - Bull Creek M.C.O.	5.61	2704	34.17875	-118.4978	165' d/s of c/l of Victory Blvd	34.18617	-118.49778	Confluence w/ Los Angeles River	LOW	YES*	YES†	Upper Los Angeles River
8 - Hayvenhurst Drain - Project 470 Outlet	0.3	218	34.16421	-118.49153	Havenhurst	34.16472	-118.49105	Ventura Fwy	LOW	YES*	YES†	Upper Los Angeles River
9 - Project 106 Outlet	0.12	120	34.18557	-118.47502	400' d/s of Victory Blvd	34.18524	-118.47502	520' d/s of Victory Blvd	LOW	YES*	YES†	Upper Los Angeles
10 - Project No 469	7.12	4084	34.18843	-118.47365	751' d/s of Victory Blvd	34.18477	-118.48406	LA River (4945' d/s of Victory Blvd)	LOW	YES*	YES†	Upper Los Angeles River
14 - May Channel (M.C.O. into Pacoima Cyn)	0.63	588	34.31194	-118.41056	3038' d/s of Hubbard St	34.31058	-118.40975	3728' d/s of Hubbard St/Conf. W/ Pacoima Cyn	LOW	YES*	YES†	Upper Los Angeles River
15 - Pacoima Wash	5.25	4656	34.22734	-118.45947	159' d/s of Parthenia	34.21471	-118.45828	1187' d/s of Lanark St	LOW	YES*	YES†	Upper Los Angeles River

* If implementing Condition 2.63 *et. seq*. prior decontamination is required upon equipment entering from another watershed. After initial decontamination no additional Aquatic Invasive Species decontamination pursuant Conditions 2.64-2.66 is necessary if moving equipment within watershed and among reaches denoted by *

† If implementing Condition 2.63 *et. seq*. decontamination after work is completed is required upon equipment leaving for another watershed. After initial decontamination no additional Aquatic Invasive Species decontamination pursuant Condition 2.64-2.66 is necessary if moving equipment within watershed and among reaches denoted by †

Exhibit F

Table 1
Reaches Requiring Decontamination for Streambed Alteration Agreement 1600-2015-0263-R5
Los Angeles County Flood Control District Soft-Bottomed Channels and Devil's Gate Dam Long-Term Agreement

Waters Name	Area (acres)	Length (feet)	Latitude	Longitude	Cross streets	Latitude	Longitude	Cross Streets	Aquatic Invasive Species Risk	Decon--taminate Prior	Decon-taminate After	Watershed HUC-10
16 - Verdugo Wash-Las Barras Cyn (chnl inlet)	0.07	131	34.23318	-118.27123	157' u/s of conf. w/Las Barras Cyn Chnl	34.23310	-118.27142	27' u/s of conf. w/Las Barras Cyn Channel	LOW	YES*	YES†	Upper Los Angeles
18 - Engleheard Channel	1.1	744	34.20773	-118.24328	800' u/s of conf. w/ Verdugo Wash	34.20707	-118.24096	Conf. w/ Verdugo Wash	LOW	YES*	YES†	Upper Los Angeles River
19 - Pickens Canyon	3.42	2461	34.22852	-118.22765	Crib dam No.7	34.22224	-118.22892	Pickens Debris Basin	LOW	YES*	YES†	Upper Los Angeles River
20 - Webber Chnl (strm @ private bridge)	0.13	123	34.22804	-118.21786	861' u/s of Los Amigos St	34.22792	-118.21801	746' u/s of Los Amigos St	LOW	YES*	YES†	Upper Los Angeles River
21 - Webber Chnl (main chnl inlet d/s bridge)	0.03	25	34.22753	-118.21875	496' u/s of Los Amigos St	34.22750	-118.21879	471' u/s of Los Amigos St	LOW	YES*	YES†	Upper Los Angeles River
22 - Halls Canyon	2.63	2465	34.22228	-118.22217	1370' u/s of Jessen Dr	34.22315	-118.22090	Halls Cyn Debris Basin	LOW	YES*	YES†	Upper Los Angeles River
96 - PD 1591, Calabassas	0.92	532	34.14607	-118.63025	85' u/s of culvert under Vicasa Drive	34.14675	-118.63043	360' d/s of culvert under Vicasa Drive	LOW	YES*	YES†	Upper Los Angeles RIver
100 - Dry Canyon Calabasas Creek Inlet	0.05	114	34.1556	-118.6328	1835' u/s of Ave San Luis	34.15534	-118.63259	1775' u/s of Ave San Luis	LOW	YES*	YES†	Upper Los Angeles River

* If implementing Condition 2.63 *et. seq*. prior decontamination is required upon equipment entering from another watershed. After initial decontamination no additional Aquatic Invasive Species decontamination pursuant Conditions 2.64-2.66 is necessary if moving equipment within watershed and among reaches denoted by *

† If implementing Condition 2.63 *et. seq*. decontamination after work is completed is required upon equipment leaving for another watershed. After initial decontamination no additional Aquatic Invasive Species decontamination pursuant Condition 2.64-2.66 is necessary if moving equipment within watershed and among reaches denoted by †

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

MARK PESTRELLA, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

July 17, 2018

IN REPLY PLEASE
REFER TO FILE: SWE-5

Mr. Ed Pert, Regional Manager
Streambed Alteration Program
California Department of Fish and Wildlife, Region 5
4665 Lampson Avenue, Suite C
Los Alamitos, CA 90720

Attention Ms. Erinn Wilson

Dear Mr. Pert:

DEVIL'S GATE RESERVOIR SEDIMENT REMOVAL AND MANAGEMENT PROJECT
AMENDMENT OF STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2015-0263-R5

Enclosed are two original signed copies of the Amendment of Lake or Streambed Alteration Agreement We appreciate your collaboration on this important project and look forward to continued work with you.

If you have any questions, please contact Mr. George De La O at (626) 458-7155 or gdelao@dpw.lacounty.gov.

Very truly yours,

MARK PESTRELLA
Director of Public Works

Christopher Stone

CHRISTOPHER STONE
Assistant Deputy Director
Stormwater Engineering Division

VM:vt
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Enc.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 636-3160
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

July 17, 2018

Christopher Stone
Los Angeles County Flood Control District
900 S. Fremont Ave.
Alhambra, CA 91803
CSTONE@dpw.lacounty.gov

Dear Mr. Stone:

Amendment of Lake or Streambed Alteration, Notification No. 1600-2015-0263-R5, Devil's Gate Dam Sediment Removal and Management Project

On March 21, 2017 the California Department of Fish and Wildlife (CDFW) executed the Final Streambed Alteration Agreement 1600-2015-0263-R5 (Agreement) for the Devil's Gate Sediment Removal and Management Project (Project). On May 17, 2017 a Peremptory Writ of Mandate was issued by the California Superior Court (Los Angeles County) regarding the environmental impact report relied upon by the Los Angeles County Flood Control District (Lead Agency) under California Environmental Quality Act (CEQA, SCH 2011091084) and a Recirculated Final Environmental Impact Report (RFEIR) was required by the court. CDFW, as a CEQA responsible agency, relied on the Lead Agency's environmental impact report to issue the Agreement. The Recirculated portions of the RFEIR was circulated for public and agency review and comment from July 24, 2017 to September 18, 2017 and recertified by Lead Agency on November 7, 2017. The CDFW received notice on December 6, 2017 of the Order Discharging Peremptory Writ of Mandate (Discharged Writ) for the matters before the Los Angeles County Superior Court related to the RFEIR.

The Discharged Writ was issued because the Court found that the RFEIR disclosure, analysis, and revision of mitigation measures complied with the Peremptory Writ of Mandate that the Final EIR for the Project, for Alternative 3, Configuration D (Approved Project), and for Alternative 5 (Haul Route Alternative) related to: 1) the 1:1 mitigation ratios in Mitigation Measures BIO-6, -7, and -8; 2) the imposition of Mitigation Measures BIO-1 through 8 on the proposed Devil's Gate Water Conservation Project, should such a project go forward, to reduce potential cumulative impacts for this Project; and 3) the requirement, in Mitigation Measure AQ-1, that sediment removal dump trucks meet Environmental Protection Agency's emission standards for Model Year 2010 or later.

The CDFW under its sole discretion has decided to amend the Agreement (see page 39 "Amendment") to reflect changes to the environmental impact report that appear in the RFEIR. CDFW hereby amends the Agreement with addition and revision of the

following conditions (insertions in **bold underline**, deletions in ~~red strikeout~~ type face). All other conditions in the Agreement remain in effect unless otherwise noted herein

Page 3 of 49

Initial Sediment Removal Area. The ~~68.63~~ **65.56** acre area where the initial excavation of sediment and debris will occur.

Permanent Maintenance Area. The ~~51.78~~ **49.39** acre area to be maintained for flood capacity. This includes the Routine Annual Maintenance Area and the Episodic Maintenance Area.

Routine Annual Maintenance Area. The ~~40.80~~ **42.05** acre area where annual maintenance of the facility will occur (see Exhibit B).

Episodic Maintenance Area. The ~~10.98~~ **7 34** acre area side slope proposed at 3:1 (V:H) grade (see Exhibit B). where occasional maintenance will occur. This area is within the Permanent Maintenance Area, abuts Routine Annual Maintenance Area and forms transitional habitat with Habitat Restoration Area.

Habitat Restoration Area. The 77.01 acre area in the reservoir subject to minor land alteration, vegetation management, and planting of native plants. This area is outside the Permanent Maintenance Area (See Exhibit E).

Sediment Removal Program

This phase of project is limited to the restoration of a public facility, through excavation within the ~~68.63~~ **65.56**-acre Initial Sediment Removal Area (see Exhibit B, Work Plan Map) and transition to long term Permanent Maintenance Area, composed of a total of ~~51.78~~ **49.39** acres that consists of ~~40.8~~ **42.05** acres for Routine Annual Maintenance, and ~~10.98~~**7 34** acres for Episodic Maintenance Areas for the term of this Agreement. Sediment removal will not involve expansion of use beyond that of the designed facility. The proposed initial excavation is to mechanically remove ~~2.4~~**1 7** Million Cubic Yards (MCY) of post-fire debris from the Initial Sediment Removal Area within Devil's Gate Reservoir. The location of the Initial Sediment Removal Area was selected to maximize the efficient removal of post-fire debris while at the same time, avoid and minimize sensitive habitats and sensitive species impacts. Sediment levels behind Devil's Gate Dam will be brought down to 986 feet above mean sea level (msl) to eliminate the threat to the dam outlet works and comply with standards as set by the State Water Resources Division of Safety of Dams (DSOD). The Initial Sediment Removal Area will then slope upwards to ~~995~~**1,000** feet above msl where the basin will constrict and increase in elevation to 1,040 feet above msl, and widen again to meet final elevation of 1,060 feet above msl approximately ~~4,700~~4,**788** linear feet upstream from the dam. Devil's Gate Reservoir is routinely drained after every storm; therefore, it will not be

necessary to drain the facility for non-routine activities.

Page 4 of 49, 4th paragraph

The ~~2-4~~ **1 7** MCY of sediment and debris in the ~~68-63~~**65.56**-acres Initial Sediment Removal Area includes established native and non-native vegetation that will be removed. Vegetation and organic debris will be separated from the sediment and hauled to Scholl Canyon Landfill in the City of Glendale. Project Start is estimated to take place in the Fall of ~~2017~~**2018**. In subsequent years of sediment removal, vegetation and organic debris will be hauled to Scholl Canyon Landfill.

Page 4 of 49, 6th paragraph

Permanent Maintenance Program
Once excavation is complete for this project, annual maintenance of the facility will occur within the ~~40-80~~ **42.05** acre Routine Annual Maintenance Area (see Exhibit B). Vegetation management and sediment removal within the ~~40-80~~ **42.05** acre Routine Annual Maintenance Area will occur for the life of this Agreement. Excavation over the lifetime of the project within the ~~40-80~~ **42.05** acre Routine Annual Maintenance Area will be hauled to disposal sites previously authorized by Permittee (see Figures 2.5-2,-3-4 from Final Environmental Impact Report). Trucks hauling sediment will access the reservoir from an existing maintenance road east of Devil's Gate Dam and exit via a proposed upgraded access road on the western edge of Devil's Gate Dam that will exit on to Oak Grove Drive (see Exhibit A). Vegetation within the Routine Annual Maintenance Area will be mowed or grubbed annually over a 2 to 12 week period in late summer or early fall.

Page 5 of 49, 2nd paragraph

Episodic Maintenance within the ~~10-98~~ **7 34** acre (horizontal projection) Episodic Maintenance Area will initially include planting with appropriate native plants and thereafter annual undesirable plant control (using herbicides, hand tools, and mechanically operated hand tools (i.e., chainsaws and motor powered winches). In the event of a large debris flow or hyper concentrated flood[3] Episodic Maintenance would involve the need for sediment excavation/trucking off site. The types of equipment involved in excavation may include those similar to the initial sediment removal phase including, but not limited to, front loaders with four-yard buckets, bulldozers, excavator, grader, water truck, and tender trucks. Vehicles expected to be used for sediment

[3] **Debris flow:** A mix of water and debris, which may include particles ranging in size from clay to boulders and may contain woody debris and other materials, that flows down a stream channel or steep slope, sometimes at great velocity, and contains more than 60 percent debris (less than 40 percent water) by volume. **Hyper-concentrated flood:** A moving mixture of sediment and water containing between 20 and 60 percent sediment by volume.

hauling include double dump trucks with an 18 cubic yard (CY) capacity or equivalent.

Page 5 of 49, 3rd paragraph

After Episodic Maintenance the side slopes would be returned to the proposed 3:1 (V:H) grade, and the ~~10 98~~ **7 34** acre area will be subject to the continuing annual undesirable plant control. Because this area is restricted from a general right of public access, and will be subject to undesirable plant control, it is anticipated to be revegetated naturally after periodic large debris flow or hyper concentrated floods.

Page 6 of 49, 6th paragraph

Native Plants: Nevin's barberry *(Berberis nevinii),* Plummer's mariposa lily *(Calochortus plummerae),* Greata's aster (*Symphyotrichum gretae),* Parry's spineflower (*Chorizanthe parryi var. parryi),* slenderhorned spineflower (*Dodecahema ieptoceras),* mesa horkelia (*Horkelia cuneata ssp. puberula),* white rabbit-tobacco (*Pseudognaphalium leucocephalum),* Parish's gooseberry (*Ribes divaricatum var. parishii),* black willow thickets, mulefat thickets, riparian herbaceous, coast live oak woodland, scale broom scrub, and all other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area. These resources are further detailed and more particularly described in the document(s): "Devil's Gate Reservoir Sediment Removal and Management Project Final Environmental Impact Report " dated October 2014, prepared for Los Angeles County of Department of Public Works by Chambers Group; ~~,~~ **Biological Technical Report (November 2010), Final Sediment Transport Capacity Analysis (January 2013), and the Noise and Traffic Reports (September & October 2013, respectively), Recirculated EIR for the Project and response to comments (July and October 2017, respectively), Revised Board Motion (November 7, 2017), Notice of Determination for Recirculated Final Environmental Impact Report, Order Discharging Peremptory Writ of Mandate (December 5, 2017),** " Lake and Streambed Alteration Notification Package - Devil's Gate Dam and Reservoir Sediment Removal Project" dated December 11, 2015, prepared for CDFW by Permittee complete with all attachments and exhibits, Revised vegetation mapping and impact analysis for Devil's Gate Dam and Sediment Removal Project dated May 19, 2016 by ECORP Consulting, Inc., revised assessment of temporary impact areas and incorporation of Episodic Maintenance area dated May 5, 2016.

Page 7 of 49, 1st paragraph

Project Impacts
The adverse effects the project could have on the fish or wildlife resources identified above include a total of ~~68 63~~ **65.56** acres subject to Department jurisdiction to implement the Initial Sediment Removal After Initial Sediment Removal ~~51 78~~ **49.39** acres will be maintained for flood capacity through Routine Annual Maintenance and Episodic Maintenance (see above). Additionally, in order to implement compensatory

mitigation for the project, 77.01 acres subject to the Department's jurisdiction outside the Permanent Maintenance Area, will be subject to minor surface alteration of the land, vegetation management, and application of herbicides. The following impacts would occur to vegetation communities within the ~~68.63~~ **65.56** acres necessary for Initial Sediment Removal.

Page 7 of 49, 2nd paragraph

Total Permanent Project Impacts
Permanent impacts to ~~40 80~~ **42.05** acres of vegetation communities and land cover classifications from initial sediment removal include the removal of ~~16 27~~**15.64** acres of *Salix gooddingii* Alliance (black willow thickets), ~~1.82~~**1 97** acres *Lepidospartum squamatum* Alliance (Scalebroom scrub), ~~8.03~~**9 71** acres *Baccharis salicifolia* shrubland Alliance (mulefat thickets), ~~9.88~~**10.24** acre *Lepidium latifolium-Conium maculatum* herbaceous semi-natural stand, ~~2.45~~**2 61** acre *Conium maculatum* herbaceous semi-natural stand, ~~2.33~~**1 80** acres non-native or disturbed (including ~~1 0~~**0.67** acre *Xanthium strumarium* herbaceous stand, ~~1.33~~**1 13** acres disturbed (trails/barren/IMP Area)), ~~0.02~~**0 01** acre *Artemisia californica-Eriogonum fasciculatum* California sagebrush-California buckwheat scrub. Additionally, there are expected permanent impacts to individual California live oak trees (*Quercus agrifolia)* **in an area of approximately 0.06 acre. The impacts** ~~that~~vary from direct impacts, resulting in complete removal to a limited number of individual trees~~,~~ and indirect impacts to individual **trees that are located in close proximity to areas where direct impacts will occur. The** indirect impact**s** are undetermined at this time because the area's hilly topography may not result in any significant effect or project disturbance**s** may be avoided al~~l~~together based on project design modifications**.** ~~made from incorporating~~**Measures to** avoid~~ance~~ **impacts to**~~of~~ oak trees **will be** identified **following the completion of the** ~~in t~~tree ~~monitoring report~~**survey that is** required prior to **the start of the** Project~~start~~

Page 7 of 49, 3rd paragraph

Total Temporary Project Impacts
Temporary impacts to ~~27.83~~ **23.52** acres subject to Department jurisdiction consisting of vegetation communities and land cover classifications will occur from Initial Sediment Removal, worksite access, and installation of side-slopes in Episodic Maintenance Area. These areas contain ~~12 70~~ **13.16** acres *Lepidospartum squamatum* Alliance (Scalebroom scrub), ~~5.89~~ **4 65** acres of *Salix gooddingii* Alliance (black willow thickets), ~~3.41~~ **2 11** acres *Baccharis salicifolia* shrubland Alliance (mulefat thickets), ~~1.97~~ **0.06** acres disturbed (trails/barren/IMP Area), ~~1.24~~ **0 72** acre *Lepidium latifolium-Conium maculatum* herbaceous semi-natural stand, ~~1.70~~ **1 19** acres *Conium maculatum* herbaceous semi-natural stand, 0.5~~0~~**7** acre *Xanthium strumarium* herbaceous stand, 0.**2**~~0~~**7** acre *Quercus agrifolia* coast live oak (trees), ~~0 07 acre *Eucalyptus (globulus, camaldulensis)* Semi-natural stand~~, 0 ~~0~~**812** acre *Artemisia californica- Eriogonum fasciculatum* California sagebrush-California buckwheat scrub.

The following Conditions have been added or amended:

1.11 The Permittee shall fully implement all mitigation measures identified in the Final Environmental Impact Report (FEIR) and as revised by Recirculated FEIR (RFEIR). All Conditions, Studies, and mitigation measures relating to biological resources identified in the FEIR and RFEIR shall be enforceable by CDFW as terms of this Agreement.

2.1 Work Period. Initial Vegetation Removal work within the Initial Sediment Removal Area shall be confined to the period starting September 15 to February 1, in the year(s) of ~~2017~~**2018** to ~~2019~~ **2020**, unless otherwise requested by Permittee and approved by CDFW in writing. Excavation shall be confined to April 15 to December 31 Monday through Friday from 0700 to 1800 hours Standard Time (1900 hours during Daylight Savings Time), and on Saturday between 0800 to 1700 hours during Standard and Daylight Savings Time. Routine Annual Maintenance or Episodic Maintenance work involving vegetation management and/or excavation is specifically addressed in Conditions 2.40 to 2.72 below.

2.41 Permittee shall implement Routine Annual and Episodic Maintenance in conformance with the Project Description and the following Conditions in this Agreement. The Permittee shall remove all human generated debris, such as cuttings, garbage and trash. The Permittee shall remove washed out culverts, and other construction materials, that the Permittee places within, or where they may enter the stream. Routine Annual Maintenance activities shall be limited to the inspection, routine maintenance (e.g., fence repair, minor maintenance of access roads, graffiti removal, trash removal, weed abatement, etc.) sediment removal, and vegetation management (annually) within the approved Routine Annual Maintenance Area (~~40.80~~ **42.05** acres) footprint. Vegetation may be mowed annually and when necessary for capacity reasons the root zone may be grubbed. Sediment removal may be implemented by: 1) sediment excavation and hauling off site; and 2) Flow-Assisted Sediment Transport (FAST). Episodic Maintenance within the ~~10.98~~ **7 34** acre (horizontal projection) side slope area may include annual undesirable plant control (including herbicides, hand tools, and mechanically operated hand tools (e.g., chainsaws and motor powered winches), and in the event of a large debris flow or hyper concentrated flood sediment excavation/trucking off site. If additional major maintenance/repair work is required a separate Agreement is required for said repairs.

2.42 Work Period. Vegetation Management work shall be confined to September 15 to February 1 starting approximately in ~~2023~~**2024** until ~~2037~~ **2038**. The general days and hours of the week that Permittee should conduct Routine Annual Maintenance is Monday through Friday from 0700 to 1800 hours Standard Time (1900 hours during Daylight Savings Time), and on Saturday between 0800 to 1700 hours during Standard and Daylight Savings Time.

Table 3.0 Compensatory Mitigation [Permanent] Requirements for Creation and Restoration

IMPACTS TO VEGETATION COMMUNITIES	COMPENSATORY MITIGATION REQUIREMENT			
	PERMANENT IMPACTS	Creation	Restoration	Total
Salix gooddingii Woodland Alliance	~~16.27~~**15.64**	~~16.27~~**15.64**	~~22.31~~**21.44**	~~38.58~~**37.08**
Baccharis saltifolia Shrubland Alliance	~~8.03~~**9 71**	~~8.03~~**9 71**	~~4.83~~**5 84**	~~12.86~~**15.55**
Lepidospartum squamatum Shrubland Alliance	~~1.82~~**1 97**	~~1.82~~**1 97**	~~7.28~~**7 88**	~~9.1~~**9 85**
Artemisia californica -Eriogonum fasciculatum Shrubland Alliance	~~0.02~~**0 01**	~~0.02~~**0 01**	~~0.04~~**0.02**	~~0.06~~**0.03**
Conium maculatum Herbaceous Semi-Natural Alliance*	~~2.45~~**2.61**	0.00	~~1.23~~**1.31**	~~1.23~~**1.31**
Lepidium latifolium - Conium maculatum Herbaceous Semi-Natural Alliance*	~~9.88~~**10.24**	0.00	~~4.94~~**5 12**	~~4.94~~**5 12**
Xanthium strumarium Herbaceous Alliance (Unofficial Alliance)	~~1.00~~**0 67**	0.00	~~1.50~~**1.00**	~~1.50~~**1.00**
Disturbed/Developed	~~1.33~~**1 13**	0.00	0.00	0.00
TOTAL COMPENSATORY MITIGATION REQUIRED		~~26.14~~**27.33**	~~42.13~~**42.61**	~~68.27~~**69.94**
TOTAL PERMANENT IMPACTS	~~40.80~~**41.98**			

3.2 Mitigation for Temporary Impacts. The total of ~~27 83~~ **23.52** acres of temporary impacts, described in detail in the Project Description, shall be established and maintained pursuant to the following requirements:

a. The Permittee shall mitigate the temporary impacts to 16.~~85~~**17** acres of vegetation and habitat communities located in restoration areas designated (DG3B, DG 7, DG 8, DG 9, See Exhibit E) by delaying impacts to temporary impact areas until 3rd year of sediment removal project and implement restoration pursuant to Habitat Restoration Plan (see Condition 3.9, below) with 24 months of impacts (see Condition 3.5), and maintained pursuant to Habitat Management Plan (see Condition 3.10).

b. The ~~10 98~~ **7 34** acre (horizontal projection, see Exhibit B) Episodic Maintenance Area will include initially planting with appropriate native plants and thereafter annual undesirable plant control (including herbicides, hand tools, and mechanically operated hand tools (i.e., chainsaws and motor powered winches), and in the event of a large debris flow or hyper concentrated flood Episodic Maintenance would involve the need for sediment excavation/trucking offsite. After Episodic Maintenance the side slopes would be returned to proposed 3:1 (V:H) grade, and the ~~10.98~~ **7 34** acre area will be subject to the continuing annual undesirable plant control.

3.4 Establish Permanent Cross-Section. Permittee shall establish single cross section, established by monument, at upstream limit of Permanent Maintenance Area to document condition and be comparable overtime. The annual monitoring of cross section should be conducted immediately following the high flow season

and include the physical measurements of the site, photos from a fixed photographic station, and if applicable results from interviews with local persons, Permittee, or Permittee's assignees that had important observations. The cross-section and photographic station shall be monitored and reported to CDFW according to the following sub-measures.

a. Initial Monitoring. Permittee shall monitor cross section annually for the first 5 years following Initial Sediment Removal, estimated at ~~2-4~~ **1 7** mcy plus any additional annual deposits, and as soon as feasible after the first major high flow event. If major high flow event occurs in the first 5 years of monitoring then frequency of future monitoring will be adjusted by CDFW based on consultation with Permittee. Monitoring frequency adjustments shall be based on results of annual monitoring and high flow observations.

b. Long-term Monitoring. Permittee shall monitor cross section every once every 5 years and immediately after a major high flow event for the duration of this Agreement.

Page 36 of 49

TERM

This Agreement shall expire on ~~March 31, 2037~~ **June 31, 2038**, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

Please sign and return two copies of this letter to acknowledge the amendment. The amendment becomes valid once the letter is signed by CDFW. Copies of the Agreement and this amendment must be readily available at project worksites and must be presented when requested by a CDFW representative or agency with inspection authority.

If you have any questions regarding this letter, please contact Steve Gibson, Senior Environmental Scientist (Specialist) at (562) 342-2106 or by email at steve.gibson@wildlife.ca.gov.

Sincerely,

Erinn Wilson, Environmental Program Manager

ec: Veronica Mardis, LACFCD vmardis@dpw.lacounty.gov

ACKNOWLEDGEMENT

I hereby agree to the above-referenced amendment.

Print Name: Christopher Stone Date: July 17, 2018

Signature: Christopher Stone

APPENDIX B

Year 4 Plant Species Compendium

Devil's Gate Reservoir Restoration Project

LACPW/ECORP

Phase 1 2023 PLANT SPECIES COMPENDIUM

Scientific Name	Common Name	Mitigation Areas	Reference Sites[1]
VASCULAR PLANTS			
PTERIDOPHYTES			
EQUISETACEAE	**HORSETAIL FAMILY**		
Equisetum ssp.	horsetail		X
ANGIOSPERMS (EUDICOTS)			
ADOXACEAE	**MUSKROOT FAMILY**		
Sambucus mexicana	blue elderberry	X	X
ANACARDIACEA	**CASHEW AND SUMAC FAMILY**		
Malosma laurina	laurel sumac	X	
Toxicodendron diversilobum	poison oak	X	X
APIACEAE	**CARROT FAMILY**		
*Conium maculatum**	poison hemlock	X	
ASTERACEAE	**SUNFLOWER FAMILY**		
Ambrosia acanthicarpa	annual bursage	X	
Ambrosia psilostachya	Western ragweed	X	
Artemisia californica	California sagebrush	X	X
Artemisia douglasiana	mugwort	X	X
Artemisia dracunculus	taragon	X	
Baccharis pilularis	coyote brush	X	
Baccharis salicifolia	mulefat	X	X
*Carduus pycnocephalus**	Italian thistle	X	X
*Centaurea melitensis**	tocalote	X	X
Chaenactis glabriuscula	common yellow chaenactis	X	
Cirsium occidentale var. californicum	California thistle	X	
Corethrogyne filaginifolia	common sand aster	X	X
Erigeron canadensis	Canada horseweed	X	X
Eriophyllum confertiflorum	golden yarrow		X
Heterotheca grandiflora	telegraph weed	X	X
Isocoma menziesii	Menzies' goldenbush	X	X
*Lactuca serriola**	prickly lettuce	X	X
Lepidospartum squamatum	scalebroom	X	X
*Matricaria chamomilla**	German chamomile	X	
Pseudognaphalium biolettii	Two-color rabbit-tobacco	X	
Pseudognaphalium californicum	ladie's tobacco	X	X
*Sonchus asper**	prickly sow-thistle	X	X
Xanthium strumarium	rought cockleburr	X	
BETULACEAE	**BIRCH FAMILY**		
Alnus rhombifolia	white alder		X
BORAGINACEAE	**BORAGE FAMILY**		
Eriodictyon crassifolium	thick leaved yerba santa	X	X
BRASSICACEAE	**MUSTARD FAMILY**		
*Brassica nigra**	black mustard	X	X
*Lepidium latifolium**	perennial pepperweed	X	
*Raphanus sativus**	wild radish	X	

Scientific Name	Common Name	Mitigation Areas	Reference Sites[1]
Rorippa curvisiliqua	Curvepod yellow cress	X	
CACTACEAE	**CACTUS FAMILY**		
Opuntia littoralis	coastal prickly pear	X	
CAPRIFOLIACEAE	**SOUTHERN HONEYSUCKLE**		
Lonicera subspicata	Southern honeysuckle	X	
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		
*Chenopodium album**	lamb's quarters	X	
CONVOLVULACEAE	**MORNING GLORY FAMILY**		
Calystegia macrostegia	island false bindweed		
Cuscuta californica	dodder	X	
EUPHORBIACEAE	**SPURGE FAMILY**		
*Euphorbia peplus**	petty spurge		
*Ricinus communis**	castor bean		X
FABACEAE	**LEGUME FAMILY**		
Acmispon americanus	Spanish lotus	X	
Acmispon glaber	deerweed	X	X
Lupinus excubitus	grape soda lupine	X	
*Melilotus albus**	white sweetclover	X	
*Melilotus indicus**	annual yellow sweetclover	X	
*Spartium junceum**	Spanish broom		X
FAGACEAE	**OAK FAMILY**		
Quercus agrifolia	coast live oak	X	X
GERANIACEAE	**GERANIUM FAMILY**		
*Geranium molle**	crane's bill geranium		X
GROSSULARIACEAE	**GOOSEBERRY FAMILY**		
Ribes aureum	golden currant	X	
Ribes californicum	California gooseberry	X	
HYDROPHYLLACEAE	**WATERLEAF FAMILY**		
Phacelia cicutaria	caterpillar phacelia	X	X
Phacelia distans	Common phacelia	X	
JUGLANDACEAE	**WALNUT FAMILY**		
Juglans californica (CRPR 4.2)	Southern California black walnut	X	
LAMIACEAE	**MINT FAMILY**		
*Marrubium vulgare**	white horehound	X	X
Salvia columbariae	chia	X	
Salvia mellifera	black sage	X	X
MORACEAE	**FIG FAMILY**		
*Ficus carica**	common fig		X
MYRSINACEAE	**SCARLET PIMPERNEL**		
*Lysimachia arvensis**	Scarlet pimpernel	X	
MYRTACEAE	**MYRTLE FAMILY**		
Eucalyptus globulus*	blue gum	X	
OLEACEAE	**OLIVE FAMILY**		
*Fraxinus uhdei**	shamel ash	X	X
*Olea europaea**	olive	X	
ORNAGRACEAE	**EVENING PRIMROSE FAMILY**		
Camissoniopsis micrantha	Spencer primrose	X	
Epilobium canum	California fuchsia	X	
Oenothera elata	evening primrose		X

Scientific Name	Common Name	Mitigation Areas	Reference Sites[1]
PAPAVERACEAE	**POPPY FAMILY**		
Eschscholzia californica	California poppy	X	
PHRYMACEAE	**LOPSEED FAMILY**		
Erythranthe cardinalis	Cardinal monkey flower	X	
PLANTAGINACEAE	**PLANTAIN FAMILY**		
*Plantago arenaria**	Indian plantain	X	
PLATANACEAE	**PLANE-TREE FAMILY**		
Platanus racemosa	western sycamore	X	X
POLEMONIACEAE	**PHLOX FAMILY**		
Navarretia sp.	navarretia	X	
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Eriogonum fasciculatum	California buckwheat	X	X
Eriogonum sp.	buckwheat	X	
*Rumex crispus**	curly dock	X	
RHAMNACEA	**BUCKTHORN FAMILY**		
Rhamnus crocea	redberry buckthorn		X
ROSACEAE	**ROSE FAMILY**		
Prunus ilicifolia	hollyleaf cherry		X
Rosa californica	California rose	X	
*Rubus americanus**	Himalayan blackberry		X
Rubus ursinus	California blackberry	X	X
RUBIACEAE	**BEDSTRAW FAMILY**		
Galium aparine	common bedstraw		X
SALICACEAE	**WILLOW FAMILY**		
Populus fremontii	Fremont's cottonwood	X	X
Salix exigua	narrow leaved willow		X
Salix gooddingii	black willow	X	X
Salix laevigata	red willow	X	X
Salix lasiolepis	arroyo willow	X	X
SAPINDACEAE	**SOAPBERRY FAMILY**		
Acer negundo	boxelder		X
SOLANACEAE	**NIGHTSHADE FAMILY**		
Datura wrightii	jimson weed	X	X
Solanum douglasii	Douglas' nightshade	X	
*Solanum nigrum**	black nightshade	X	
Solanum sp.	nightshade	X	
ULMACEAE	**ELM FAMILY**		
*Elm ssp.**	elm		X
URTICACEAE	**NETTLE FAMILY**		
Urtica dioica	stinging nettle	X	
VITACEAE	**GRAPE FAMILY**		
Vitis californica	California grape		X
ANGIOSPERMS (MONOCOTS)			
AGAVACEAE	**CENTURY PLANT FAMILY**		
Hesperoyucca whipplei	chaparral yucca	X	X
BIGNONIACEAE	**TRUMPET-CREEPER FAMILY**		
Catalpa sp.	catalpa	X	
CYPERACEAE	**SEDGE FAMILY**		
Cyperus eragrostis	tall flatsedge	X	

Scientific Name	Common Name	Mitigation Areas	Reference Sites[1]
JUNCACEAE	**RUSH FAMILY**		
Juncus textilis	basket rush	**X**	
POACEAE	**GRASS FAMILY**		
*Arundo donax**	giant reed		**X**
*Avena fatua**	wild oat		**X**
Bromus sitchensis var. carinatus	California brome	**X**	
*Bromus madritensis ssp. rubens**	red brome		**X**
Elymus condensatus	giant wild rye	**X**	
*Elymus triticoides**	beardless wild rye	**X**	
Poa secunda	pine bluegrass	**X**	
*Schismus barbatus**	Mediterranean grass		**X**
TYPHACEAE	**CATTAIL FAMILY**		
Typha ssp.	cattail		**X**

* Nonnative species.

[1] Reference site data is from 2020.

APPENDIX C

Year 4 Photo Documentation

Photo 1: Mitigation Area DG-1 Transect #1 Start

Photo 2: Mitigation Area DG-1 Transect #1 End

Photo 3: Mitigation Area DG-1 Transect #2 Start

Photo 4: Mitigation Area DG-1 Transect #2 End

Photo 5: Mitigation Area DG-1 Transect #3 Start

Photo 6: Mitigation Area DG-1 Transect #3 End

Photo 7: Mitigation Area DG-1 WOUS Transect #1 Start

Photo 8: Mitigation Area DG-1 WOUS Transect #1 End

Photo 9: Mitigation Area DG-2A Transect #1 Start

Photo 10: Mitigation Area DG-2A Transect #1 End

Photo 11: Mitigation Area DG-2A Transect #2 Start

Photo 12: Mitigation Area DG-2A Transect #2 End

Photo 13: Mitigation Area DG-2B Transect #1 Start

Photo 14: Mitigation Area DG-2B Transect #1 End

Photo 15: Mitigation Area DG-2B Transect #2 Start

Photo 16: Mitigation Area DG-2B Transect #2 End

Photo 17: Mitigation Area DG-3A Transect #1 Start

Photo 18: Mitigation Area DG-3A Transect #1 End

Photo 19: Mitigation Area DG-3A Transect #2 Start

Photo 20: Mitigation Area DG-3A Transect #2 End

Photo 21: Mitigation Area DG-3A Transect #3 Start

Photo 22: Mitigation Area DG-3A Transect #3 End

Photo 23: Mitigation Area DG-4 Transect #1 Start

Photo 24: Mitigation Area DG-4 Transect #1 End

Photo 25: Mitigation Area DG-4 Transect #2 Start

Photo 26: Mitigation Area DG-4 Transect #2 End

Photo 27: Mitigation Area DG-4 Transect #3 Start

Photo 28: Mitigation Area DG-4 Transect #3 End

Photo 29: Mitigation Area DG-4 Transect #4 Start

Photo 30: Mitigation Area DG-4 Transect #4 End

Photo 31: Mitigation Area DG-4 Transect #5 Start

Photo 32: Mitigation Area DG-4 Transect #5 End

Photo 33: Mitigation Area DG-4 Transect #6 Start

Photo 34: Mitigation Area DG-4 Transect #6 End

Photo 35: Mitigation Area DG-4 Transect #7 Start

Photo 36: Mitigation Area DG-4 Transect #7 End

Photo 37: Mitigation Area DG-4 Transect #8 Start

Photo 38: Mitigation Area DG-4 Transect #8 End

Photo 39: Mitigation Area DG-4B Transect #1 Start

Photo 40: Mitigation Area DG-4B Transect #1 End

Photo 41: Mitigation Area DG-4B Transect #2 Start

Photo 42: Mitigation Area DG-4B Transect #2 End

Photo 43: Mitigation Area DG-4C Transect #1 Start

Photo 44: Mitigation Area DG-4C Transect #1 End

Photo 45: Mitigation Area DG-4C Transect #2 Start

Photo 46: Mitigation Area DG-4C Transect #2 End

Photo 47: Mitigation Area DG-5 Transect #1 Start

Photo 48: Mitigation Area DG-5 Transect #1 End

Photo 49: Mitigation Area DG-1 Photo Point #1, Facing NE

Photo 50: Mitigation Area DG-1 Photo Point #2, Facing SW

Photo 51: Mitigation Area DG-1 Photo Point #3, Facing NE

Photo 52: Mitigation Area DG-1 Photo Point #3, Facing SW

Photo 53: Mitigation Area DG-1 Photo Point #4, Facing SW

Photo 54: Mitigation Area DG-1 Photo Point #4, Facing NW

Photo 55: Mitigation Area DG-1 Photo Point #5, Facing NE

Photo 56: Mitigation Area DG-1 Photo Point #5, Facing SE

Photo 57: Mitigation Area DG-1 Photo Point #6, Facing SW

Photo 58: Mitigation Area DG-2A Photo Point #1, Facing SW

Photo 59: Mitigation Area DG-2A Photo Point #2, Facing NW

Photo 60: Mitigation Area DG-2A Photo Point #3, Facing SW

Photo 61: Mitigation Area DG-2A Photo Point #4, Facing NW

Photo 62: Mitigation Area DG-2B Photo Point #1, Facing NE

Photo 63: Mitigation Area DG-2B Photo Point #1, Facing SE

Photo 64: Mitigation Area DG-2B Photo Point #2, Facing NE

Photo 65: Mitigation Area DG-2B Photo Point #2, Facing SE

Photo 66: Mitigation Area DG-2B Photo Point #3, Facing NW

Photo 67: Mitigation Area DG-2B Photo Point #3, Facing SW

Photo 68: Mitigation Area DG-2B Photo Point #4, Facing NW

Photo 69: Mitigation Area DG-2B Photo Point #4, Facing W

Photo 70: Mitigation Area DG-2B Photo Point #4, Facing SW

Photo 71: Mitigation Area DG-3A Photo Point #1, Facing SE

Photo 72: Mitigation Area DG-3A Photo Point #2, Facing SE

Photo 73: Mitigation Area DG-3A Photo Point #3, Facing S

Photo 74: Mitigation Area DG-3A Photo Point #4, Facing N

Photo 75: Mitigation Area DG-3A Photo Point #4, Facing SW

Photo 76: Mitigation Area DG-3A Photo Point #5, Facing NW

Photo 77: Mitigation Area DG-3A Photo Point #5, Facing W

Photo 78: Mitigation Area DG-3A Photo Point #5, Facing SW

Photo 79: Mitigation Area DG-3A Photo Point #6, Facing NW

Photo 80: Mitigation Area DG-3A Photo Point #7, Facing NW

Photo 81: Mitigation Area DG-3A Photo Point #7, Facing SW

Photo 82: Mitigation Area DG-4 Photo Point #1, Facing SE

Photo 83: Mitigation Area DG-4 Photo Point #2, Facing S

Photo 84: Mitigation Area DG-4 Photo Point #2, Facing W

Photo 85: Mitigation Area DG-4 Photo Point #3, Facing SW

Photo 86: Mitigation Area DG-4 Photo Point #4, Facing NE

Photo 87: Mitigation Area DG-4 Photo Point #5, Facing NE

Photo 88: Mitigation Area DG-4 Photo Point #5, Facing S

Photo 89: Mitigation Area DG-4 Photo Point #6, Facing NE

Photo 90: Mitigation Area DG-4 Photo Point #7, Facing NW

Photo 91: Mitigation Area DG-4 Point #8, Facing SE

Photo 92: Mitigation Area DG-4 Photo Point #9, Facing E

Photo 93: Mitigation Area DG-4 Photo Point #10, Facing E

Photo 94: Mitigation Area DG-4 Photo Point #10, Facing S

Photo 95: Mitigation Area DG-4 Photo Point #11, Facing SW

Photo 96: Mitigation Area DG-4 Photo Point #12, Facing N

Photo 97: Mitigation Area DG-4 Photo Point #13, Facing NE

Photo 98: Mitigation Area DG-4 Photo Point #14, Facing S

Photo 99: Mitigation Area DG-4 Photo Point #15, Facing NE

Photo 100: Mitigation Area DG-4B Photo Point #1, Facing NE

Photo 101: Mitigation Area DG-4B Photo Point #2, Facing NE

Photo 102: Mitigation Area DG-4B Photo Point #2, Facing SE

Photo 103: Mitigation Area DG-4B Photo Point #3, Facing S

Photo 104: Mitigation Area DG-4C Photo Point #1, Facing NE

Photo 105: Mitigation Area DG-4C Photo Point #2, Facing S

Photo 106: Mitigation Area DG-4C Photo Point #3, Facing NE

Photo 107: Mitigation Area DG-4C Photo Point #4, Facing S

Photo 108: Mitigation Area DG-5 Photo Point #1, Facing S

Photo 109: Mitigation Area DG-5 Photo Point #2, Facing SW

Photo 110: Mitigation Area DG-5 Photo Point #3, Facing NE

Photo 111: RAFSS Reference Transect Start

Photo 112: RAFSS Reference Transect End

Photo 113: CSS Reference Transect Start

Photo 114: CSS Reference Transect End

Photo 115: Coast Live Oak Woodland Reference Transect Start

Photo 116: Coast Live Oak Woodland Reference Transect End

Photo 117: Riparian Scrub Reference Transect Start

Photo 118: Riparian Scrub Reference Transect End

Photo 119: Riparian Woodland Reference Transect Start

Photo 120: Riparian Woodland Reference Transect End

Photo 121: LBVI Reference Transect #1 Start

Photo 122: LBVI Reference Transect #1 End

Photo 123: LBVI Reference Transect #2 Start

Photo 124: LBVI Reference Transect #2 End

Photo 125: Overview LBVI Reference Site

Photo 126: Overview LBVI Reference Site

Photo 127: Overview LBVI Reference Site

Photo 128: Overview LBVI Reference Site

Photo 129: Overview LBVI Reference Site

Photo 130: Overview LBVI Reference Site