Year 3 Annual Monitoring Report
for the
Devil's Gate Reservoir Restoration Project
(Phase 2)
Onsite Habitat Mitigation

Los Angeles County

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
CRAM	California Rapid Assessment Method
Design Plans	Final Design Plans for the Project
ESA	Endangered Species Act
Gothic	Gothic Landscape
HRP	Habitat Restoration Plan
ICF	ICF International
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
RE	Restoration Ecologist
Stillwater	Stillwater Sciences
USGS	U.S. Geological Survey

1.0 INTRODUCTION

Los Angeles County Public Works (LACPW) completed Phase 2 of habitat restoration implementation for the Devil's Gate Reservoir Habitat Restoration Project (Project) on May 5, 2021. 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) 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 2018). 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*; LBVI), which is listed as endangered under the federal Endangered Species Act (ESA) and the California ESA (CDFW 2018).

Implementation of habitat mitigation for Phase 2 was conducted in mitigation areas DG-W-1 (Johnson Field), DG-2, DG-2 New Channels, DG-2 WOUS, DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-4 Sheet Flow (northern), and DG-SF-1. Other areas that were initially included in Phase 2 include DG-4 Sheet Flow (southern), DG-4 WOUS, DG-4 Drainage, and DG-SF-2; however, due to the dynamic nature of these areas and/or uncertainly of hydrologic conditions prior to the completion of sediment removal for the Project, these areas were not planted or seeded during Phase 2. These areas were included in the Phase 2 weed abatement activities and a portion of DG-4 WOUS was included in the Phase 2 grading and recontouring effort. DG-4 WOUS was planted with container plants and willow (*Salix* sp.) and mulefat (*Baccharis salicifolia*) stakes during Phase 3 activities. For the purposes of this report, these areas were excluded from the Phase 2 botanical monitoring effort and will not be addressed in this report.

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 Devil's Gate Reservoir (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 3 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 10 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 (USGS) 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-linear-feet section of the Arroyo Seco drainage and alluvial fan, which is an area subject to change and disturbance due to erosion, runoff, 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.

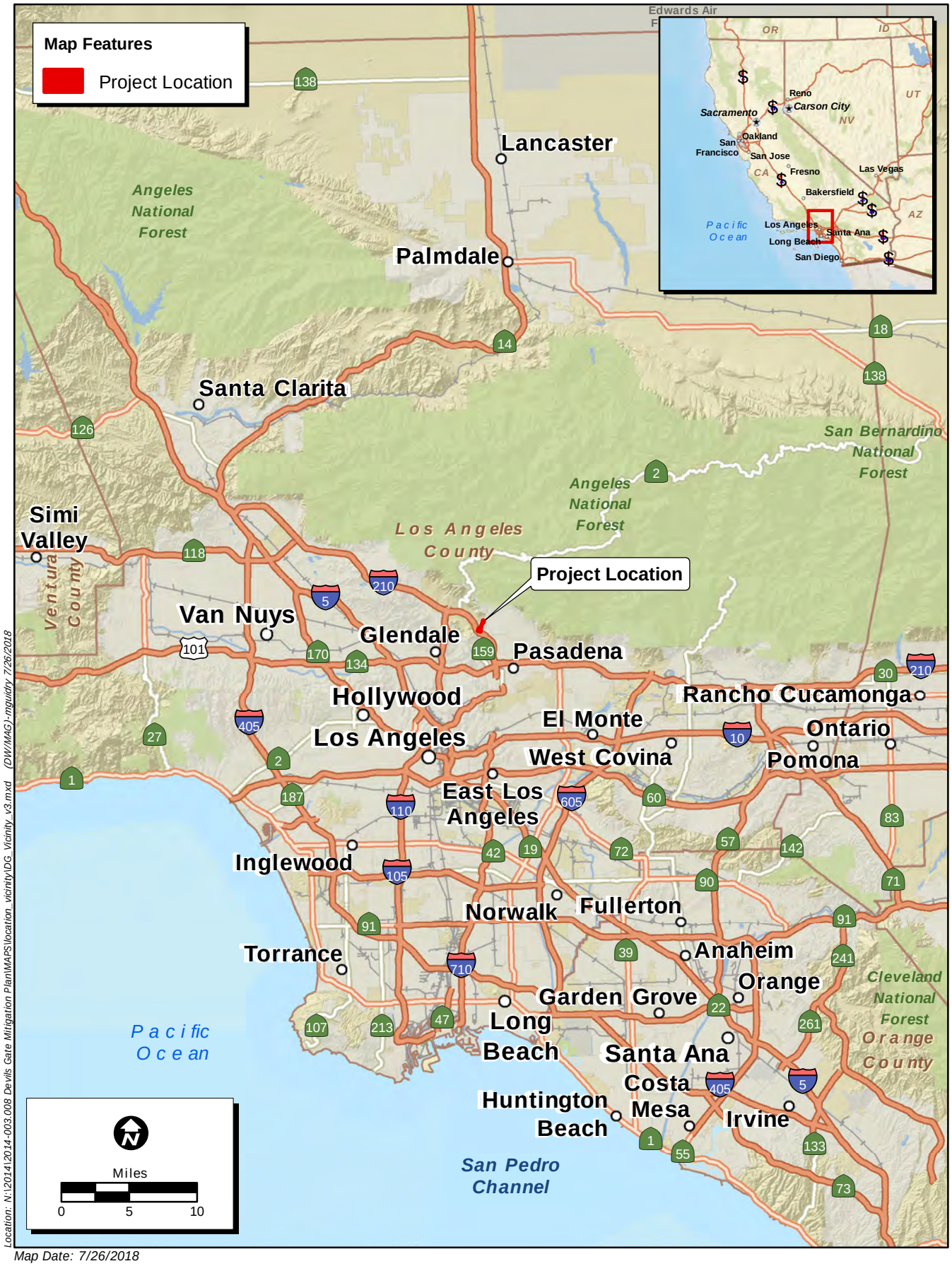
2.0 ONSITE HABITAT MITIGATION OVERVIEW

2.1 General Location of Mitigation Areas

The Phase 2 onsite habitat mitigation areas (hereafter referred to as mitigation areas) are located to the east and west of the Reservoir just outside of the PMA for the Project (Figure 3). Mitigation areas DG-W-1 (Johnson Field), DG-2, DG-2 New Channels, and DG-2 WOUS, are located on the east side of the Reservoir and mitigation areas DG-W-2 (Mining Pit), DG-W-2 (Mining Pit Outlet), DG-4 Sheet Flow (northern), and DG-SF-1 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 in response to a legal settlement that was finalized. 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 and the LSAA amendment when it is completed.



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Map Date: 7/26/2018

Service Layer Credits: Sources: Esri, USGS, NOAA

Figure 1. Project Vicinity

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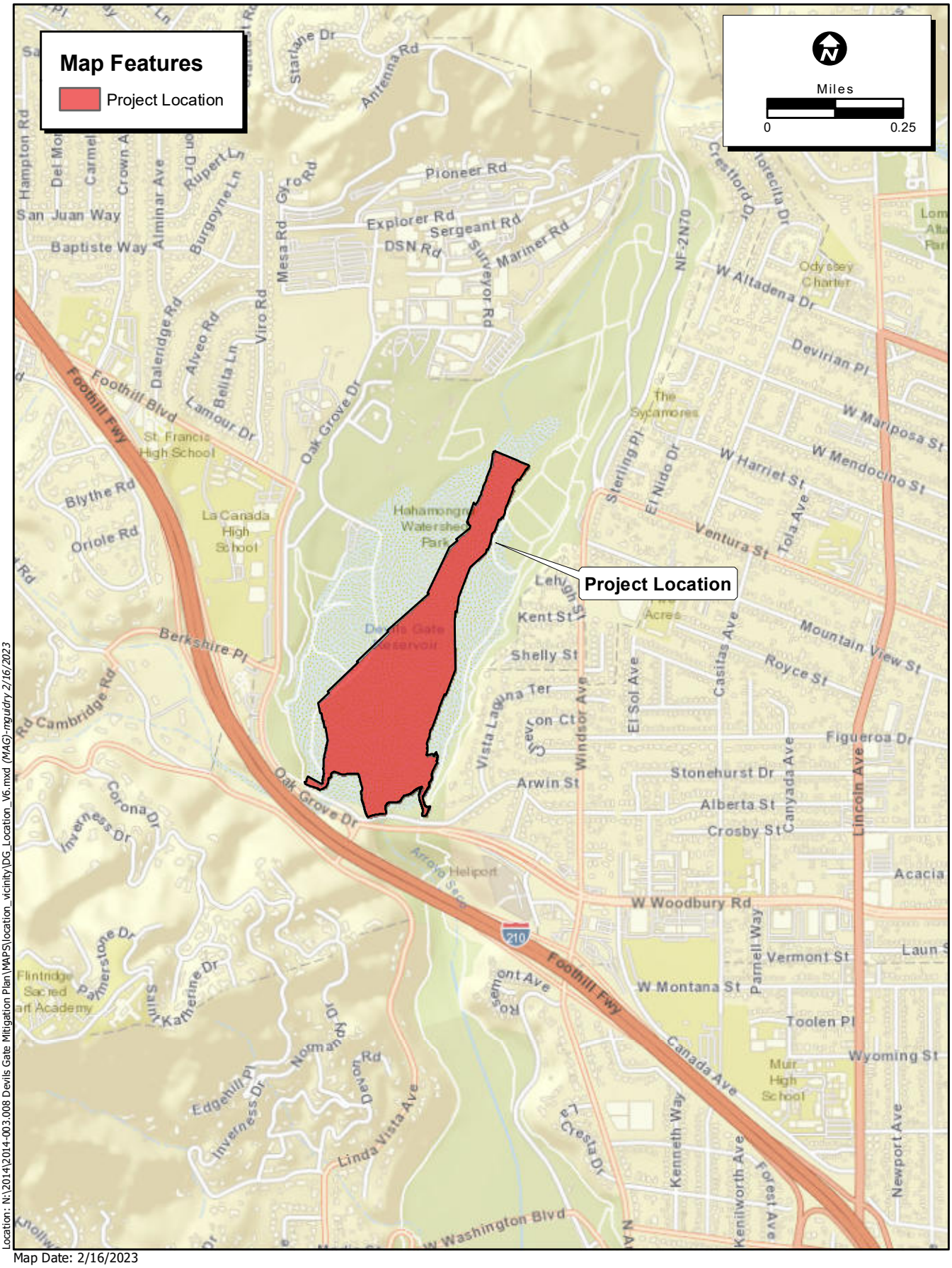
2014-003.008 Devil's Gate Sediment Removal Project



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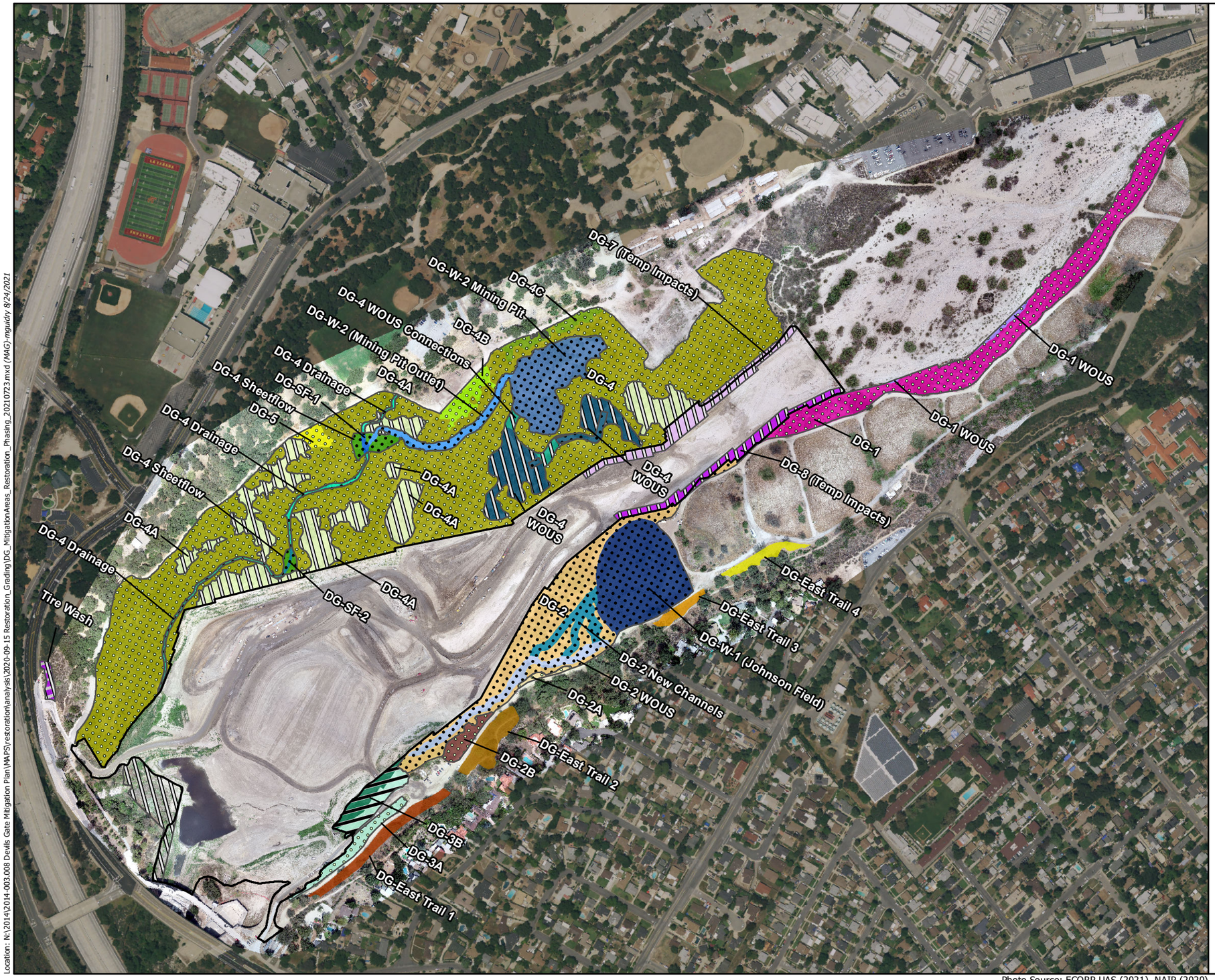
Map Date: 2/16/2023
Source: ESRI

Figure 2. Project Location

Figure 3.
Onsite Habitat Mitigation Areas



Map Features

- Final Design Boundary

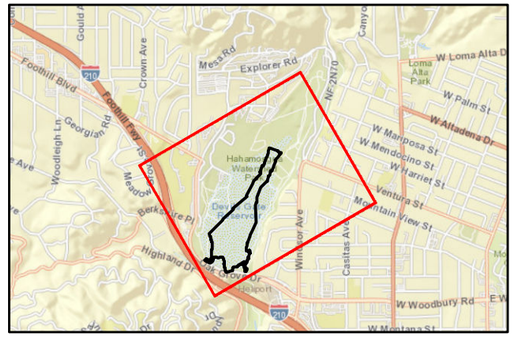
Restoration Phasing

- 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 seeded 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's 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 (ISRA) 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. 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. During Phase 2 of restoration activities, a total of 992 Fremont's cottonwoods (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 or Phase 2 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 [RE], ECORP), Josh Corona-Bennett (Senior Restoration Ecologist, ECORP), Mari Quillman (Biological Resources Program Manager, ECORP), Michael Walsh (Biologist, Stillwater Sciences [Stillwater]), Wendy Katagi (Senior Manager, Watershed & Ecosystem Restoration Services, Stillwater), Dick Rol (Principal Landscape Architect, ICF International [ICF]), 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 2 was conducted in mitigation areas DG-W-1 (Johnson Field), DG-2, DG-2 New Channels, DG-2 WOUS, DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-4 Sheet Flow (northern), and DG-SF-1. A total of two vegetation communities were included in the Phase 2 habitat restoration effort including Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance) and Black Willow Thickets (*Salix gooddingii* Woodland Alliance). It should be noted that all Phase 2 mitigation areas are considered part of the LBVI habitat mitigation and therefore must adhere to the LBVI habitat performance standards. Habitat restoration implementation commenced on November 19, 2018 and included nonnative and invasive plant removal and follow-up weed abatement efforts. Following the weed abatement efforts, grading and recontouring was conducted for several of the Phase 2 mitigation areas. Following weed abatement efforts and grading/recontouring, container plant installation and seed application commenced in all Phase 2 mitigation areas. Implementation for Phase 2 was completed on May 5, 2021. 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 in the Phase 2 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.

3.2 Irrigation Strategy

A temporary aboveground poly-tube irrigation system with drip emitters was installed in the Phase 2 mitigation 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 has been fitted with a meter, pressure regulator, and back-flow preventer. Emitters were positioned within the planting basins of each container plant and pole cutting and according to the HRP, supplemental irrigation will continue to be applied for a period of no more than three years. However, if the mitigation areas need to be irrigated for a longer period of time to meet the success standards, then irrigation will continue. Irrigation and irrigation maintenance have been occurring at the rate specified in Table 8 of the HRP.

3.3 Seeding

Upon completion of the initial weed abatement effort and ongoing follow-up weed abatement efforts, the seeding process, which consisted of broadcast seeding, commenced on January 15, 2021. Seed materials 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 were used. Broadcast seeding was completed using hand-crank spreaders or 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 winter or other periods when sufficient rainfall was expected to occur.

3.4 Container Plant Installation

The container plant installation process commenced on January 25, 2021, after completion of the initial weed abatement effort and ongoing follow-up weed abatement efforts. Container plants used for the Project were procured from Tree of Life Nursery and Hahamongna Native Plant Nursery 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 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 were dug to a width twice the size of the root ball and to a depth slightly deeper than the depth of the root ball so that the root crown was 1 inch below grade following installation. 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 1 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.

3.5 Grading and Recontouring

Grading and recontouring for Phase 2 was conducted by Griffith in the DG-W-1 (Johnson Field), DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-2 New Channels, DG-2 WOUS, and DG-4 WOUS mitigation areas. The activities were conducted according to the Final Design Plans for the Project (Design Plans) dated September 29, 2020 (ECORP 2020). The purpose of the grading and recontouring was to create new low flowing channels and topography to support the hydrology needed to sustain riparian habitats. Equipment used during grading included excavators, backhoes, bulldozers, water trucks, and various hand tools. Biological monitors were present during all grading and recontouring activities to ensure the Design Plans were followed and to minimize disturbance to biological resources.

3.6 Site Protection

To delineate the site and deter trespassers from entering the mitigation areas, Environmentally Sensitive Area signs were installed and in 2021 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.

4.0 SUMMARY OF YEAR 3 MAINTENANCE ACTIVITIES

4.1 Maintenance of Onsite Habitat Mitigation Areas

Maintenance activities during Year 3 focused mainly on nonnative weed abatement, native plant survival, and irrigation system maintenance. In addition, maintenance was performed for minor pest control, erosion control, and vandalism during Year 3.

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. Maintenance in the form of nonnative weed abatement commenced immediately following the initial weed abatement effort and has been ongoing for all of Year 3. Nonnative plant species controlled during Year 3 included wild oat, black mustard, red brome, poison hemlock, red-stemmed filaree, foxtail barely, perennial pepperweed, and horehound. 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.

Figure 4. Site Protection Boundaries

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

During the Year 3 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. Herbicide application was employed for a brief period from February 22, 2019 to March 18, 2019 (during the initial weed abatement effort); 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.

4.1.2 Supplemental Planting

Supplemental planting for the mitigation areas did not occur during Year 3 of restoration activities because all the mitigation areas met the performance standard for survival. Formal mortality counts were taken during the Year 1, 2, and 3 botanical monitoring events and supplemental planting is anticipated to occur during the fall/winter of 2023/2024 in select locations.

4.1.3 Irrigation Maintenance

During Year 3, the irrigation system was inspected for functionality on a regular basis by Natures Image and Gothic during routine maintenance activities to ensure the system was operating efficiently and that container plants were receiving adequate water. During the irrigation system inspections, the soil around the container plants was inspected to ensure proper saturation was occurring and emitters were inspected to maintain proper placement within the planting basins. Wildlife damage to irrigation lines was repaired on an as-needed basis.

4.1.4 Pest Control

Only minor herbivory of container plants was observed in the mitigation areas during Year 3. The Phase 2 container plants are at a stage where they are well established, and minor herbivory should not have a significant impact on the plants. 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

Moderate to significant erosion occurred during Year 3 in the DG-2 mitigation area. The erosion occurred in the western-most portion of the mitigation area following erosion to the side slopes on the east side of the reservoir. Erosion occurred during periods of heavy rainfall that occurred between October 2022 and February 2023. Repairs to the side slopes below DG-2 were conducted in the fall of 2023 and these areas will be replanted and/or reseeded during the fall/winter of 2023/2024. Only minor erosion control for the

remainder of the Phase 2 mitigation areas was necessary during Year 3. Maintenance of the container plant basins was conducted on an as-needed basis.

4.1.6 Vandalism

Vandalism to the mitigation areas and the irrigation system was observed during Year 3. The vandalism observed consisted mostly of stolen parts of the irrigation system and intentionally damaged container plants. Stolen parts of the irrigation system were replaced on an as-needed basis and public outreach was conducted to educate the public about the mitigation areas. Container plants lost due to vandalism will be replaced during Phase 3 of restoration.

5.0SUMMARY OF YEAR 3 MONITORING ACTIVITIES

5.1 Monitoring of Onsite Habitat Mitigation areas

Monitoring activities during Year 3 included both horticultural monitoring and botanical monitoring. Horticultural monitoring was performed quarterly for Year 2 and Year 3. 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 3 following the completion of planting and seeding. Monitoring events that occurred during Year 3 are listed in Table 1 below.

Table 1. Onsite Habitat Mitigation Site Monitoring Events

Date	Monitoring Type
11/28/22	Horticultural Monitoring
02/10/23	Horticultural Monitoring
05/22/23	Horticultural Monitoring
07/07/23	Botanical Monitoring
07/11/23	Botanical Monitoring
07/26/23	Botanical Monitoring
07/27/23	Botanical Monitoring
07/28/23	Botanical Monitoring
08/01/23	Botanical Monitoring
08/22/23	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 Plant Establishment Period and 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 Year 3. These issues were immediately brought to the attention of Natures Image and 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 3. 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 3 monitoring included common yarrow (*Achillea millefolium*), annual bursage (*Ambrosia acanthicarpa*), mugwort (*Artemisia douglasiana*), mulefat (*Baccharis salicifolia*), tall flatsedge (*Cyperus eragrostis*), jimsonweed (*Datura wrightii*), Canada horseweed (*Erigeron canadensis*), California buckwheat (*Eriogonum fasciculatum*), salt heliotrope (*Heliotropium curassavicum*), coyote brush (*Baccharis pilularis*), California poppy (*Eschscholzia californica*), telegraph weed (*Heterotheca grandiflora*), evening primrose (*Oenothera elata*), California rose, common phacelia (*Phacelia distans*), many flowered monkeyflower (*Erythranthe floribunda*), deerweed (*Acmispon glaber*), California everlasting (*Pseudognaphalium californicum*), stinging nettle, and rough cocklebur (*Xanthium strumarium*).

5.2.3 Container Plant Health

Container plant health was noted as being mostly good throughout the year, with spring and summer showing the most prolific growth. During the horticultural monitoring visits, stress to the container plants appeared to be occurring because of drought stress, small mammal herbivory, pedestrian traffic through the mitigation areas, dodder (*Cuscuta* sp.), and competition from nonnative and invasive plant species. However, stress was typically noted as being minor in severity during the Year 3 monitoring period. Seasonal dieback of the willow species and Fremont's cottonwoods was observed during horticultural monitoring visits during the fall and winter months. The drought stress observed during the Year 3 monitoring period was typically most abundant during the summer months. Overall, the container plants appeared healthy during Year 3 monitoring activities and are becoming well established.

5.2.4 Nonnative and Invasive Plant Species

Nonnative plant species presence within the mitigation areas varied during Year 3 and was most abundant during the spring. Perennial pepperweed is very dense and established in some of the mitigation areas, especially portions of DG-2, DG-2 New Channels, DG-2 WOUS, DG-W-2 (Mining Pit), DG-W-2 Outlet, and DG-4 Sheet Flow. 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 3 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

Only minor herbivory issues were observed in the Phase 2 mitigation areas during Year 3. The Phase 2 container plants are at a stage where they are well established, and minor herbivory should not have a significant impact on the plants. While herbivory was not observed to be a major issue during Year 3, some of the Phase 2 mitigation areas, including DG-W-1, DG-W-2, and DG-W-2 Outlet, 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 and DG-W-2 (mining pit) 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 have remained 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 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

Moderate to significant erosion occurred during Year 3 in the DG-2 mitigation area. The erosion occurred in the western-most portion of the mitigation area following erosion to the side slopes on the east side of the reservoir. Erosion occurred during periods of heavy rainfall that occurred between October 2022 and February 2023. Repairs to the side slopes below DG-2 were conducted in the fall of 2023 and these areas will be replanted and/or reseeded during the fall/winter of 2023/2024. In addition to the erosion on the side slopes and DG-2, minor erosion and diversion of the flow path in DG-4 Drainage occurred. Repairs to irrigation line and plant basins were conducted during Year 3 on an as-needed basis.

5.2.7 Photo Documentation

Photo documentation occurred throughout Year 3 during the horticultural monitoring and botanical monitoring. Permanent photo points were established during the Year 1 botanical monitoring and will be used during subsequent monitoring years to document to 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 3 was conducted during the summer of 2023. 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). A total of 14 transect lines were established randomly throughout the mitigation areas (Figure 5). In addition, a total of four 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 and 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 transects and the length of transects established in each mitigation area followed the guidance provided in Section 7.1.2 of the HRP.

Reference sites were established during the Year 1 botanical monitoring for the Phase 1 areas for riparian scrub, riparian woodland, and 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 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 3 for Phase 2 and the data from Year 1 for Phase 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 occurrence 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 all of the native species that occurred within a belt transect. The belt transects extended 1 meter to the left and right of each of the 14 transects within the mitigation areas and the four transects within the reference sites.

Figure 5. Transect Locations Onsite Habitat Mitigation Areas

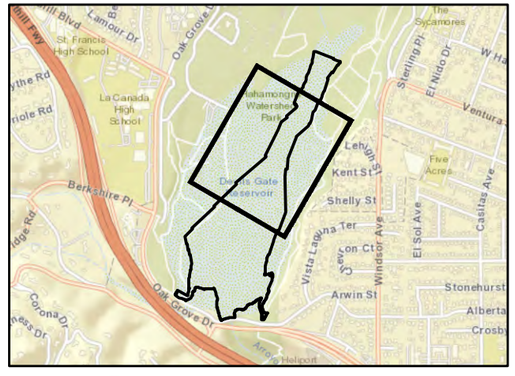
Ph 1 DG-4 Sheet Flow
Ph 2 DG-W-2 Outlet
DG-W-2 Outlet #2
Ph 1 DG-W-2 Outlet
DG-W-2 Outlet #1
Ph 1 Mining Pit
Mining Pit #1
Ph 2 Mining Pit
Mining Pit #2
Ph 3 Mining Pit
Ph 4 Mining Pit
Ph 5 DG-2
DG-2 #2
Ph 2 DG-2
Ph 3 DG-2
Ph 4 DG-2
Ph 1 DG-2
DG-2 #1
Ph 2 DG-2 New Channels
Ph 1 DG-2 New Channels
DG-2 New Channels #1
DG-2 New Channels #2
Johnson Field #1
Johnson Field #2
Johnson Field #3
Ph 3 Johnson Field
Ph 1 Johnson Field
Ph 2 Johnson Field
Ph 6 DG-2
DG-2 #3
DG-2 WOUS #1
Ph 1 DG-2 WOUS
Ph 2 DG-2 WOUS
DG-2 WOUS #2

Map Features

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



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2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 150

Photo Source: ECORP 2021, NAIP 2020

Map Date: 11/1/2021

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAP\Restoration\analysis\2020-11-10 Restoraiton_Monitoring\DG_Restoration_Monitoring_Ph2_20211028.mxd (MAG)-mguidry 11/17/2021

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

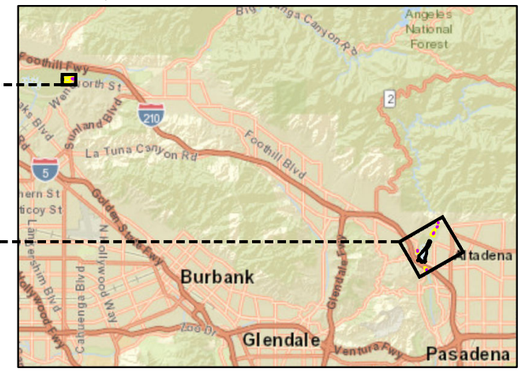
Riparian Woodland Reference Site

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



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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

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 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 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 in the mitigation areas and at the reference sites. In addition, groundwater data was obtained from the City and JPL. The results are included in the following sections.

5.3.2.1 Container Plant Survivorship

Year 3 survival counts were conducted during the annual botanical monitoring. Overall, plant mortality for Year 3 was found to be low with survivorship ranging from 97.1 to 100 percent in the mitigation areas. The overall survivorship percentage for container plants in the Phase 2 restoration areas was 98.2 percent. The container plant survival data are listed in Table 2.

Table 2. Container Plant Survivorship

Mitigation Area	Container Plants	Year				
		1	2	3	4[1]	5[1]
DG-2/DG-2 Waters of the U.S./DG-2 New Channels	Number Planted	4,646	4,646	4,646		
	Number of Mortalities	65	13	0		
	Survivorship (%)[1]	98.7	98.3	98.3		
DG-W-1 (Johnson Field)	Number Planted	3,989	3,989	3,989		
	Number of Mortalities	22	21	7		
	Survivorship (%)[1]	99.4	98.9	98.7		
DG-W-2 (Mining Pit)	Number Planted	1,958	1,958	1,958		
	Number of Mortalities	25	29	5		
	Survivorship (%)[1]	98.7	97.2	96.9		
DG-W-2 Outlet	Number Planted	525	525	525		
	Number of Mortalities	4	2	9		
	Survivorship (%)[1]	99.2	98.9	97.1		
DG-4 Sheet Flow/ DG-SF-1	Number Planted	322	322	322		
	Number of Mortalities	0	0	0		
	Survivorship (%)[1]	100	100	100		
Overall	**Number Planted**	**11,440**	**11,440**	**11,440**		
	Number of Mortalities	**116**	**65**	**21**		

Table 2. Container Plant Survivorship						
Mitigation Area	**Container Plants**	**Year**				
		1	**2**	**3**	**4[1]**	**5[1]**
	Survivorship (%)[1]	**99.0**	**98.4**	**98.2**		

[1] To be determined

5.3.2.2 Percent Native and Nonnative Cover – Mitigation Areas

Native cover for the Phase 2 mitigation areas showed improvements during Year 3. Nonnative cover increased in Year 3 and was result of increased rain during the 2022-2023 rainy season that promoted nonnative cover. Even with the increase in nonnative cover during Year 3, nonnative cover still remained low throughout the year. As native cover increases and nonnative seed banks are depleted from continual weed abatement, it is expected that nonnative weed cover will decrease during future monitoring years.

Table 3 presents a summary of Year 3 native (perennial/annual) and nonnative cover data for the Phase 2 mitigation areas. The average overall native perennial cover in the Phase 2 mitigation areas (all considered part of LBVI habitat restoration) was 75.2 percent, the native annual cover was 14.4 percent, and the percent cover of nonnative and invasive plant species was 0.4 and 0.9 percent, respectively.

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year (%)**				
		1	**2**	**3**	**4[1]**	**5[1]**
LBVI						
DG-W-1 (Johnson Field) Transect 1 (100 m)	Perennial	6.5	53.0	73.2		
	Annual	3.5	24.4	18.3		
	Nonnative	1.5	0.0	2.1		
	Invasive[2]	0.0	0.0	0.0		
DG-W-1 (Johnson Field) Transect 2 (100 m)	Perennial	8.8	98.0	81.5		
	Annual	1.0	9.0	12.0		
	Nonnative	2.7	0.0	0.5		
	Invasive[2]	0.0	0.0	1.3		
DG-W-1 (Johnson Field) Transect 3 (100 m)	Perennial	8.5	63.5	86.0		
	Annual	5.5	3.0	9.0		
	Nonnative	2.0	0.0	1.8		
	Invasive[2]	0.0	0.0	1.3		
DG-2 Transect 1 (25 m)	Perennial	8.3	54.2	67.3		
	Annual	0.0	13.7	16.6		
	Nonnative	1.7	1.8	0.0		
	Invasive[2]	3.3	1.8	0.0		
DG-2 Transect 2 (20 m)	Perennial	99.3	98.3	75.0		
	Annual	0.0	0.0	1.6		

Table 3. Percent Native/Nonnative Cover Mitigation Areas

Transect and Transect Length	Vegetation Type	Year (%)				
		1	2	3	4[1]	5[1]
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	0.7	0.0	0.8		
DG-2 Transect 3 (40 m)	Perennial	5.6	58.8	92.5		
	Annual	11.9	18.8	4.3		
	Nonnative	1.2	0.0	0.0		
	Invasive[2]	6.2	0.0	3.1		
DG-2 New Channels Transect 1 (30 m)	Perennial	24.3	89.6	80.4		
	Annual	7.1	5.4	11.2		
	Nonnative	0.0	0.8	0.0		
	Invasive[2]	2.9	0.8	0.5		
DG-2 New Channels Transect 2 (25 m)	Perennial	15.3	97.2	98.3		
	Annual	12.0	2.0	1.0		
	Nonnative	2.7	0.0	0.0		
	Invasive[2]	0.0	0.0	0.6		
DG-2 WOUS Transect 1 (25 m)	Perennial	17.0	62.1	89.3		
	Annual	41.0	22.9	9.0		
	Nonnative	0.0	3.6	0.0		
	Invasive[2]	8.0	0.7	1.6		
DG-2 WOUS Transect 2 (25 m)	Perennial	11.0	87.0	100		
	Annual	9.0	7.0	0		
	Nonnative	0.0	0.0	0		
	Invasive[2]	4.0	4.0	0		
DG-W-2 (Mining Pit) Transect 1 (70 m)	Perennial	49.7	68.1	42.7		
	Annual	0.0	10.0	30.0		
	Nonnative	0.0	0.6	1.7		
	Invasive[2]	0.9	0.6	2.5		
DG-W-2 (Mining Pit) Transect 2 (75 m)	Perennial	29.3	63.3	66.0		
	Annual	4.0	4.7	22.0		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	0.0	0.0	0.3		
DG-W-2 Outlet Transect 1 (20 m)	Perennial	42.0	65.8	36.6		
	Annual	0.0	24.2	40.0		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	0.0	0.0	0.8		
DG-W-2 Outlet Transect 2 (20 m)	Perennial	23.0	63.8	63.7		
	Annual	0.0	11.3	26.2		
	Nonnative	0.0	2.5	0.0		
	Invasive[2]	1.0	2.5	0.0		

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year (%)**				
		1	**2**	**3**	**4[1]**	**5[1]**
LBVI Overall[3]	**Perennial**	**24.9**	**69.6**	**75.2**		
	Annual	**6.8**	**9.9**	**14.4**		
	Nonnative	**0.8**	**0.6**	**0.4**		
	Invasive[2]	**1.9**	**0.8**	**0.9**		

[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.

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. 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 percent. 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[1]	**2[1]**	**3[1]**	**4**	**5**
Riparian						
Riparian Scrub Reference	Perennial	92.0	92.0	92.0		
	Annual	2.5	2.5	2.5		
	Nonnative	3.5	3.5	3.5		
Riparian Woodland Reference	Perennial	58.8	58.8	58.8		
	Annual	0.5	0.5	0.5		
	Nonnative	34.4	34.4	34.4		
Riparian Overall	**Perennial**	**75.4**	**75.4**	**75.4**		
	Annual	**1.5**	**1.5**	**1.5**		
	Nonnative	**19.0**	**19.0**	**19.0**		
LBVI						
LBVI Reference 1	Perennial	96.5	96.5	96.5		
	Annual	1.5	1.5	1.5		
	Nonnative	1.0	1.0	1.0		
LBVI Reference 2	Perennial	91.3	91.3	91.3		
	Annual	2.3	2.3	2.3		
	Nonnative	1.5	1.5	1.5		
LBVI Overall	**Perennial**	**93.9**	**93.9**	**93.9**		

Table 4. Percent Native/Nonnative Cover Reference Sites						
Transect	**Vegetation Type**	**Year (%)**				
		1[1]	**2[1]**	**3[1]**	**4**	**5**
	Annual	**1.9**	**1.9**	**1.9**		
	Nonnative	**1.3**	**1.3**	**1.3**		

[1]Data collected during Year 1 for Phase 1.

5.3.2.4 Native Species Richness – Mitigation Areas

Native species richness was determined for each mitigation area during the Year 3 botanical monitoring event and included all germinating native plants and natural recruits. Native species richness was relatively high for the mitigation areas during Year 3 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 determined to be 53 for the Phase 2 mitigation areas.

Table 5. Native Species Richness Mitigation Areas					
Mitigation Area	**Year**				
	1	**2**	**3**	**4[1]**	**5[1]**
LBVI					
DG-W-1 (Johnson Field)	27	31	32		
DG-2	20	19	33		
DG-2 New Channels	21	24	22		
DG-2 WOUS	20	20	24		
DG-W-2 (Mining Pit)	20	24	26		
DG-W-2 Outlet	11	14	19		
DG-4 Sheet Flow/DG-SF-1	14	14	14		
LBVI Overall[2]	41	40	53		

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

5.3.2.5 Native Species Richness – Reference Sites

For the purposes of this report, the Phase 1 Year 1 data for the reference sites will be used. Table 6 shows the native species richness for the reference sites. Native species richness was found to be 20 for the Riparian reference site and 22 in the LBVI reference sites.

Table 6. Native Species Richness Reference Sites					
Reference Site	**Year**				
	1[1]	**2[1]**	**3[1]**	**4**	**5**
Riparian	20	20	20		

Table 6. Native Species Richness Reference Sites					
Reference Site	Year				
	1[1]	2[1]	3[1]	4	5
LBVI	22	22	22		

[1]Data collected during Year 1 for Phase 1.

5.3.2.6 Groundwater Data

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

Table 7. City of Pasadena Groundwater Monitoring Results						
Well Name	Reference Elevation (ft)	Static Water Level (feet) by Year				
		1	2	3	4[1]	5[1]
Arroyo	1,092.71	182	187	138		
52	1,076.76	165	171	122		
Ventura	1,069.82	163	165	113		

[1]Years 4 through 5 to be determined.

Table 8. JPL Groundwater Monitoring Results				
Well Name	Datum (feet above msl)	Year 3		
		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

Table 8. JPL Groundwater Monitoring Results

Well Name	Datum (feet above msl)	Year 3		
		October 2022	January 2023	June 2023
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
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

Note: msl = mean sea level

6.0 ACHIEVEMENT OF PERFORMANCE STANDARDS

The performance standards for the Phase 2 mitigation areas, as listed in the approved HRP, are provided in Table 9 for reference. Based on the results of the botanical monitoring, all of the Year 3 performance standards for the Phase 2 mitigation areas have been met. The performance standard for structural patch richness will be assessed during Year 4 using the California Rapid Assessment Method (CRAM) following the completion of the Phase 3 implementation. There is no Year 3 standard for wildlife use monitoring; however, general and focused wildlife surveys were conducted throughout Year 3.

Table 9. Performance Standards for Onsite Mitigation Areas

Category	Performance Standard	Description (Year 3)	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.	YES
Flora-1	Survivorship	Tree, shrub, and herb strata container plants will have the following survival requirements: ▪ Year 3: 80% Survival	YES[1]

Table 9. Performance Standards for Onsite Mitigation Areas			
Category	**Performance Standard**	**Description (Year 3)**	**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.	YES
Flora-2	Native Plant Cover	Combined tree, shrub, and herb strata container plants will have the following native plant cover requirements: LBVI Habitat ▪ Year 3: 40%	LBVI Habitat: YES
Flora-3	Nonnative Plant Cover	Combined tree, shrub, and herb strata container plants will have the following nonnative plant cover requirements: LBVI Habitat: ▪ Year 3: Not more than 5%	LBVI Habitat: 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

[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 moderate to significant erosion was observed during Year 3 in the western-most portion of the DG-2 mitigation area following erosion to the side slopes on the east side of the reservoir, repairs to the side slopes below DG-2 were conducted in the fall of 2023 and these areas will be replanted and/or reseeded during the fall/winter of 2023/2024. The formation of substantial erosional rills or gullies was not observed in the Phase 2 mitigation areas during Year 3.

6.2 Container Plant Survivorship

Container plant survival is required to be a minimum of 80 percent at the end of Year 3. Out of the 11,440 container plants installed during Phase 2 of restoration activities, approximately 11,238 container plants survived during Year 3. This is a 98.2 percent survivorship, which is approximately 13.2 percent higher than the performance standard. In addition, supplemental planting in select locations is anticipated to occur during the fall/winter of 2023/2024.

6.3 Native Plant Cover

At the end of Year 3, native plant cover is required to be at least 40 percent for LBVI habitat mitigation areas (i.e., all of Phase 2 mitigation areas). The Year 3 performance standard for native plant cover was achieved for the Phase 2 mitigation areas with 89.6 percent native cover overall.

6.4 Nonnative Plant Cover

Nonnative plant cover during Year 3 is required to be less than 5 percent in LBVI habitat mitigation areas. The overall nonnative and invasive cover for the Phase 2 areas during Year 3 was approximately 1.3 percent, which is approximately 3.7 percent below the performance standard of less than 5 percent. Therefore, this performance standard was met for Year 3. Ongoing weed abatement efforts in the mitigation areas continues to decrease the level of nonnative and invasive plant species; however, 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 3 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 Phase 2 mitigation areas.

7.0 DISCUSSION

The habitat mitigation areas performed well during Year 3. Minor issues with the irrigation system, vandalism, pests, erosion, and herbivory were observed during the Year 3 monitoring efforts; however, these issues should not impede the success of the mitigation areas. Maintenance activities including weed abatement, irrigation repair, and basin repair were conducted on a regular basis during Year 3. In addition, continued weed abatement efforts will continue to reduce competition from nonnative and invasive weeds.

The Phase 2 mitigation areas have met all of the Year 3 performance standards including sediment/topography stability, container plant survivorship, native plant cover, and nonnative plant cover. There is no Year 3 performance standard for native plant species richness; however, the Phase 2 mitigation areas have already met the Year 5 performance standard. The performance standard for structural patch richness will be assessed during Year 4 using the CRAM following the completion of the Phase 3 implementation. There is no Year 3 standard for wildlife use monitoring; however, general and focused wildlife surveys were conducted throughout Year 3.

8.0 REFERENCES

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LIST OF APPENDICES

APPENDIX A

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

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 3 Plant Species Compendium

Devil's Gate Reservoir Restoration Project

LACPW/ECORP

Appendix B. Phase 2 2023 PLANT SPECIES COMPENDIUM

Scientific Name	Common Name	Mitigation Areas	Reference Sites
VASCULAR PLANTS			
PTERIDOPHYTES			
EQUISETACEAE	**HORSETAIL FAMILY**		
Equisetum ssp.	horsetail		X
ANGIOSPERMS (EUDICOTS)			
ADOXACEAE	**MUSKROOT FAMILY**		
Sambucus mexicana	blue elderberry	X	X
AMARANTHACEAE	**AMARANTH FAMILY**		
*Amaranthus albus**	pigweed amaranth	X	
ANACARDIACEA	**CASHEW AND SUMAC FAMILY**		
Toxicodendron diversilobum	poison oak	X	X
APIACEAE	**CARROT FAMILY**		
*Conium maculatum**	poison hemlock	X	
ASTERACEAE	**SUNFLOWER FAMILY**		
Achillea millefolium	common yarrow	X	
Ambrosia acanthicarpa	annual bursage	X	
Ambrosia psilostachya	western ragweed	X	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
*Centaurea melitensis**	tocalote	X	X
Corethrogyne filaginifolia	common sand aster		X
Erigeron canadensis	Canada horseweed	X	X
Eriophyllum confertiflorum	golden yarrow	X	X
Heterotheca grandiflora	telegraph weed	X	X
Isocoma menziesii	Menzies' goldenbush		X
*Lactuca serriola**	prickly lettuce		X
Lepidospartum squamatum	scalebroom		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
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**	
Rorippa curvisiliqua	curvepod yellow cress	**X**	
CARYOPHYLLACEAE	**PINK FAMILY**		
*Polycarpon tetraphyllum**	four leaved all seed	**X**	
*Spergularia rubra**	purple sand spurry	**X**	
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		
*Chenopodium album**	lamb's quarters	**X**	
CONVOLVULACEAE	**MORNING GLORY FAMILY**		
Cuscuta californica	dodder	**X**	
CUCURBITACEAE	**GROUND FAMILY**		
Marah macrocarpus	Southern wild cucumber	**X**	
EUPHORBIACEAE	**SPURGE FAMILY**		
Euphorbia albomarginata	rattlesnake sandmat	**X**	
*Euphorbia peplus**	petty spurge	**X**	
*Ricinus communis**	castor bean		**X**
FABACEAE	**LEGUME FAMILY**		
Acmispon americanus	Spanish lotus	**X**	
Acmispon glaber	deerweed	**X**	**X**
*Spartium junceum**	Spanish broom		**X**
FAGACEAE	**OAK FAMILY**		
Quercus agrifolia	coast live oak	**X**	**X**
GERANIACEAE	**GERANIUM FAMILY**		
*Erodium cicutarium**	red-stemmed filaree	**X**	
*Geranium molle**	crane's bill geranium		**X**
HYDROPHYLLACEAE	**WATERLEAF FAMILY**		
Phacelia cicutaria	caterpillar phacelia	**X**	**X**
Phacelia distans	common phacelia	**X**	
Phacelia parryi	Parry's phacelia	**X**	
LAMIACEAE	**MINT FAMILY**		
*Marrubium vulgare**	white horehound	**X**	**X**
Salvia mellifera	black sage		**X**
MORACEAE	**FIG FAMILY**		
*Ficus carica**	common fig		**X**
MYRSINACEAE	**SCARLET PIMPERNEL**		
*Lysimachia arvensis**	scarlet pimpernel	**X**	
OLEACEAE	**OLIVE FAMILY**		
*Fraxinus uhdei**	Shamel ash		**X**
ORNAGRACEAE	**EVENING PRIMROSE FAMILY**		
Camissoniopsis micrantha	Spencer primrose	**X**	
Epilobium canum	California fuchsia	**X**	
Oenothera elata	evening primrose	**X**	**X**
PAPAVERACEAE	**POPPY FAMILY**		

Eschscholzia californica	California poppy	**X**	
PHRYMACEAE	**LOPSEED FAMILY**		
Diplacus aurantiacus	orange bush monkeyflower	**X**	
Erythranthe cardinalis	cardinal monkey flower	**X**	
Erythranthe floribunda	many flowered monkeyflower	**X**	
Erythranthe guttata	seep monkey flower	**X**	
PLANTAGINACEAE	**PLANTAIN FAMILY**		
*Plantago arenaria**	Indian plantain	**X**	
*Veronica anagallis-aquatica**	water speedwell	**X**	
PLATANACEAE	**PLANE-TREE FAMILY**		
Platanus racemosa	western sycamore		**X**
POLEMONIACEAE	**PHLOX FAMILY**		
Allophyllum sp.	gilia	**X**	
Navarretia sp.	navarretia	**X**	
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Eriogonum fasciculatum	California buckwheat	**X**	**X**
Eriogonum sp.	buckwheat	**X**	
Persicaria lapathifolia	common knotweed	**X**	
*Rumex crispus**	curly dock	**X**	
RHAMNACEAE	**BUCKTHORN FAMILY**		
Ceanothus oliganthus	hairy ceanothus	**X**	
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**
SCROPHULARIACEAE	**FIGWORT FAMILY**		
*Verbascum thapsus**	common mullein	**X**	
SOLANACEAE	**NIGHTSHADE FAMILY**		
Datura wrightii	jimson weed	**X**	**X**
Solanum douglasii	Douglas' nightshade	**X**	
ULMACEAE	**ELM FAMILY**		
*Elm ssp.**	elm		**X**
URTICACEAE	**NETTLE FAMILY**		
Urtica dioica	stinging nettle	**X**	

Urtica urens	annual stinging nettle		
VITACEAE	**GRAPE FAMILY**		
Vitis californica	California grape		**X**
ANGIOSPERMS (MONOCOTS)			
AGAVACEAE	**CENTURY PLANT FAMILY**		
Hesperoyucca whipplei	chaparral yucca		**X**
CYPERACEAE	**SEDGE FAMILY**		
Cyperus eragrostis	tall flatsedge	**X**	
POACEAE	**GRASS FAMILY**		
*Arundo donax**	giant reed		**X**
*Avena fatua**	wild oat		**X**
Bromus sitchensis var. *carinatus*	California brome grass	**X**	
*Bromus madritensis ssp. rubens**	red brome		**X**
Polypogon monspeliensis *	rabbitsfoot grass	**X**	
*Schismus barbatus**	Mediterranean grass		**X**
*Stipa miliacea**	smilo grass		**X**
TYPHACEAE	**CATTAIL FAMILY**		
Typha ssp.	cattail		**X**

* - Nonnative species.

APPENDIX C

Year 3 Photo Documentation

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

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

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

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

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

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

Photo 7: Mitigation Area DG-2 Transect #1 Start

Photo 8: Mitigation Area DG-2 Transect #1 End

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

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

Photo 11: Mitigation Area DG-2 Transect #3 Start

Photo 12: Mitigation Area DG-2 Transect #3 End

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

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

Photo 15: Mitigation Area DG-2 New Channels Transect #2 Start

Photo 16: Mitigation Area DG-2 New Channels Transect #2 End

Photo 17: Mitigation Area DG-2 WOUS Transect #1 Start

Photo 18: Mitigation Area DG-2 WOUS Transect #1 End

Photo 19: Mitigation Area DG-2 WOUS Transect #2 Start

Photo 20: Mitigation Area DG-2 WOUS Transect #2 End

Photo 21: Mitigation Area DG-W-2 Transect #1 Start

Photo 22: Mitigation Area DG-W-2 Transect #1 End

Photo 23: Mitigation Area DG-W-2 Transect #2 Start

Photo 24: Mitigation Area DG-W-2 Transect #2 End

Photo 25: Mitigation Area DG-W-2 Outlet Transect #1 Start

Photo 26: Mitigation Area DG-W-2 Outlet Transect #1 End

Photo 27: Mitigation Area DG-W-2 Outlet Transect #2 Start

Photo 28: Mitigation Area DG-W-2 Outlet Transect #2 End

Photo 29: Mitigation Area DG-W-1 Photo Point #1, Facing NW

Photo 30: Mitigation Area DG-W-1 Photo Point #2, Facing SW

Photo 31: Mitigation Area DG- W-1 Photo Point #3, Facing SE

Photo 32: Mitigation Area DG-2 Photo Point #1, Facing NE

Photo 33: Mitigation Area DG-2 Photo Point #2, Facing NE

Photo 34: Mitigation Area DG-2 Photo Point #3, Facing S

Photo 35: Mitigation Area DG-2 Photo Point #4, Facing W

Photo 36: Mitigation Area DG-2 Photo Point #5, Facing N

Photo 37: Mitigation Area DG-2 Photo Point #6, Facing N

Photo 38: Mitigation Area DG-2 New Channels Photo Point #1, Facing E

Photo 39: Mitigation Area DG-2 New Channels Photo Point #1, Facing N

Photo 40: Mitigation Area DG-2 New Channels Photo Point #1, Facing S

Photo 41: Mitigation Area DG-2 New Channels Photo Point #2, Facing E

Photo 42: Mitigation Area DG-2 New Channels Photo Point #3, Facing S

Photo 43: Mitigation Area DG-2 New Channels Photo Point #4, Facing SE

Photo 44: Mitigation Area DG-2 WOUS Photo Point #1, Facing N

Photo 45: Mitigation Area DG-2 WOUS Photo Point #2, Facing NE

Photo 46: Mitigation Area DG-W-2 Photo Point #1, Facing NE

Photo 47: Mitigation Area DG-W-2 Photo Point #1, Facing SE

Photo 48: Mitigation Area DG-W-2 Photo Point #2, Facing N

Photo 49: Mitigation Area DG-W-2 Photo Point #3, Facing W

Photo 50: Mitigation Area DG-W-2 Photo Point #4, Facing SW

Photo 51: Mitigation Area DG-W-2 Outlet Photo Point #1, Facing N

Photo 52: Mitigation Area DG-W-2 Outlet Photo Point #1, Facing S

Photo 53: Mitigation Area DG-W-2 Outlet Photo Point #2, Facing NE

Photo 54: Mitigation Area DG-W-2 Outlet Photo Point #2, Facing SW

Photo 55: Mitigation Area DG-4 Sheet flow Photo Point #1, Facing S

Photo 56: Riparian Scrub Reference Transect Start

Photo 57: Riparian Scrub Reference Transect End

Photo 58: Riparian Woodland Reference Transect Start

Photo 59: Riparian Woodland Reference Transect End

Photo 60: LBVI Reference Transect #1 Start

Photo 61: LBVI Reference Transect #1 End

Photo 62: LBVI Reference Transect #2 Start

Photo 63: LBVI Reference Transect #2 End

Photo 64: Overview LBVI Reference Site

Photo 65: Overview LBVI Reference Site

Photo 66: Overview LBVI Reference Site

Photo 67: Overview LBVI Reference Site

Photo 68: Overview LBVI Reference Site

Photo 69: Overview LBVI Reference Site