

REPORT AND NOTIFICATION COVER SHEET

Project: Devil's Gate Reservoir Sediment Removal and Management Project

Permittee: Los Angeles County Flood Control District

Reg. Meas. ID: 401532 **Place ID:** 815904 **File No:** 15-053

Report Type Submitted

Part A – Project Reporting

Report Type ☒ **Annual Report**

Part B - Project Status Notifications

Report Type ☐ **Commencement of Construction**

Report Type ☐ **Request for Notice of Completion of Discharges Letter**

Report Type ☐ **Request for Notice of Project Complete Letter**

Part C - Conditional Notifications and Reports

Report Type ☐ **Accidental Discharge of Hazardous Material Report**

Report Type ☐ **Violation of Compliance with Water Quality Standards Report**

Report Type ☐ **In-Water Work/Diversions Water Quality Monitoring Report**

Report Type ☐ **Modifications to Project Report**

Report Type ☐ **Transfer of Property Ownership Report**

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Sterling Klippel

Principal Engineer

Print Name ¹

Affiliation and Job Title

Signature



8/24/2022
Date

¹STATEMENT OF AUTHORIZATION (include if authorization has changed since application was submitted)

I hereby authorize Wayne Lee to act in my behalf as my representative in the submittal of this report, and to furnish upon request, supplemental information in support of this submittal.



Permittee's Signature

8/24/2022

Date

*This Report and Notification Cover Sheet must be signed by the Permittee or a duly authorized representative and included with all written submittals.



MARK PESTRELLA, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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ADDRESS ALL CORRESPONDENCE TO:
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ALHAMBRA, CALIFORNIA 91802-1460

September 20, 2018

IN REPLY PLEASE

REFER TO FILE: **SWQ-5**

Ms. Deborah Smith
Executive Officer
California Regional Water Quality
Control Board – Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Attention Ms. LB Nye

Dear Ms. Smith:

DESIGNATION OF DULY AUTHORIZED REPRESENTATIVES FOR THE CLEAN WATER ACT AND PORTER-COLOGNE ACT REPORTING

In order to meet federal and State requirements, all permit applications, reports, and other requested information must be signed by a Principal Executive Officer, ranking elected official, or other duly authorized employee. I am the designated signature authority for the County of Los Angeles Department of Public Works and hereby designate those in the position of Assistant Deputy Director and Principal Engineer as having responsibility for the overall operation of the regulated activity and to sign and certify all Clean Water Act- and Porter-Cologne Act-related documents.

If you have any questions, please contact Mr. Paul Alva at (626) 458-4325 or palva@dpw.lacounty.gov.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Mark Pestrella", is written over a horizontal line.

MARK PESTRELLA
Director of Public Works

PA:rc

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**Annual Report
for the
Devil's Gate Reservoir Restoration Project**

Los Angeles County

Prepared For:

California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Prepared By:

Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, CA 91803

July 2022

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(Phase 1) Onsite Habitat Mitigation

Attachment H - Year 1 Annual Monitoring Report for the Devil's Gate Reservoir Restoration Project
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The Los Angeles County Public Works prepared this annual report to comply with the California Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certification (WQC), File No. 15-053. This report describes the activities conducted for the Devil's Gate Reservoir Sediment Removal and Management Project and provides the information required by Part A - Project Reporting in the Clean Water Act Section 401 Water Quality Certification and Order (4WQC401115053). Subsequent to the issuance of the WQC for the Project, the name of the project was changed to the Devil's Gate Reservoir Restoration Project (Project).

The first annual report for the Project was submitted to the RWQCB in July of 2020 and it covered the activities from the start of the Project in November 2018 through the first season of sediment hauling, which ended in November of 2019, and through the first half of the second season of sediment hauling in 2020. This second annual report covers the period from mid-2020 through all of 2021 and it also summarizes some of the information from the first annual report.

1.0 CONSTRUCTION SUMMARY

The initial sediment removal phase of the Devil's Gate Reservoir Restoration Project included the planned removal of 1.7 million cubic yards (mcy) of post-fire debris over a three- to four-year period. The purpose of the Project is to remove sediment from behind Devil's Gate Dam that could potentially threaten the dam outlet works and to comply with the standards as set for by the State Water Resources Division of Safety of Dams (DSOD). As originally proposed to the Los Angeles Water Board, the Project would have impacted a total project area of approximately 120 acres. Through the course of the CEQA alternatives analysis, the total impacted area was reduced to approximately 71 acres in the environmentally superior alternative. Subsequent to the CEQA alternatives analysis, the total impacted area was reduced to approximately 65 acres. Within the 65 acres, the total area of jurisdictional waters impacted by the project was 34.15 acres. A subsequent revision to the Project occurred as a result of the legal settlement and the total impacted area was reduced to approximately 53 acres and within the 53 acres, the total area of jurisdictional waters impacted by the Project was 30.75 acres. The impacts to jurisdictional waters include 13.14 acres of temporary impacts and 17.61 acres of permanent impacts. The changes to the Project resulting from the legal settlement will be submitted as an amendment to the 401 Water Quality Certification for the Project.

During the sediment removal phase, the Initial Sediment Removal Area (ISRA) was cleared of vegetation, and sediment was removed to establish the Permanent Maintenance Area, which includes the Routine Annual Maintenance Area (RAMA) and the associated side slopes. The initial sediment removal phase of the Project was started in November of 2018 and it was completed in August of 2021. The annual maintenance phase of the Project, which includes vegetation and sediment removal within the RAMA, is scheduled to begin in 2022 and it will continue over the life of the 401 WQC. During the annual maintenance phase, trucks hauling sediment will access the reservoir from an improved maintenance road east of Devil's Gate Dam and they will exit the reservoir via an upgraded access road on the western edge of Devil's Gate Dam.

Short summaries of the construction activities conducted during the three-year initial sediment removal phase of the Project are included in the following sections.

1.1 Initial Sediment Removal Season One – November 2018 to December 2019

- Removal of 51 acres of vegetation started on November 27, 2018 and was completed on January 7, 2019.
- Access road construction started on November 27 and was completed by April 8, 2019.
- Sediment hauling started on May 21 and was completed on November 15, 2019. Approximately 447,000 cy of sediment was removed.

1.2 Initial Sediment Removal Season Two – January 2020 to December 2020

- Traffic signal improvements on haul routes, which were implemented to enhance safety and improve traffic flow around the project site, started January 27 and were completed by April 15, 2020
- Road improvements on haul routes, to protect and preserve the local roads used by haul trucks, started on April 14 and were completed by April 17, 2020.
- Second season of sediment hauling started on June 4, 2020 and was completed on November 20, 2020. Approximately 532,000 cy of sediment was removed.

1.3 Initial Sediment Removal Season Three – January 2021 to December 2021

- Third season of sediment hauling started on May 17, 2021 and was completed on August 10, 2021. Approximately 300,000 cy of sediment was removed.
- Approximately 1.3 mcy of sediment was removed over the course of three seasons.
- A surface water diversion system was installed to move water from the face of the dam and from the Altadena Drain to a temporary basin, which started July 28, 2021 and was completed on August 10, 2021.

During all activities conducted during each season of sediment removal, Public Works' Standard Specifications and Construction Site Best Management Practices were implemented.

The sediment removal at Devil's Gate was completed on August 10, 2021, one year ahead of schedule. The early completion of the project was due to the development of efficient operations in collaboration with the community. This allowed maximum productivity while minimizing impacts. In addition, good weather was a contributing factor.

Attachment A includes pre-construction, during construction, and post-construction photographs for the initial sediment removal phase of the Project. Beginning in 2022, the Project will move into the annual maintenance phase. The map in Attachment B shows the timeframes of the progress of the sediment removal phase of the Project.

2.0 MITIGATION FOR TEMPORARY IMPACTS STATUS

Implementation of the initial vegetation clearing in the ISRA and within the clearing and grubbing limits began on November 27, 2018. The temporary impact areas include mitigation areas DG-3A, DG-7, and DG-8 plus the additional impacts that occurred around the perimeter of the ISRA (1.12 acres), at

Altadena Drain (0.95 acre), and outside of the clearing and grubbing limits at Altadena Drain (0.12 acre). Mitigation area DG-9 (14.09 acres), which was originally included as a temporary impact area, was removed from the Project as a result of the legal settlement. In addition, the legal settlement required that some of the permanent impact areas be converted to temporary impact areas and episodic maintenance areas (EMA). The revised temporary impact areas include DG-3B (0.43 acre), DG-EMA West (2.00 acres), DG-EMA East (2.46 acres), and Flint Wash EMA (1.32 acres) and the details associated with these areas will be described in the permit amendment. The side slopes (7.87 acres) are also considered a temporary impact area because they will be seeded with native plant species and only impacted if large deposits of sediment cover portions of the side slopes. In this case, the sediment will be removed from the side slope and the native vegetation will be allowed to regrow. The figure in Attachment C shows the mitigation area map and identifies the temporary impact areas.

Implementation of the restoration for the Project is scheduled to occur in four phases and these stem from the implementation schedule for the initial sediment removal phase of the Project. The map in Attachment D shows the restoration phasing map, which identifies four phases of restoration. Phase 1 of the restoration was implemented in November of 2018 and was completed in February of 2020. The only temporary impact area included in Phase 1 was mitigation area DG-3A. The restoration of temporary impact areas DG-3B, DG-7, DG-8, Flint Wash EMA, side slopes, and the perimeter of the ISRA will be initiated in 2022 since the sediment removal phase of the Project has been completed. The schedule for the restoration of these areas will include portions of 2022 and the early part of 2023. Temporary impact areas DG-EMA West and DG-EMA EAST will be allowed to naturally revegetate with native plant species.

3.0 COMPENSATORY MITIGATION FOR PERMANENT IMPACTS STATUS

Part A. Permittee Responsible

Habitat restoration is being implemented to comply with the compensatory mitigation requirements in Sections X and XIV, items H and I in the Clean Water Act Section 401 Water Quality Certification and Order for the Devil's Gate Reservoir Sediment Removal and Management Project (4WQC40115053) issued by the Los Angeles Regional Water Quality Control Board (August 15, 2018). The 401 WQC requires the Permittee to provide 55.94 acres of onsite mitigation within Devil's Gate Reservoir and 32.2 acres of offsite mitigation (see Section 3.0, Part B of this annual report). The subsequent redesign of the Project required by the legal settlement will result in less impacts to jurisdictional waters and potentially may result in a modification of the compensatory mitigation required by the 401 WQC. The County will be submitting an amendment to the 401 WQC to address the most recent Project changes.

Implementation of the restoration for the Project is scheduled to occur in four phases and the timing of these correspond to the implementation schedule for the initial sediment removal phase of the Project. Implementation of compensatory mitigation for Phase 1 of the restoration was conducted from November 2018 to February 2020 in mitigation areas DG-1, DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5. During Phase 2 of the restoration, which was conducted between December 2020 and May 2021, compensatory mitigation was implemented in mitigation areas DG-W-1 (Johnson Field), DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-2, DG-2 New Channels, DG-2 WOUS, DG-4A (portions), DG-4 Sheet Flow, DG-4 WOUS (portions), DG-4 Drainage, DG-SF-1, and DG-SF-2. Implementation of habitat mitigation is being conducted according to the Final Habitat Restoration Plan (HRP) for the Project,

which addresses the impact areas associated with the Project and the on-site compensatory mitigation areas at the Project site. For reference, the Phase 1 Mitigation Site A-Built Report is included in Attachment E and the Phase 2 Mitigation Site As-Built Report is included in Attachment F. The Year 2 Annual Monitoring Report for the Devil's Gate Reservoir Restoration Project (Phase 1) Onsite Habitat Mitigation is included in Attachment G and the Year 1 Annual Monitoring Report for the Devil's Gate Reservoir Restoration Project (Phase 2) Onsite Habitat Mitigation is included in Attachment H.

Phase 3 of the restoration implementation will include portions of DG-4A, DG-4 WOUS, Flint Wash EMA, and side slopes. Phase 4 will include a redesign of the Altadena Drain outlet, which will result in some changes to the restoration of mitigation areas DG-3A and DG-3B. Implementation of Phase 3 was initiated in 2022 and will be completed in early 2023. Implementation of Phase 4 is scheduled for 2023. Separate as-built reports will be prepared for Phases 3 and 4.

Part B. Mitigation Bank or In-Lieu Fee

A purchase agreement was signed with Land Veritas Corp, the bank Sponsor of Petersen Ranch Mitigation Bank. Proof of purchase of credit types and quantities is included in Attachment I – Agreement for Purchase and Sale of Mitigation Values.

LACFCD satisfied the off-site mitigation requirement by engaging Land Veritas Corp (Bank Sponsor) to implement the Project in a 31.55-acre portion of the Petersen Ranch Mitigation Bank (Bank). The Bank is located in northern Los Angeles County near Leona Valley, California. The Project took place at and surrounding a large sag pond in Area D (Mitigation Site) of the Bank. Mitigation actions focused on enhancing existing seasonal wetlands that support mulefat (*Baccharis salicifolia*) and willow (*Salix* sp.) populations, creating new mulefat/willow dominated habitats, and preserving alluvial scrub areas around a large sag pond. The created, restored, and preserved communities are of a similar type and provide similar or greater functions to those affected at the impact site in Devil's Gate Reservoir.

Habitat restoration and enhancement activities were completed in April 2019 and included the planting of over 10,000 willow and mulefat live stakes and installation of cattle exclusion fencing. The as-built report letter for the off-site mitigation project is included in Attachment J. The mitigation site is in Year 2 of the management and monitoring period, which will continue until the final (Year 5) performance standards have been met.

For reference, the 2020 Annual Monitoring Report (Year 1) for the Devil's Gate Off-Site Mitigation Project is included in Attachment K and the 2021 Annual Monitoring Report (Year 2) is included in Attachment L.

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Attachment B - Project Progress Map

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ATTACHMENT A

Pre-, During, and Post Construction Photographs



12/11/18 – Vegetation removal inside reservoir and ESA fence installation (from top of dam).



12/17/18 – Vegetation removal inside reservoir after only 7 working days.



1/9/19 – View of the reservoir



3/26/19 – Imported fill is building up east access road for direct access off Oak Grove Drive.



4/10/19 – Base material compacted on east access road.



4/3/19 – Pouring concrete pavement for west access road driveway.



4/12/19 – Pouring concrete for east access road



4/22/19 – Overall project site



6/27/19 – Loader patting down tops of load to ensure freeboard compliance.



7/15/19 –Loading operations close to the dam face



9/19/19 – Two tire washes in operation at Devil's Gate Reservoir



6/4/20 – Overall view of site operations on day one of Season 2 hauling



6/5/20 – Watering operation at excavation area while loading sediment haul trucks



Devil's Gate Reservoir – Upstream Portion Post-Project View Looking South



Devil's Gate Reservoir – Middle Portion Post-Project View Looking South



Devil's Gate Reservoir – Middle Portion Post-Project View Looking North



Devil's Gate Reservoir – Lower Portion Post-Project View Looking North



Devil's Gate Reservoir – Lower Portion Post-Project View Looking East



Devil's Gate Reservoir – Lower Portion Post-Project View Looking Southeast

ATTACHMENT B

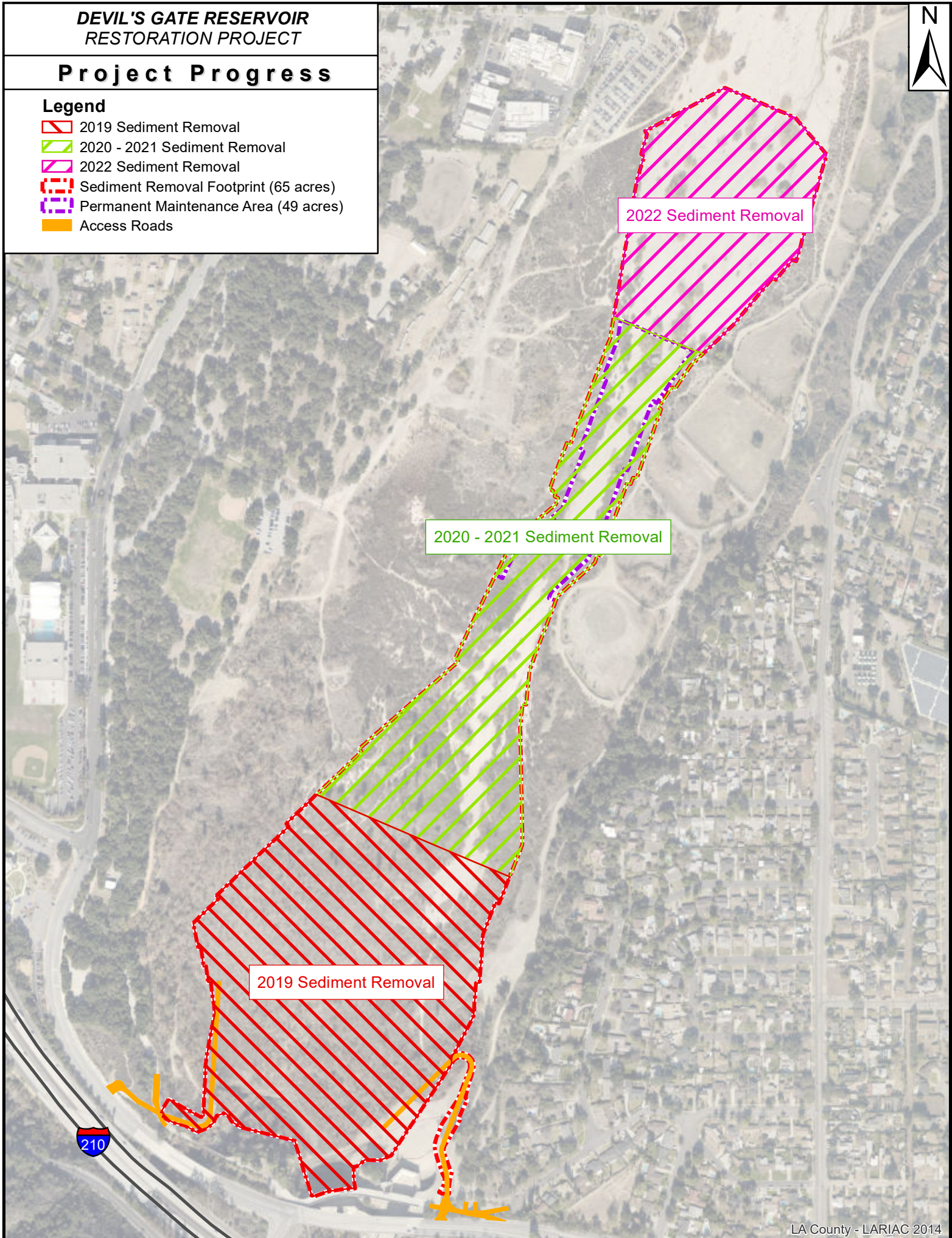
Project Progress Map

**DEVIL'S GATE RESERVOIR
RESTORATION PROJECT**

Project Progress

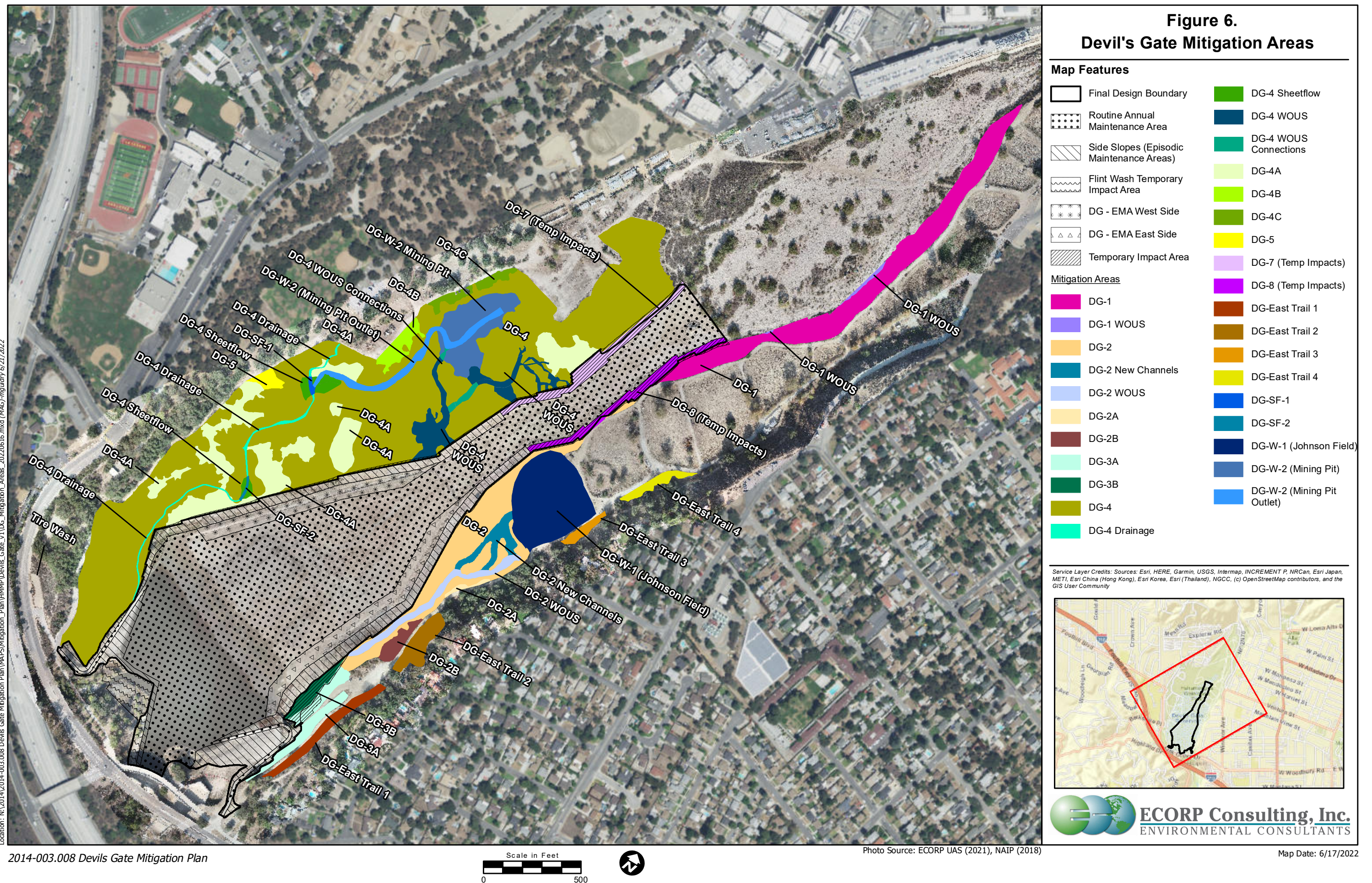
Legend

-  2019 Sediment Removal
-  2020 - 2021 Sediment Removal
-  2022 Sediment Removal
-  Sediment Removal Footprint (65 acres)
-  Permanent Maintenance Area (49 acres)
-  Access Roads



ATTACHMENT C

Devil's Gate Mitigation Areas/Temporary Impact Areas Map



ATTACHMENT D

Devil's Gate Mitigation Area Restoration Phasing Map

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\WPS\restoration\analysis\2020-09-15 Restoration_Grading\DC_Restoration_Phasing_2020617.mxd (MAG-ngudry 6/21/2022)



Figure 12.
Devil's Gate Sediment Removal Project
Restoration Phasing

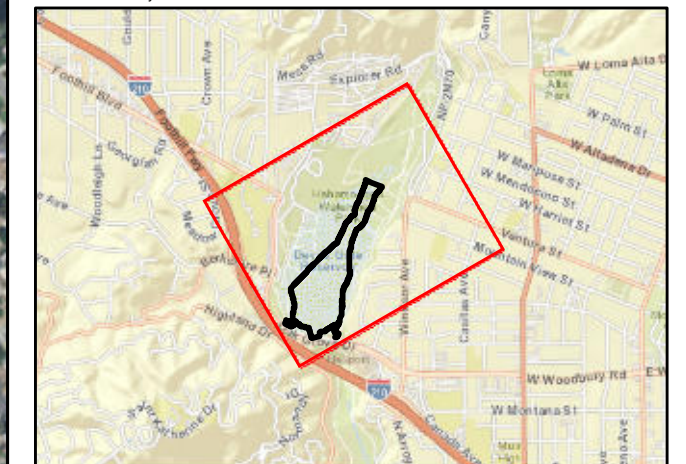
Map Features

Final Design Boundary

Restoration Phasing

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

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



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS



ATTACHMENT E

Phase 1 Mitigation Site As-Built Report

Phase 1 Mitigation Site As-Built Report

Devil's Gate Reservoir Restoration Project

City of Pasadena
Los Angeles County, California

Prepared for:

Los Angeles County Public Works
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Contact: Mr. Mark Gim

Prepared by:

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Santa Ana, California 92705
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August 17, 2020



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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- Appendix B – Photo Documentation

LIST OF ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
HRP	Habitat Restoration Plan
LACPW	Los Angeles County Public Works
LSAA	Lake and Streambed Alteration Agreement
N/A	Not Applicable
PLS	Pure Live Seed
PMA	Permanent Maintenance Area
Project	Devil's Gate Reservoir Restoration Project
RE	Restoration Ecologist

1.0 INTRODUCTION

The Los Angeles County Public Works (LACPW) completed Phase 1 of habitat restoration implementation for the Devil's Gate Reservoir Restoration Project (Project) on February 13, 2020. Habitat restoration is being implemented to comply with the compensatory mitigation requirements in Conditions 3.1, 3.2, and 3.5 of the Lake or Streambed Alteration Agreement (LSAA) (Notification No. 1600-2015-0263-R5 dated March 21, 2017) executed between the California Department of Fish and Wildlife (CDFW) and the Los Angeles County Flood Control District (LACFCD). 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). Implementation of habitat mitigation for Phase 1 was conducted in mitigation areas DG-1, DG-1 WOUS, DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5. A small portion of Phase 1 mitigation areas DG-1, DG-3A, and DG-4 were included in the temporary impacts around the perimeter of the Project and will be restored following the completion of the side slopes configuration. A small portion of DG-3A is being used for staging construction equipment and will be restored following the completion of the Project. 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 on-site 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*), which is listed as endangered under the Federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) (CDFW 2018). Per Condition 4.5 of the LSAA (Appendix A), a Mitigation Site As-Built Report shall be submitted to CDFW within 60 days of completing the initial restoration activities. This *Post-Implementation Mitigation Site As-Built Report* only addresses the Phase 1 restoration areas. Separate as-built reports will be prepared for the subsequent restoration phases for the Project.

The Project, which includes an initial removal of 1.7 million cubic yards (cy) of sediment to establish a Permanent Maintenance Area (PMA), will restore flood capacity and establish a reservoir management system to maintain the flood control capacity of the reservoir. Subsequently, annual maintenance and episodic maintenance will be conducted 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.

1.1 Project Location

The Project is located in the City of Pasadena (City) in Los Angeles County on the Pasadena United States 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-foot linear 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. 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 of the project.

Devil's Gate Reservoir Restoration Project Los Angeles County Public Works	1	August 17, 2020 2018-047.010
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Figure 1. Project Vicinity

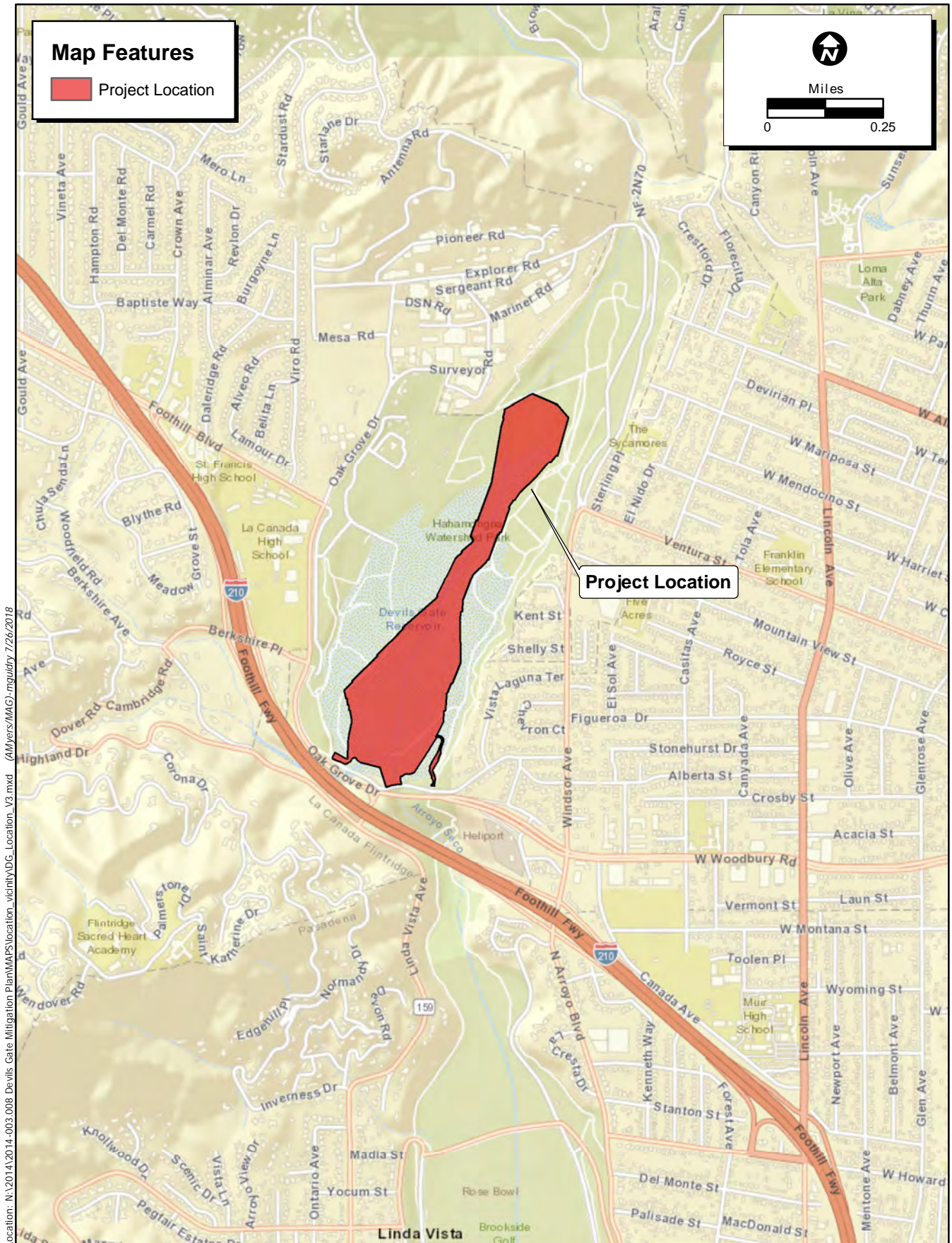


Figure 2. Project Location

2.0 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 provided a revision to the Project impacts that were based on a revised Project boundary and also revised Condition 3.1 to reflect modifications to 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. The changes are a result of clearing that occurred outside of the permitted project boundary and are in response to a legal settlement that has yet to be finalized. The results of the legal settlement will likely be additional changes to the Project boundary and as a result, changes to the mitigation requirements, which will be addressed in future as-built reports.

The original design of the onsite mitigation for the Project, which is what this as-built report is based upon, included the creation, restoration, and enhancement of 69.94 acres subject to CDFW jurisdiction located outside of the PMA. The 69.94 acres of mitigation is required to compensate for permanent impacts to 41.98 acres of CDFW jurisdiction. The LSAA also requires mitigation for temporary impacts to 16.17 acres by delaying the impacts to these areas until the third year of sediment removal and replanting them within 24 months of the impacts. In addition, the Episodic Maintenance Area, or side slopes of the PMA, which encompasses 7.34 acres according to the original design, will be replanted with native vegetation, including shrub and annual species associated with riparian scrub and alluvial scrub vegetation communities. Allowing the side slopes of the Annual Maintenance Area to support native vegetation will provide additional compensatory mitigation by creating a riparian scrub buffer habitat between the areas that are actively managed in the annual maintenance area and the compensatory mitigation areas. The side slopes may be periodically affected by re-contouring if large sediment deposits bury portions of the side slopes. In this case, the sediment will be removed, and the side slopes will be re-contoured 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 ten years for upland areas, or until all success criteria have been met.

3.0 SUMMARY OF HABITAT RESTORATION IMPLEMENTATION

Habitat restoration implementation was conducted by Nature's Image, with oversight by Carley Lancaster (Restoration Ecologist, ECORP Consulting, Inc. [ECORP]), Josh Corona-Bennett (Senior Restoration Ecologist, ECORP) and Mari Quillman (Biological Resources Program Manager, ECORP). Nature's Image is a subcontractor to ECORP. ECORP is the prime contractor to LACPW. Implementation of habitat restoration for Phase 1 was conducted in mitigation areas DG-1, DG-1 WOUS, DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5. A total of six vegetation communities were included in the Phase 1 habitat restoration effort including Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance), Black Willow Thickets (*Salix gooddingii* Woodland Alliance), Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance), California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance), Scale Broom Scrub

(*Lepidospartum squamatum* Shrubland Alliance), and California Sagebrush – California Buckwheat Scrub (*Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance). Habitat restoration implementation commenced on November 19, 2018, and included nonnative and invasive plant removal and follow-up weed abatement efforts. Following the weed abatement efforts, soil ripping was conducted for mitigation area DG-5 to decompact the soil and prepare the area for container plant installation and seed application. Following initial weed abatement efforts and soil ripping, container plant installation and seed application commenced. Implementation for Phase 1 was completed on February 13, 2020. A description of the habitat restoration implementation is provided in the following sections.

3.1 Weed Abatement

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

Herbicide application was employed for a brief period from February 22, 2019 to March 18, 2019; however, herbicide application was suspended due to public concerns and restrictions put in place by LACPW. The Los Angeles County Board of Supervisors placed a moratorium on use of glyphosate at all County facilities until further notice and the moratorium is currently still in place. 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. Species targeted during 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*), foxtail barely (*Hordeum murinum*), perennial pepperweed (*Lepidium latifolium*), and horehound (*Marrubium vulgare*).

3.2 Seeding

Upon completion of the initial weed abatement effort, the seeding process, which consisted of broadcast seeding, commenced on April 4, 2019. Seed used for the Project was procured from S&S Seeds Inc. and only seed materials collected within the acceptable geographic regions described in Section 4.9 of the HRP was used. Broadcast seeding was completed using hand-crank spreaders or simply by-hand. Seed was applied evenly throughout each mitigation area and incorporated into the soil to a depth of approximately 0.5 inches using metal hand rakes. To the extent possible, seed was applied during the fall, winter, or other periods when sufficient rainfall was expected to occur. Approximately 713 pounds of seed was applied during Phase 1. Figure 3 shows the Phase 1 mitigation areas where seeding occurred. Table 1 provides a summary of the species and amounts of seed applied during Phase 1.

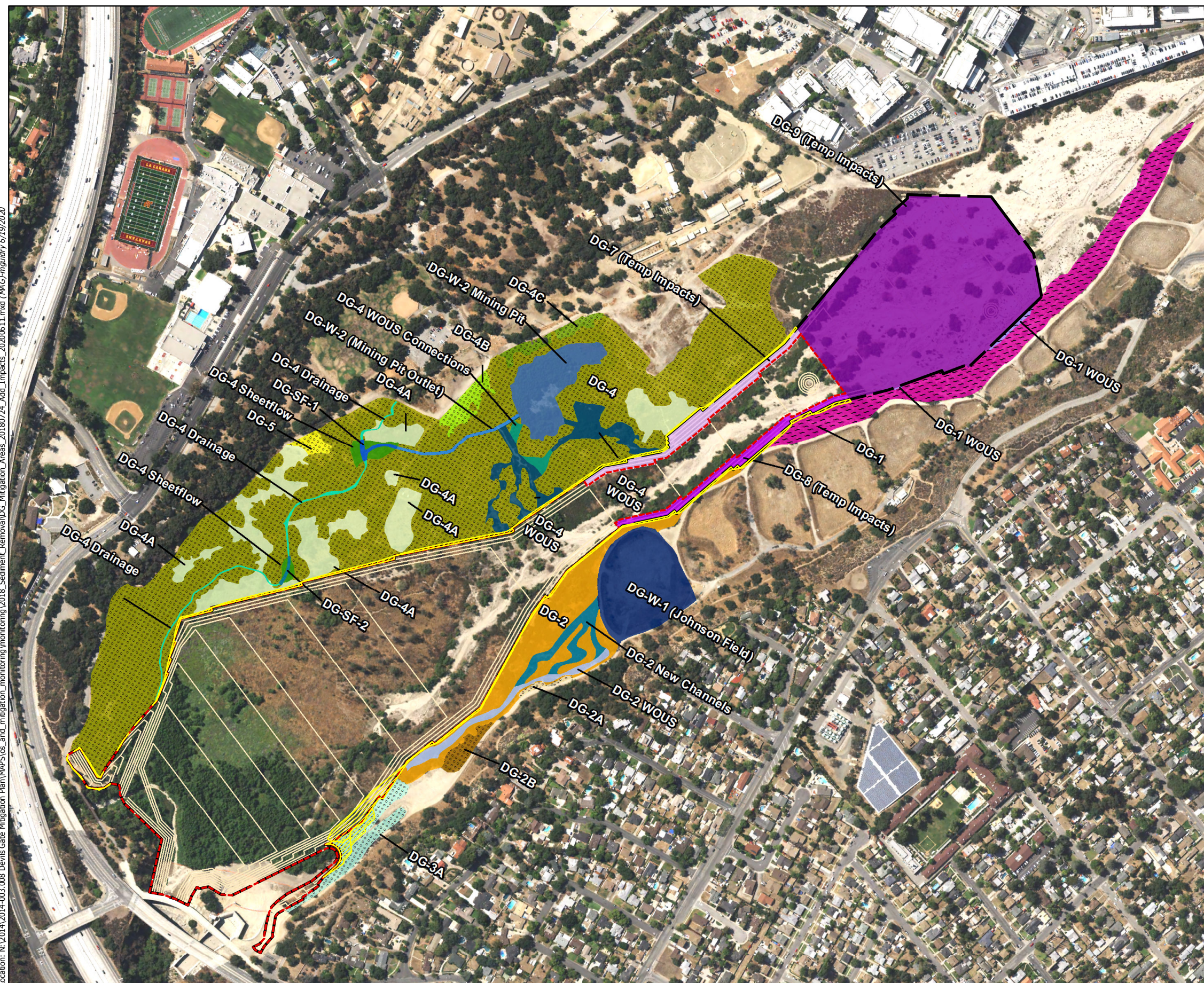







Figure 3
Devil's Gate Mitigation Areas

























Map Features

-  Initial Sediment Removal Footprint ¹
 Permanent Maintenance Footprint ¹
 Temporary Impact Area
 Sediment Removal Excavation Contours ¹

Phase 1 Planting Areas

- | | |
|---|------------------------------|
|  | Seeding and Container Plants |
| | Seeding Only |

Mitigation Areas

- | | | | |
|---|-------------------|---|----------------------------|
|  | DG-1 |  | DG-4A |
|  | DG-1 WOUS |  | DG-4B |
|  | DG-2 |  | DG-4C |
|  | DG-2 New Channels |  | DG-5 |
|  | DG-2 WOUS |  | DG-7 (Temp Impacts) |
|  | DG-2A |  | DG-8 (Temp Impacts) |
|  | DG-2B |  | DG-9 (Temp Impacts) |
|  | DG-3A |  | DG-SF-1 |
|  | DG-4 |  | DG-SF-2 |
|  | DG-4 Drainage |  | DG-W-1 (Johnson Field) |
|  | DG-4 Sheetflow |  | DG-W-2 (Mining Pit) |
|  | DG-4 WOUS |  | DG-W-2 (Mining Pit Outlet) |

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

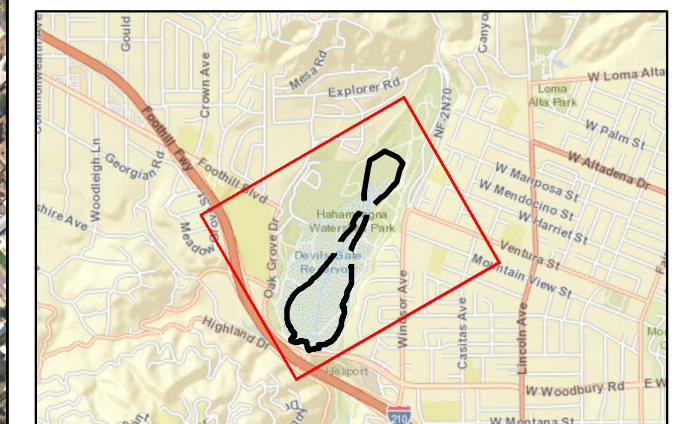


Table 1. Summary of Seeding					
Scientific Name	Common Name	PLS Lbs./Acre per HRP ¹	PLS Lbs./Acre Applied	Percent Purity	Percent Germination
Mulefat Thickets Seed Mix					
<i>Ambrosia psilostachya</i>	western ragweed	4	4	5	39
<i>Artemisia douglasiana</i>	mugwort	4	4	92	74
<i>Elymus triticoides</i>	beardless wild rye	4	4	95	67
<i>Urtica dioica</i> ssp. <i>holosericea</i>	hoary nettle	4	4	53	71
<i>Achillea millefolium</i>	yarrow	1	1	99	90
<i>Artemisia dracunculus</i>	tarragon	1	1	7	62
<i>Bromus carinatus</i>	California brome	1	1	98	94
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	south coast morning glory	0.5	0.5	99	91
<i>Cirsium occidentale</i>	western thistle	1	1	No Test	No Test
<i>Elymus condensatus</i>	giant wild rye	1	1	93	90
<i>Epilobium canum</i>	California fuchsia	0.5	Not Available ²	N/A	N/A
<i>Eriodictyon parryi</i>	poodle-dog bush	0.5	0.5	48	10
<i>Eschscholzia californica</i>	California poppy	0.5	0.5	99	96
<i>Galium aparine</i>	Cleavers	0.5	0.5	98	28
<i>Gutierrezia californica</i> ⁴	matchweed	0.5	Source not Acceptable ³	N/A	N/A
<i>Lupinus bicolor</i>	bicolored lupine	0.5	0.5	99	94
<i>Lupinus truncata</i>	blunt-leaved lupine	0.5	Not Available ²	N/A	N/A
<i>Monardella breweri</i> ssp. <i>lanceolata</i>	mustang mint	0.5	Not Available ²	N/A	N/A
<i>Phacelia cicutaria</i>	caterpillar phacelia	0.5	0.5	99	51
<i>Phacelia distans</i>	common phacelia	0.5	0.5	99	78
<i>Phacelia minor</i>	wild Canterbury bells	0.5	0.5	99	53
<i>Phacelia parryi</i>	Parry's phacelia	0.5	Not Available ²	N/A	N/A
<i>Marah macrocarpa</i>	chilicothe	0.5	0.5	99	81
<i>Pseudognaphalium californicum</i> ⁴	California everlasting	0.5	Source not Acceptable ³	N/A	N/A
<i>Rumex hymenosepalus</i>	wild rhubarb	0.5	Not Available ²	N/A	N/A
<i>Vitis girdiana</i>	Southern wild grape	1	Not Available ²	N/A	N/A
Primary Seed Mix Total		30.0	25.5		

Table 1. Summary of Seeding					
Scientific Name	Common Name	PLS Lbs./Acre per HRP ¹	PLS Lbs./Acre Applied	Percent Purity	Percent Germination
Black Willow Thickets Seed Mix					
<i>Anemopsis californica</i>	yerba mansa	3	Not Available ²	N/A	N/A
<i>Artemisia douglasiana</i>	mugwort	5	Not Available ²	N/A	N/A
<i>Cyperus eragrostis</i>	tall flatsedge	3	3	83	60
<i>Elymus triticoides</i>	beardless wild rye	2	2	95	67
<i>Urtica dioica</i> ssp. <i>holosericea</i>	hoary nettle	3	3	53	71
<i>Achillea millefolium</i>	yarrow	1	1	99	90
<i>Artemisia dracunculus</i>	tarragon	1	1	7	62
<i>Bromus carinatus</i>	California brome	1	1	98	94
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	south coast morning glory	0.5	0.5	99	91
<i>Cirsium occidentale</i>	western thistle	1	1	No Test	No Test
<i>Elymus condensatus</i>	giant wild rye	1	1	93	90
<i>Epilobium canum</i>	California fuchsia	0.5	Not Available ²	N/A	N/A
<i>Eriodictyon parryi</i>	poodle-dog bush	0.5	0.5	48	10
<i>Eschscholzia californica</i>	California poppy	0.5	0.5	99	96
<i>Galium aparine</i>	Cleavers	0.5	0.5	98	28
<i>Gutierrezia californica</i>	matchweed	0.5	Source not Acceptable ³	N/A	N/A
<i>Lupinus bicolor</i>	bicolored lupine	0.5	1.0	99	94
<i>Lupinus truncata</i>	blunt-leaved lupine	0.5	Not Available ²	N/A	N/A
<i>Monardella breweri</i> ssp. <i>lanceolata</i>	mustang mint	0.5	Not Available ²	N/A	N/A
<i>Phacelia cicutaria</i>	caterpillar phacelia	0.5	0.5	99	51
<i>Phacelia distans</i>	common phacelia	0.5	0.5	99	78
<i>Phacelia minor</i>	wild Canterbury bells	0.5	0.5	99	53
<i>Phacelia parryi</i>	Parry's phacelia	0.5	Not Available ²	N/A	N/A
<i>Marah macrocarpa</i>	chilicothe	0.5	0.5	99	81
<i>Pseudognaphalium californicum</i>	California everlasting	0.5	Source not Acceptable ³	N/A	N/A
<i>Rumex hymenosepalus</i>	wild rhubarb	0.5	Not Available ²	N/A	N/A
<i>Vitis girdiana</i>	Southern wild grape	1	Not Available ²	N/A	N/A
Black Willow Thickets Seed Mix Total		30.0	18.0		

Table 1. Summary of Seeding					
Scientific Name	Common Name	PLS Lbs./Acre per HRP ¹	PLS Lbs./Acre Applied	Percent Purity	Percent Germination
California Buckwheat Scrub/Scale Broom Scrub Seed Mix					
<i>Acmispon glaber</i>	deerweed	2	Not Available ²	N/A	N/A
<i>Artemisia californica</i>	California sagebrush	3	Source not Acceptable ³	N/A	N/A
<i>Eriogonum gracile</i>	slender buckwheat	3	Source not Acceptable ³	N/A	N/A
<i>Gutierrezia microcephala</i>	threadleaf snakeweed	2	Not Available ²	N/A	N/A
<i>Leymus condensatus</i>	giant wildrye	5	5	93	90
<i>Lupinus bicolor</i>	miniature lupine	4	4	99	94
<i>Nassella lepida</i>	foothill needlegrass	3	3	97	77
<i>Eriodictyon trichocalyx</i>	hairy yerba santa	2	Source not Acceptable ³	N/A	N/A
<i>Eriogonum fasciculatum</i>	California buckwheat	4	4	72	6
<i>Lepidospartum squamatum</i>	scale broom	2	2	18	65
California Buckwheat Scrub/Scale Broom Scrub Seed Mix Total		30.0	18.0		
Scale Broom Scrub/Mulefat Thickets Seed Mix					
<i>Acmispon glaber</i>	deerweed	2	Not Available ²	N/A	N/A
<i>Artemisia californica</i>	California sagebrush	2	Source not Acceptable ³	N/A	N/A
<i>Baccharis salicifolia</i>	mulefat	2	Not Available ²	N/A	N/A
<i>Croton californicus</i>	California croton	2	Not Available ²	N/A	N/A
<i>Eriodictyon trichocalyx</i>	hairy yerba santa	2	Source not Acceptable ³	N/A	N/A
<i>Eriogonum fasciculatum</i>	California buckwheat	4	4	72	6
<i>Eriogonum gracile</i>	slender buckwheat	5	Source not Acceptable ³	N/A	N/A
<i>Gutierrezia microcephala</i>	threadleaf snakeweed	3	Not Available ²	N/A	N/A
<i>Lepidospartum squamatum</i>	scale broom	3	3	18	65
<i>Senecio flaccidus</i>	threadleaf ragwort	2	Not Available ²	N/A	N/A
<i>Salvia mellifera</i>	black sage	3	Not Available ²	N/A	N/A
Scale Broom Scrub/Mulefat Thickets Seed Mix Total		31.0	7.0		

Table 1. Summary of Seeding					
Scientific Name	Common Name	PLS Lbs./Acre per HRP ¹	PLS Lbs./Acre Applied	Percent Purity	Percent Germination
California Sagebrush-California Buckwheat Scrub Seed Mix					
<i>Acmispon glaber</i>	deerweed	8	8	98	67
<i>Artemisia californica</i>	California sagebrush	3	Source not Acceptable ³	N/A	N/A
<i>Eriogonum gracile</i>	slender buckwheat	5	Source not Acceptable ³	N/A	N/A
<i>Gutierrezia microcephala</i>	threadleaf snakeweed	2	Not Available ²	N/A	N/A
<i>Leymus condensatus</i>	giant wildrye	6	6	93	90
<i>Lupinus bicolor</i>	miniature lupine	4	4	99	94
<i>Nassella lepida</i>	foothill needlegrass	3	3	97	77
California Sagebrush-California Buckwheat Seed Mix Total		31.0	21.0		

¹HRP – Habitat Restoration Plan²Not Available – Was not available for purchase from seed vendor.³Source not Acceptable – The collection location for specified seed was not ecologically appropriate for use.⁴Approximately .25 lbs of seed sourced from San Diego County applied to mitigation area DG-3A

PLS – Pure Live Seed

Lbs. – Pounds

N/A – Not Applicable

3.3 Container Plant Installation

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

Container plant installation followed the methods described in Section 4.11 of the HRP. Container plants were planted using standard horticultural practices. Planting holes for all container plants, except oak trees, were dug to a width twice the size of the root ball and to a depth slightly deeper than the depth of root ball so that the root crown was one inch below grade following installation. Oak trees were planted in a manner that the root crown was 0.5 to one inch above grade following installation (after soil settled following watering). Prior to installation, all plants were thoroughly watered in their containers and the soil in each of the planting holes was wetted with a minimum of one gallon of water. Planting holes were backfilled with native soil and irrigation basins were formed around the base of each planting. Basins were constructed to be a minimum of two feet wide and with a ridge no less than four inches. Rocks greater than two inches in diameter were removed to the extent possible from the backfill soil. Fertilizer was not added to backfill. Soil was tamped-in by hand to collapse air pockets in the backfill. All container plants

were irrigated with a minimum of one 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. Table 2 provides a summary of the species and numbers of container plants installed during Phase 1.

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

In addition to the container plant and the stake installation for Phase 1, a total of 300 coast live oak (*Quercus agrifolia*) acorns were installed by ECORP in mitigation areas DG-2A and DG-3A. The coast live oak acorns were procured from Psomas and were collected within the Lower Arroyo Seco (between SR-134 and South Pasadena border) and public rights-of-way (i.e., streets/gutters) in the cities of Arcadia, Monrovia, Pasadena, and Sierra Madre. Acorns were planted approximately 2-inches below the surface of the soil and a small basin was formed around each planted acorn. Acorns were installed in November of 2018 when sufficient rainfall was expected to occur. Acorns were not provided with an emitter from the irrigation system. Table 2 provides a summary of the number of acorns installed during Phase 1.

Table 2. Summary of Container Planting

Scientific Name	Common Name	DG-									TOTAL
		2A	2B	3A (Oak Woodland)	3A (Mulefat Thickets)	4 (CSS ¹)	4 (Riparian ²)	4B	4C	5	
<i>Acmispon glaber</i>	Deerweed					102					102
<i>Artemisia californica</i>	California Sagebrush	10	38			306					354
<i>Artemisia douglasiana</i>	Mugwort				33		617	54	45	26	775
<i>Baccharis pilularis</i>	Coyote brush	10	38		33		504	54	45	26	710
<i>Baccharis salicifolia</i>	mulefat	25	95				1113	135	114	64	1546
<i>Baccharis salicifolia</i>	mulefat (cuttings)				84		916				1000
<i>Encelia californica</i>	California brittlebush					102					102
<i>Eriogonum fasciculatum</i>	California buckwheat					306					306
<i>Isocoma menziesii</i>	Menzies goldenbush					41					41
<i>Juncus rugulosus</i>	Wrinkled rush						200				200
<i>Juncus textilis</i>	Basket rush						100				100
<i>Malosma laurina</i>	Laurel sumac					61					61
<i>Melica imperfecta</i>	California melic			20							20
<i>Opuntia littoralis</i>	Coastal prickly pear					41					41
<i>Populus fremontii</i>	Fremont's cottonwood	10	38		33		479	54	45	27	686
<i>Quercus agrifolia</i>	Coast live oak			174							174
<i>Quercus agrifolia</i>	Coast live oak (acorns)	25		275							300
<i>Ribes californicum</i>	California gooseberry			50							50
<i>Rosa californica</i>	California rose	10	38	44	33		725	54	45	26	975
<i>Rubus ursinus</i>	California blackberry	10	38		33		619	54	45	26	825
<i>Salix gooddingii</i>	Black willow	20	76				876	108	90	52	1222
<i>Salix gooddingii</i>	Black willow (cuttings)				67		933				1000
<i>Salix laevigata</i>	Red willow	10	38		33		439	54	45	26	645
<i>Salix lasiolepis</i>	Arroyo willow	10	38				438	54	45	26	611
<i>Salix lasiolepis</i>	Arroyo willow (cuttings)				33		967				1000
<i>Salvia mellifera</i>	Black sage					102					102
<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Black elderberry	5	19		17		594	27	23	13	698
Total		145	456	563	399	1061	9520	648	542	312	13646

¹CSS = *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance²Riparian = *Baccharis salicifolia* Shrubland Alliance and *Salix gooddingii* Woodland Alliance

3.4 Photo Documentation

Digital photographs were taken during key steps of the implementation process. Relevant photos are provided as Appendix C.

4.0 COMPLIANCE WITH HABITAT RESTORATION PLAN

During the implementation process, few deviations from the HRP were required. Minor deviations, including species additions to the planting palette and seeding outside of the fall and winter seasons, did occur during the implementation process. All additions to the planting palette were approved by CDFW prior to being used for the restoration effort and seeding outside of the fall and winter months only occurred when sufficient rainfall was forecasted. In addition, a small amount of seed from two species sourced from San Diego County, California everlasting (*Pseudognaphalium californicum*) and matchweed (*Gutierrezia californica*), was applied in DG-3A. The onsite RE recognized those two species as being sourced outside of the allowable geographic range noted in the HRP and immediately suspended the seeding activities until the seed mix was revised. Certain species were not available at the time the seed order was placed, or the collection source was unacceptable; however, the HRP discusses the fact that not all of the species may be available at the time of implementation. Table 3 provides a summary of the Phase 1 mitigation areas, associated acreages, and associated vegetation communities.

Table 3. Summary of Phase 1 Mitigation Areas				
Restoration Area	Area Restored During Phase 1 (Acres)	Temporary Impacts Around Perimeter (Acres) ¹	Total Acres	Vegetation Communities
DG-1 (seeding only)	4.48	0.27	4.75	<i>Eriogonum fasciculatum</i> Shrubland Alliance <i>Lepidospartum squamatum</i> Shrubland Alliance
DG-1 WOUS (seeding only)	0.11	0.00	0.11	<i>Lepidospartum squamatum</i> Shrubland Alliance/ <i>Baccharis salicifolia</i> Shrubland Alliance
DG-2A	0.10	0.00	0.10	<i>Baccharis salicifolia</i> Shrubland Alliance
DG-2B	0.38	0.00	0.38	<i>Baccharis salicifolia</i> Shrubland Alliance
DG-3A	0.92	0.23 ²	1.15	<i>Quercus agrifolia</i> Woodland Alliance <i>Baccharis salicifolia</i> Shrubland Alliance
DG-4	26.64	0.37	27.01	<i>Salix gooddingii</i> Woodland Alliance <i>Baccharis salicifolia</i> Shrubland Alliance <i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> Shrubland Alliance
DG-4B	0.54	0.00	0.54	<i>Baccharis salicifolia</i> Shrubland Alliance
DG-4C	0.45	0.00	0.45	<i>Salix gooddingii</i> Woodland Alliance <i>Baccharis salicifolia</i> Shrubland Alliance
DG-5	0.26	0.00	0.26	<i>Salix gooddingii</i> Woodland Alliance
Total Acres			34.75	

¹ These areas will be restored following the completion of the side slopes configuration

² This includes 0.03 acres of temporary impact areas around the perimeter and 0.20 acres of staging areas that will be restored following Project completion.

5.0 IMPLEMENTATION ACCEPTANCE

The Phase 1 mitigation sites will be maintained and monitored for a period of five years for the riparian areas and 10 years for the upland areas, or until the performance standards outlined in the HRP are achieved and CDFW determines the site is successful. Habitat restoration implementation for Phase 1 of the Project was completed on February 13, 2020; therefore, the five-year maintenance and monitoring period for Phase 1 commenced on February 13, 2020 and the assumed end dates will be February 13, 2025 for the riparian areas and February 13, 2030 for the upland areas. Per the HRP, a total of 34.64 acres of onsite mitigation has been installed and will be monitored until the areas meet the performance standards to achieve the mitigation requirement for the Phase 1 restoration areas.

The temporary impact areas around the perimeter of the Project site, associated with mitigation sites DG-1, DG-3A, and DG-4, will be restored following the completion of the side slopes configuration. The portion of DG-3A currently being used for staging construction equipment will be restored following Project completion. The remaining mitigation areas for the Project will be restored during Phases 2 and 3 of restoration implementation. These include mitigation areas that require earthwork and grading prior to planting and seeding (i.e., DG-W-1 and DG-W-2) and mitigation areas that require the implementation of a grow and kill program (i.e., DG-4A) as outlined in Section 4.4.1 of the HRP.

6.0 REFERENCES

CDFW. 2018. Amendment of Lake or Streambed Alteration Agreement for the Devil's Gate Sediment Removal and Management Project (Notification No. 1600-2015-0263-R5). Permittee: Los Angeles County Department of Public Works. July 17, 2018.

_____. 2017. Lake or Streambed Alteration Agreement for the Devil's Gate Sediment Removal and Management Project (Notification No. 1600-2015-0263-R5). Permittee: Los Angeles County Department of Public Works. March 21, 2017.

ECORP Consulting, Inc. 2018. *Devil's Gate Sediment Removal and Management Project Final Habitat Restoration Plan*.

LIST OF APPENDICES

Appendix A – Streambed Alteration Agreement No. 1600-2015-0263-R5

Appendix B – Photo Documentation

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



MARK PESTRELLA, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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
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

Conserving California's Wildlife Since 1870

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 ~~2.41~~ **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 flood³ 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 leptoceras*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Parish's gooseberry (*Ribes divaricatum* var. *parishii*), black willow thickets, mulefat thickets, riparian herbaceous, coast live oak woodland, scale broom scrub, and all other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area. These resources are further detailed and more particularly described in the document(s): "Devil's Gate Reservoir Sediment Removal and Management Project Final Environmental Impact Report " dated October 2014, prepared for Los Angeles County of Department of Public Works by Chambers Group; **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~~ **7.1** 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 ~~1.00~~ **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 impacts are undetermined at this time because the area's hilly topography may not result in any significant effect or project disturbances may be avoided all together based on project design modifications. ~~made from incorporating Measures to avoidance impacts to~~ **of oak trees will be identified following the completion of the in-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, ~~0.50~~ **0.7** acre *Xanthium strumarium* herbaceous stand, ~~0.20~~ **0.7** acre *Quercus agrifolia* coast live oak (trees), ~~0.07 acre Eucalyptus (globulus, camaldulensis) Semi-natural stand,~~ **0.08** **12** 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
<i>Salix gooddingii</i> Woodland Alliance	16.27 15.64	16.27 15.64	22.34 21.44	38.58 37.08
<i>Baccharis saltifolia</i> Shrubland Alliance	8.03 9.71	8.03 9.71	4.83 5.84	12.86 15.55
<i>Lepidospartum squamatum</i> Shrubland Alliance	1.82 1.97	1.82 1.97	7.28 7.88	9.19 8.5
<i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> Shrubland Alliance	0.02 0.01	0.02 0.01	0.04 0.02	0.06 0.03
<i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	2.45 2.61	0.00	1.23 1.31	1.23 1.31
<i>Lepidium latifolium</i> - <i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	9.88 10.24	0.00	4.94 5.12	4.94 5.12
<i>Xanthium strumarium</i> 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~~ **17** 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.

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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.

Mr. Christopher Stone
July 17, 2018
Page 9 of 9

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

Photo Documentation

Attachment B – Photo Documentation



Photo 7. Overview Phase 1 Container Plant Installation, facing south.



Photo 8. Overview Phase 1 Container Plant Installation, facing east.

Attachment B – Photo Documentation



Photo 9. Overview Phase 1 Container Plant Installation, facing west.



Photo 10. Overview Phase 1 Container Plant Installation, facing southeast.

Attachment B – Photo Documentation



Photo 11. Overview Phase 1 Container Plant Installation, facing southeast.



Photo 12. Overview Phase 1 Container Plant Installation, facing north.

Attachment B – Photo Documentation



Photo 13. Overview Phase 1 Container Plant Installation, facing southeast.



Photo 14. Overview Phase 1 Container Plant Installation, facing northwest.

Attachment B – Photo Documentation



Photo 15. Overview Phase 1 Container Plant Installation, facing south.



Photo 16. Overview Phase 1 Cutting Collection, facing east.

Attachment B – Photo Documentation



Photo 17. Overview Phase 1 Cutting Collection.



Photo 18. Overview Phase 1 Cutting Installation, facing east.

Attachment B – Photo Documentation



Photo 19. Overview Phase 1 Cutting Installation, facing east.



Photo 20. Overview Phase 1 Hand Seeding, facing southeast.

Attachment B – Photo Documentation



Photo 21. Overview Phase 1 Hand Seeding, facing southeast.



Photo 22. Overview Phase 1 Hand Seeding, facing west.

ATTACHMENT F

Phase 2 Mitigation Site As-Built Report

Phase 2 Mitigation Site As-Built Report

Devil's Gate Reservoir Restoration Project

City of Pasadena
Los Angeles County, California

Prepared for:

Los Angeles County Department of Public Works
900 South Fremont Avenue
Alhambra, CA 91803
Contact: Mr. Tae Uk Mark Gim

Prepared by:

ECORP Consulting, Inc.
2861 Pullman Street
Santa Ana, California 92705
Contact: Ms. Carley Lancaster

July 29, 2021



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF APPENDICES

Appendix A – Streambed Alteration Agreement No. 1600-2015-0263-R5
Appendix B – Photo Documentation

LIST OF ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
HRP	Habitat Restoration Plan
LACPW	Los Angeles County Department of Public Works
LSAA	Lake and Streambed Alteration Agreement
N/A	Not Applicable
PLS	Pure Live Seed
PMA	Permanent Maintenance Area
Project	Devil's Gate Reservoir Restoration Project
RE	Restoration Ecologist

1.0 INTRODUCTION

The Los Angeles County Public Works (LACPW) completed Phase 2 of habitat restoration implementation for the Devil's Gate Reservoir 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 and Amendment dated July 17, 2018) executed between the California Department of Fish and Wildlife (CDFW) and the Los Angeles County Flood Control District (LACFCD). 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). LACPW is currently working on an amendment to the LSAA with the CDFW that will reflect the changes in the Project resulting from the legal settlement. The changes resulting from the legal settlement primarily include fewer permanent impacts associated with a change in the Project boundary and modifications to the area around Altadena Drain. Slight changes to the acreages of restoration in the Phase 1 and Phase 2 as-builts may result but those will be updated when the Phase 3 as-built is completed.

Implementation of habitat mitigation for Phase 2 was conducted in mitigation areas DG-W-1 (Johnson Field), DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-2, DG-2 New Channels, DG-2 WOUS, DG-4A, DG-4 Sheet Flow, DG-4 WOUS, DG-4 Drainage, DG-SF-1, and DG-SF-2. 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 on-site 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*), which is listed as endangered under the Federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) (CDFW 2018). Per Condition 4.5 of the LSAA (Appendix A), a Mitigation Site As-Built Report shall be submitted to CDFW within 60 days of completing the initial restoration activities. This *Post-Implementation Mitigation Site As-Built Report* only addresses the Phase 2 restoration areas. Separate as-built reports will be prepared for the subsequent restoration phases for the Project.

The Project, which includes an initial removal of 1.7 million cubic yards (cy) of sediment to establish a Permanent Maintenance Area (PMA), will restore flood capacity and establish a reservoir management system to maintain the flood control capacity of the reservoir. Subsequently, annual maintenance and episodic maintenance will be conducted 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.

1.1 Project Location

The Project is located in the City of Pasadena (City) in Los Angeles County on the Pasadena United States 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-foot linear section of



Figure 1. Project Vicinity

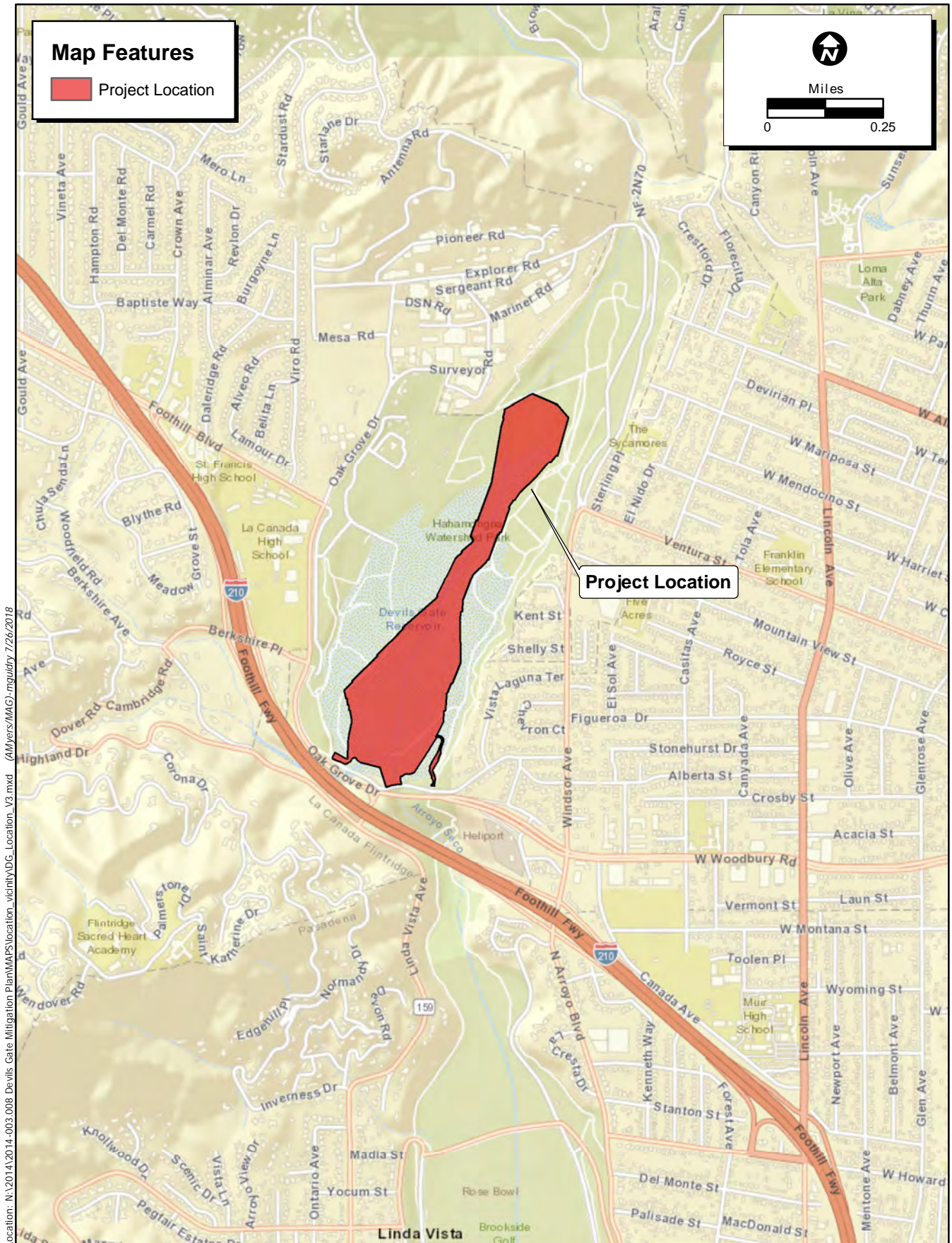


Figure 2. Project Location

the Arroyo Seco drainage and alluvial fan, which is an area subject to change and disturbance due to erosion, runoff, and sediment movement. 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 of the project.

2.0 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 provided a revision to the Project impacts that were based on a revised Project boundary and also revised Condition 3.1 to reflect modifications to 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. The changes are a result of clearing that occurred outside of the permitted project boundary, changes resulting from the legal settlement, and potentially some changes to the mitigation requirements, which will all be addressed in future as-built reports.

The original design of the onsite mitigation for the Project, which is what this as-built report is based upon, included the creation, restoration, and enhancement of 69.94 acres subject to CDFW jurisdiction located outside of the PMA. It should be noted that the mitigation acreage for the Project may change following the approval of the LSAA amendment that is currently in process. The 69.94 acres of mitigation is required to compensate for permanent impacts to 41.98 acres of CDFW jurisdiction. The LSAA also requires mitigation for temporary impacts to 16.17 acres by delaying the impacts to these areas until the third year of sediment removal and replanting them within 24 months of the impacts. In addition, the Episodic Maintenance Area, or side slopes of the PMA, which encompasses 7.34 acres according to the original design, will be replanted with native vegetation, including shrub and annual species associated with riparian scrub and alluvial scrub vegetation communities. Allowing the side slopes of the Annual Maintenance Area to support native vegetation will provide additional compensatory mitigation by creating a riparian scrub buffer habitat between the areas that are actively managed in the annual maintenance area and the compensatory mitigation areas. The side slopes may be periodically affected by re-contouring if large sediment deposits bury portions of the side slopes. In this case, the sediment will be removed, and the side slopes will be re-contoured 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 ten years for upland areas, or until all success criteria have been met.

3.0 SUMMARY OF HABITAT RESTORATION IMPLEMENTATION

Habitat restoration implementation was conducted by Nature's Image, with oversight by Stillwater Sciences (Stillwater) and ECORP Consulting, Inc. (ECORP). Oversight was primarily provided by Margie Pfeffer (Biologist, Stillwater), Wendy Katagi (Senior Manager, Watershed and Ecosystem Restoration Services, Stillwater), Carley Lancaster (Restoration Ecologist, ECORP), Josh Corona-Bennett (Senior Restoration Ecologist, ECORP) and Mari Quillman (Biological Resources Program Manager, ECORP).

Nature's Image is a subcontractor to Stillwater. Stillwater and ECORP are the prime contractors to LACPW. Implementation of habitat restoration for Phase 2 was conducted in mitigation areas DG-W-1 (Johnson Field), DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-2, DG-2 New Channels, DG-2 WOUS, DG-4A, DG-4 Sheet Flow, DG-4 WOUS, DG-4 Drainage, DG-SF-1, and DG-SF-2. However, container plant installation and seed application only occurred in mitigation areas DG-W-1 (Johnson Field), DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-2, DG-2 New Channels, DG-2 WOUS, DG-4 Sheet Flow (northern), and DG-SF-1. Mitigation area DG-4A was not planted due to the ongoing implementation of a grow and kill weeding program in this area. Mitigation areas DG-4 Sheet Flow (southern), DG-4 WOUS, DG-4 Drainage, and DG-SF-2 were not planted with container plants or seeded due to the dynamic nature of these mitigation areas in the path of water flow. To the extent feasible, these areas will be planted with mulefat (*Baccharis salicifolia*) and willow (*Salix* sp.) during the fall/winter of 2021/2022. These areas were not planted with mulefat or willow stakes during the Phase 2 implementation documented in this report due to late timing of stake harvesting. Several of the Phase 2 mitigation areas required surface grading and recontouring prior to planting and seeding. 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). Habitat restoration implementation commenced on October 12, 2021 and included nonnative and invasive plant removal and follow-up weed abatement efforts. Implementation for Phase 2 was completed on May 5, 2021. A description of the habitat restoration implementation is provided in the following sections. Figure 3, pages 1 and 2, shows the locations where the various habitat restoration activities took place.




3.1 Weed Abatement

Initial weed abatement activities commenced on December 14, 2020. Following the completion of the initial weed abatement activities, follow-up weed abatement efforts commenced and are ongoing for all the Phase 2 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. After planting and seeding, nonnative and invasive plant control has been ongoing using hand-pulling, weed whips, and hula hoes. In March 2019, the Los Angeles County Board of Supervisors placed a moratorium on use of glyphosate at all County facilities until further notice and the moratorium is currently still in place. Keeping the nonnatives and invasive plants under control using only hand methods is extremely difficult. The primary species targeted during nonnative and invasive plant removal included black mustard (*Brassica nigra*) red brome (*Bromus madritensis ssp. rubens*), poison hemlock (*Conium maculatum*), red-stemmed filaree (*Erodium cicutarium*), foxtail barely (*Hordeum murinum*), perennial pepperweed (*Lepidium latifolium*), and horehound (*Marrubium vulgare*).



Devil's Gate Mitigation Area Phase 2 Planting Areas



































Map Features

-  Final Design Boundary
 Sediment Removal Excavation Contours ¹
 Phase 2 Area

Phase 2 Planting

- Phase 2 Planted/Seeded
Phase 2 Not Planted/Seeded

Mitigation Areas

- | | | | |
|---|-----------------------|---|----------------------------|
|  | DG-1 |  | DG-4D |
|  | DG-1 WOUS |  | DG-5 |
|  | DG-2 |  | DG-6 |
|  | DG-2 New Channels |  | DG-7 (Temp Impacts) |
|  | DG-2 WOUS |  | DG-8 (Temp Impacts) |
|  | DG-2A |  | DG-9 (Temp Impacts) |
|  | DG-2B |  | DG-East Trail 1 |
|  | DG-3A |  | DG-East Trail 2 |
|  | DG-3B |  | DG-East Trail 3 |
|  | DG-3B(Alta Dena) |  | DG-East Trail 4 |
|  | DG-4 |  | DG-Park |
|  | DG-4 Drainage |  | DG-Park-Drainage |
|  | DG-4 Sheetflow |  | DG-SF-1 |
|  | DG-4 WOUS |  | DG-SF-2 |
|  | DG-4 WOUS Connections |  | DG-W-1 (Johnson Field) |
|  | DG-4A |  | DG-W-2 (Mining Pit) |
|  | DG-4B |  | DG-W-2 (Mining Pit Outlet) |

3.2 Grading and Recontouring

Grading and recontouring for Phase 2 was conducted 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.

3.3 Seeding

Upon completion of the initial weed abatement effort, the seeding process, which consisted of broadcast seeding, commenced on January 11, 2021. Seed used for the Project was procured from S&S Seeds Inc. and only seed materials collected within the acceptable geographic regions described in Section 4.9 of the HRP was used. Broadcast seeding was completed using hand-crank spreaders or simply by-hand. Seed was applied evenly throughout each mitigation area and incorporated into the soil to a depth of approximately 0.5 inches using metal hand rakes. To the extent possible, seed was applied during the fall, winter, or other periods when sufficient rainfall was expected to occur.

Table 1. Summary of Seeding					
Scientific Name	Common Name	PLS Lbs./Acre per HRP ¹	PLS Lbs./Acre Applied	Percent Purity	Percent Germination
Mulefat Thickets Seed Mix					
<i>Ambrosia psilostachya</i>	western ragweed	4	4	4	41
<i>Artemisia douglasiana</i>	mugwort	4	4	20	34
<i>Elymus triticoides</i>	beardless wild rye	4	4	95	80
<i>Urtica dioica</i> ssp. <i>holosericea</i>	hoary nettle	4	4	64	63
<i>Achillea millefolium</i>	yarrow	1	1	98	85
<i>Artemisia dracunculus</i>	tarragon	1	1	12	74
<i>Bromus carinatus</i>	California brome	1	1	98	85
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	south coast morning glory	0.5	0.5	99	81
<i>Cirsium occidentale</i>	western thistle	1	0.25	No Test	No Test
<i>Elymus condensatus</i>	giant wild rye	1	1	77	90
<i>Epilobium canum</i>	California fuchsia	0.5	Not Available ²	N/A	N/A
<i>Epilobium ciliatum</i>	slender willow herb	NA	.5	8	76

Table 1. Summary of Seeding					
Scientific Name	Common Name	PLS Lbs./Acre per HRP ¹	PLS Lbs./Acre Applied	Percent Purity	Percent Germination
<i>Eriodictyon parryi</i>	poodle-dog bush	0.5	Not Available ²	N/A	N/A
<i>Eriodictyon crassifolium</i>	thickleaf yerba santa	NA	0.5	59	64
<i>Eschscholzia californica</i>	California poppy	0.5	0.5	90	80
<i>Galium aparine</i>	Cleavers	0.5	0.25	No Test	No Test
<i>Gutierrezia californica</i> ⁴	matchweed	0.5	0.5	10	76
<i>Lupinus bicolor</i>	bicolored lupine	0.5	0.5	95	85
<i>Lupinus truncata</i>	blunt-leaved lupine	0.5	Not Available ²	N/A	N/A
<i>Monardella breweri</i> ssp. <i>lanceolata</i>	mustang mint	0.5	0.5	No Test	No Test
<i>Phacelia cicutaria</i>	caterpillar phacelia	0.5	0.5	95	70
<i>Phacelia distans</i>	common phacelia	0.5	0.5	95	70
<i>Phacelia minor</i>	wild Canterbury bells	0.5	0.5	90	60
<i>Phacelia parryi</i>	Parry's phacelia	0.5	0.5	99	91
<i>Marah macrocarpa</i>	chilicothe	0.5	0.5	99	28
<i>Pseudognaphalium californicum</i>	California everlasting	0.5	0.5	23	26
<i>Rumex hymenosepalus</i>	wild rhubarb	0.5	Not Available ²	N/A	N/A
<i>Vitis girdiana</i>	Southern wild grape	1	Not Available ²	N/A	N/A
Primary Seed Mix Total		30.0	27.0		
Black Willow Thickets Seed Mix					
<i>Anemopsis californica</i>	yerba mansa	3	3	62	45
<i>Artemisia douglasiana</i>	mugwort	5	5	20	34
<i>Cyperus eragrostis</i>	tall flatsedge	3	3	99	88
<i>Elymus triticoides</i>	beardless wild rye	2	2	95	80
<i>Urtica dioica</i> ssp. <i>holosericea</i>	hoary nettle	3	3	64	63
<i>Achillea millefolium</i>	yarrow	1	1	98	85
<i>Artemisia dracunculul</i>	tarragon	1	1	12	74
<i>Bromus carinatus</i>	California brome	1	1	98	85
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	south coast morning glory	0.5	0.5	99	81
<i>Cirsium occidentale</i>	western thistle	1	0.25	No Test	No Test
<i>Elymus condensatus</i>	giant wild rye	1	1	77	90
<i>Epilobium canum</i>	California fuchsia	0.5	0.25	N/A	N/A

Table 1. Summary of Seeding					
Scientific Name	Common Name	PLS Lbs./Acre per HRP ¹	PLS Lbs./Acre Applied	Percent Purity	Percent Germination
<i>Eriodictyon parryi</i>	poodle-dog bush	0.5	Not Available ²	N/A	N/A
<i>Eschscholzia californica</i>	California poppy	0.5	0.5	90	80
<i>Galium aparine</i>	Cleavers	0.5	0.25	No Test	No Test
<i>Gutierrezia californica</i>	matchweed	0.5	0.5	10	76
<i>Lupinus bicolor</i>	bicolored lupine	0.5	0.5	95	85
<i>Lupinus truncata</i>	blunt-leaved lupine	0.5	Not Available ²	N/A	N/A
<i>Monardella breweri</i> ssp. <i>lanceolata</i>	mustang mint	0.5	0.5	No Test	No Test
<i>Phacelia cicutaria</i>	caterpillar phacelia	0.5	0.5	95	70
<i>Phacelia distans</i>	common phacelia	0.5	0.5	95	70
<i>Phacelia minor</i>	wild Canterbury bells	0.5	0.5	90	60
<i>Phacelia parryi</i>	Parry's phacelia	0.5	Not Available ²	99	91
<i>Marah macrocarpa</i>	chilicothe	0.5	0.5	99	28
<i>Pseudognaphalium californicum</i>	California everlasting	0.5	0.5	23	26
<i>Rumex hymenosepalus</i>	wild rhubarb	0.5	Not Available ²	N/A	N/A
<i>Vitis girdiana</i>	Southern wild grape	1	Not Available ²	N/A	N/A
Black Willow Thickets Seed Mix Total		30.0	25.75		

¹HRP – Habitat Restoration Plan²Not Available – Was not available for purchase from seed vendor.

PLS – Pure Live Seed

Lbs. – Pounds

N/A – Not Applicable

3.4 Container Plant Installation

The container plant installation process commenced on January 11, 2021 and was completed on May 5, 2021. Container plants used for the Project were procured from Tree of Life Nursery and Arroyo Seco Foundation (ASF) 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 Restoration Ecologist (RE) to ensure that container stock was healthy and did not show signs of having pests or disease. Container stock determined to be in poor condition was rejected by the RE.

Container plant installation followed the methods described in Section 4.11 of the HRP. Container plants were planted using standard horticultural practices. Planting holes for all container plants were dug to a width twice the size of the root ball and to a depth slightly deeper than the depth of root ball so that the root crown was one 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 one gallon of water. Planting holes were backfilled with native soil and irrigation basins were formed around the base of each planting. Basins were constructed to be a minimum of two feet wide and with a ridge no less than four inches. Rocks greater than two inches in diameter were removed to the extent possible from the backfill soil. Fertilizer was not added to backfill. Soil was tamped-in by hand to collapse air pockets in the backfill. All container plants were irrigated with a minimum of one 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. Table 2 provides a summary of the species and numbers of container plants installed during Phase 2.

3.5 Photo Documentation

Digital photographs were taken during key steps of the implementation process. Relevant photos are provided in Appendix B.

Table 2. Summary of Container Planting							
Scientific Name	Common Name	DG-					TOTAL
		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/ DG-SF-1	
<i>Artemisia douglasiana</i>	Mugwort	349	448	187	50	31	1,065
<i>Baccharis pilularis</i>	Coyote brush	349	375	187	50	31	992
<i>Baccharis salicifolia</i>	mulefat	673	827	228	61	37	1,826
<i>Populus fremontii</i>	Fremont's cottonwood	349	375	187	50	31	992
<i>Rosa californica</i>	California rose	349	375	187	50	31	992
<i>Rubus ursinus</i>	California blackberry	349	375	141	38	23	926
<i>Salix gooddingii</i>	Black willow	698	896	373	101	61	2,129
<i>Salix laevigata</i>	Red willow	349	375	187	50	31	992
<i>Salix lasiolepis</i>	Arroyo willow	349	375	187	50	31	992
<i>Sambucus mexicana</i>	Mexican elderberry	175	225	94	25	15	534
Total		3989	4646	1958	525	322	11,440

4.0 COMPLIANCE WITH HABITAT RESTORATION PLAN

During the implementation process, few deviations from the HRP were required. Minor deviations, including species substitutions to the seed mix and planting and seeding outside of the fall and winter seasons did occur. All substitutions to the seed mix were approved by CDFW prior to being used for the restoration effort and seeding outside of the fall and winter months only occurred when sufficient rainfall was forecasted. Certain species were not available when the seed order was placed and in some cases, the required pounds per acre were not available so the seed was applied at a lower rate; however, the HRP discusses the fact that not all of the species may be available at the time of implementation. Table 3 provides a summary of the Phase 2 mitigation areas, associated acreages, and associated vegetation

communities. The table includes both the acres of the mitigation areas without the easements and the total acres in each of the mitigation areas including the easements. The areas within the easements were included in the planting and seeding but the acreage within the easements are not counted as mitigation.

Table 3. Summary of Phase 2 Mitigation Areas				
Site #	Target Vegetation Type	Mitigation Method	Acreage Excluding Easements	Total Acreage
DG-W-1 (Johnson Field)	<i>Salix gooddingii</i> Woodland Alliance	Creation	3.01	3.44
DG-W-2 (Mining Pit)	<i>Salix gooddingii</i> Woodland Alliance	Restoration	1.98	2.12
DG-W-2 (Mining Pit Outlet)	<i>Salix gooddingii</i> Woodland Alliance	Creation	0.13	0.13
DG-2	<i>Salix gooddingii</i> Woodland Alliance/ <i>Baccharis salicifolia</i> Shrubland Alliance	Restoration-Enhancement	3.75	3.83
DG-2 New Channels	<i>Salix gooddingii</i> Woodland Alliance	Creation	0.83	0.83
DG-2 WOUS	<i>Salix gooddingii</i> Woodland Alliance	Restoration	0.75	0.75
DG-4A ¹	<i>Salix gooddingii</i> Woodland Alliance <i>Baccharis salicifolia</i> Shrubland Alliance	Creation	5.43	5.46
DG-4-Sheet Flow	<i>Salix gooddingii</i> Woodland Alliance/ <i>Baccharis salicifolia</i> Shrubland Alliance	Restoration-Enhancement	0.40	0.40
DG-SF-1	<i>Salix gooddingii</i> Woodland Alliance	Restoration	0.08	0.08
DG-SF-2 ¹	<i>Salix gooddingii</i> Woodland Alliance	Restoration	0.03	0.03
DG-4-WOUS ²	<i>Salix gooddingii</i> Woodland Alliance/ <i>Baccharis salicifolia</i> Shrubland Alliance	Restoration	1.84	1.88
DG-4-Drainage ¹	<i>Salix gooddingii</i> Woodland Alliance	Restoration	0.49	0.49
TOTAL			18.72	19.44

¹Weed abatement only

²Weed abatement and grading/recontouring only

5.0 IMPLEMENTATION ACCEPTANCE

The Phase 2 mitigation sites will be maintained and monitored for a period of five years, or until the performance standards outlined in the HRP are achieved and CDFW determines the site is successful. Habitat restoration implementation for Phase 2 of the Project was completed on May 5, 2021; therefore, the five-year maintenance and monitoring period for Phase 2 commenced on May 5, 2021 and the assumed end dates will be May 5, 2026. Per the HRP, a total of 19.44 acres of onsite mitigation has been installed (easements were planted and seeded but do not count towards mitigation) and will be monitored until the areas meet the performance standards to achieve the mitigation requirement for the Phase 2 restoration areas. It should be noted that the acreage of the mitigation areas will potentially change following the approval of the LSAA amendment that is currently in process.

6.0 REFERENCES

- CDFW. 2018. Amendment of Lake or Streambed Alteration Agreement for the Devil's Gate Sediment Removal and Management Project (Notification No. 1600-2015-0263-R5). Permittee: Los Angeles County Department of Public Works. July 17, 2018.
- CDFW. 2017. Lake or Streambed Alteration Agreement for the Devil's Gate Sediment Removal and Management Project (Notification No. 1600-2015-0263-R5). Permittee: Los Angeles County Department of Public Works. March 21, 2017.
- ECORP Consulting, Inc. 2020. *Devil's Gate Reservoir Restoration Project Final Design Plans*.
- ECORP Consulting, Inc. 2018. *Devil's Gate Sediment Removal and Management Project Final Habitat Restoration Plan*.

LIST OF APPENDICES

Appendix A – Streambed Alteration Agreement No. 1600-2015-0263-R5

Appendix B – Photo Documentation

Streambed Alteration Agreement No. 1600-2018-0042-R6



MARK PESTRELLA, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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
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

Conserving California's Wildlife Since 1870

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 ~~2.41~~ **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 flood³ 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 leptoceras*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Parish's gooseberry (*Ribes divaricatum* var. *parishii*), black willow thickets, mulefat thickets, riparian herbaceous, coast live oak woodland, scale broom scrub, and all other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area. These resources are further detailed and more particularly described in the document(s): "Devil's Gate Reservoir Sediment Removal and Management Project Final Environmental Impact Report " dated October 2014, prepared for Los Angeles County of Department of Public Works by Chambers Group; **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~~ **7.1** 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 ~~1.00~~ **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 impacts are undetermined at this time because the area's hilly topography may not result in any significant effect or project disturbances may be avoided all together based on project design modifications. ~~made from incorporating Measures to avoidance~~ **impacts to** ~~of~~ oak trees **will be** identified **following the completion of the** ~~in-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, ~~0.50~~ **0.7** acre *Xanthium strumarium* herbaceous stand, ~~0.20~~ **0.7** acre *Quercus agrifolia* coast live oak (trees), ~~0.07 acre Eucalyptus (globulus, camaldulensis) Semi-natural stand,~~ **0.08** **12** 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
<i>Salix gooddingii</i> Woodland Alliance	16.27 15.64	16.27 15.64	22.34 21.44	38.58 37.08
<i>Baccharis saltifolia</i> Shrubland Alliance	8.03 9.71	8.03 9.71	4.83 5.84	12.86 15.55
<i>Lepidospartum squamatum</i> Shrubland Alliance	1.82 1.97	1.82 1.97	7.28 7.88	9.19 8.5
<i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> Shrubland Alliance	0.02 0.01	0.02 0.01	0.04 0.02	0.06 0.03
<i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	2.45 2.61	0.00	1.23 1.31	1.23 1.31
<i>Lepidium latifolium</i> - <i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	9.88 10.24	0.00	4.94 5.12	4.94 5.12
<i>Xanthium strumarium</i> 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~~ **17** 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.

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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.

Mr. Christopher Stone
July 17, 2018
Page 9 of 9

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

Photo Documentation

Attachment B – Photo Documentation



Photo 1. Overview Phase 2 Irrigation Installation



Photo 2. Overview Phase 2 Container Plant Installation

Attachment B – Photo Documentation



Photo 3. Overview Phase 2 Container Plant Installation



Photo 4. Overview Phase 2 Weed Abatement

Attachment B – Photo Documentation



Photo 5. Overview Phase 2 Container Plant Installation



Photo 6. Overview Phase 2 Container Plant Installation

Attachment B – Photo Documentation



Photo 7. Overview Phase 2 Irrigation Installation



Photo 8. Overview Phase 2 Container Plant Installation

Attachment B – Photo Documentation



Photo 9. Overview Phase 2 Container Plant Installation



Photo 10. Overview Phase 2 Seeding

Attachment B – Photo Documentation



Photo 11. Overview Phase 2 Weed Abatement



Photo 12. Overview Phase 2 Container Plants

Attachment B – Photo Documentation



Photo 13. Overview Phase 2 Weed Abatement



Photo 14. Overview Phase 2 Irrigation Installation

Attachment B – Photo Documentation



Photo 15. Overview Phase 2 Weed Abatement



Photo 16. Overview Phase 2 Container Plant Installation

Attachment B – Photo Documentation



Photo 17. Overview Phase 2 Irrigation Installation



Photo 18. Overview Phase 2 Weed Abatement

Attachment B – Photo Documentation



Photo 19. Overview Phase 2 Cage Creation for Container Plants



Photo 20. Overview Phase 2 Tree Removal

Attachment B – Photo Documentation



Photo 21. Overview Phase 2 Weed Abatement



Photo 22. Overview Phase 2 Container Plant Installation

ATTACHMENT G

Year 2 Annual Monitoring Report for the
Devil's Gate Reservoir Restoration Project (Phase 1)
Onsite Habitat Mitigation

**Year 2 Annual Monitoring Report
for the
Devil's Gate Reservoir Restoration Project
(Phase 1) Onsite Habitat Mitigation**

Pasadena, Los Angeles County, California

Prepared for:

Los Angeles County Public Works

Prepared by:



December 17, 2021

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APPENDICES

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

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Appendix C - Year 2 Photo Documentation

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
CDFW	California Department of Fish and Wildlife
CSS	Coastal sage scrub
GPS	Global Positioning System
HRP	Habitat Restoration Plan
IPC	California Invasive Plant Council
JPL	Jet Propulsion Laboratory
LACPW	Los Angeles County Public Works (
LBVI	Least Bell's vireo
LSAA	Lake or Streambed Alteration Agreement
PMA	Permanent Maintenance Area
RAFSS	Riversidean alluvial fan sage scrub
SWL	Static water level

1.0 INTRODUCTION

Los Angeles County Public Works (LACPW) completed Phase 1 of habitat restoration implementation for the Devil's Gate Reservoir Habitat Restoration Project (Project) on February 13, 2020. Habitat restoration is being implemented to comply with the compensatory mitigation requirements in Conditions 3.1, 3.2, and 3.5 of the Lake or Streambed Alteration Agreement (LSAA) (Notification No. 1600-2015-0263-R5 dated March 21, 2017) executed between the California Department of Fish and Wildlife (CDFW) 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 for Phase 1 was conducted in mitigation areas DG-1, DG-1 WOUS, DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5. A small portion of Phase 1 mitigation areas DG-1, DG-3A, DG-3B, and DG-4 were included in the temporary impacts around the perimeter of the Project and will be restored following the completion of the side slopes configuration. A small portion of DG-3A is being used for staging construction equipment and will be restored following the completion of the Project. DG-3B is an additional mitigation area added as a result of the legal settlement. 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*), which is listed as endangered under the federal and California Endangered Species Acts and (CDFW 2018).

The Project, which includes an estimated initial removal of 1.7 million cubic yards (cy) of sediment to establish a Permanent Maintenance Area (PMA), will restore flood capacity and establish a reservoir management system to maintain the flood control capacity of the reservoir. Subsequently, annual maintenance and episodic maintenance will be conducted 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 2 Annual Monitoring Report has been prepared to address the onsite habitat mitigation requirements pursuant to the LSAA for the Project. This report documents the progress of onsite mitigation that the LACPW is responsible for implementing and maintaining for a period of five years for riparian habitats and ten years for upland habitat. Annual reports will be provided until established success criteria have been met and CDFW has deemed the mitigation successful.

1.1 Project Location

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



Figure 1. Project Vicinity

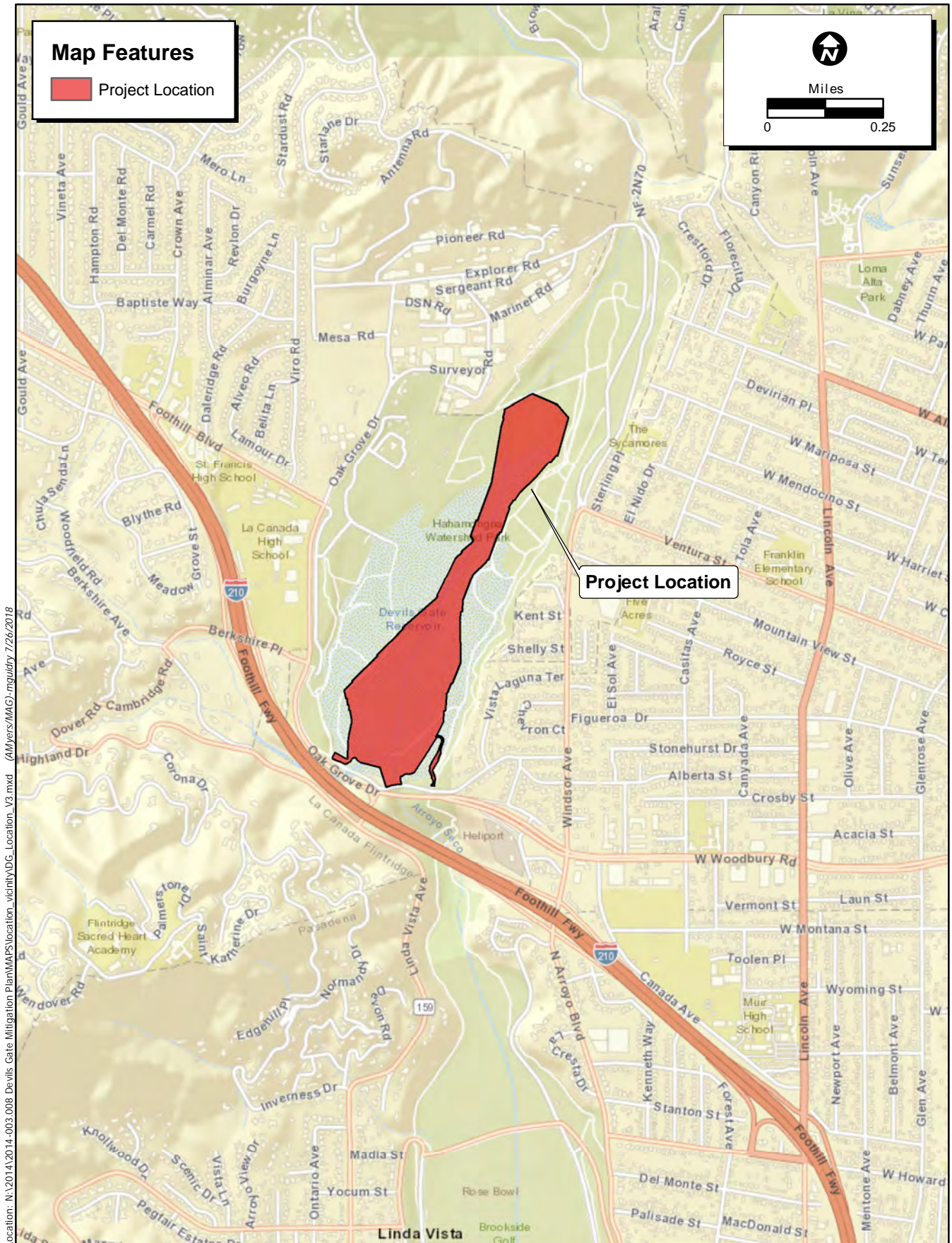


Figure 2. Project Location

The Project site is located along an approximately 4,754-foot linear 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 1 onsite habitat mitigation areas (hereafter referred to as mitigation areas) are located to the east and west of the Devil's Gate Reservoir (Reservoir) just outside of the PMA for the Project (Figure 3). Mitigation areas DG-1, DG-1 WOUS, DG-2A, DG-2B, and DG-3A are located on the east side of the Reservoir and mitigation areas DG-4, DG-4B, DG-4C, and DG-5 are located on the west side of the Reservoir. The mitigation areas are encompassed by the Hahamongna Watershed Park, which is heavily used for recreational activities, such as hiking, bird watching, horseback riding, and disc golf.

2.2 Mitigation Requirements

The LSAA issued by the CDFW for the Project on March 21, 2017 provided a breakdown of the required onsite and offsite compensatory mitigation for permanent impacts (Condition 3.1) as well as the mitigation required for the temporary impacts of the Project (Condition 3.2). The LSAA amendment issued on July 17, 2018 addressed a revision to the Project boundary that changed the overall impacts of the Project. In addition, the LSAA amendment included a revision to Condition 3.1, which addressed the changes in the required onsite mitigation. LACPW is currently in the process of preparing an LSAA amendment application that will account for changes to the permitted Project boundary resulting from clearing that occurred outside of the permitted Project boundary and 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.

The original design of the onsite mitigation for the Project, which is what this annual report is based upon, included the creation, restoration, and enhancement of 69.94 acres subject to CDFW jurisdiction located outside of the PMA. The 69.94 acres of mitigation is required to compensate for permanent impacts to 41.98 acres of CDFW jurisdiction. The LSAA also requires mitigation for temporary impacts to 16.17 acres by delaying the impacts to these areas until the third year of sediment removal and replanting them within 24 months of the impacts. In addition, the Episodic Maintenance Area, or side slopes of the PMA, which encompasses 7.34 acres according to the original design, will be replanted with native vegetation, including shrub and annual species associated with riparian scrub and alluvial scrub vegetation communities. Allowing the side slopes of the Annual Maintenance Area to support native vegetation will provide additional compensatory mitigation by creating a riparian scrub buffer habitat between the areas that are actively managed in the annual maintenance area and the compensatory mitigation areas. The side slopes may be periodically affected by re-contouring if large

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\VA\PS\restoration\analysis\2020-09-15 Restoration_Grading\DG_MitigationAreas_Restoration_Phasing_2021.0723.mxd (VAG) ngulduhy 8/24/2021

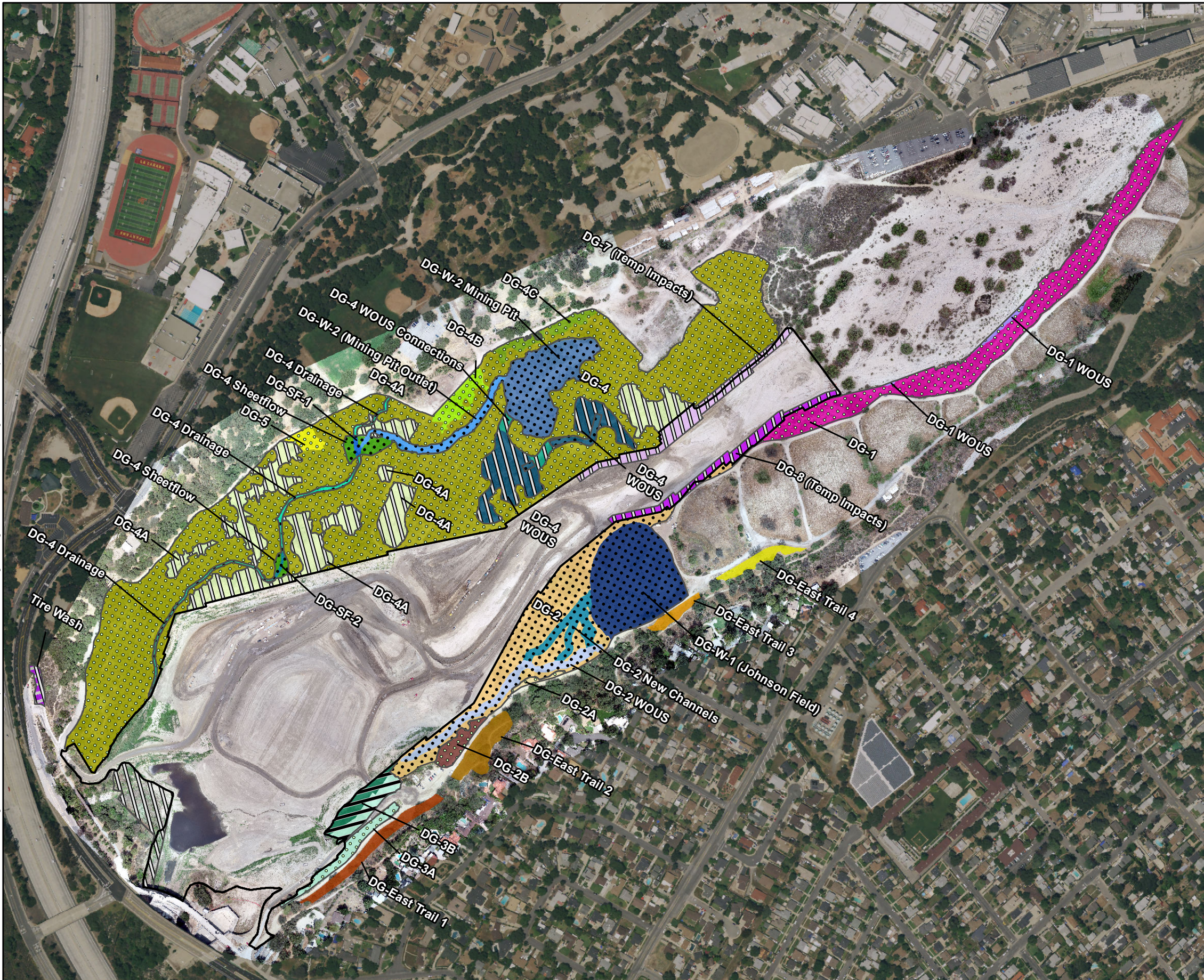
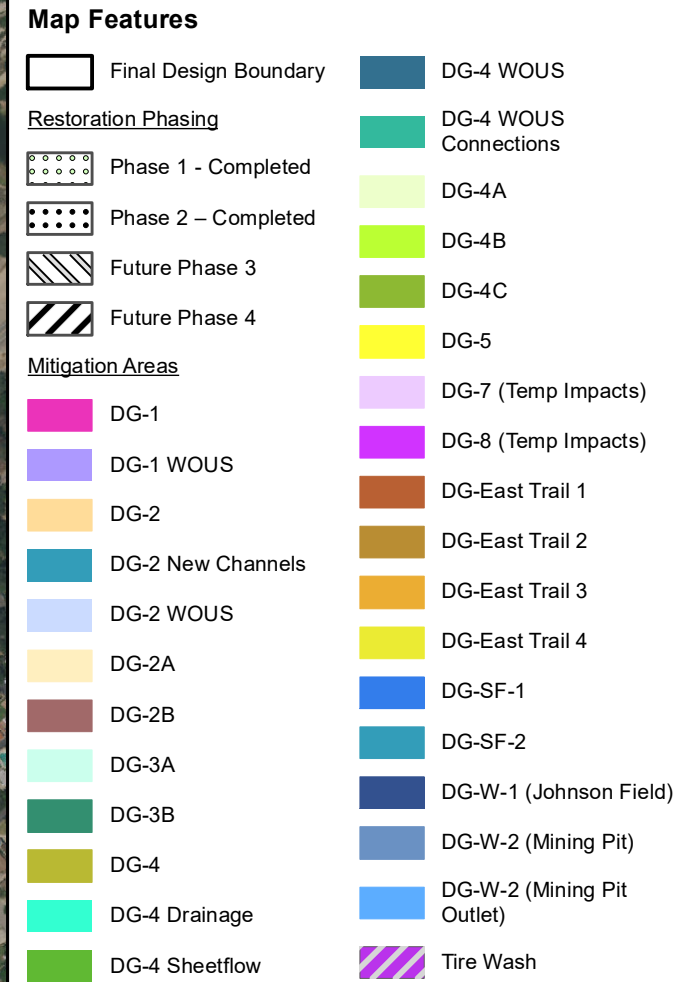
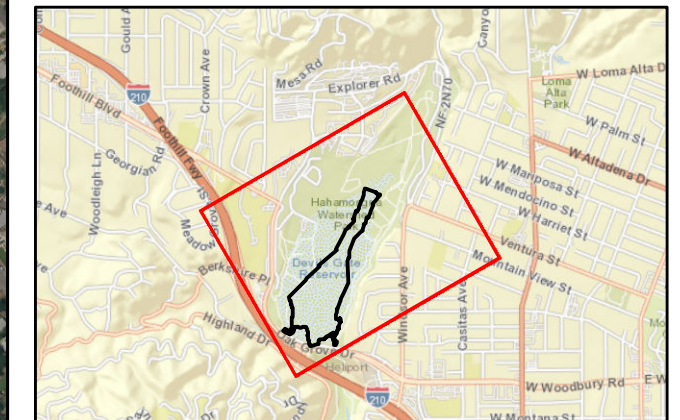


Figure 3.
Onsite Habitat Mitigation Areas



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sediment deposits bury portions of the side slopes. In this case, the sediment will be removed, and the side slopes will be re-contoured 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 ten 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 of Pasadena.

2.4 Mitigation for Impacts to Protected Trees

During the course of construction for the Project, unavoidable impacts to trees protected under the City of Pasadena City Trees and Tree Protection Ordinance and/or the County of Los Angeles Oak Tree Ordinance occurred. A total of 0.606 acre of direct and indirect impacts to native tree canopy protected under the City of Pasadena City Trees and Tree Protection Ordinance, including 0.025 acre of impacts to western sycamore (*Platanus racemosa*), 0.159 acre of impacts to Fremont's cottonwood (*Populus fremontii*), and 0.421 acre of impacts to coast live oak (*Quercus agrifolia*), occurred as a result of the clearing in the Initial Sediment Removal Area and access road construction. In addition, impacts to coast live oak canopy that occurred during construction activities are also protected 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-gal containers) and 474 coast live oaks (300 acorns and 174 1-gallon containers) were planted. Due to concerns with the polyphagous shot hole borer beetle (*Euwallacea* sp.) infestations in populations of western sycamore, this species was not planted during Phase 1 of restoration activities. If conditions allow, this species will be planted during future phases of restoration.

3.0 SUMMARY OF ONSITE HABITAT MITIGATION ACTIVITIES

Habitat restoration implementation was conducted by Natures Image, with oversight by Carley Lancaster (Restoration Ecologist, ECORP Consulting, Inc. [ECORP]), Josh Corona-Bennett (Senior Restoration Ecologist, ECORP), and Mari Quillman (Biological Resources Program Manager, ECORP). During habitat restoration implementation, Natures Image was a subcontractor to ECORP and ECORP was a contractor to LACPW. Implementation of habitat restoration for Phase 1 was conducted in mitigation areas DG-1 WOUS, DG-1, DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5. A total of six vegetation communities were included in the Phase 1 habitat restoration effort including Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance), Black Willow Thickets (*Salix gooddingii* Woodland Alliance), Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance), California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance), Scale Broom Scrub (*Lepidospartum squamatum* Shrubland Alliance), and California Sagebrush – California Buckwheat Scrub (*Artemisia californica*-*Eriogonum fasciculatum* Shrubland

Alliance). Habitat restoration implementation commenced on November 19, 2018 and included nonnative and invasive plant removal and follow-up weed abatement efforts. Following the weed abatement efforts, soil ripping was conducted for mitigation area DG-5 to decompact the soil and to prepare the area for container plant installation and seed application. Following initial weed abatement efforts and soil ripping, container plant installation and seed application commenced in all of the Phase 1 mitigation areas. Implementation for Phase 1 was completed on February 13, 2020. A brief description of the habitat restoration implementation is provided in the following sections.

3.1 Site Preparation

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

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

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

3.2 Irrigation Strategy

A temporary aboveground poly-tube irrigation system with drip emitters was installed for mitigation areas DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DB-4C, and DG-5. Because container plants and pole cuttings were not installed in mitigation areas DG-1 or DG-1 WOUS, an irrigation system was not installed for these areas. The irrigation system was installed and inspected prior to the planting of container plants and pole cuttings. The irrigation system is currently connected to a municipal water source and was fitted with a meter, pressure regulator, and back-flow preventer. Emitters were positioned within the planting basins of each container plant and pole cutting 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, the seeding process, which consisted of broadcast seeding, commenced on April 4, 2019. Seed used for the Project was procured from S&S Seeds Inc. and only seed materials collected within the acceptable geographic regions described in Section 4.9 of the HRP was used. Broadcast seeding was completed using hand-crank spreaders or it was simply spread by-hand. Seed was applied evenly throughout each mitigation area and incorporated into the soil to a depth of approximately 0.5 inch using bow rakes. To the extent possible, seed was applied during the fall, winter, or other periods when sufficient rainfall was expected to occur. In addition to the seed procured from S&S seeds, a total of 300 coast live oak acorns were installed by ECORP in mitigation area DG-3A. The coast live oak acorns were procured from Psomas and were collected within the Lower Arroyo Seco (between State Route-134 and South Pasadena) and public rights-of-way (i.e., streets/swales) in the cities of Arcadia, Monrovia, Pasadena, and Sierra Madre.

3.4 Container Plant Installation

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

Container plant installation followed the methods described in Section 4.11 of the HRP. Container plants were planted using standard horticultural practices. Planting holes for all container plants, except oak trees, were dug to a width twice the size of the root ball and to a depth slightly deeper than the depth of root ball so that the root crown was one inch below grade following installation. Oak trees were planted in a manner that the root crown was 0.5 to one inch above grade following installation (after soil settled following watering). Prior to installation, all plants were thoroughly watered in their containers and the soil in each of the planting holes was wetted with a minimum of one gallon of water. Planting holes were backfilled with native soil and irrigation basins were formed around the base of each planting. Basins were constructed to be a minimum of two feet wide and with a ridge no less than four inches. Rocks greater than two inches in diameter were removed to the extent possible from the backfill soil. Fertilizer was not added to backfill. Soil was tamped-in by hand to collapse air pockets in the backfill. All container plants were irrigated with a minimum of one gallon of water immediately following installation and basin creation. Container plants were planted in ecologically appropriate locations throughout the site and as directed by the RE.

In addition to container plants being installed in the Phase 1 areas, willow and mulefat stakes were also collected and installed in DG-3A and DG-4. Willow and mulefat stakes were collected from suitable donor sites in the Arroyo Seco north of the Project site. Additional willow and mulefat stakes were collected from the mitigation areas where existing vegetation was dense enough to withstand stake collection. Willow and mulefat stake collection followed the methods described in Section 4.10 of the HRP. To ensure

establishment success, cuttings were harvested from live, dormant plants (i.e., willows) in late fall and early winter before the buds started to break. Willow and mulefat stakes were approximately three to four feet long and from one to two-inch diameter at their base. A diagonal cut was made at the base of each stake and the top was cut horizontally to differentiate the rooting end from the above ground end to aid in installation. Lateral branches were also removed during harvesting. The willow stakes were stored (no longer than two weeks) in buckets filled with water and in a cool shaded location until they were ready for planting. Immediately prior to installation, the stakes were dipped in a rooting hormone and then installed in pre-watered holes approximately two feet deep or with more than half of the cutting underground. The holes were backfilled and the soil around the stake tamped-in to ensure good soil to stem contact and no air pockets. The willow stakes were watered immediately following installation. All cuttings were provided with a drip emitter from the irrigation system

3.5 Site Protection

To delineate the site and deter trespassers from entering the mitigation areas, Environmentally Sensitive Area signs were installed and in 2021, 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 2 MAINTENANCE ACTIVITIES

4.1 Maintenance of Onsite Habitat Mitigation Areas

Maintenance for the onsite habitat mitigation areas was conducted by Natures Image, with oversight by Carley Lancaster (Restoration Ecologist, ECORP Consulting, Inc. [ECORP]), Josh Corona-Bennett (Senior Restoration Ecologist, ECORP), Mari Quillman (Biological Resources Program Manager, ECORP), Margie Pfeffer (Biologist, Stillwater Sciences) and Wendy Katagi (Senior Manager, Watershed and Ecosystem Restoration Services, Stillwater Sciences). Currently, Natures Image is a subcontractor to Stillwater Sciences who is a contractor to LACPW, with ECORP continuing to provide oversight of the entire restoration project. Maintenance activities during Year 2 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 2.

4.1.1 Nonnative Weed Abatement

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



Figure 4. Proposed Trails & Site Protection Map

Map Features

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

Mitigation Areas

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



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

During the Year 2 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. During Year 1, herbicide application was employed for a brief period from February 22, 2019 to March 18, 2019; however, herbicide application was suspended due to public concerns and the Los Angeles County Board of Supervisors subsequently placed a moratorium on use of glyphosate at all County facilities until further notice. During the brief period of herbicide application, only herbicide registered for aquatic use and approved for use in wetland habitat restoration by the regulatory agencies (i.e. Roundup Custom™) was used. A blue marking dye was added to allow for the identification of areas sprayed. In addition, following the suspension of herbicide use, a hot water vapor machine was used to treat nonnative weeds in areas where native growth was minimal.

4.1.2 Supplemental Planting

Supplemental planting for the mitigation areas did not occur during Year 2 of restoration activities. Formal mortality counts were taken during the Year 1 botanical monitoring event and supplemental planting will occur during Phase 3 of restoration.

4.1.3 Irrigation Maintenance

During Year 2, the irrigation system was inspected for functionality on a regular basis by Natures Image 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

Minor herbivory of container plants was observed in the mitigation areas during Year 2. Metal cages were installed around plant species that were most targeted for herbivory.

4.1.5 Erosion Control

Only minor erosion control for the mitigation areas was necessary during Year 2. Maintenance of the jute netting installed in DG-3A during site preparation was conducted on an as-needed basis. In addition, erosion of plant basins was addressed during regular maintenance activities.

4.1.6 Vandalism

Vandalism to the mitigation areas and the irrigation system was observed during Year 2. 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.

5.0 SUMMARY OF YEAR 2 MONITORING ACTIVITIES

5.1 Monitoring of Onsite Habitat Mitigation areas

Monitoring activities during Year 2 included both horticultural monitoring and botanical monitoring. Horticultural monitoring was performed monthly during the remainder of Year 1 and quarterly during Year 2. 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. Photodocumentation of the mitigation areas occurred as necessary. In addition to horticultural monitoring, botanical monitoring was conducted in the spring and summer of Year 2. Monitoring events that occurred during Year 2 and the remainder of Year 1 (following the Year 1 botanical monitoring event) are listed in Table 1 below.

Table 1. Onsite Habitat Mitigation Site Monitoring Events	
Date	Monitoring Type
10/7/20	Monthly Horticultural Monitoring
11/24/20	Monthly Horticultural Monitoring
12/16/20	Monthly Horticultural Monitoring
1/13/21	Monthly Horticultural Monitoring
1/28/21	Monthly Horticultural Monitoring
2/25/21	Monthly Horticultural Monitoring
5/17/21	Quarterly Horticultural Monitoring
5/20/21	Botanical Monitoring
5/28/21	Botanical Monitoring
6/3/21	Botanical Monitoring
6/8/21	Botanical Monitoring
6/17/21	Botanical Monitoring
7/13/21	Botanical Monitoring
7/16/21	Botanical Monitoring
7/30/21	Botanical Monitoring
8/26/21	Quarterly Horticultural Monitoring

5.2 Horticultural Monitoring Summary

5.2.1 Soil Moisture and Irrigation Functionality

Soil moisture levels were assessed throughout the mitigation areas during the horticultural monitoring visits. Soil moisture depth was typically determined using a handheld garden trowel to dig below the surface. In addition to assessing soil moisture, irrigation lines were inspected for functionality. Minor issues with the irrigation system, including misplaced emitters, animal damage to the irrigation line, and vandalism were observed during Year 2. These issues were immediately brought to the attention of Natures Image 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 at 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 2. 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 1 monitoring included common yarrow (*Achillea millefolium*), annual bursage (*Ambrosia acanthicarpa*), California sagebrush (*Artemisia californica*), mugwort (*Artemisia douglasiana*), mulefat (*Baccharis salicifolia*), California brome grass (*Bromus carinatus*), common sandaster (*Corethrogyne filaginifolia*), tall flatsedge (*Cyperus eragrostis*), jimsonweed (*Datura wrightii*), Canada horseweed (*Erigeron canadensis*), California buckwheat (*Eriogonum fasciculatum*), California poppy (*Eschscholzia californica*), telegraph weed (*Heterotheca grandiflora*), evening primrose (*Oenothera elata*), caterpillar phacelia (*Phacelia cicutaria*), California bluebells (*Phacelia minor*), California everlasting (*Pseudognaphalium californicum*), poison oak (*Toxicodendron diversilobum*), stinging nettle (*Urtica dioica*), and rough cocklebur (*Xanthium strumarium*).

5.2.3 Container Plant Health

Container plant health varied throughout the year, with spring showing the most prolific growth. Seasonal dieback of the willow species (*Salix* sp.) was observed during both the horticultural monitoring visits during the fall and winter months. Drought stress was observed during the Year 2 monitoring, typically during the summer months.

5.2.4 Nonnative and Invasive Plant Species

Nonnative plant species presence within the mitigation areas varied during Year 2 and was most abundant during the spring. Perennial pepperweed is very dense and established in some of the mitigation areas, especially portions of DG-4. Because perennial pepperweed can produce dense colonies through seed germination and underground rhizomes (rhizomatous roots), removal of this species without the use of systemic herbicide is very difficult. Nonnative plant species encountered within the mitigation areas during Year 2 were removed using hand tools, including hula hoes and weed whips. In addition, a hot water vapor machine was used to treat nonnative weeds in areas where native growth was minimal. All planting basins were hand-weeded to avoid damage from hand tools and/or hot water vapor.

5.2.5 Herbivory, Plant Pests, and Plant Disease

Herbivory of container plants was observed within the mitigation areas during Year 2. The species most affected by herbivory was California rose. Following observations of herbivory, protective cages were installed around affected plants. Gopher herbivory was also observed to be an issue in the DG-5 mitigation area and may warrant eradication efforts of this species; however, as the plants in this mitigation areas become more established, gopher herbivory is less of a concern.

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

5.2.6 Erosion Issues

Only minor erosion issues were observed within the mitigation areas during Year 2. The steeper slopes in DG-3A were observed to be most affected by erosion. In addition, erosion at Alta Dena drain and within mitigation area DG-3A occurred during the rainy season. Repairs to jute netting, irrigation lines, and plant basins were conducted during Year 2 on an as-needed basis.

5.2.7 Photo Documentation

Photo documentation occurred throughout Year 2 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 2 was conducted during the spring and summer. Container plant survival was determined by counting all container plants that were dead, missing, or in a condition unlikely to survive. If a volunteer or recruit of the same species originally planted was determined to be growing within the planting basin (or within one meter of that basin) of a dead container plant, then that plant was counted toward the survival total. Native and nonnative plant cover was determined using a modified point-line intercept method along established transect lines (Elzinga et al. 2001). During Year 1, a total of 25 transect lines were established randomly throughout the mitigation areas (Figures 5a through 5h). In addition, a total of 7 transect lines were established in undisturbed reference sites with similar vegetation communities as the mitigation areas (Figure 6). The start and end of each transect line was marked with steel rebar and a plastic orange cap and Global Positioning System (GPS) 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 Year 1 for Riversidean alluvial fan sage scrub (RAFSS), coastal sage scrub (CSS), oak woodland, riparian scrub, riparian woodland, and least Bell's vireo (LBVI) habitats.

Reference sites were relatively undisturbed and had vegetation composition similar to the goal vegetation communities for the mitigation areas. The reference site for the LBVI habitat was selected in 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 2 and the data from Year 1 will be used for comparison.

Data was collected along each transect at every 0.5 m (sampling location), starting at 0.5 m. 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 one-meter to the left and right of each of the 25 transects within the mitigation areas, and the 7 transects within the reference sites.

Per the requirements of Section 7.1.4 in the HRP, groundwater data collected by the City of Pasadena and the Jet Propulsion Laboratory (JPL) was provided to ECORP for the 2020 and 2021 monitoring years. Data provided by the City of Pasadena was collected at three wells on the east side of the Devil's Gate Reservoir towards the northern portion of the Project area. This data was collected during the fall of 2020 (Year 1) and on October 12, 2021 (Year 2) and includes the depth in feet from the reference elevation to the static water surface (i.e., static water level [SWL]). Data provided by JPL was collected at 26 wells to the north, east, and west of the Devil's Gate Reservoir. This data was collected on February 14, 2020, June 8, 2020, and August 14, 2020 for Year 1 and March 19, 2021, May 17, 2021, and July 16, 2021 for Year 2 and includes water level data in feet above msl.

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

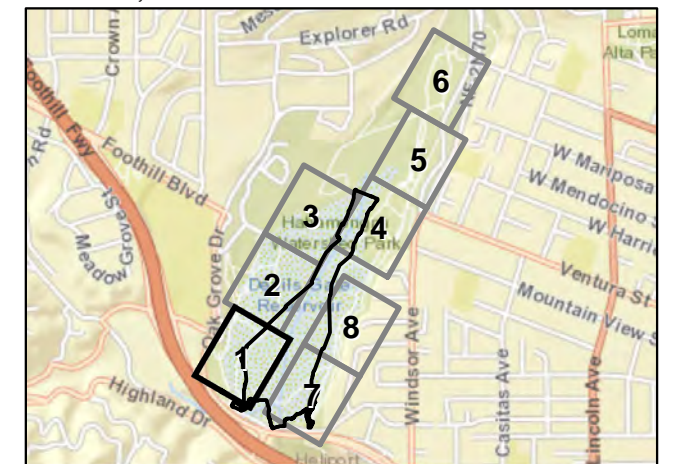
Map Features

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

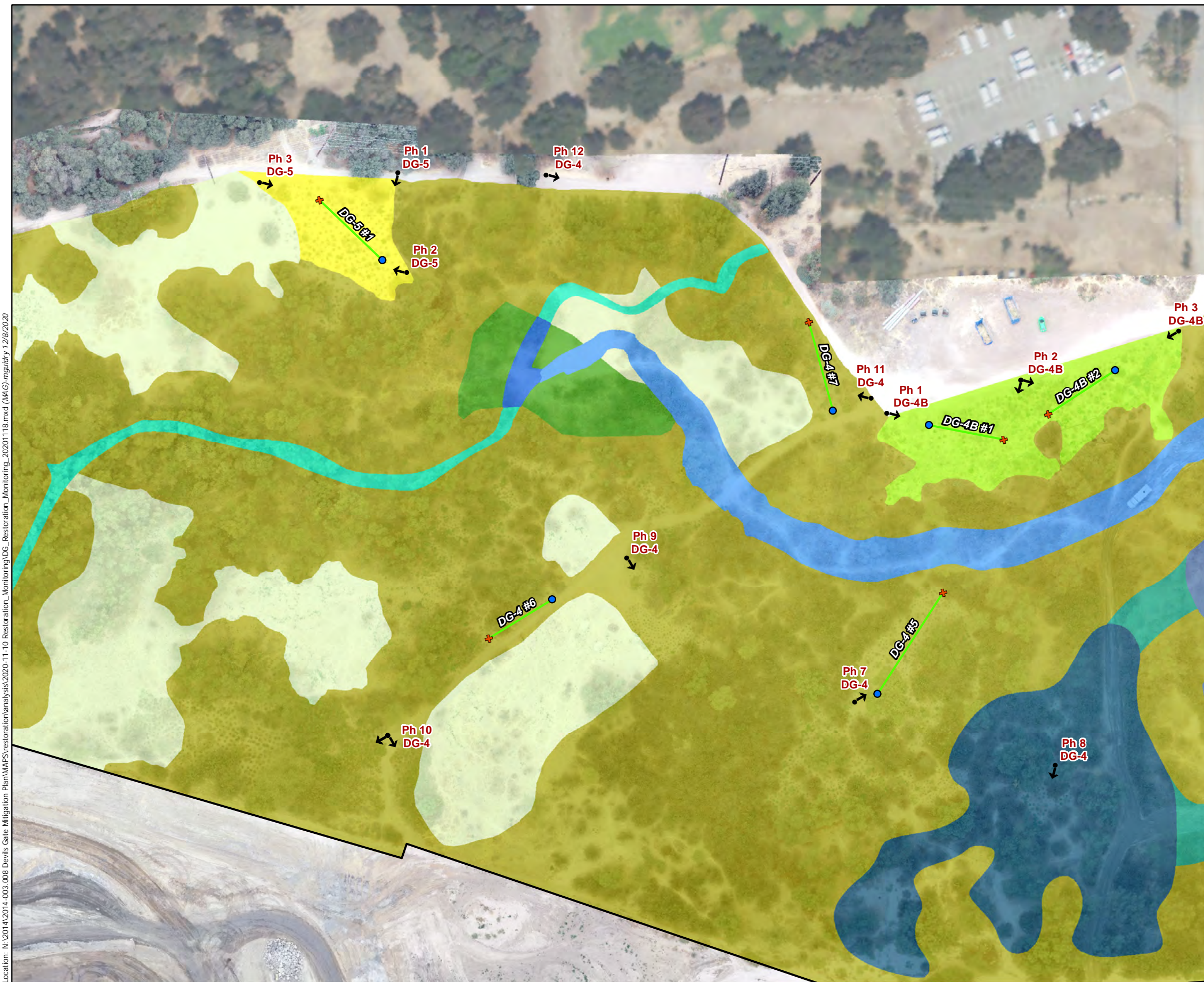
Mitigation Areas

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

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



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**Figure 5. Transect Locations
Onsite Mitigation Areas**
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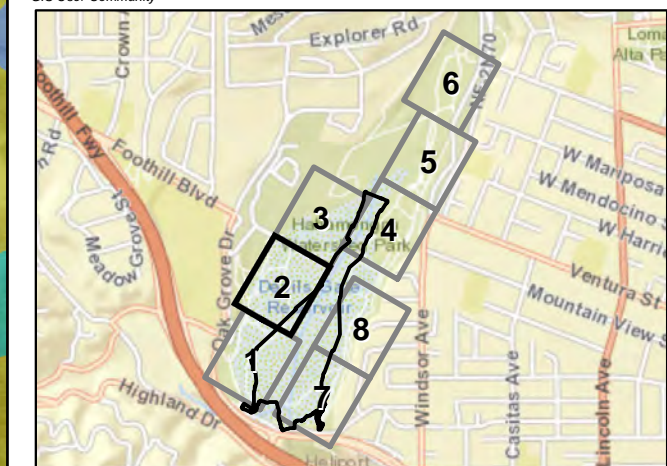
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- Transect End
- Restoration Transect

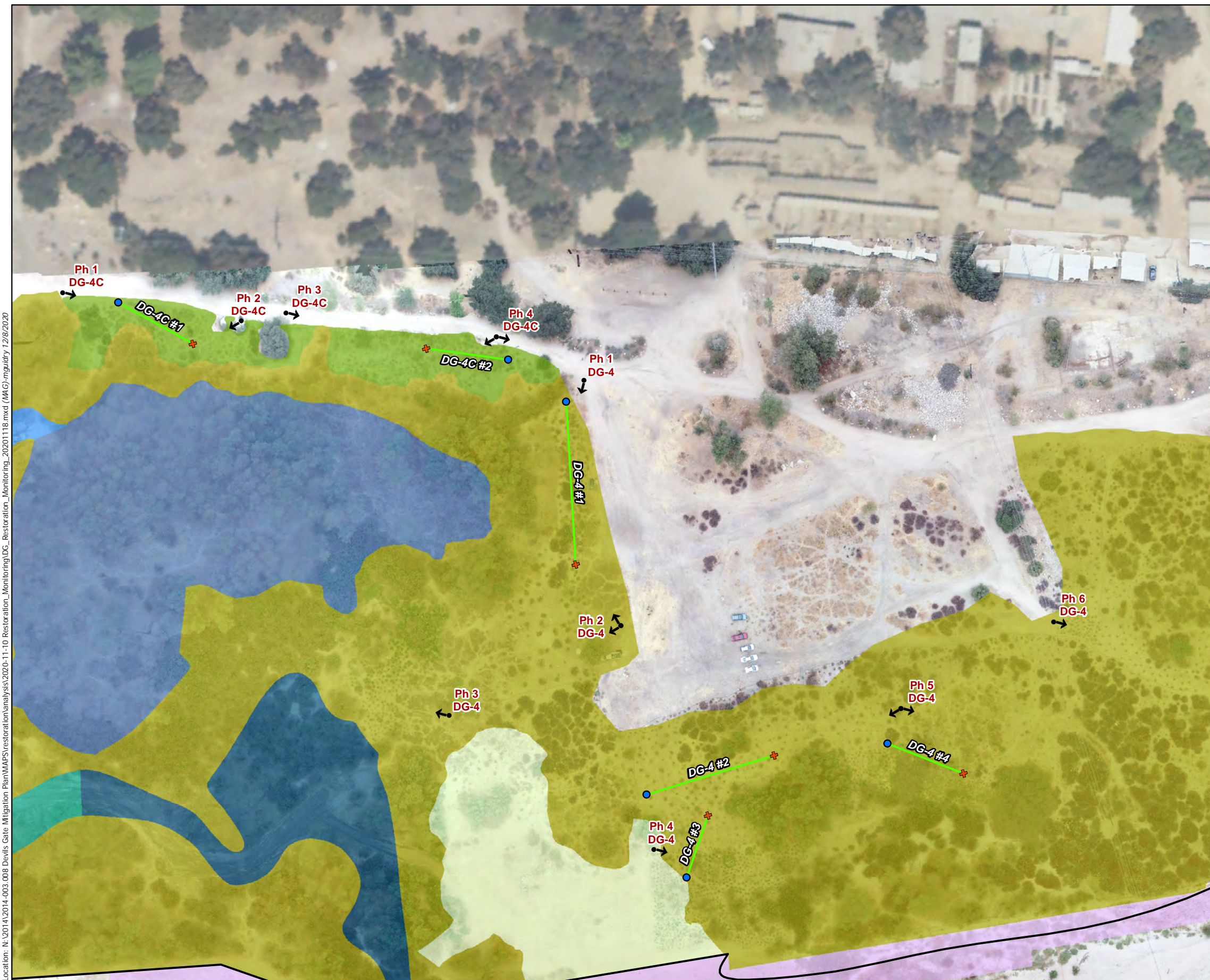
Mitigation Areas

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

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Location: N:\2014\2014-003_008 Devils Gate Mitigation Plan\WAPs\restoration\analysis\2020-11-10 Restoration_Monitoring\DC_Restoration_20201118.mxd (MAG-mguldry 12/8/2020)



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

Map Features

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

Mitigation Areas

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

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



Location: N:\2014\2014-003_008 Devils Gate Mitigation Plan\MapS\restoration\analysis\2020-11-10 Restoration_Monitoring\DC_Restoration_Monitoring_20201118.mxd (MAG-mguldry 12/8/2020)



Figure 5. Transect Locations
Onsite Mitigation Areas
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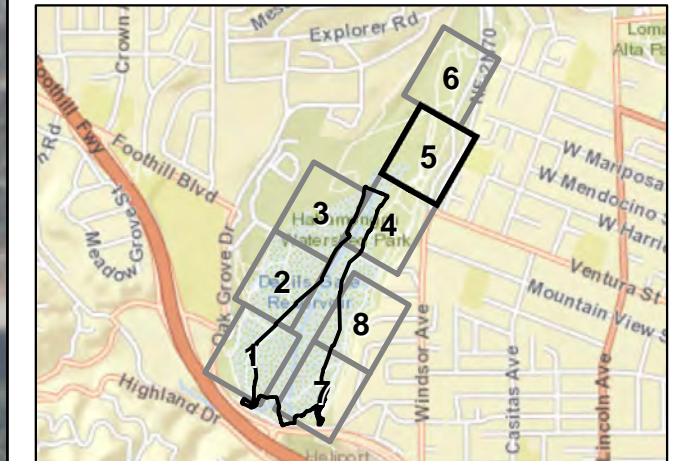
Map Features

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

Mitigation Areas

- DG-1
- DG-1 WOUS

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



Location: N:\2014\2014-003_008 Devils Gate Mitigation Plan\WAPs\restoration\analysis\2020-11-10 Restoration_Monitoring\DC_Restoration_Monitoring_20201118.mxd (M4C)\mguldrf 12/8/2020



Figure 5. Transect Locations
Onsite Mitigation Areas
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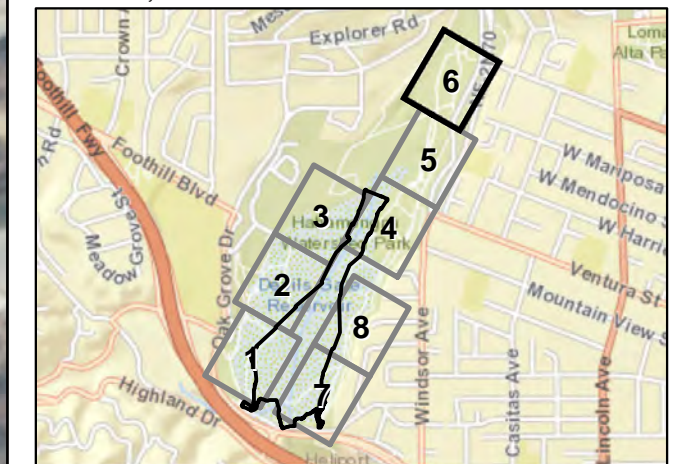
Map Features

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

Mitigation Areas

- DG-1

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



Location: N:\2014\2014-003_008 Devils Gate Mitigation Plan\MAPS\restoration\analysis\2020-11-10 Restoration_Monitoring\DC_Restoration_Monitoring_20201118.mxd (MAG:mguldrv 12/8/2020)



**Figure 5. Transect Locations
Onsite Mitigation Areas
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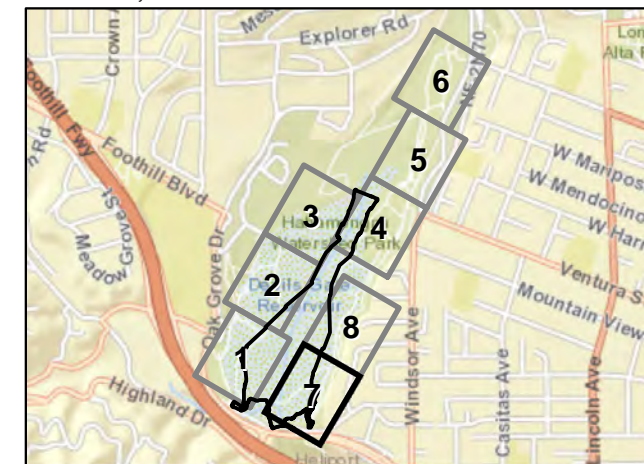
Map Features

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

Mitigation Areas

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

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



Location: N:\2014\2014-003_008 Devils Gate Mitigation Plan\WAPS\restorationanalysis\2020-11-10 Restoration_Monitoring\DC_Restoration_Monitoring_20201118.mxd (MAG)mguidry 12/8/2020



Figure 5. Transect Locations
Onsite Mitigation Areas
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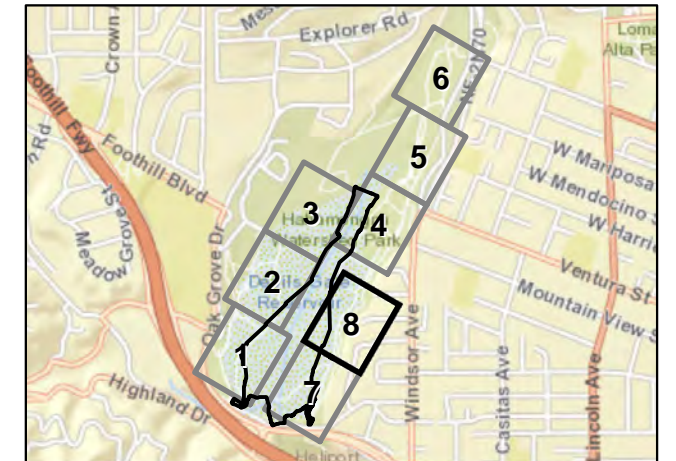
Map Features

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

Mitigation Areas

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

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



Location: N:\2014\2014-003.008 Devil's Gate Sediment Removal Project\MapS\restoration\analysis\2020-11-10 Restoration_Monitoring\DC_Reference_Transsects_20201106.mxd (MAG-mguldry 11/18/2020)

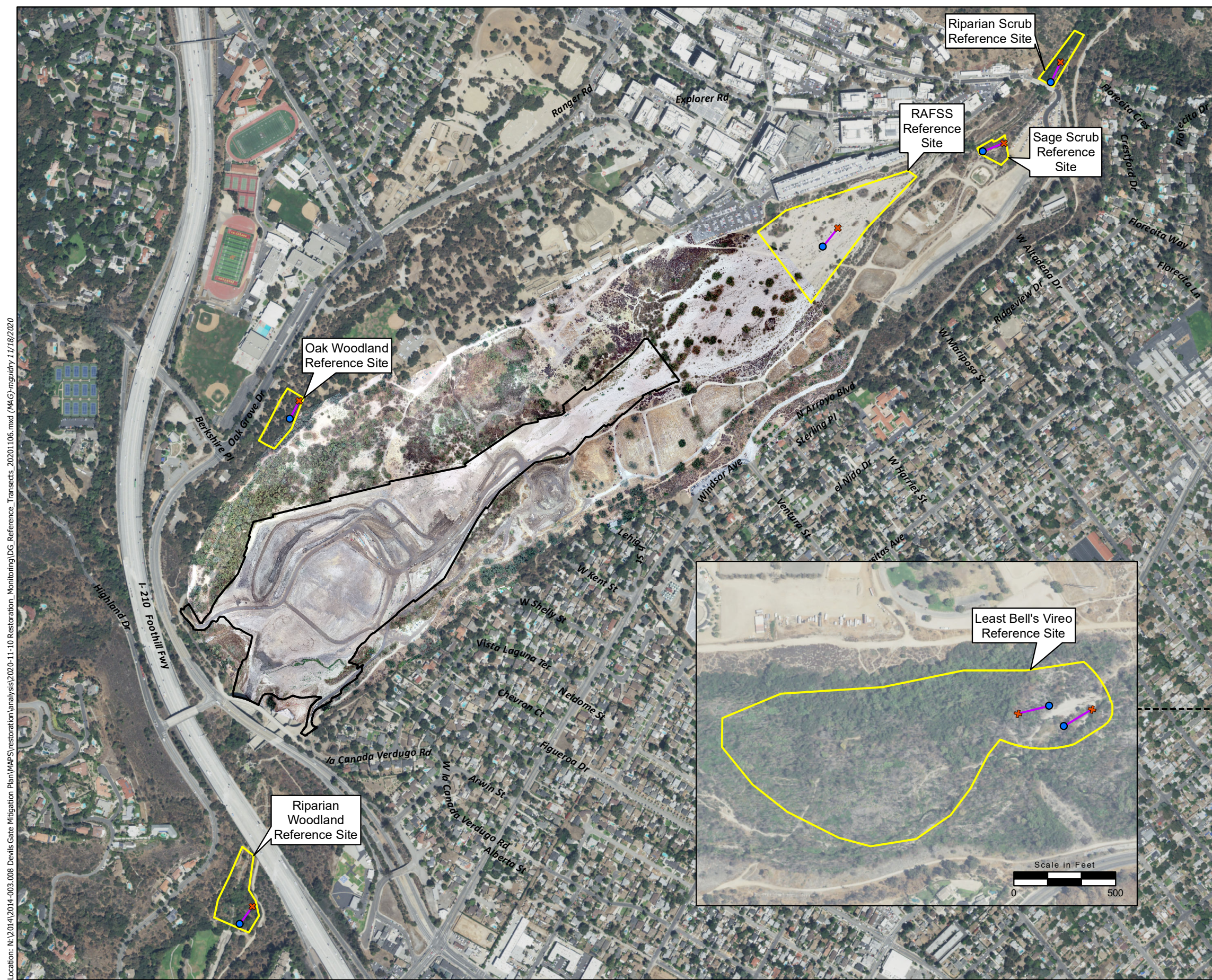
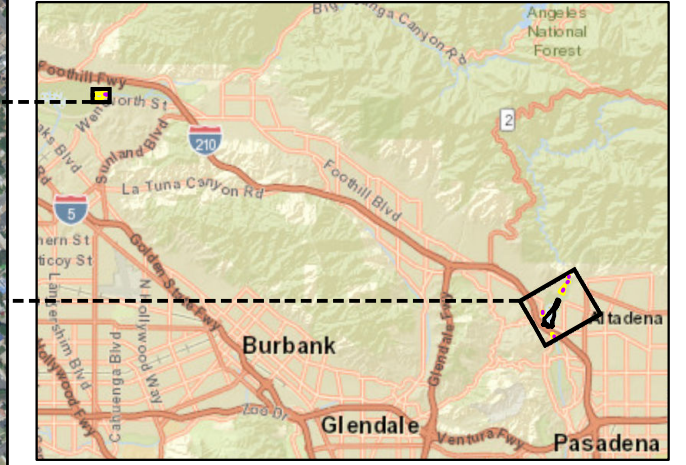


Figure 6.
Transect Locations Reference Sites

- Map Features**
- Final Design Boundary ¹
 - Reference Site
 - Reference Transect
 - Transect Start
 - Transect End

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



5.3.2 Botanical Monitoring Results

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

5.3.2.1 Container Plant Survivorship

Year 2 survival counts were conducted during the annual botanical monitoring. Overall, plant mortality for Year 2 was found to be low with survivorship ranging from 73.2 to 96.6 percent in the mitigation areas. The overall survivorship percentage for container plants in the Phase 1 restoration areas was 93.2 percent. The container plant survival data is listed in Table 2.

Table 2. Container Plant Survivorship						
Mitigation Area	Container Plants	Year 1	Year 2	Year 3³	Year 4³	Year 5³
DG-2A	Number Planted	120	120 ²			
	Number of Mortalities	8	0			
	Survivorship (%) ¹	93.3	93.3			
DG-2B	Number Planted	456	456 ²			
	Number of Mortalities	24	0			
	Survivorship (%) ¹	94.7	94.7			
DG-3A	Number Planted	687	687 ²			
	Number of Mortalities	172	12			
	Survivorship (%) ¹	74.9	73.2			
DG-4	Number Planted	10,581	10,581 ²			
	Number of Mortalities	514	51			
	Survivorship (%) ¹	95.1	94.7			
DG-4B	Number Planted	648	648 ²			
	Number of Mortalities	22	0			
	Survivorship (%) ¹	96.6	96.6			
DG-4C	Number Planted	542	542 ²			
	Number of Mortalities	44	10			
	Survivorship (%) ¹	91.9	90.0			
DG-5	Number Planted	312	312 ²			
	Number of Mortalities	46	0			
	Survivorship (%) ¹	85.3	85.3			
Overall	Number Planted	13,346	13,346 ²			
	Number of Mortalities	830	73			
	Survivorship (%) ¹	93.7	93.2			

¹If a volunteer or recruit of the same species originally planted was determined to be growing within the planting basin (or within one meter of that basin) of a dead container plant, then that plant was counted toward the survival total.

²Cumulative number of plants installed.

³To be determined.

5.3.2.2 Percent Native and Nonnative Cover – Mitigation Areas

Native cover for the Phase 1 mitigation areas showed great improvements during Year 2; however, due to drought conditions in 2021, annual cover declined in the oak woodland, riparian, and LBVI mitigation areas. Nonnative cover during Year 2 tended to be low from late summer to late winter; however, certain mitigation areas that were heavily infested with nonnative weeds prior to restoration implementation showed higher levels of nonnative infestation during Year 2 and some mitigation areas showed high levels of weed infestation in the early spring. 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 2 native (perennial/annual) and nonnative cover data for the mitigation areas. The average overall native perennial cover in the RAFSS mitigation areas was 46.4 percent with 0.7 percent cover of native annuals, zero percent cover for nonnatives, and 1.4 percent cover of invasive plants. For the CSS mitigation areas, the average overall native perennial cover was 54.6 percent, the native annual cover was 4.5 percent, and the percent cover of nonnative/invasive plants species was 0.1 and 3.0 percent, respectively. For the oak woodland mitigation areas, the average overall native perennial cover was 49.8 percent, the native annual cover was 14.8 percent, and the percent cover of nonnative/invasive plants species was 1.8 and 1.5 percent, respectively. For the riparian mitigation areas, the average overall native perennial cover was 55.4 percent, the native annual cover was 7.9 percent, and the percent cover of nonnative/invasive plants was 1.0 and 3.1 percent, respectively. Finally, in the LBVI mitigation areas, the average overall native perennial cover of 41.0 percent, the native annual cover was 19.2 percent, and the percent cover of nonnative/invasive plants was 0.3 and 2.4 percent, respectively.

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2 (%)	Year 3¹	Year 4¹	Year 5¹
Riversidean Alluvial Fan Sage Scrub (RAFSS)						
DG-1 WOUS Transect 1 (35 m)	Perennial	45.0	46.4			
	Annual	0.0	0.7			
	Nonnative	0.0	0.0			
	Invasive ²	0.0	1.4			
RAFSS Overall³	Perennial	45.0	46.4			
	Annual	0.0	0.7			
	Nonnative	0.0	0.0			
	Invasive²	0.0	1.4			
Coastal Sage Scrub (CSS)						
DG-1 Transect 1 (45 m)	Perennial	55.6	54.4			
	Annual	0.0	0.0			
	Nonnative	0.0	0.0			
	Invasive ²	3.3	2.2			
DG-1 Transect 2	Perennial	35.5	57.0			

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2 (%)	Year 3¹	Year 4¹	Year 5¹
(55 m)	Annual	14.1	2.5			
	Nonnative	1.8	0.0			
	Invasive ²	7.7	3.5			
DG-1 Transect 3 (50 m)	Perennial	64.1	55.5			
	Annual	0.0	3.0			
	Nonnative	1.0	0.5			
	Invasive ²	7.9	1.4			
DG-4 Transect 1 (50 m)	Perennial	39.0	61.8			
	Annual	5.0	16.8			
	Nonnative	1.5	0.0			
	Invasive ²	5.5	4.3			
DG-4 Transect 2 (40 m)	Perennial	10.0	44.4			
	Annual	0.0	0.0			
	Nonnative	0.0	0.0			
	Invasive ²	5.0	1.9			
CSS Overall³	Perennial	40.8	54.6			
	Annual	3.8	4.5			
	Nonnative	0.9	0.1			
	Invasive²	5.9	3.0			
Coast Live Oak Woodland						
DG-3A Transect 1 (25 m)	Perennial	26.7	48.3			
	Annual	26.3	13.0			
	Nonnative	11.0	2.7			
	Invasive ²	0.0	2.0			
DG-3A Transect 2 (25 m)	Perennial	18.3	51.3			
	Annual	24.7	16.7			
	Nonnative	17.0	1.0			
	Invasive ²	0.0	1.0			
Coast Live Oak Woodland Overall³	Perennial	22.5	49.8			
	Annual	25.5	14.8			
	Nonnative	14.0	1.8			
	Invasive²	0.0	1.5			
Riparian						
DG-3A Transect 3 (20 m)	Perennial	15.0	25.0			
	Annual	15.0	27.5			
	Nonnative	10.0	2.5			
	Invasive ²	0.0	0.0			
DG-3A Transect 4 (10 m)	Perennial	57.5	90.9			
	Annual	7.5	0.0			
	Nonnative	5.0	0.0			

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2 (%)	Year 3¹	Year 4¹	Year 5¹
	Invasive ²	0.0	9.2			
DG-4 Transect 4 (30 m)	Perennial	33.3	70.8			
	Annual	19.2	4.2			
	Nonnative	0.0	0.0			
	Invasive ²	4.2	3.3			
DG-4 Transect 8 (30 m)	Perennial	21.9	35.0			
	Annual	5.8	0.0			
	Nonnative	10.6	1.7			
	Invasive ²	0.0	0.0			
Riparian Overall³	Perennial	31.9	55.4			
	Annual	11.9	7.9			
	Nonnative	6.4	1.0			
	Invasive²	1.1	3.1			
Least Bell's Vireo (LBVI)						
DG-2A Transect 1 (20 m)	Perennial	32.5	35.0			
	Annual	35.0	20.0			
	Nonnative	0.0	1.25			
	Invasive ²	5.0	6.25			
DG-2A Transect 2 (20 m)	Perennial	7.5	22.5			
	Annual	42.5	27.5			
	Nonnative	0.0	0.0			
	Invasive ²	7.5	2.5			
DG-2B Transect 1 (20 m)	Perennial	9.2	46.3			
	Annual	60	18.8			
	Nonnative	0.8	0.0			
	Invasive ²	5.0	0.0			
DG-2B Transect 2 (20 m)	Perennial	15.7	31.7			
	Annual	55.0	42.1			
	Nonnative	0.7	0.0			
	Invasive ²	6.7	3.8			
DG-4 Transect 3 (25 m)	Perennial	33.0	52.0			
	Annual	0.0	0.0			
	Nonnative	0.0	0.0			
	Invasive ²	13.0	8.0			
DG-4 Transect 5 (40 m)	Perennial	25.6	30.0			
	Annual	8.8	0.0			
	Nonnative	0.0	0.0			
	Invasive ²	4.4	1.3			
DG-4 Transect 6 (25 m)	Perennial	49.0	64.0			
	Annual	3.0	1.0			
	Nonnative	0.0	0.0			

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2 (%)	Year 3¹	Year 4¹	Year 5¹
	Invasive ²	2.0	5.0			
DG-4 Transect 7 (30 m)	Perennial	22.8	48.9			
	Annual	13.9	11.1			
	Nonnative	0.0	0.0			
	Invasive ²	0.0	0.0			
DG-4B Transect 1 (25 m)	Perennial	34.0	55.7			
	Annual	6.0	9.3			
	Nonnative	0.0	1.0			
	Invasive ²	2.0	4.0			
DG-4B Transect 2 (25 m)	Perennial	39.0	54.3			
	Annual	5.0	13.7			
	Nonnative	0.0	1.0			
	Invasive ²	4.0	1.0			
DG-4C Transect 1 (25 m)	Perennial	12.0	15.0			
	Annual	39.0	51.0			
	Nonnative	13.0	0.0			
	Invasive ²	2.0	0.0			
DG-4C Transect 2 (25 m)	Perennial	29.0	30.0			
	Annual	21.0	10.0			
	Nonnative	0.0	0.0			
	Invasive ²	0.0	0.0			
DG-5 Transect 1 (25 m)	Perennial	27.0	47.8			
	Annual	5.0	45.6			
	Nonnative	0.0	0.0			
	Invasive ²	0.0	0.0			
LBVI Overall³	Perennial	25.9	41.0			
	Annual	22.6	19.2			
	Nonnative	1.1	0.3			
	Invasive²	4.0	2.4			

¹To be determined.

²Invasive 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.

³Average of all transects. Some minor discrepancies due to rounding error.

5.3.2.3 Percent Native and Nonnative Cover – Reference Sites

Reference site data was not obtained during Year 2 due to the extreme drought conditions. For the purposes of this report, the Year 1 data for the reference sites will be used. The established reference sites will be assessed again during Year 3. Table 4 presents a summary of Year 1 native and nonnative cover data for the reference sites. The average overall perennial cover in the RAFSS reference site was 24.0 percent with zero percent cover of native annuals and 2.0 percent cover of nonnative/invasive annual plants. For the CSS reference sites, the average overall native perennial cover was 70.3 percent, the native

annual cover was zero percent, and the percent cover of nonnative/invasive plants species was 14.7. For the oak woodland reference site, the average overall native perennial cover was 99.0 percent with zero percent cover of native annuals and nonnative/invasive plants. For the riparian reference sites, the average overall native perennial cover was 75.4 percent, the native annual cover was 1.5 percent, and the percent cover of nonnative/invasive plants was 19.0. Finally, for the LBVI reference sites, the average overall native perennial cover of 93.9 percent, the native annual cover was 1.9 percent, and the percent cover of nonnative/invasive plants was 1.3 percent.

Table 4. Percent Native/Nonnative Cover Reference Sites						
Transect	Vegetation Type	Year 1 (%)	Year 2²	Year 3²	Year 4²	Year 5²
Riversidean Alluvial Fan Sage Scrub (RAFSS)						
RAFSS Reference	Perennial	24.0	NA			
	Annual	0.0	NA			
	Nonnative	2.0	NA			
RAFSS Overall¹	Perennial	24.0	NA			
	Annual	0.0	NA			
	Nonnative	2.0	NA			
Coastal Sage Scrub (CSS)						
CSS Reference	Perennial	70.3	NA			
	Annual	0.0	NA			
	Nonnative	14.7	NA			
CSS Overall¹	Perennial	70.3	NA			
	Annual	0.0	NA			
	Nonnative	14.7	NA			
Coast Live Oak Woodland						
Coast Live Oak Woodland Reference	Perennial	99.0	NA			
	Annual	0.0	NA			
	Nonnative	0.0	NA			
Coast Live Oak Woodland Overall¹	Perennial	99.0	NA			
	Annual	0.0	NA			
	Nonnative	0.0	NA			
Riparian						
Riparian Scrub Reference	Perennial	92.0	NA			
	Annual	2.5	NA			
	Nonnative	3.5	NA			
Riparian Woodland Reference	Perennial	58.8	NA			
	Annual	0.5	NA			
	Nonnative	34.4	NA			
Riparian Overall¹	Perennial	75.4	NA			
	Annual	1.5	NA			
	Nonnative	19.0	NA			

Table 4. Percent Native/Nonnative Cover Reference Sites						
Transect	Vegetation Type	Year 1 (%)	Year 2²	Year 3²	Year 4²	Year 5²
Least Bell's Vireo (LBVI)						
LBVI Reference 1	Perennial	96.5	NA			
	Annual	1.5	NA			
	Nonnative	1.0	NA			
LBVI Reference 2	Perennial	91.3	NA			
	Annual	2.3	NA			
	Nonnative	1.5	NA			
LBVI Overall¹	Perennial	93.9	NA			
	Annual	1.9	NA			
	Nonnative	1.3	NA			

¹Average of all transects.²To be determined.

5.3.2.4 Native Species Richness – Mitigation Areas

Native species richness was determined for each mitigation area during the Year 2 botanical monitoring event and included all germinating native plants and natural recruits. Native species richness was relatively high for the mitigation areas during Year 2 due to a high diversity of germination and natural recruitment. Table 5 shows the native species richness for the mitigation areas. Native species richness was found to be 9 for the RAFSS mitigation areas, 34 for the CSS mitigation areas, 22 for the oak woodland mitigation areas, 33 for the riparian mitigation areas, and 39 for the LBVI mitigation areas.

Table 5. Native Species Richness Mitigation Areas					
Mitigation Area	Year 1	Year 2	Year 3²	Year 4²	Year 5²
Riversidean Alluvial Fan Sage Scrub (RAFSS)					
DG-1 WOUS (RAFSS)	5	9			
RAFSS Overall¹	5	9			
Coastal Sage Scrub (CSS)					
DG-1 (CSS)	16	17			
DG-4 (CSS)	14	22			
CSS Overall¹	25	34			
Coast Live Oak Woodland					
DG-3A (Coast Live Oak Woodland)	17	22			
Coast Live Oak Woodland Overall¹	17	22			

Table 5. Native Species Richness Mitigation Areas					
Mitigation Area	Year 1	Year 2	Year 3²	Year 4²	Year 5²
Riparian					
DG-3A (Riparian)	13	19			
DG-4 (Riparian)	15	23			
Riparian Overall¹	22	33			
Least Bell's Vireo (LBVI)					
DG-2A (LBVI)	17	26			
DG-2B (LBVI)	18	18			
DG-4 (LBVI)	19	26			
DG-4B (LBVI)	19	18			
DG-4C (LBVI)	16	19			
DG-5 (LBVI)	13	17			
LBVI Overall¹	31	39			

¹Total native species observed across all mitigation areas.

²To be determined.

5.3.2.5 Native Species Richness – Reference Sites

Reference site data was not obtained during Year 2 due to the extreme drought conditions. For the purposes of this report, the Year 1 data for the reference sites will be used. The established reference sites will be assessed again during Year 3. Table 6 shows the native species richness for the reference sites. Native species richness was found to be 10 for the RAFSS reference site, 5 for the CSS reference site, 3 for the oak woodland reference site, 20 for the riparian reference site, and 22 in the LBVI reference sites.

Table 6. Native Species Richness Reference Sites					
Reference Site	Year 1	Year 2	Year 3¹	Year 4¹	Year 5¹
Riversidean Alluvial Fan Sage Scrub (RAFSS)	10	NA			
Coastal Sage Scrub (CSS)	5	NA			
Coast Live Oak Woodland	3	NA			
Riparian	20	NA			
Least Bell's Vireo (LBVI)	22	NA			

*To be determined

5.3.2.6 Groundwater Data

Groundwater data collected by the City of Pasadena in the fall of 2020 (Year 1) and October 12, 2021 (Year 2) is presented in Table 7 below. Groundwater data collected by JPL on February 14, 2020, June 8, 2020, and August 14, 2020 (Year 1) is present in Table 8 and groundwater data collected by JPL on March 19, 2021, May 17, 2021, and July 16, 2021 (Year 2) is presented in Table 9.

Table 7. City of Pasadena Groundwater Monitoring Results						
Well Name	Reference Elevation (ft)	Year 1 SWL (ft)	Year 2 SWL (ft)	Year 3¹ SWL (ft)	Year 4¹ SWL (ft)	Year 5¹ SWL (ft)
Arroyo	1,092.71	169	182			
52	1,076.76	152	165			
Ventura	1,069.82	143	163			

¹Years 3 through 5 to be determined.

Table 8. JPL Groundwater Monitoring Results				
Well Name	Datum (ft above msl)	Year 1¹		
		February 2020	June 2020	August 2020
MW-1	1116.70	1092.03	1091.80	1083.58
MW-3	1100.34	960.45	970.56	946.20
MW-4	1082.84	965.65	979.46	950.56
MW-5	1071.60	963.69	974.37	948.78
MW-6	1188.52	962.69	966.67	952.45
MW-7	1212.88	962.24	975.87	952.27
MW-8	1139.53	963.98	978.19	--
MW-9	1106.02	1087.80	1087.40	1079.83
MW-10	1087.71	957.90	967.70	948.10
MW-11	1139.30	1016.25	1020.36	1013.12
MW-12	1102.14	977.90	989.15	941.94
MW-13	1183.47	959.76	967.18	DRY
MW-14	1173.47	964.53	966.72	953.29
MW-15	1120.66	1090.32	1090.15	1082.40
MW-16	1236.27	961.98	972.56	DRY

Table 8. JPL Groundwater Monitoring Results				
Well Name	Datum (ft above msl)	Year 1¹		
		February 2020	June 2020	August 2020
MW-17	1191.21	955.58	974.41	951.73
MW-18	1225.41	944.00	956.03	937.93
MW-19	1142.94	944.06	950.70	936.26
MW-20	1165.05	928.22	925.20	917.31
MW-21	1059.10	961.29	965.35	951.16
MW-22	1176.98	960.54	966.26	950.97
MW-23	1108.84	958.76	967.95	949.47
MW-24	1200.94	961.85	974.08	952.76
MW-25	934.52	684.23	682.80	685.32
MW-26	1059.08	939.08	939.35	934.48

¹Years 3 through 5 to be determined.

Table 9. JPL Groundwater Monitoring Results				
Well Name	Datum (ft above msl)	Year 2¹		
		March 2021	May 2021	July 2021
MW-1	1116.70	1091.48	1091.74	1084.42
MW-3	1100.34	933.83	933.44	932.15
MW-4	1082.84	924.74	923.19	919.32
MW-5	1071.60	DRY	DRY	DRY
MW-6	1188.52	DRY	DRY	DRY
MW-7	1212.88	DRY	DRY	DRY
MW-8	1139.53	DRY	DRY	DRY
MW-9	1106.02	1086.57	1086.80	1079.67
MW-10	1087.71	DRY	DRY	DRY
MW-11	1139.30	1007.51	1011.25	1007.35
MW-12	1102.14	925.77	925.47	921.78

Table 9. JPL Groundwater Monitoring Results				
Well Name	Datum (ft above msl)	Year 2¹		
		March 2021	May 2021	July 2021
MW-13	1183.47	DRY	DRY	DRY
MW-14	1173.47	944.73	941.71	935.85
MW-15	1120.66	1089.72	1089.82	1083.16
MW-16	1236.27	952.63	DRY	DRY
MW-17	1191.21	917.07	914.21	912.98
MW-18	1225.41	955.73	918.25	916.10
MW-19	1142.94	920.50	918.91	916.30
MW-20	1165.05	904.13	902.45	903.60
MW-21	1059.10	940.55	937.64	932.73
MW-22	1176.98	936.76	934.70	932.62
MW-23	1108.84	932.70	930.81	926.47
MW-24	1200.94	931.08	933.77	930.11
MW-25	934.52	688.73	689.29	689.86
MW-26	1059.08	924.38	915.78	914.17

¹Years 3 through 5 to be determined.

6.0 ACHIEVEMENT OF PERFORMANCE STANDARDS

The performance standards for the Phase 1 mitigation areas, as listed in the approved HRP, are provided in Table 8 for reference. Based on the results of the botanical monitoring, the Year 2 performance standards for survivorship and native plant cover have been met. The Year 2 performance standard for nonnative cover was met for the LBVI, RAFSS, CSS, and Coast Live Oak Woodland habitats; however, this standard was not achieved for the Riparian habitat. There is no Year 2 performance standard for native plant species richness; however, all communities have either met the Year 5 performance standard or are trending towards meeting the standard. The performance standards for structural patch richness, sediment/topographic stability, and wildlife use monitoring were not required to be assessed during Year 2.

Table 10. Performance Standards for Onsite Mitigation Areas			
Category	Performance Standard	Description (Year 2)	Achieved
Flora-1	Survivorship	Tree, shrub, and herb strata container plants will have the following survival requirements: <ul style="list-style-type: none"> Year 2: 85% Survival 	YES ¹
Flora-2	Native Plant Cover	Combined tree, shrub, and herb strata container plants will have the following native plant cover requirements: <u>Least Bell's Vireo (LBVI) Habitat</u> <ul style="list-style-type: none"> Year 2: 30% <u>Other Riparian Habitat</u> <ul style="list-style-type: none"> Year 2: 30% <u>RAFSS & CSS Habitat:</u> <ul style="list-style-type: none"> Year 2: 30% <u>Coast Live Oak Woodland Habitat:</u> <ul style="list-style-type: none"> Year 2: 20% 	<u>LBVI Habitat:</u> YES <u>Other Riparian Habitat:</u> YES <u>RAFSS & CSS Habitat:</u> YES <u>Coast Live Oak Woodland:</u> YES
Flora-3	Nonnative Plant Cover	Combined tree, shrub, and herb strata container plants will have the following native plant cover requirements: <u>LBVI Habitat:</u> <ul style="list-style-type: none"> Year 2: Not more than 5% <u>All Other Habitat Mitigation Areas:</u> <ul style="list-style-type: none"> Year 2: Not more than 15% annual herbaceous species/grasses; 10% woody species/perennial herbs; 3% Cal-IPC moderate or high threat invasive species. 	<u>LBVI Habitat:</u> YES <u>Other Riparian Habitat:</u> NO <u>RAFSS:</u> YES <u>CSS:</u> YES <u>Coast Live Oak Woodland:</u> 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.	<u>LBVI Habitat:</u> YES <u>Other Riparian Habitat:</u> YES <u>RAFSS:</u> TRENDING <u>CSS:</u> YES <u>Coast Live Oak Woodland:</u> YES

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

6.1 Container Plant Survivorship

Container plant survival is required to be a minimum of 85 percent at the end of Year 2. Out of the 13,346 container plants installed during Phase 1 of restoration activities, approximately 12,443 container plants were noted as still being alive during Year 2. This is a 93.2 percent survivorship, which is approximately 8.2 percent higher than the performance standard. In addition, container plants lost during Years 1 and 2 will be replaced during Phase 3 of restoration activities.

6.2 Native Plant Cover

At the end of Year 2, native plant cover is required to be at least 30 percent for LBVI, Riparian, RAFSS, and CSS habitats, and 20 percent for Coast Live Oak Woodland habitat. The Year 2 performance standard for native plant cover was achieved for all habitat types with 60.2 percent native cover for LBVI habitat, 63.3 percent native cover for Riparian habitat, 47.1 percent native cover for RAFSS habitat, 59.1 percent native cover for CSS, and 64.6 percent for Coast Live Oak Woodland.

6.3 Nonnative Plant Cover

Nonnative plant cover during Year 2 is required to be less than 5 percent in LBVI habitat. In all other habitat types, nonnative plant cover has the following Year 2 performance standards: no more than 15 percent annual herbaceous species/grasses, no more than 10 percent woody species/perennial herbs, and no more than 3 percent Cal-IPC Moderate or High threat invasive species. The Year 2 performance standard for nonnative plant cover was achieved for the LBVI, RAFSS, CSS and Coast Live Oak Woodland habitats. While the Riparian habitat met the Year 2 nonnative plant cover performance standard for annual herbaceous species/grasses and woody species/perennial herbs, it had 3.1 percent cover of Cal-IPC Moderate or High threat invasive species, which is only 0.1 percent above the performance standard. 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.

6.4 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 2 performance standard, this criterion is required to be assessed every year to ensure the mitigation areas are trending towards meeting the Year 5 performance standard. The Year 5 performance standard for native plant species richness has already been met for the LBVI, Riparian, CSS, and Coast Live Oak Woodland habitats and the RAFSS habitat is trending towards meeting this standard.

7.0 DISCUSSION

The habitat mitigation areas have performed well during Year 2. Minor issues with the irrigation system, vandalism, pests, and herbivory were observed during the Year 2 monitoring efforts; however, these issues were minor and should not impeded the success of the mitigation areas. Maintenance activities including weed abatement, irrigation repair, basin repair, and erosion control were conducted on a regular basis during Year 2. Replacement of dead container plants in the Phase 1 mitigation areas will occur during the Phase 3 planting effort (fall/winter 2021/2022) and will help to increase the level of native cover in the mitigation areas. In addition, continued weed abatement efforts will continue to reduce competition from nonnative and invasive weeds.

The Phase 1 mitigation areas have met the success criteria for container plant survivorship and native plant cover. In addition, the Year 2 performance standard for nonnative cover was met for the LBVI,

RAFSS, CSS, and Coast Live Oak Woodland habitats; however, this standard was not achieved for the Riparian community. There is no Year 2 performance standard for native plant species richness; however, all communities have either met the Year 5 performance standard or are trending towards meeting the standard. The performance standards for structural patch richness, sediment/topographic stability, and wildlife use monitoring were not required to be assessed during Year 2 and these standards will be assessed during future monitoring events.

8.0 REFERENCES

- California Invasive Plant Council (Cal-IPC). 2020. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Available: <https://www.cal-ipc.org/plants/profiles/> (Accessed: November 10, 2020).
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- California Department of Fish and Wildlife (CDFW). 2018. Amendment of Lake or Streambed Alteration Agreement for the Devil's Gate Sediment Removal and Management Project (Notification No. 1600-2015-0263-R5). Permittee: Los Angeles County Department of Public Works. July 17, 2018.
- _____. 2017. Lake or Streambed Alteration Agreement for the Devil's Gate Sediment Removal and Management Project (Notification No. 1600-2015-0263-R5). Permittee: Los Angeles County Department of Public Works. March 21, 2017.
- City of Pasadena. 2018. Pasadena, California, Code of Ordinances. Available at: https://library.municode.com/ca/pasadena/codes/code_of_ordinances?nodeId=PASADENA_CALIFORNIA. Accessed November 10, 2020.
- ECORP Consulting, Inc.. 2018. *Devil's Gate Sediment Removal and Management Project Final Habitat Restoration Plan*.
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- Los Angeles County. 2018. Code of Ordinances. Available at: https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT22PLZO_DIV1PLZO_CH22.46SPPL_PT4UNSTSPPL_22.46.2100OATRRE. Accessed: November 10, 2020.

LIST OF ATTACHMENTS

Appendix A - Streambed Alteration Agreement Notification No. 1600-2015-0263-

R5 Appendix B - Year 2 Plant Species Compendium

Appendix C - Year 2 Photo Documentation

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



MARK PESTRELLA, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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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
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
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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

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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

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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 ~~2.41~~ **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.

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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.

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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.

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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 flood³ 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.

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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.

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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 leptoceras*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Parish's gooseberry (*Ribes divaricatum* var. *parishii*), black willow thickets, mulefat thickets, riparian herbaceous, coast live oak woodland, scale broom scrub, and all other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area. These resources are further detailed and more particularly described in the document(s): "Devil's Gate Reservoir Sediment Removal and Management Project Final Environmental Impact Report " dated October 2014, prepared for Los Angeles County of Department of Public Works by Chambers Group; **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.

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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.

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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~~ **7.1** 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 ~~1.00~~ **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 impacts are undetermined at this time because the area's hilly topography may not result in any significant effect or project disturbances may be avoided ~~all~~ together based on project design modifications. ~~made from incorporating Measures to avoidance impacts to~~ **of oak trees will be identified following the completion of the in-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, ~~0.50~~ **0.7** acre *Xanthium strumarium* herbaceous stand, ~~0.20~~ **0.7** acre *Quercus agrifolia* coast live oak (trees), ~~0.07 acre Eucalyptus (globulus, camaldulensis) Semi-natural stand,~~ **0.08** **12** 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
<i>Salix gooddingii</i> Woodland Alliance	16.27 15.64	16.27 15.64	22.34 21.44	38.58 37.08
<i>Baccharis saltifolia</i> Shrubland Alliance	8.03 9.71	8.03 9.71	4.83 5.84	12.86 15.55
<i>Lepidospartum squamatum</i> Shrubland Alliance	1.82 1.97	1.82 1.97	7.28 7.88	9.19 8.5
<i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> Shrubland Alliance	0.02 0.01	0.02 0.01	0.04 0.02	0.06 0.03
<i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	2.45 2.61	0.00	1.23 1.31	1.23 1.31
<i>Lepidium latifolium</i> - <i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	9.88 10.24	0.00	4.94 5.12	4.94 5.12
<i>Xanthium strumarium</i> 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~~ **17** 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.

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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.

Mr. Christopher Stone
July 17, 2018
Page 9 of 9

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

**Devil's Gate Reservoir
Restoration Project**

LACPW/ECORP

2021 PLANT SPECIES COMPENDIUM

Scientific Name	Common Name	Mitigation Areas	Reference Sites ¹
VASCULAR PLANTS			
PTERIDOPHYTES			
EQUISETACEAE	HORSETAIL FAMILY		
<i>Equisetum ssp.</i>	horsetail		X
ANGIOSPERMS (EUDICOTS)			
ADOXACEAE	MUSKROOT FAMILY		
<i>Sambucus nigra ssp. caerulea</i>	blue elderberry	X	X
ANACARDIACEA	CASHEW AND SUMAC FAMILY		
<i>Malosma laurina</i>	laurel sumac	X	
<i>Toxicodendron diversilobum</i>	poison oak	X	X
APIACEAE	CARROT FAMILY		
<i>Conium maculatum</i> *	poison hemlock	X	
ASTERACEAE	SUNFLOWER FAMILY		
<i>Achillea millefolium</i>	common yarrow	X	
<i>Ambrosia acanthicarpa</i>	annual bursage	X	
<i>Artemisia californica</i>	California sagebrush	X	X
<i>Artemisia douglasiana</i>	mugwort	X	X
<i>Artemisia dracunculus</i>	taragon	X	
<i>Baccharis pilularis</i>	coyote brush	X	
<i>Baccharis salicifolia</i>	mulefat	X	X
<i>Brickellia californica</i>	brickell bush	X	
<i>Carduus pycnocephalus</i> *	Italian thistle	X	X
<i>Centaurea melitensis</i> *	totalote	X	X
<i>Cirsium occidentale var. californicum</i>	California thistle	X	
<i>Corethrogyne filaginifolia</i>	common sand aster	X	X
<i>Encelia californica</i>	California brittlebush	X	
<i>Erigeron canadensis</i>	Canada horseweed	X	X
<i>Eriophyllum confertiflorum</i>	golden yarrow		X
<i>Heterotheca grandiflora</i>	telegraph weed	X	X
<i>Isocoma menziesii</i>	Menzies' goldenbush	X	X
<i>Lactuca serriola</i> *	prickly lettuce	X	X
<i>Lepidospartum squamatum</i>	scalebroom	X	X
<i>Malacothrix saxatilis</i>	cliff aster	X	
<i>Matricaria chamomilla</i> *	German chamomile	X	
<i>Pseudognaphalium bioletti</i>	two-colored rabbit-tobacco	X	
<i>Pseudognaphalium californicum</i>	ladie's tobacco	X	X
<i>Sonchus asper</i> *	prickly sow-thistle	X	X
<i>Xanthium strumarium</i>	rough cocklebur	X	
BETULACEAE	BIRCH FAMILY		
<i>Alnus rhombifolia</i>	white alder		X

Scientific Name	Common Name	Mitigation Areas	Reference Sites ¹
BORAGINACEAE	BORAGE FAMILY		
<i>Eriodictyon crassifolium</i>	thick leaved yerba santa	X	X
<i>Heliotropium curassavicum</i>	salt heliotrope	X	
<i>Phacelia cicutaria</i>	caterpillar phacelia	X	X
<i>Phacelia minor</i>	California bluebells	X	
<i>Phacelia parryi</i>	Parry's phacelia	X	
BRASSICACEAE	MUSTARD FAMILY		
<i>Brassica nigra</i> *	black mustard	X	X
<i>Lepidium latifolium</i> *	perennial pepperweed	X	
<i>Raphanus sativus</i> *	wild radish	X	
CACTACEAE	CACTUS FAMILY		
<i>Opuntia littoralis</i>	coastal prickly pear	X	
CHENOPODIACEAE	GOOSEFOOT FAMILY		
<i>Chenopodium album</i> *	lamb's quarters	X	
CONVOLVULACEAE	MORNING GLORY FAMILY		
<i>Calystegia macrostegia</i>	island morning glory	X	
<i>Cuscuta californica</i>	dodder	X	
CUCURBITACEAE	GOURD FAMILY		
<i>Marah macrocarpa</i>	wild cucumber	X	
EUPHORBIACEAE	SPURGE FAMILY		
<i>Euphorbia albomarginata</i>	rattlesnake spurge	X	
<i>Euphorbia peplus</i> *	petty spurbe	X	
<i>Euphorbia</i> ssp.	spurge	X	
<i>Ricinus communis</i> *	castor bean		X
FABACEAE	LEGUME FAMILY		
<i>Acmispon americanus</i>	Spanish lotus	X	
<i>Acmispon glaber</i>	deerweed	X	X
<i>Spartium junceum</i> *	Spanish broom		X
<i>Melilotus indicus</i> *	Annual yellow sweetclover	X	
FAGACEAE	OAK FAMILY		
<i>Quercus agrifolia</i>	coast live oak	X	X
GERANIACEAE	GERANIUM FAMILY		
<i>Erodium cicutarium</i> *	red-stemmed filaree	X	
<i>Geranium molle</i> *	crane's bill geranium		X
GROSSULARIACEAE	GOOSEBERRY FAMILY		
<i>Ribes aureum</i>	golden currant	X	
<i>Ribes californicum</i>	California gooseberry	X	
LAMIACEAE	MINT FAMILY		
<i>Marrubium vulgare</i> *	white horehound	X	X
<i>Salvia columbariae</i>	chia	X	
<i>Salvia mellifera</i>	black sage	X	X
MORACEAE	FIG FAMILY		
<i>Ficus carica</i> *	common fig		X
MYRTACEAE	MYRTLE FAMILY		
<i>Eucalyptus</i> ssp.*	eucalyptus	X	
OLEACEAE	OLIVE FAMILY		
<i>Fraxinus uhdei</i> *	Shamel ash	X	X

Scientific Name	Common Name	Mitigation Areas	Reference Sites ¹
ORNAGRACEAE	EVENING PRIMROSE FAMILY		
<i>Camissoniopsis micrantha</i>	Spencer primrose	X	
<i>Epilobium ssp.</i>	willow herb	X	
<i>Oenothera elata</i>	evening primrose	X	X
PAPAVERACEAE	POPPY FAMILY		
<i>Eschscholzia californica</i>	California poppy	X	
PLANTAGINACEAE	PLANTAIN FAMILY		
<i>Plantago arenaria</i> *	Indian plantain	X	
PLATANACEAE	PLANE-TREE FAMILY		
<i>Platanus racemosa</i>	western sycamore	X	X
POLYGONACEAE	BUCKWHEAT FAMILY		
<i>Eriogonum fasciculatum</i>	California buckwheat	X	X
<i>Eriogonum gracile</i>	slender buckwheat	X	
<i>Rumex crispus</i> *	curly dock	X	
RHAMNACEA	BUCKTHORN FAMILY		
<i>Rhamnus crocea</i>	redberry buckthorn		X
ROSACEAE	ROSE FAMILY		
<i>Prunus ilicifolia</i>	hollyleaf cherry		X
<i>Rosa californica</i>	California rose	X	
<i>Rubus americanus</i> *	Himalayan blackberry		X
<i>Rubus ursinus</i>	California blackberry	X	X
RUBIACEAE	BEDSTRAW FAMILY		
<i>Galium aparine</i>	common bedstraw		X
SALICACEAE	WILLOW FAMILY		
<i>Populus fremontii</i>	Fremont's cottonwood	X	X
<i>Salix exigua</i>	narrow leaved willow		X
<i>Salix gooddingii</i>	black willow	X	X
<i>Salix laevigata</i>	red willow	X	X
<i>Salix lasiolepis</i>	arroyo willow	X	X
SAPINDACEAE	SOAPBERRY FAMILY		
<i>Acer negundo</i>	boxelder		X
SOLANACEAE	NIGHTSHADE FAMILY		
<i>Datura wrightii</i>	jimson weed	X	X
<i>Solanum douglasii</i>	Douglas' nightshade	X	
<i>Solanum nigrum</i> *	black nightshade	X	
ULMACEAE	ELM FAMILY		
<i>Elm ssp.</i> *	elm		X
URTICACEAE	NETTLE FAMILY		
<i>Urtica dioica</i>	stinging nettle	X	
VITACEAE	GRAPE FAMILY		
<i>Vitis californica</i>	California grape	X	X
ANGIOSPERMS (MONOCOTS)			
AGAVACEAE	CENTURY PLANT FAMILY		
<i>Hesperoyucca whipplei</i>	chaparral yucca	X	X
CYPERACEAE	SEDGE FAMILY		
<i>Cyperus eragrostis</i>	tall flatsedge	X	

Scientific Name	Common Name	Mitigation Areas	Reference Sites ¹
JUNCACEAE	RUSH FAMILY		
<i>Juncus textilis</i>	basket rush	X	
POACEAE	GRASS FAMILY		
<i>Arundo donax</i> *	giant reed		X
<i>Avena fatua</i> *	wild oat		X
<i>Bromus carinatus</i>	California brome	X	
<i>Bromus madritensis ssp. rubens</i> *	red brome	X	X
<i>Elymus triticoides</i>	beardless wild rye	X	
<i>Hordeum vulgare</i> *	common barley	X	
<i>Polypogon monspeliensis</i> *	rabbitsfoot grass	X	
<i>Schismus barbatus</i> *	Mediterranean grass		X
TYPHACEAE	CATTAIL FAMILY		
<i>Typha ssp.</i>	cattail	X	X
* Nonnative species.			
¹ Reference site data is from 2020.			
CNPS Rare Plant Listing Status:			
List 1B.1 Rare, threatened, or endangered in California and elsewhere. Seriously			
List 1B.2 Rare, threatened, or endangered in California and elsewhere.			
List 2B.2 Rare, threatened or endangered in California, but more common			
List 4.2 Limited distribution (Watch List). Moderately endangered in California			



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



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



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



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



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



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



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



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



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



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



Photo 11: Mitigation Area DG-2B Transect #1 Start



Photo 12: Mitigation Area DG-2B Transect #1 End



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



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



Photo 15: Mitigation Area DG-3A Transect #1 Start



Photo 16: Mitigation Area DG-3A Transect #1 End



Photo 17: Mitigation Area DG-3A Transect #2 Start



Photo 18: Mitigation Area DG-3A Transect #2 End



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



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



Photo 21: Mitigation Area DG-3A Transect #4 Start



Photo 22: Mitigation Area DG-3A Transect #4 End



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



Photo 54: Mitigation Area DG-1 Photo Point #5, Facing NE



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



Photo 56: Mitigation Area DG-1 Photo Point #6, Facing SW



Photo 57: Mitigation Area DG-2A Photo Point #1, Facing SW



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



Photo 59: Mitigation Area DG-2A Photo Point #3, Facing SW



Photo 60: Mitigation Area DG-2A Photo Point #4, Facing NW



Photo 61: Mitigation Area DG-2B Photo Point #1, Facing NE



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



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



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



Photo 65: Mitigation Area DG-2B Photo Point #3, Facing NW



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



Photo 67: Mitigation Area DG-2B Photo Point #4, Facing NW



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



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



Photo 70: Mitigation Area DG-3A Photo Point #1, Facing SE



Photo 71: Mitigation Area DG-3A Photo Point #2, Facing SE



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



Photo 73: Mitigation Area DG-3A Photo Point #4, Facing N



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



Photo 75: Mitigation Area DG-3A Photo Point #5, Facing NW



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



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



Photo 78: Mitigation Area DG-3A Photo Point #6, Facing NW



Photo 79: Mitigation Area DG-3A Photo Point #7, Facing NW



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



Photo 81: Mitigation Area DG-4 Photo Point #1, Facing SE



Photo 82: Mitigation Area DG-4 Photo Point #2, Facing S



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



Photo 84: Mitigation Area DG-4 Photo Point #3, Facing SW



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



Photo 86: Mitigation Area DG-4 Photo Point #5, Facing NE



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



Photo 88: Mitigation Area DG-4 Photo Point #6, Facing NE



Photo 89: Mitigation Area DG-4 Photo Point #7, Facing NW



Photo 90: Mitigation Area DG-4 Point #8, Facing SE



Photo 91: Mitigation Area DG-4 Photo Point #9, Facing E



Photo 92: Mitigation Area DG-4 Photo Point #10, Facing E



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



Photo 94: Mitigation Area DG-4 Photo Point #11, Facing SW



Photo 95: Mitigation Area DG-4 Photo Point #12, Facing N



Photo 96: Mitigation Area DG-4 Photo Point #13, Facing NE



Photo 97: Mitigation Area DG-4 Photo Point #14, Facing S



Photo 98: Mitigation Area DG-4 Photo Point #15, Facing NE



Photo 99: Mitigation Area DG-4B Photo Point #1, Facing NE



Photo 100: Mitigation Area DG-4B Photo Point #2, Facing NE



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



Photo 102: Mitigation Area DG-4B Photo Point #3, Facing S



Photo 103: Mitigation Area DG-4C Photo Point #1, Facing NE



Photo 104: Mitigation Area DG-4C Photo Point #2, Facing S



Photo 105: Mitigation Area DG-4C Photo Point #3, Facing NE



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



Photo 107: Mitigation Area DG-5 Photo Point #1, Facing S



Photo 108: Mitigation Area DG-5 Photo Point #2, Facing SW



Photo 109: Mitigation Area DG-5 Photo Point #3, Facing NE



Photo 110: RAFSS Reference Transect Start



Photo 111: RAFSS Reference Transect End



Photo 112: CSS Reference Transect Start



Photo 113: CSS Reference Transect End



Photo 114: Coast Live Oak Woodland Reference Transect Start



Photo 115: Coast Live Oak Woodland Reference Transect End



Photo 116: Riparian Scrub Reference Transect Start



Photo 117: Riparian Scrub Reference Transect End



Photo 118: Riparian Woodland Reference Transect Start



Photo 119: Riparian Woodland Reference Transect End



Photo 120: LBVI Reference Transect #1 Start



Photo 121: LBVI Reference Transect #1 End



Photo 122: LBVI Reference Transect #2 Start



Photo 123: LBVI Reference Transect #2 End



Photo 124: Overview LBVI Reference Site



Photo 125: Overview LBVI Reference Site



Photo 126: Overview LBVI Reference Site



Photo 127: Overview LBVI Reference Site



Photo 128: Overview LBVI Reference Site



Photo 129: Overview LBVI Reference Site

ATTACHMENT H

Year 1 Annual Monitoring Report for the
Devil's Gate Reservoir Restoration Project (Phase 2)
Onsite Habitat Mitigation

**Year 1 Annual Monitoring Report
for the
Devil's Gate Reservoir Restoration Project
(Phase 2) Onsite Habitat Mitigation**

Pasadena, Los Angeles County, California

Prepared for:

Los Angeles County Public Works

Prepared by:



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2861 Pullman Street
Santa Ana, California 92705

December 17, 2021

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APPENDICES

- Appendix A - Streambed Alteration Agreement Notification No. 1600-2015-0263-R5
- Appendix B - Year 1 Plant Species Compendium
- Appendix C - Year 1 Photo Documentation

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 (LACFCD). 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 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 uncertainty 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. It is anticipated that most, if not all, of these areas will be planted with willow (*Salix* sp.) and mulefat (*Baccharis salicifolia*) stakes during Phase 3 of the habitat restoration. 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. 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*), which is listed as endangered under the Federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) (CDFW 2018).

The Project, which includes an initial removal of an estimated 1.7 million cubic yards (cy) of sediment to establish a Permanent Maintenance Area (PMA), will restore flood capacity and establish a reservoir management system to maintain the flood control capacity of the reservoir. Subsequently, annual maintenance and episodic maintenance will be conducted 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 1 Annual Monitoring Report has been prepared to address the onsite habitat mitigation requirements pursuant to the LSAA for the Project. This report documents the progress of onsite mitigation that the LACPW is responsible for implementing and maintaining for a period of five years for riparian habitats and ten years for upland habitat. Annual reports will be provided until established success criteria have been met and CDFW has deemed the mitigation successful.

1.1 Project Location

The Project is located in the City of Pasadena (City) in Los Angeles County on the Pasadena United States 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-foot linear 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 Devil's Gate Reservoir (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 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

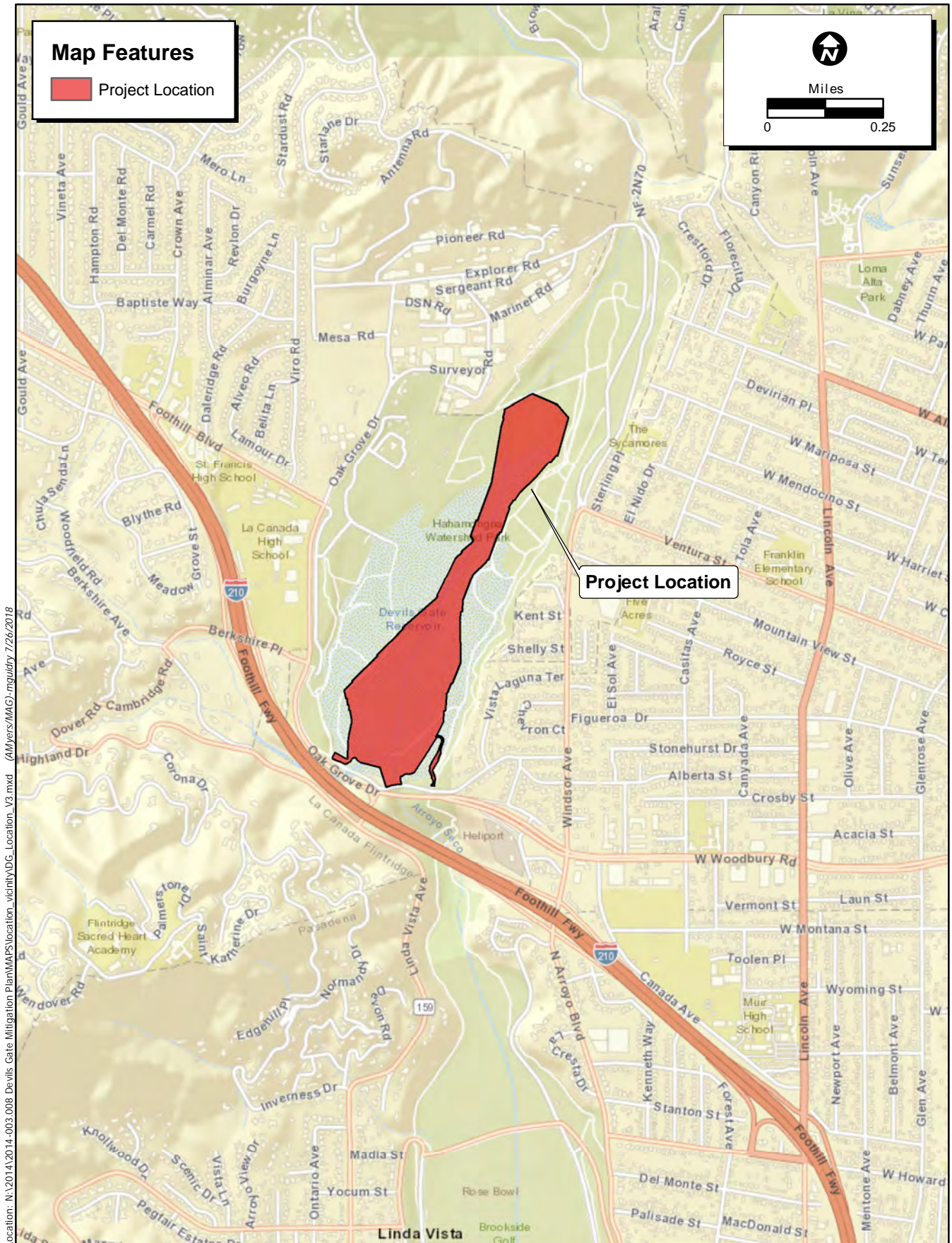
The LSAA issued by the CDFW for the Project on March 21, 2017, provided a breakdown of the required onsite and offsite compensatory mitigation for permanent impacts (Condition 3.1) as well as the mitigation required for the temporary impacts of the Project (Condition 3.2). The LSAA amendment issued on 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.

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 (EMA), or side slopes of the

PMA, which encompasses 7.34 acres according to the original design, will be replanted with native vegetation, including shrub and annual species associated with riparian scrub and alluvial scrub vegetation communities. Allowing the side slopes of the Annual Maintenance Area (AMA) 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 re-contouring if large



Figure 1. Project Vicinity



Location: N:\2014\2014-003 008 Devils Gate Mitigation Plan\MAPS\location_vicinityVDG_Location_V3.mxd (AMyers/MAG)mguidry 7/26/2018

Map Date: 7/26/2018
Source: ESRI

Figure 2. Project Location

sediment deposits bury portions of the side slopes. In this case, the sediment will be removed, and the side slopes will be re-contoured 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 ten 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 of Pasadena.

2.4 Mitigation for Impacts to Protected Trees

During the course of construction for the Project, unavoidable impacts to trees protected under the City of Pasadena City Trees and Tree Protection Ordinance and/or the County of Los Angeles Oak Tree Ordinance occurred. A total of 0.606 acre of direct and indirect impacts to native tree canopy protected under the City of Pasadena City 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 are also protected 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-gal containers) and 474 coast live oaks (300 acorns and 174 1-gallon containers) were planted. Due to concerns with the polyphagous shot hole borer beetle (*Euwallacea* sp.) infestations in populations of western sycamore, this species was not planted during Phase 1 of restoration activities. If conditions allow, this species will be planted during future phases of restoration.

3.0 SUMMARY OF ONSITE HABITAT MITIGATION ACTIVITIES

Habitat restoration implementation was conducted by Natures Image and Griffith Company (Griffith), with oversight by Carley Lancaster (Restoration Ecologist, ECORP Consulting, Inc. [ECORP]), Josh Corona-Bennett (Senior Restoration Ecologist, ECORP), Mari Quillman (Biological Resources Program Manager, ECORP), Margie Pfeffer (Biologist, Stillwater Sciences [Stillwater]), and Wendy Katagi (Senior Manager, Watershed & Ecosystem Restoration Services, Stillwater). Natures Image is a subcontractor to Stillwater and Griffith, Stillwater, and ECORP are contractors to LACPW. 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 of the Phase 2 mitigation areas are considered part of the least Bell's vireo (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 re-contouring was conducted for several of the Phase 2 mitigation areas. Following weed abatement efforts and grading/re-contouring, container plant installation and seed application commenced in all of the 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 for 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 barley (*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 for all of 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 was fitted with a meter, pressure regulator, and back-flow preventer. Emitters were positioned within the planting basins of each container plant and pole cutting 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 used for the Project was procured from S&S Seeds Inc. and only seed materials collected within the acceptable

geographic regions described in Section 4.9 of the HRP was used. Broadcast seeding was completed using hand-crank spreaders or it was simply spread by-hand. Seed was applied evenly throughout each mitigation area and incorporated into the soil to a depth of approximately 0.5 inch using bow rakes. To the extent possible, seed was applied during the 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 Restoration Ecologist (RE) to ensure that container stock was healthy and did not show signs of having pests or disease. Container stock determined to be in poor condition was rejected by the RE.

Container plant installation followed the methods described in Section 4.11 of the HRP. Container plants were planted using standard horticultural practices. Planting holes for all container plants were dug to a width twice the size of the root ball and to a depth slightly deeper than the depth of root ball so that the root crown was one 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 one gallon of water. Planting holes were backfilled with native soil and irrigation basins were formed around the base of each planting. Basins were constructed to be a minimum of two feet wide and with a ridge no less than four inches. Rocks greater than two inches in diameter were removed to the extent possible from the backfill soil. Fertilizer was not added to backfill. Soil was tamped-in by hand to collapse air pockets in the backfill. All container plants were irrigated with a minimum of one 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 (ESA) 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.



Figure 4. Proposed Trails & Site Protection Map

Map Features

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

Mitigation Areas

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



4.0 SUMMARY OF YEAR 1 MAINTENANCE ACTIVITIES

4.1 Maintenance of Onsite Habitat Mitigation Areas

Maintenance activities during Year 1 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 1.

4.1.1 Nonnative Weed Abatement

Prior to the commencement of restoration activities, many of the mitigation areas showed high levels of nonnative weed infestation (e.g., DG-4). Maintenance in the form of nonnative weed abatement commenced immediately following the initial weed abatement effort and has been ongoing for all of Year 1. Nonnative plant species controlled during Year 1 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.

During the Year 1 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 between February 22 and 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 1 of restoration activities. Formal mortality counts were taken during the Year 1 botanical monitoring event and supplemental planting will occur during Phase 3 of restoration.

4.1.3 Irrigation Maintenance

During Year 1, the irrigation system was inspected for functionality on a regular basis by Natures Image 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

Minor herbivory of container plants was observed in the mitigation areas during Year 1. Metal cages were installed around plant species that were most targeted for herbivory.

4.1.5 Erosion Control

Only minor erosion control for the mitigation areas was necessary during Year 1. 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 1. 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.

5.0 SUMMARY OF YEAR 1 MONITORING ACTIVITIES

5.1 Monitoring of Onsite Habitat Mitigation areas

Monitoring activities during Year 1 included both horticultural monitoring and botanical monitoring. Horticultural monitoring was performed monthly during the 120-day Plant Establishment Period (PEP) and for the remainder of Year 1. 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. Photodocumentation of the mitigation areas occurred as necessary. In addition to horticultural monitoring, botanical monitoring was conducted in the summer of Year 1 following the completion of planting and seeding. Monitoring events that occurred during Year 1 are listed in Table 1 below.

Table 1. Onsite Habitat Mitigation Site Monitoring Events	
Date	Monitoring Type
5/17/21	PEP Monitoring
5/20/21	Botanical Monitoring
5/21/21	Botanical Monitoring
5/24/21	Botanical Monitoring
6/17/21	PEP Monitoring
7/15/21	PEP Monitoring

Table 1. Onsite Habitat Mitigation Site Monitoring Events	
Date	Monitoring Type
7/30/21	Botanical Monitoring
8/26/21	PEP Monitoring
9/29/21	Horticultural Monitoring
10/20/21	Horticultural 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 PEP 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 1. These issues were immediately brought to the attention of Natures Image 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 at 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 1. 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 1 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*), cardinal monkey flower (*Erythranthe cardinalis*), California poppy (*Eschscholzia californica*), telegraph weed (*Heterotheca grandiflora*), evening primrose (*Oenothera elata*), caterpillar phacelia (*Phacelia cicutaria*), giant flowered phacelia (*Phacelia grandiflora*), California bluebells (*Phacelia minor*), California everlasting (*Pseudognaphalium californicum*), stinging nettle (*Urtica dioica*), and rough cocklebur (*Xanthium strumarium*).

5.2.3 Container Plant Health

Container plant health varied throughout the year, with spring and summer showing the most prolific growth. Following planting, some plantings exhibited signs of stress due to transplant shock. During the PEP monitoring visits, in addition to transplant shock, stress to the container plants appeared to be occurring as a result of small mammal herbivory and competition from nonnative and invasive plant species. Seasonal dieback of the willow species (*Salix* sp.) was observed during both the PEP and

horticultural monitoring visits during the fall months. Only minor drought stress was observed during the Year 1 monitoring, typically during the summer months. Overall, the container plants appeared healthy during Year 1 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 1 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 FlowDG. 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 1 were removed using hand tools, including hula hoes and weed whips. In addition, a hot water vapor machine was used to treat nonnative weeds in areas where native growth was minimal. All planting basins were hand-weeded to avoid damage from hand tools and/or hot water vapor.

5.2.5 Herbivory, Plant Pests, and Plant Disease

Herbivory of container plants was observed within the mitigation areas during Year 1. The species most affected by herbivory was California rose. Following observations of herbivory, protective cages were installed around this species and individuals of other species that also had signs of herbivory.

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

5.2.6 Erosion Issues

Only minor erosion issues were observed within the mitigation areas during Year 1 and mostly consisted of erosion to planting basins. Repairs to irrigation line and plant basins were conducted during Year 1 on an as-needed basis.

5.2.7 Photo Documentation

Photo documentation occurred throughout Year 1 during the PEP monitoring, horticultural monitoring, and botanical monitoring. Permanent photo points were established during the 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 1 was conducted during the spring and summer following the completion of planting and seeding. 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 one 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 4 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 with steel rebar and a plastic orange cap and Global Positioning System (GPS) 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 1 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 m (sampling location), starting at 0.5 m. 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

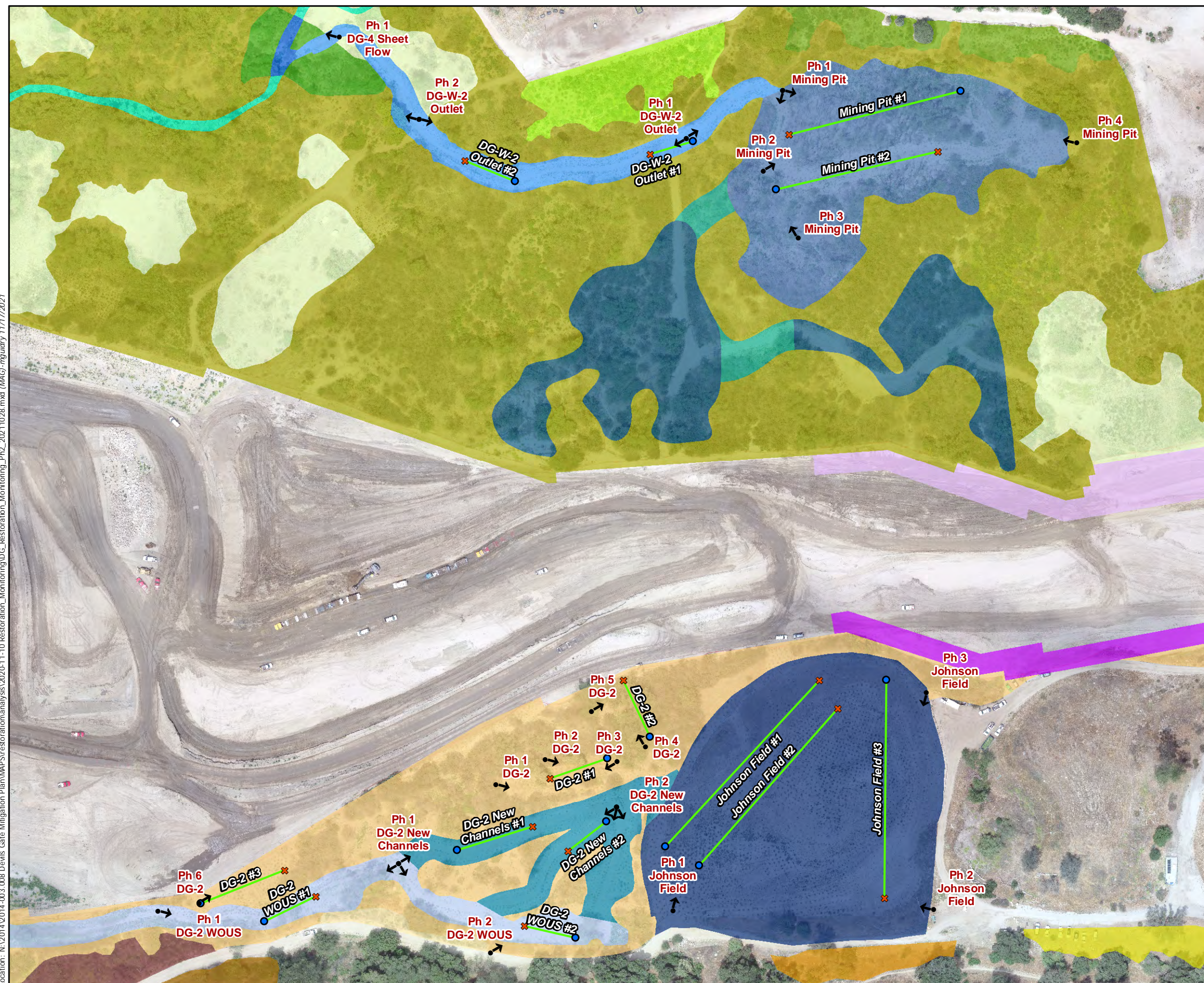



























Figure 5. Transect Locations Mitigation Areas

Map Features

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

Mitigation Areas

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

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Location: N:\2014\2014-003.008 Devil's Gate Sediment Removal Project\MapS\restoration\analysis\2020-11-10 Restoration_Monitoring\DC_Reference_Transsects_20201106.mxd (MAG-mguldry 11/18/2020)

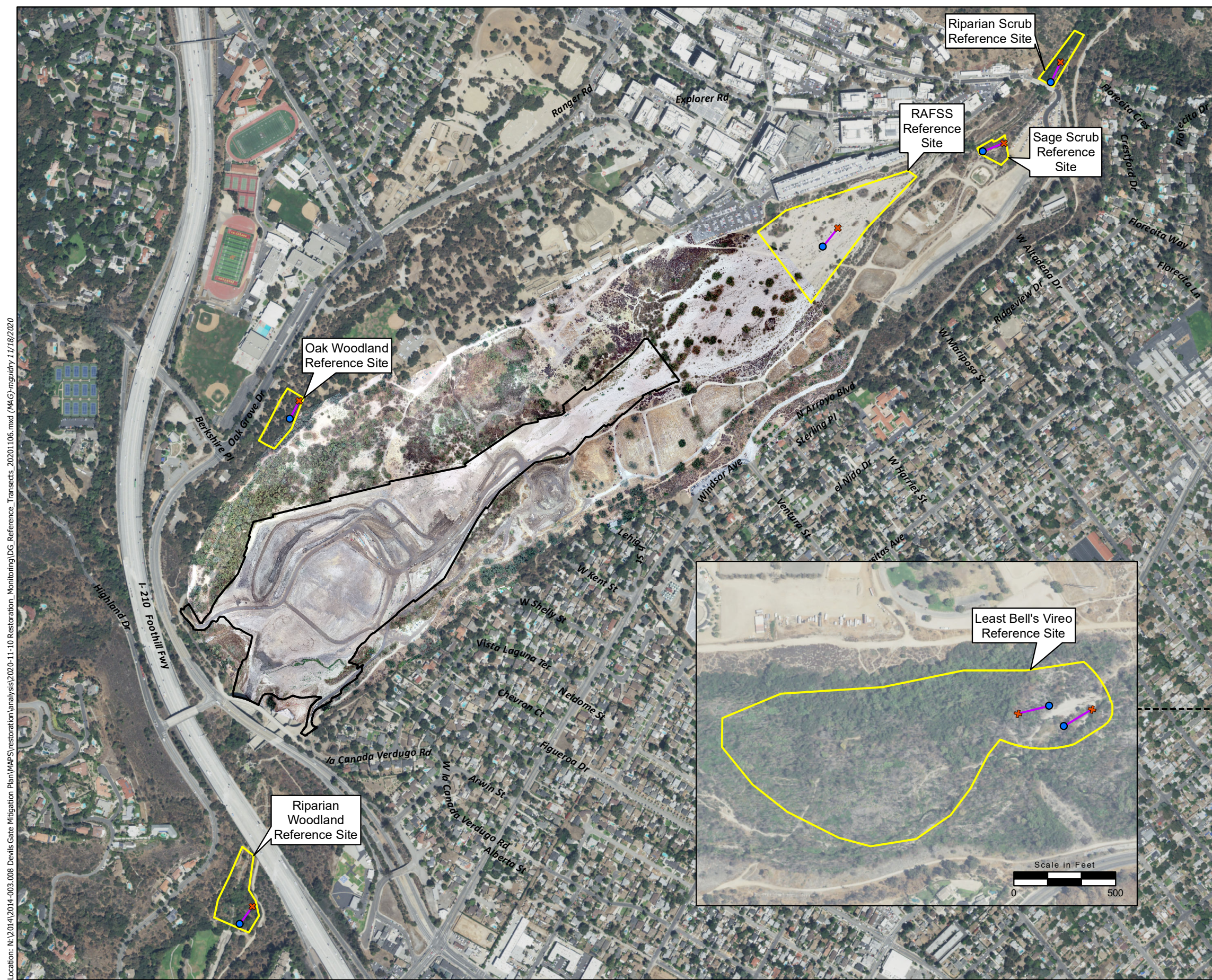
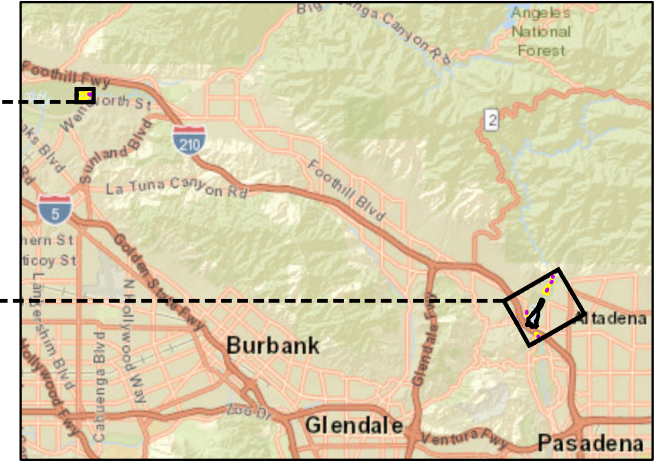


Figure 6.
Transect Locations Reference Sites

- Map Features**
- Final Design Boundary ¹
 - Reference Site
 - Reference Transect
 - Transect Start
 - Transect End

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



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 one meter to the left and right of each of the 14 transects within the mitigation areas, and the 4 transects within the reference sites.

Per the requirements of Section 7.1.4 in the HRP, groundwater data collected by the City of Pasadena and the Jet Propulsion Laboratory (JPL) was provided to ECORP for the 2021 monitoring year. Data provided by the City of Pasadena was collected at three wells on the east side of the Devil's Gate Reservoir towards the northern portion of the Project area. This data was collected on October 12, 2021 (Year 1) and includes the depth in feet from the reference elevation to the static water surface (i.e., static water level [SWL]). Data provided by JPL was collected at 26 wells to the north, east, and west of the Devil's Gate Reservoir. This data was collected on March 19, 2021, May 17, 2021, and July 16, 2021 (Year 1) 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. The results are included in the following sections. In addition, groundwater data was obtained from the City of Pasadena. The results are included in the following sections.

5.3.2.1 Container Plant Survivorship

Year 1 survival counts were conducted during the annual botanical monitoring. Overall, plant mortality for Year 1 was found to be low with survivorship ranging from 98.7 to 100 percent in the mitigation areas. The overall survivorship percentage for container plants in the Phase 1 restoration areas was 99.0 percent. The container plant survival data is listed in Table 2.

Table 2. Container Plant Survivorship						
Mitigation Area	Container Plants	Year 1	Year 2¹	Year 3¹	Year 4¹	Year 5¹
DG-2/DG-2 WOUS/DG-2 New Channels	Number Planted	4,646				
	Number of Mortalities	65				
	Survivorship (%) ¹	98.7				

Table 2. Container Plant Survivorship						
Mitigation Area	Container Plants	Year 1	Year 2¹	Year 3¹	Year 4¹	Year 5¹
DG-W-1 (Johnson Field)	Number Planted	3,989				
	Number of Mortalities	22				
	Survivorship (%) ¹	99.4				
DG-W-2 (Mining Pit)	Number Planted	1,958				
	Number of Mortalities	25				
	Survivorship (%) ¹	98.7				
DG-W-2 Outlet	Number Planted	525				
	Number of Mortalities	4				
	Survivorship (%) ¹	99.2				
DG-4 Sheet Flow/DG-SF-1	Number Planted	322				
	Number of Mortalities	0				
	Survivorship (%) ¹	100				
Overall	Number Planted	11,440				
	Number of Mortalities	116				
	Survivorship (%) ¹	99.0				

¹If a volunteer or recruit of the same species originally planted was determined to be growing within the planting basin (or within one meter of that basin) of a dead container plant, then that plant was counted toward the survival total.

5.3.2.2 Percent Native and Nonnative Cover – Mitigation Areas

Native cover for the Phase 1 mitigation areas showed improvements during Year 1. Nonnative cover during Year 1 tended to be low; however, certain mitigation areas that were heavily infested with nonnative weeds prior to restoration implementation showed higher levels of nonnative infestation during Year 1. 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 1 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 24.9 percent, the native annual cover was 6.8 percent, and the percent cover of nonnative and invasive plant species was 0.8 and 1.9 percent, respectively.

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2¹	Year 3¹	Year 4¹	Year 5¹
Least Bell's Vireo (LBVI)						
DG-W-1 (Johnson Field) Transect 1 (100 m)	Perennial	6.5				
	Annual	3.5				
	Nonnative	1.5				
	Invasive ²	0.0				
DG-W-1 (Johnson Field) Transect 2 (100 m)	Perennial	8.8				
	Annual	1.0				
	Nonnative	2.7				
	Invasive ²	0.0				
DG-W-1 (Johnson Field) Transect 3 (100 m)	Perennial	8.5				
	Annual	5.5				
	Nonnative	2.0				
	Invasive ²	0.0				
DG-2 Transect 1 (30 m)	Perennial	99.3				
	Annual	0.0				
	Nonnative	0.0				
	Invasive ²	3.3				
DG-2 Transect 2 (25 m)	Perennial	29.3				
	Annual	4.0				
	Nonnative	0.0				
	Invasive ²	0.7				

Table 3. Percent Native/Nonnative Cover Mitigation Areas

Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2¹	Year 3¹	Year 4¹	Year 5¹
DG-2 Transect 3 (40 m)	Perennial	5.6				
	Annual	11.9				
	Nonnative	1.2				
	Invasive ²	6.2				
DG-2 New Channels Transect 1 (35 m)	Perennial	24.3				
	Annual	7.1				
	Nonnative	0.0				
	Invasive ²	2.9				
DG-2 New Channels Transect 2 (25 m)	Perennial	15.3				
	Annual	12.0				
	Nonnative	2.7				
	Invasive ²	0.0				
DG-2 WOUS Transect 1 (25 m)	Perennial	17.0				
	Annual	41.0				
	Nonnative	0.0				
	Invasive ²	8.0				
DG-2 WOUS Transect 2 (25 m)	Perennial	11.0				
	Annual	9.0				
	Nonnative	0.0				
	Invasive ²	4.0				
DG-W-2 (Mining Pit) Transect 1 (80 m)	Perennial	29.3				
	Annual	4.0				
	Nonnative	0.0				

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2¹	Year 3¹	Year 4¹	Year 5¹
	Invasive ²	0.0				
DG-W-2 (Mining Pit) Transect 2 (75 m)	Perennial	29.3				
	Annual	4.0				
	Nonnative	0.0				
	Invasive ²	0.0				
DG-W-2 Outlet Transect 1 (25 m)	Perennial	42.0				
	Annual	0.0				
	Nonnative	0.0				
	Invasive ²	0.0				
DG-W-2 Outlet Transect 2 (25 m)	Perennial	23.0				
	Annual	0.0				
	Nonnative	0.0				
	Invasive ²	1.0				
LBVI Overall³	Perennial	24.9				
	Annual	6.8				
	Nonnative	0.8				
	Invasive²	1.9				

¹To be determined.

²Invasive designation refers to nonnative plant species that have a Cal-IPC invasive plant rating of Moderate or High threat to wildlands.

³Average 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. 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 1² (%)	Year 2¹	Year 3¹	Year 4¹	Year 5¹
Riparian						
Riparian Scrub Reference	Perennial	92.0				
	Annual	2.5				
	Nonnative	3.5				
Riparian Woodland Reference	Perennial	58.8				
	Annual	0.5				
	Nonnative	34.4				
Riparian Overall¹	Perennial	75.4				
	Annual	1.5				
	Nonnative	19.0				
Least Bell's Vireo (LBVI)						
LBVI Reference 1	Perennial	96.5				
	Annual	1.5				
	Nonnative	1.0				
LBVI Reference 2	Perennial	91.3				
	Annual	2.3				
	Nonnative	1.5				
LBVI Overall¹	Perennial	93.9				
	Annual	1.9				
	Nonnative	1.3				

¹To Be Determined.

²Data 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 1 botanical monitoring event and included all germinating native plants and natural recruits. Native species richness was relatively high for the mitigation areas during Year 1 due to a high diversity of germination and natural recruitment.

Table 5 shows the native species richness for the mitigation areas. Native species richness was found to be 41 for the Phase 2 mitigation areas.

Table 5. Native Species Richness Mitigation Areas					
Mitigation Area	Year 1¹	Year 2¹	Year 3¹	Year 4¹	Year 5¹
Least Bell's Vireo (LBVI)					
DG-W-1 (Johnson Field)	27				
DG-2	20				
DG-2 New Channels	21				
DG-2 WOUS	20				
DG-W-2 (Mining Pit)	20				
DG-W-2 Outlet	11				
DG-4 Sheet Flow/DG-SF-1	14				
LBVI Overall²	41				

¹To be determined.

²Total native species observed across all mitigation areas.

5.3.2.5 Native Species Richness – Reference Sites

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 1¹	Year 2²	Year 3²	Year 4²	Year 5²
Riparian	20				
Least Bell's Vireo (LBVI)	22				

¹Data collected during Year 1 for Phase 1.

²To be determined.

5.3.2.6 Groundwater Data

Groundwater data collected by the City of Pasadena on October 12, 2021 (Year 1) is presented in Table 7 below. Groundwater data collected by JPL on March 19, 2021, May 17, 2021, and July 16, 2021 (Year 1) is presented in Table 8.

Table 7. City of Pasadena Groundwater Monitoring Results						
Well Name	Reference Elevation (ft)	SWL (ft)				
		Year 1	Year 2¹	Year 3¹	Year 4¹	Year 5¹
Arroyo	1,092.71	182				
52	1,076.76	165				
Ventura	1,069.82	163				

¹Years 2 through 5 to be determined.

Table 8. JPL Groundwater Monitoring Results				
Well Name	Datum (ft above msl)	Year 1¹		
		March 2021	May 2021	July 2021
MW-1	1116.70	1091.48	1091.74	1084.42
MW-3	1100.34	933.83	933.44	932.15
MW-4	1082.84	924.74	923.19	919.32
MW-5	1071.60	DRY	DRY	DRY
MW-6	1188.52	DRY	DRY	DRY
MW-7	1212.88	DRY	DRY	DRY
MW-8	1139.53	DRY	DRY	DRY
MW-9	1106.02	1086.57	1086.80	1079.67
MW-10	1087.71	DRY	DRY	DRY
MW-11	1139.30	1007.51	1011.25	1007.35
MW-12	1102.14	925.77	925.47	921.78
MW-13	1183.47	DRY	DRY	DRY
MW-14	1173.47	944.73	941.71	935.85
MW-15	1120.66	1089.72	1089.82	1083.16
MW-16	1236.27	952.63	DRY	DRY
MW-17	1191.21	917.07	914.21	912.98
MW-18	1225.41	955.73	918.25	916.10
MW-19	1142.94	920.50	918.91	916.30

Table 8. JPL Groundwater Monitoring Results				
Well Name	Datum (ft above msl)	Year 1¹		
		March 2021	May 2021	July 2021
MW-20	1165.05	904.13	902.45	903.60
MW-21	1059.10	940.55	937.64	932.73
MW-22	1176.98	936.76	934.70	932.62
MW-23	1108.84	932.70	930.81	926.47
MW-24	1200.94	931.08	933.77	930.11
MW-25	934.52	688.73	689.29	689.86
MW-26	1059.08	924.38	915.78	914.17

¹Years 2 through 5 to be determined.

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 8 for reference. Based on the results of the botanical monitoring, all of the Year 1 performance standards for the Phase 2 mitigation areas have been met. The performance standards for structural patch richness, sediment/topographic stability, and wildlife use monitoring were not required to be assessed during Year 1.

Table 9. Performance Standards for Onsite Mitigation Areas			
Category	Performance Standard	Description (Year 1)	Achieved
Flora-1	Survivorship	Tree, shrub, and herb strata container plants will have the following survival requirements: <ul style="list-style-type: none"> Year 1: 90% Survival 	YES ¹
Flora-2	Native Plant Cover	Combined tree, shrub, and herb strata container plants will have the following native plant cover requirements: <u>Least Bell's Vireo (LBVI) Habitat</u> <ul style="list-style-type: none"> Year 1: 20% 	<u>LBVI Habitat:</u> YES
Flora-3	Nonnative Plant Cover	Combined tree, shrub, and herb strata container plants will have the following native plant cover requirements: <u>LBVI Habitat:</u> <ul style="list-style-type: none"> Year 1: Not more than 5% 	<u>LBVI Habitat:</u> YES

Table 9. Performance Standards for Onsite Mitigation Areas

Category	Performance Standard	Description (Year 1)	Achieved
Flora-4	Native Plant Species Richness	By Year 5 mitigation areas must have 100% of the species richness present in the respective reference sites.	<u>LBVI Habitat:</u> YES

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

6.1 Container Plant Survivorship

Container plant survival is required to be a minimum of 90 percent at the end of Year 1. Out of the 11,440 container plants installed during Phase 2 of restoration activities, approximately 11,324 container plants survived during Year 1. This is a 99.0 percent survivorship, which is approximately 9.0 percent higher than the performance standard. In addition, container plants lost during Year 1 will be replaced during Phase 3 of restoration activities.

6.2 Native Plant Cover

At the end of Year 1, native plant cover is required to be at least 20 percent for LBVI habitat mitigation areas (i.e., all of Phase 2 mitigation areas). The Year 1 performance standard for native plant cover was achieved for the Phase 2 mitigation areas with 31.7 percent native cover overall.

6.3 Nonnative Plant Cover

Nonnative plant cover during Year 1 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 1 was approximately 2.7 percent, which is approximately 2.3 percent below the performance standard of less than 5 percent. Therefore, this performance standard was met for Year 1. 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.

6.4 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 1 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 have performed well during Year 1. Minor issues with the irrigation system, vandalism, pests, and herbivory were observed during the Year 1 monitoring efforts; however, these issues were minor and should not impeded the success of the mitigation areas. Maintenance activities including weed abatement, irrigation repair, and basin repair were conducted on a regular basis during Year 1. Replacement of dead container plants in the Phase 2 mitigation areas will occur during the Phase 3 planting effort (fall/winter 2021/2022) and will help to increase the level of native cover in the mitigation areas. 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 1 performance standards including container plant survivorship, native plant cover, and nonnative plant cover. There is no Year 1 performance standard for native plant species richness; however, the Phase 2 mitigation areas have already met the Year 5 performance standard. The performance standards for structural patch richness, sediment/topographic stability, and wildlife use monitoring were not required to be assessed during Year 1 and these standards will be assessed during future monitoring events.

8.0 REFERENCES

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- California Department of Fish and Wildlife (CDFW). 2018. Amendment of Lake or Streambed Alteration Agreement for the Devil's Gate Sediment Removal and Management Project (Notification No. 1600-2015-0263-R5). Permittee: Los Angeles County Department of Public Works. July 17, 2018.
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- Los Angeles County. 2018. Code of Ordinances. Available at: https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT22PLZO_DIV1PLZO_CH22.46SPPL_PT4UNSTSPPL_22.46.2100OATRRE. Accessed: November 10, 2020.

LIST OF ATTACHMENTS

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

Appendix B - Year 1 Plant Species Compendium

Appendix C - Year 1 Photo Documentation

APPENDIX A

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



MARK PESTRELLA, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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
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

Conserving California's Wildlife Since 1870

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

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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 ~~2.41~~ **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.

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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.

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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 flood³ 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 leptoceras*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Parish's gooseberry (*Ribes divaricatum* var. *parishii*), black willow thickets, mulefat thickets, riparian herbaceous, coast live oak woodland, scale broom scrub, and all other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area. These resources are further detailed and more particularly described in the document(s): "Devil's Gate Reservoir Sediment Removal and Management Project Final Environmental Impact Report " dated October 2014, prepared for Los Angeles County of Department of Public Works by Chambers Group; **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~~ **7.1** 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 ~~1.00~~ **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 impacts are undetermined at this time because the area's hilly topography may not result in any significant effect or project disturbances may be avoided all together based on project design modifications. ~~made from incorporating Measures to avoidance impacts to~~ **of oak trees will be identified following the completion of the in-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, ~~0.50~~ **0.7** acre *Xanthium strumarium* herbaceous stand, ~~0.20~~ **0.7** acre *Quercus agrifolia* coast live oak (trees), ~~0.07 acre Eucalyptus (globulus, camaldulensis) Semi-natural stand,~~ **0.08** **12** 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
<i>Salix gooddingii</i> Woodland Alliance	16.27 15.64	16.27 15.64	22.34 21.44	38.58 37.08
<i>Baccharis saltifolia</i> Shrubland Alliance	8.03 9.71	8.03 9.71	4.83 5.84	12.86 15.55
<i>Lepidospartum squamatum</i> Shrubland Alliance	1.82 1.97	1.82 1.97	7.28 7.88	9.19 8.5
<i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> Shrubland Alliance	0.02 0.01	0.02 0.01	0.04 0.02	0.06 0.03
<i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	2.45 2.61	0.00	1.23 1.31	1.23 1.31
<i>Lepidium latifolium</i> - <i>Conium maculatum</i> Herbaceous Semi-Natural Alliance*	9.88 10.24	0.00	4.94 5.12	4.94 5.12
<i>Xanthium strumarium</i> 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~~ **17** 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.

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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.

Mr. Christopher Stone
July 17, 2018
Page 9 of 9

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

**Devil's Gate Reservoir
Restoration Project**

LACPW/ECORP

Phase 2 2021 PLANT SPECIES COMPENDIUM

Scientific Name	Common Name	Mitigation Areas	Reference Sites
VASCULAR PLANTS			
PTERIDOPHYTES			
EQUISETACEAE	HORSETAIL FAMILY		
<i>Equisetum ssp.</i>	horsetail		X
ANGIOSPERMS (EUDICOTS)			
ADOXACEAE	MUSKROOT FAMILY		
<i>Sambucus nigra ssp. caerulea</i>	blue elderberry	X	X
AMARANTHACEAE	AMARANTH FAMILY		
<i>Amaranthus albus*</i>	pigweed amaranth	X	
ANACARDIACEA	CASHEW AND SUMAC FAMILY		
<i>Toxicodendron diversilobum</i>	poison oak		X
APIACEAE	CARROT FAMILY		
<i>Conium maculatum*</i>	poison hemlock	X	
ASTERACEAE	SUNFLOWER FAMILY		
<i>Achillea millefolium</i>	common yarrow	X	
<i>Ambrosia acanthicarpa</i>	annual bursage	X	
<i>Ambrosia psilostachya</i>	western ragweed		X
<i>Artemisia californica</i>	California sagebrush	X	X
<i>Artemisia douglasiana</i>	mugwort	X	X
<i>Artemisia dracunculus</i>	taragon	X	
<i>Baccharis pilularis</i>	coyote brush	X	
<i>Baccharis salicifolia</i>	mulefat	X	X
<i>Carduus pycnocephalus*</i>	Italian thistle	X	X
<i>Centaurea melitensis*</i>	toalote		X
<i>Corethrogyne filaginifolia</i>	common sand aster		X
<i>Erigeron canadensis</i>	Canada horseweed	X	X
<i>Eriophyllum confertiflorum</i>	golden yarrow		X
<i>Helianthus annuus</i>	Hairy leaved sunflower	X	
<i>Heterotheca grandiflora</i>	telegraph weed	X	X
<i>Isocoma menziesii</i>	Menzies' goldenbush		X
<i>Lactuca serriola*</i>	prickly lettuce		X
<i>Lepidospartum squamatum</i>	scalebroom		X
<i>Matricaria chamomilla*</i>	German chamomile	X	
<i>Pseudognaphalium biolettii</i>	Two-color rabbit-tobacco	X	
<i>Pseudognaphalium californicum</i>	ladie's tobacco	X	X
<i>Sonchus asper*</i>	prickly sow-thistle		X
<i>Xanthium strumarium</i>	rough cocklebur	X	
BETULACEAE	BIRCH FAMILY		
<i>Alnus rhombifolia</i>	white alder		X

Scientific Name	Common Name	Mitigation Areas	Reference Sites
BORAGINACEAE	BORAGE FAMILY		
<i>Eriodictyon crassifolium</i>	thick leaved yerba santa		X
<i>Heliotropium curassavicum</i>	salt heliotrope	X	
<i>Phacelia cicutaria</i>	caterpillar phacelia	X	X
<i>Phacelia minor</i>	California bluebells	X	
<i>Phacelia distans</i>	Common phacelia	X	
<i>Phacelia grandiflora</i>	Giant flowered phacelia	X	
<i>Phacelia paryi</i>	Parry's phacelia	X	
BRASSICACEAE	MUSTARD FAMILY		
<i>Brassica nigra</i> *	black mustard	X	X
<i>Lepidium latifolium</i> *	perennial pepperweed	X	
<i>Raphanus sativus</i> *	wild radish	X	
CARYOPHYLLACEAE	CARNATION FAMILY		
<i>Spergularia rubra</i> *	Purple sand spurry	X	
CHENOPODIACEAE	GOOSEFOOT FAMILY		
<i>Chenopodium album</i> *	lamb's quarters	X	
<i>Chenopodium californicum</i>	California goosefoot	X	
CONVOLVULACEAE	MORNING GLORY FAMILY		
<i>Cuscuta californica</i>	dodder	X	
CUCURBITACEAE	GROUND FAMILY		
<i>Marah macrocarpus</i>	Southern wild cucumber	X	
EUPHORBIACEAE	SPURGE FAMILY		
<i>Ricinus communis</i> *	castor bean	X	X
FABACEAE	LEGUME FAMILY		
<i>Acmispon glaber</i>	deerweed		X
<i>Acmispon strigosus</i>	Strigose lotus	X	
<i>Lupinus bicolor</i>	annual lupine	X	
<i>Melilotus indicus</i> *	annual yellow sweetclover	X	
<i>Spartium junceum</i> *	Spanish broom		X
FAGACEAE	OAK FAMILY		
<i>Quercus agrifolia</i>	coast live oak	X	X
GERANIACEAE	GERANIUM FAMILY		
<i>Erodium cicutarium</i> *	red-stemmed filaree	X	
<i>Geranium molle</i> *	crane's bill geranium		X
LAMIACEAE	MINT FAMILY		
<i>Marrubium vulgare</i> *	white horehound		X
<i>Salvia mellifera</i>	black sage		X
MORACEAE	FIG FAMILY		
<i>Ficus carica</i> *	common fig		X
MYRSINACEAE	MYRSINE FAMILY		
<i>Lysimachia arvensis</i> *	scarlet pimpernel	X	
OLEACEAE	OLIVE FAMILY		
<i>Fraxinus uhdei</i> *	Shamel ash		X
ORNAGRACEAE	EVENING PRIMROSE FAMILY		
<i>Camissoniopsis micrantha</i>	Spencer primrose	X	
<i>Oenothera elata</i>	evening primrose		X

Scientific Name	Common Name	Mitigation Areas	Reference Sites
PAPAVERACEAE	POPPY FAMILY		
<i>Argemone munita</i>	Prickly poppy	X	
<i>Eschscholzia californica</i>	California poppy	X	
PLATANACEAE	PLANE-TREE FAMILY		
<i>Platanus racemosa</i>	western sycamore		X
POLYGONACEAE	BUCKWHEAT FAMILY		
<i>Eriogonum fasciculatum</i>	California buckwheat		X
<i>Eriogonum gracile</i>	slender buckwheat	X	
<i>Rumex crispus</i> *	curly dock	X	
RHAMNACEA	BUCKTHORN FAMILY		
<i>Rhamnus crocea</i>	redberry buckthorn		X
ROSACEAE	ROSE FAMILY		
<i>Prunus ilicifolia</i>	hollyleaf cherry		X
<i>Rosa californica</i>	California rose	X	
<i>Rubus americanus</i> *	Himalayan blackberry		X
<i>Rubus ursinus</i>	California blackberry	X	X
RUBIACEAE	BEDSTRAW FAMILY		
<i>Galium aparine</i>	common bedstraw		X
SALICACEAE	WILLOW FAMILY		
<i>Populus fremontii</i>	Fremont's cottonwood	X	X
<i>Salix exigua</i>	narrow leaved willow		X
<i>Salix gooddingii</i>	black willow	X	X
<i>Salix laevigata</i>	red willow	X	X
<i>Salix lasiolepis</i>	arroyo willow	X	X
SAPINDACEAE	SOAPBERRY FAMILY		
<i>Acer negundo</i>	boxelder		X
SOLANACEAE	NIGHTSHADE FAMILY		
<i>Datura wrightii</i>	jimson weed	X	X
<i>Nicotiana glauca</i> *	tree tobacco	X	
<i>Solanum douglasii</i>	Douglas' nightshade	X	
<i>Solanum nigrum</i> *	black nightshade	X	
ULMACEAE	ELM FAMILY		
<i>Elm ssp.</i> *	elm		X
URTICACEAE	NETTLE FAMILY		
<i>Urtica dioica</i>	stinging nettle	X	
VITACEAE	GRAPE FAMILY		
<i>Vitis californica</i>	California grape		X
ANGIOSPERMS (MONOCOTS)			
AGAVACEAE	CENTURY PLANT FAMILY		
<i>Hesperoyucca whipplei</i>	chaparral yucca		X
CYPERACEAE	SEDGE FAMILY		
<i>Cyperus eragrostis</i>	tall flatsedge	X	

Scientific Name	Common Name	Mitigation Areas	Reference Sites
POACEAE	GRASS FAMILY		
<i>Arundo donax</i> *	giant reed		X
<i>Avena fatua</i> *	wild oat		X
<i>Bromus madritensis ssp. rubens</i> *	red brome	X	X
<i>Hordeum murinum</i>	Farmers Foxtail	X	
<i>Schismus barbatus</i> *	Mediterranean grass		X
<i>Stipa miliacea</i> *	smilo grass		X
TYPHACEAE	CATTAIL FAMILY		
<i>Typha ssp.</i>	cattail		X

* - Nonnative species.

CNPS Rare Plant Listing Status:

List 1B.1 Rare, threatened, or endangered in California and elsewhere. Seriously

List 1B.2 Rare, threatened, or endangered in California and elsewhere.

List 2B.2 Rare, threatened or endangered in California, but more common

List 4.2 Limited distribution (Watch List). Moderately endangered in California



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

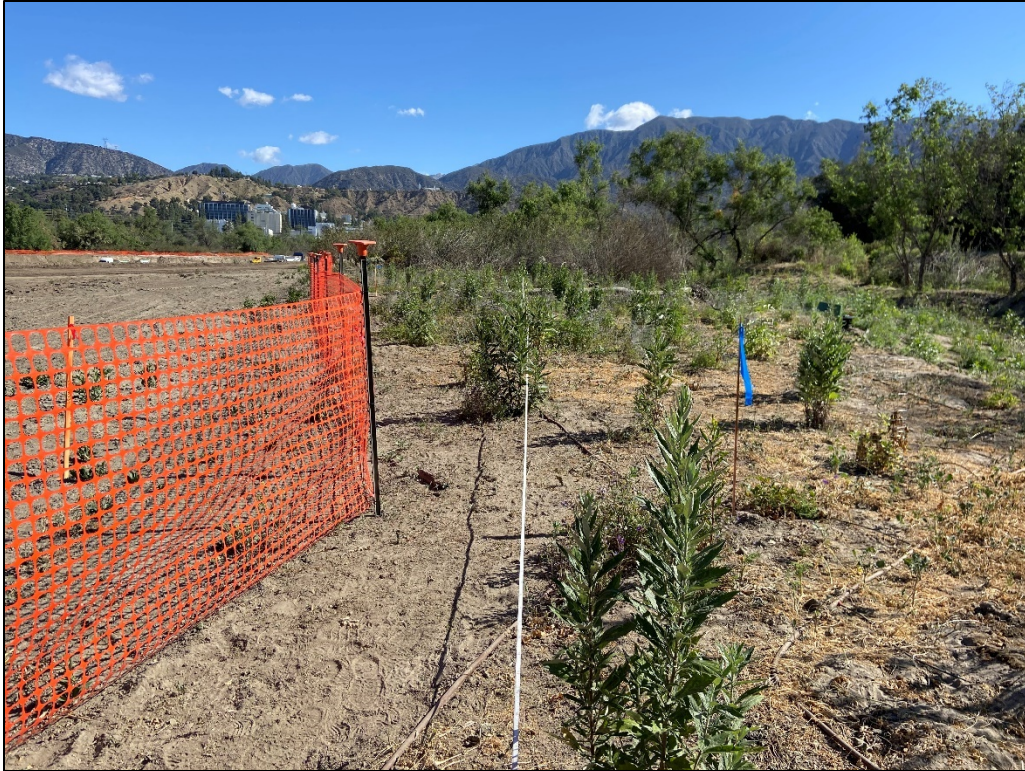


Photo 11: Mitigation Area DG-2 Transect #3 Start



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 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 #2, Facing S



Photo 43: Mitigation Area DG-2 New Channels Photo Point #2, 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 124: Overview LBVI Reference Site



Photo 125: Overview LBVI Reference Site



Photo 126: Overview LBVI Reference Site



Photo 127: Overview LBVI Reference Site



Photo 128: Overview LBVI Reference Site



Photo 129: Overview LBVI Reference Site

ATTACHMENT I

Agreement to Purchase and Sale of Mitigation Values

**AGREEMENT FOR PURCHASE AND SALE OF MITIGATION VALUES
(Devil's Gate Dam Sediment Removal and Management Project,
Los Angeles County, California)**

This Agreement for Purchase and Sale of Mitigation Values ("**Agreement**"), dated for reference purposes only, August 2, 2018, is entered into by and between **LV-BP INVESTORS RANCH, LLC**, a Delaware limited liability company ("**Seller**") and **Los Angeles County Flood Control District** ("**Project Proponent**"). Seller and Project Proponent are sometimes individually referred to herein as a "**Party**" and collectively as the "**Parties**."

Recitals

A. Project. Project Proponent is seeking to implement the Devil's Gate Reservoir Sediment Removal and Management Project, in Southern California which involves the restoration of a public facility through excavation of approximately 1.7 million cubic yards of sediment ("**Project**").

B. Project Approval. Project Proponent has obtained approval from the California Department of Fish and Wildlife ("**CDFW**"), in the form of a Final Lake or Streambed Alteration Agreement, Notification No. 1600-2015-0263-R5 and is also seeking approval from the United States Army Corps of Engineers ("**ACOE**") and the Los Angeles Regional Water Quality Control Board ("**Regional Board**") (collectively, the "**Project Approvals**").

C. Project Impacts. The Project Approvals obtained by Project Proponent identify permanent impacts that the Project will have ("**Project Impacts**") on certain species and habitat, including black willow thickets, scalebroom scrub, mulefat thickets and California live oak trees, all as more particularly described in the Project Approvals ("**Impacted Species**").

D. Compensatory Mitigation Requirements. In connection with issuance of the Project Approvals by the CDFW, the ACOE and the Regional Board, certain compensatory mitigation requirements will be imposed on the Project with respect to Impacted Species, which consist of the creation of willow and mulefat thickets and alluvial shrub land, all as more particularly described in the Project Approvals (the "**Compensatory Mitigation Requirements**").

E. Compensation for Project Impacts. Project Proponent desires to compensate for the Project Impacts by purchasing sufficient Mitigation Values (as hereinafter defined) to satisfy the Compensatory Mitigation requirements. Project Proponent wishes to purchase a minimum of 31.82 acres of Mitigation Values from Seller. The parties acknowledge that Project Proponent will also need to acquire other mitigation values for its Project and that Seller is not responsible for fulfilling any of Project Proponent's mitigation obligations other than those expressly provided in this Agreement.

F. Mitigation Site. Seller's land includes land located in Los Angeles County, California, within portions of Assessor's Parcel Numbers 3215-004-003, 3215-018-021 and 3215-

018-022 ("**Mitigation Site**"). The Mitigation Site is more particularly described in Exhibit A. The Mitigation Site will contain restored and/or created habitats, including open water habitat, wetland riparian habitat and seasonal wetland habitat.

G. Suitable Mitigation. Project Proponent has confirmed that the Mitigation Site, as restored and/or created in accordance with the HMMP (described below), will meet the Compensatory Mitigation Requirements.

H. HMMP. Seller, in coordination with Project Proponent, intends to prepare and process for approval by the CDFW, the ACOE and the Regional Board, a Habitat Management and Mitigation Plan ("**HMMP**"), that will address how the habitats at the Mitigation Site will be restored and created to meet the Compensatory Mitigation Requirements. The HMMP will include, among other things, design goals and objectives, generalized mapping of habitats, a long-term management plan based on the Petersen Ranch Mitigation Bank Long-Term Management Plan, monitoring requirements based on the Petersen Ranch Mitigation Bank Development Plan and a description and calculation of a long term funding mechanism for the Mitigation Site, in order to allow for the preservation, enhancement and management of the habitat at the Mitigation Site. In addition, Seller, in coordination with Project Proponent, intends to prepare and process for approval by the Regional Board, the CDFW and the ACOE, a conservation easement (as hereinafter defined) that will encumber the Mitigation Site and may also encumber adjacent land owned by Seller ("**Seller's Remaining Land**").

I. Creation of Mitigation Values. Implementation of the HMMP is intended to create Mitigation Values that will benefit Project Proponent by enabling Project Proponent to meet its Compensatory Mitigation Requirements (the "**The Mitigation Values**").

J. Purchase of Mitigation Values. Pursuant to the terms and conditions of this Agreement, Project Proponent wishes to purchase up to 34.4 acres of Mitigation Values at the Mitigation Site, for the purpose of satisfying the Compensatory Mitigation Requirements.

NOW, THEREFORE, in consideration of the foregoing recitals, and the mutual covenants contained herein, the Parties agree as follows:

Agreement

1. Effective Date. For the purposes of this Agreement, the date on which the last Party executes this Agreement and delivers it to the other Party shall be referred to herein as the "**Effective Date**."

2. Sale of Mitigation Values. Pursuant to the terms and conditions of this Agreement, Seller agrees to sell for the benefit of Project Proponent and Project Proponent agrees to purchase from Seller, up to 34.4 acres of Mitigation Values at the Mitigation Site; provided, however, that Project Proponent agrees to purchase a minimum of 31.82 acres of Mitigation Values. Project Proponent understands and agrees that it is acquiring the Mitigation Values, subject to Seller's reservation of rights to existing uses of the Mitigation Site and Seller's remaining land ("**Seller's Remaining Land**"), so long as such uses do not conflict with the

HMMP or impair compliance with or the implementation of the HMMP.

3. Purchase Price. The purchase price for the Mitigation Values shall be the Base Purchase Price plus the Additional Purchase Price (each as defined below), subject to adjustment pursuant to Section 8(d) below (collectively, the “**Purchase Price**”):

(a) Base Purchase Price. The base purchase price for a guaranteed minimum purchase of 31.82 acres of Mitigation Values, shall be [REDACTED] (the “**Base Purchase Price**”); and

(b) Additional Purchase Price. The additional purchase price for up to a guaranteed maximum of 2.58 additional acres of Mitigation Values, shall be either (i) [REDACTED] multiplied by the number of additional whole and partial acres of Mitigation Values purchased, on the condition that the additional acreage shall be subject to preservation only, and shall not be subject to restoration pursuant to the requirements of any agency, including the ACOE; or (ii) in the event that any agency requires restoration of the additional acreage, then the additional purchase price for up to 2.58 additional acres of Mitigation Values, shall be [REDACTED] multiplied by the number of additional whole and partial acres of Mitigation Values purchased (the “**Additional Purchase Price**”).

(c) Adjustment of Purchase Price. The Purchase Price shall be subject to adjustment pursuant to Sections 8(a) and 8(d) below.

4. Payment of Purchase Price.

(a) Initial Deposit. Within twenty-one (21) days after the Effective Date of this Agreement, Project Proponent shall pay to Seller the amount of [REDACTED] (the “**Initial Deposit**”).

(b) Progress Deposits. Project Proponent shall pay to Seller additional progress deposits (collectively, the “**Progress Deposits**”), as follows:

(i) Draft HMMP Approval Deposit. Within three (3) days after Project Proponent’s approval of the Draft HMMP (as set forth in Section 8(a) of this Agreement), Project Proponent shall pay to Seller the additional sum of [REDACTED] (the “**Draft HMMP Approval Deposit**”).

(ii) Final HMMP Approval Deposit. Within three (3) days after approval of the Final HMMP by the Regional Board, the CDFW and the ACOE (as set forth in Section 8(a) of this Agreement), Project Proponent shall pay to Seller the additional sum of [REDACTED] (the “**Final HMMP Approval Deposit**”).

All payments made to Seller pursuant to this Section 4 (i) shall be made in immediately available funds, (ii) shall be nonrefundable to Project Proponent, (iii) shall be deemed fully earned by Seller; and (iv) shall be credited toward the Purchase Price.

(c) Application of Initial Deposit and Progress Deposits. The Initial Deposit and the Progress Deposits shall be applied to the Purchase Price at the Closing (as hereinafter defined).

(d) Balance of Purchase Price. On or before the Closing, the balance of the Purchase Price shall be paid by Project Proponent to Seller, in immediately available funds.

5. Closing. The terms "Closing" and "Closing Date" shall be used interchangeably herein. The Closing shall occur on or before October 1, 2018 (the "**Closing Date**"). If the Project Approvals have not been issued by the Regional Board, the CDFW and the ACOE by the Closing Date, then the following alternative courses of action shall be available:

(a) Project Proponent shall have the right to extend the Closing Date for three periods of thirty (30) days each (it also being agreed that Project Proponent must exercise the first extension in order to be entitled to exercise the second extension, and must exercise the second extension in order to be entitled to exercise the third extension). Project Proponent shall exercise each extension by giving notice to Seller along with payment to Seller of [REDACTED] for each thirty (30) day extension (each an "**Extension Deposit**"), in immediately available funds, in which event the Extension Deposit shall thereafter be nonrefundable and be deemed fully earned by Seller but shall be credited toward the Purchase Price; or

(b) Project proponent shall have the right to pay Seller the balance of the Purchase Price and the Excess Endowment Reimbursement (as defined in Section 6(b)) in immediately available funds, subject only to the respective obligation of the Parties to diligently seek the issuance of all pending Project Approvals so that the Closing can occur no later than December 31, 2018 (the "**Outside Closing Date**"); or

(c) Project Proponent shall have the right to terminate this Agreement, in which event the Parties shall thereafter have no further rights, duties or obligations under this Agreement and in that event, Seller shall retain the Initial Deposit, the Progress Deposits, and any Extension Deposit, which shall be deemed fully earned by Seller.

6. Closing Documents.

(a) Seller's Closing Documents. Upon Closing, Seller shall deliver to Project Proponent the following documents:

(i) Bill of Sale. A Bill of Sale in the form attached hereto as Exhibit B and incorporated herein by this reference (the "**Bill of Sale**"), executed by Seller, evidencing the sale of the Mitigation Values to Project Proponent; and

(ii) Conservation Easement. If the Conservation Easement (defined in Section 8(a) below) has not already been recorded prior to the Closing, Seller shall record or

cause to be recorded, the Conservation Easement, executed and acknowledged by the parties thereto, for recordation in the Official Records of Los Angeles County, California.

(b) Project Proponent's Closing Documents. Upon Closing, Project Proponent shall pay to Seller the following:

(i) Balance of Purchase Price. Project Proponent shall pay to Seller the balance of the Purchase Price, in immediately available funds; and

(ii) Excess Endowment Reimbursement. An amount equal to any endowment required by any of the Project Approvals in excess of [REDACTED] ("Excess Endowment") pursuant to Section 8(d) below ("Endowment Reimbursement").

(c) Prior to the Closing Date, the parties shall agree on the procedures for carrying out the steps necessary to complete the Closing.

7. Costs and Expenses. Project Proponent and Seller shall each pay their own legal and professional fees and fees of other consultants engaged by them.

8. Seller's Pre-Closing Obligations.

(a) HMMP. Seller, in coordination with Project Proponent, shall prepare a draft HMMP for the Mitigation Site and submit it to Project Proponent for Project Proponent's review and approval, which approval shall not be unreasonably withheld or delayed. Project Proponent shall have ten (10) days in which to review and approve the draft HMMP. Project Proponent's failure to provide Seller written notice of Project Proponent's disapproval of the draft HMMP within such ten (10)-day period, shall be deemed to constitute Project Proponent's approval of the draft HMMP. In the event that Project Proponent disapproves the draft HMMP, Project Proponent and Seller shall use their good faith, commercially reasonable efforts to promptly resolve Project Proponent's reasonable concerns. If Project Proponent and Seller are unable to resolve Project Proponent's reasonable concerns regarding the draft HMMP, within thirty (30) days, then either Party may terminate this Agreement by providing written notice to the other Party, in which event the Parties shall have no further rights, duties or obligations under this Agreement and in that event, Seller shall retain the Initial Deposit, the Progress Deposits, and any released Extension Deposit. The HMMP that is approved by Project Proponent pursuant to the foregoing provisions is referred to herein as the "**Draft HMMP.**" Upon obtaining such approval from Project Proponent, Seller shall process the Draft HMMP with the Regional Board, the CDFW and the ACOE and shall use its good faith, commercially reasonable efforts to obtain the Regional Board, the CDFW and ACOE approval of the Draft HMMP, as soon as reasonably practicable. Project Proponent shall reasonably support Seller's efforts to obtain approval of the Draft HMMP and shall have the right to participate in discussions with the Regional Board, the CDFW and/or the ACOE regarding the Draft HMMP. The HMMP that is actually approved by the CDFW and the ACOE is referred to herein as the "**Final HMMP.**" All conditions imposed by the CDFW, the ACOE or the Regional Board (and associated costs to comply with such conditions) on Seller under the Final HMMP, shall be subject to Seller's approval, which may be

given or withheld in Seller's sole and absolute discretion. If conditions of approval of the Final HMMP increase the cost of implementing the HMMP beyond the currently estimated cost of any line items shown on the HMMP Cost Budget attached hereto as Exhibit "C" ("**HMMP Cost Budget**"), the Parties agree to increase the purchase price on a dollar-for-dollar basis (in which event this agreement shall be deemed automatically amended to account for the same) to account for such cost increase. However, notwithstanding the foregoing, the aggregate amount of any such cost increase, together with any increase described in Section 8(d), below, shall not exceed [REDACTED]

[REDACTED] Seller makes no representations or warranties concerning whether the Draft HMMP will be approved by Regional Board, the CDFW or the ACOE or concerning the timing for such approval. In no event shall refusal by the Regional Board, the CDFW or the ACOE to approve the Draft HMMP by the Outside Closing Date, or at all, constitute a default by Seller or Project Proponent under this Agreement.

The HMMP shall provide for preparation of a conservation easement ("**Conservation Easement**") for the Mitigation Site and at Seller's election adjacent land owned by Seller, which conforms to legal requirements imposed by the CDFW and the ACOE. Seller shall use its good faith, commercially reasonable efforts to obtain approval by the Regional Board, the CDFW and the ACOE of the Conservation Easement as soon as reasonably practicable and in conjunction with obtaining approval by the Regional Board, the CDFW and the ACOE of the Draft HMMP. Seller shall cause the Conservation Easement to be recorded in the Official Records of Los Angeles County, California, on or before the Closing and concurrently with funding of the endowment. The terms and conditions of the Conservation Easement shall be subject to Seller's approval, which may be given or withheld in Seller's sole and absolute discretion.

(b) Seller's Disapproval of Final HMMP. In the event that the conditions imposed by the CDFW and/or the ACOE and/or the Regional Board in connection with its/their approval of the Final HMMP are not acceptable to Seller (which approval may be given or withheld in Seller's sole and absolute discretion), and Seller and Project Proponent are unable to resolve Seller's concerns to the satisfaction of Seller, in its sole and absolute discretion, then Seller shall have the right to terminate this Agreement, and the Parties shall thereafter have no further rights, duties or obligations under this Agreement and in that event, Seller shall retain the Initial Deposit, the Progress Deposits, and any released Extension Deposit.

(c) Protection and Habitat Improvement. In the event that the Closing occurs, Seller shall at its cost and expense implement all protection and habitat conservation activities and all long-term maintenance, monitoring and other management activities, as described in the Final HMMP. However, notwithstanding the foregoing, Project Proponent shall post all financial assurances required by the CDFW and/or the ACOE and/or the Regional Board in connection with its/their approval of the Final HMMP other than the endowment described below.

(d) Endowment. Seller shall fully fund any and all endowments or other security required by the CDFW and/or the ACOE and/or the Regional Board to be funded in connection with the recordation of the Conservation Easement and for the monitoring and maintenance of the Mitigation Site in accordance with the requirements of the Final HMMP. However, in the event that the total endowment exceeds [REDACTED]

██████████, the Purchase Price shall be increased on a dollar-for-dollar basis for each dollar that the total endowment exceeds ██████████, subject to the limit on the Purchase Price described in Section 8(a), above. In the event that the total endowment is less than ██████████, the Purchase Price shall be decreased on a dollar-for-dollar basis for each dollar that the total endowment is less than ██████████.

9. Limitation of Obligations; Project Approvals.

(a) Limitation of Obligations. Project Proponent's obligations shall be limited to the payments and other undertakings expressly provided in this Agreement. Except as otherwise provided in this Agreement, Project Proponent shall have no obligation by reason of the taking the benefit of the Mitigation Site and the Mitigation Values, to support, pay for, monitor, report on, sustain, continue in perpetuity or otherwise be obligated or liable for the success or continued expense, monitoring, management or maintenance in perpetuity of the Mitigation Site.

(b) Limitation of Rights to Mitigation Site. Nothing in this Agreement shall result in Project Proponent having any right, title or interest in the Mitigation Site. Project Proponent's sole right shall be to have the Mitigation Values serve as the required mitigation for the Project approved by the Regional Board, the CDFW and/or the ACOE, provided that Project Proponent satisfies all of its obligations under this Agreement. Project Proponent acknowledges and agrees that Seller intends to reserve for itself and/or to allocate for use by one or more third parties, those mitigation values associated with the Mitigation Site and Seller's Remaining Property which do not conflict with the Final HMMP or impair compliance with or the implementation of the Final HMMP. In no event shall Project Proponent have any right, title or interest in any mitigation values other than the Mitigation Values that are created on the Mitigation Site. Without limiting the generality of the foregoing, Seller specifically reserves the right to translocate amphibian species (including, without limitation, California red legged frog,) to the Mitigation Site and to sell mitigation credits outside the Mitigation Site. Further without limiting the generality of the foregoing, Seller reserves the right to sell Mitigation credits related to avian species in and around the Mitigation Site on Seller's Remaining Land.

(c) Project Approvals. Project Proponent shall be solely responsible to the CDFW and the ACOE for obtaining the approval to use the Mitigation Values to meet the Compensatory Mitigation requirements. In that regard, Seller has made and makes no representation, warranty or guaranty that the Regional Board, the CDFW or the ACOE will approve the Mitigation Site as meeting the Compensatory Mitigation requirements or that the Mitigation Values will be sufficient to fully mitigate the impacts of the Project.

The Parties expressly agree that any mitigation or activities of Project Proponent not covered by this Agreement and any other mitigation set forth in the Project Approvals, other Project permits or any Habitat Mitigation and Monitoring Plan for the Project approved by any regulatory agency other than the HMMP, remain solely and entirely Project Proponent's responsibility. The Parties further agree that Seller shall not be liable, in law or equity, if the Mitigation Values are determined in any way, by any person or agency, to be insufficient for mitigation or regulatory compliance purposes under applicable statutes, laws and regulations. If

any court or regulatory agency later determines that the Mitigation Values are insufficient to meet the Compensatory Mitigation Requirements, Project Proponent shall be entirely responsible for satisfying any and all further obligations that may be imposed upon such determination. In that event, no responsibility or liability shall accrue to Seller.

Notwithstanding the foregoing, Seller shall reasonably cooperate with Project Proponent's efforts to obtain approval by the CDFW, the ACOE and the Regional Board of the use of the Mitigation Values to meet the Compensatory Mitigation requirements by providing information and executing documents reasonably required by the Regional Board, the CDFW and the ACOE. Other than Seller's obligations in Section 8, above, Seller shall not be obligated to bear any third party cost or to incur any additional liability in connection with such cooperation.

(d) Other Project Impacts. Project Proponent acknowledges and agrees that:

(i) Seller is only providing the Mitigation Values required to satisfy the Compensatory Mitigation Requirements;

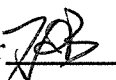
(ii) The Mitigation Values described in this Agreement are limited to the Mitigation Site;

(iii) The Mitigation Values described in this Agreement are not intended to offset the Project's impacts to any type of species or habitat not described herein; and

(iv) Project Proponent shall be solely responsible for mitigating the Project's impacts to such other types of species and habitat.

10. Default by Project Proponent; Liquidated Damages. PROJECT PROPONENT RECOGNIZES THAT THE MITIGATION VALUES WILL BE REMOVED BY SELLER FROM THE MARKET DURING THE TERM OF THIS AGREEMENT, AND THAT IF THE CLOSING DOES NOT OCCUR BECAUSE OF PROJECT PROPONENT'S DEFAULT, IT WOULD BE EXTREMELY DIFFICULT AND IMPRACTICAL TO ASCERTAIN THE EXTENT OF THE DETRIMENT TO SELLER. THE PARTIES HAVE DETERMINED AND AGREED THAT THE ACTUAL AMOUNT OF DAMAGES THAT WOULD BE SUFFERED BY SELLER AS A RESULT OF ANY SUCH DEFAULT IS DIFFICULT OR IMPRACTICABLE TO DETERMINE AS OF THE DATE OF THIS AGREEMENT AND THAT THE AMOUNT OF THE INITIAL DEPOSIT, THE PROGRESS DEPOSITS, AND ANY RELEASED EXTENSION DEPOSIT IS A REASONABLE ESTIMATE OF THE AMOUNT OF SUCH DAMAGES. FOR THESE REASONS, THE PARTIES AGREE THAT, IF THE CLOSING DOES NOT OCCUR BECAUSE OF PROJECT PROPONENT'S DEFAULT, THAT AN AMOUNT EQUAL TO THE INITIAL DEPOSIT, THE PROGRESS DEPOSITS, AND ANY RELEASED EXTENSION DEPOSIT SHALL BE RETAINED BY SELLER AS LIQUIDATED DAMAGES. UPON ANY SUCH BREACH OR DEFAULT BY PROJECT PROPONENT HEREUNDER, THIS AGREEMENT SHALL BE TERMINATED AND NEITHER PARTY SHALL HAVE ANY FURTHER RIGHTS OR OBLIGATIONS HEREUNDER, EACH TO THE OTHER, EXCEPT FOR THE RIGHT OF SELLER TO RETAIN SUCH LIQUIDATED DAMAGES; PROVIDED, HOWEVER, THAT NOTHING

CONTAINED HEREIN SHALL IN ANY MANNER LIMIT THE ATTORNEYS' FEES RECOVERABLE PURSUANT TO THIS AGREEMENT. DELIVERY TO AND RETENTION OF THE INITIAL DEPOSIT, THE PROGRESS DEPOSITS, AND ANY RELEASED EXTENSION DEPOSIT SHALL BE SELLER'S SOLE AND EXCLUSIVE REMEDY AGAINST PROJECT PROPONENT, IN THE EVENT OF A DEFAULT OR BREACH BY PROJECT PROPONENT RESULTING IN THE FAILURE TO CLOSE, AND SELLER WAIVES ANY AND ALL RIGHT TO SEEK OTHER RIGHTS OR REMEDIES AGAINST PROJECT PROPONENT, INCLUDING WITHOUT LIMITATION, SPECIFIC PERFORMANCE. THE PAYMENT AND RETENTION OF SUCH AMOUNT AS LIQUIDATED DAMAGES IS NOT INTENDED AS A FORFEITURE OR PENALTY WITHIN THE MEANING OF CALIFORNIA CIVIL CODE SECTIONS 3275 OR 3369, BUT IS INTENDED TO CONSTITUTE LIQUIDATED DAMAGES TO SELLER PURSUANT TO CALIFORNIA CIVIL CODE SECTIONS 1671, 1676 AND 1677. SELLER HEREBY WAIVES THE PROVISIONS OF CALIFORNIA CIVIL CODE SECTION 3389.

Seller 

Project Proponent _____

11. Default by Seller. In the event of a material default by Seller prior to the Closing, and provided that Seller fails to cure such default a reasonable period of time after Project Proponent's delivery of written notice to Seller stating the nature of the default, Project Proponent sole and exclusive remedy shall be to terminate this agreement and recover the Deposit and all released Extension Deposits from Seller.

12. Waiver of Damages. Each Party waives all claims against each other Party hereto, and all of their respective affiliates, contractors and agents, together with all those persons acting through or on behalf of any and all such parties, for special or punitive damages of any kind allegedly suffered by such Party or any related parties.

13. Limitation of Liability. No elected or appointed official, employee, officer, director, shareholder, manager, member or partner of either Party shall have any personal liability with respect to this Agreement whatsoever.


14. Limitations on Assignment; Transfer. The Mitigation Values shall be non-transferable and non-assignable. The Mitigation Values shall not be used as mitigation for any project site or purpose other than the Project.

15. Miscellaneous Provisions.

(a) Ownership of Documents. All work papers, drawings, internal memoranda of any kind, photographs, and any written or graphic material, however produced, prepared by Seller in connection with its performance of services hereunder shall be, and shall remain after termination of this Agreement, the property of Seller, and may be used by Seller for any purpose whatsoever. Seller agrees to return to Project Proponent upon termination of this Agreement all documents, drawings, photographs and other written or graphic material, however produced, received from Project Proponent and used by Seller in the performance of its services

CONTAINED HEREIN SHALL IN ANY MANNER LIMIT THE ATTORNEYS' FEES RECOVERABLE PURSUANT TO THIS AGREEMENT. DELIVERY TO AND RETENTION OF THE INITIAL DEPOSIT, THE PROGRESS DEPOSITS, AND ANY RELEASED EXTENSION DEPOSIT SHALL BE SELLER'S SOLE AND EXCLUSIVE REMEDY AGAINST PROJECT PROPONENT, IN THE EVENT OF A DEFAULT OR BREACH BY PROJECT PROPONENT RESULTING IN THE FAILURE TO CLOSE, AND SELLER WAIVES ANY AND ALL RIGHT TO SEEK OTHER RIGHTS OR REMEDIES AGAINST PROJECT PROPONENT, INCLUDING WITHOUT LIMITATION, SPECIFIC PERFORMANCE. THE PAYMENT AND RETENTION OF SUCH AMOUNT AS LIQUIDATED DAMAGES IS NOT INTENDED AS A FORFEITURE OR PENALTY WITHIN THE MEANING OF CALIFORNIA CIVIL CODE SECTIONS 3275 OR 3369, BUT IS INTENDED TO CONSTITUTE LIQUIDATED DAMAGES TO SELLER PURSUANT TO CALIFORNIA CIVIL CODE SECTIONS 1671, 1676 AND 1677. SELLER HEREBY WAIVES THE PROVISIONS OF CALIFORNIA CIVIL CODE SECTION 3389.

Seller _____

Project Proponent  _____

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12. Waiver of Damages. Each Party waives all claims against each other Party hereto, and all of their respective affiliates, contractors and agents, together with all those persons acting through or on behalf of any and all such parties, for special or punitive damages of any kind allegedly suffered by such Party or any related parties.

13. Limitation of Liability. No elected or appointed official, employee, officer, director, shareholder, manager, member or partner of either Party shall have any personal liability with respect to this Agreement whatsoever.

14. Limitations on Assignment; Transfer. The Mitigation Values shall be non-transferable and non-assignable. The Mitigation Values shall not be used as mitigation for any project site or purpose other than the Project.

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(a) Ownership of Documents. All work papers, drawings, internal memoranda of any kind, photographs, and any written or graphic material, however produced, prepared by Seller in connection with its performance of services hereunder shall be, and shall remain after termination of this Agreement, the property of Seller, and may be used by Seller for any purpose whatsoever. Seller agrees to return to Project Proponent upon termination of this Agreement all documents, drawings, photographs and other written or graphic material, however produced, received from Project Proponent and used by Seller in the performance of its services

hereunder.

(b) Notices. All notices, demands, consents, requests or other communications required to or permitted to be given pursuant to this Agreement shall be in writing, shall be given only in accordance with the provisions of this Section, shall be addressed to the parties in the manner set forth below, and shall be conclusively deemed to have been properly delivered: (i) upon receipt or rejection, when hand delivered during normal business hours (provided that notices which are hand delivered shall not be effective unless the sending party obtains evidence that the notice has been received); (ii) upon receipt when sent electronically prior to 5:00 p.m. on a given business day (otherwise such receipt is deemed as of the following business day) to the e-mail address set forth below (provided, however, that notices given electronically shall not be effective unless the notice has also been deposited in an authorized receptacle of the United States Postal Service as first-class, registered or certified mail, postage prepaid, with a return receipt requested (provided that the sender has in its possession the return receipt to prove actual delivery); (iii) upon the day of delivery or rejection on the day of receipt or rejection, if the notice has been deposited in an authorized receptacle of the United States Postal Service as first-class, registered or certified mail, postage prepaid, with a return receipt requested (provided that the sender has in its possession the return receipt to prove actual delivery); or (iv) one (1) Business Day after the notice has been deposited with either FedEx or United Parcel Service to be delivered by overnight delivery (provided that the sending party receives a confirmation of actual delivery from the courier). The addresses of the parties to receive notices are as follows:

To Seller: LV-BP Investors Ranch, LLC
1001 Bridgeway, Suite 246
Sausalito, CA 94965
Attn: Tracey Brownfield
E-Mail: tracey@landveritas.com
Telephone: (415) 729-3734

With a Copy To: Gresham Savage Nolan & Tilden
500 Hospitality Lane, Suite 300
San Bernardino, CA 92408
Attn: Mark A. Ostoich, Esq.
E-Mail: mark.ostoich@greshamsavage.com
Telephone: (909) 890-4499

To Project Proponent: Los Angeles County Flood Control District
900 South Fremont Avenue
Alhambra, CA 91803
Attn: Christopher Stone
E-Mail: cstone@dpw.lacounty.ca.gov
Telephone: (626) 458-6100

Any party may change its address for purposes of this section by giving the other party written notice of the new address in the manner set forth above.

(c) Partial Invalidity. If any term or provision of this Agreement or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each such term and provision of this Agreement shall be valid, and shall be enforced to the fullest extent permitted by law.

(d) Waivers. No waiver of any breach of any covenant or provision herein contained shall be deemed a waiver of any preceding or succeeding breach thereof, or of any other covenant or provision herein contained. No extension of time for performance of any obligation or act shall be deemed an extension of time for performance of any other obligation or act except those of the waiving party, which shall be extended by a period of time equal to the period of the delay.

(e) Successors and Assigns. Subject to the restrictions on assignment set forth herein, this Agreement shall be binding upon and shall inure to the benefit of the permitted successors and assigns of the parties hereto.

(f) Entire Agreement. This Agreement (including all Exhibits attached hereto) is the final expression of, and contains the entire agreement between, the parties with respect to the subject matter hereof and supersedes all prior understandings with respect thereto. This Agreement may not be modified, changed, supplemented, superseded, canceled or terminated, nor may any obligations hereunder be waived, except by written instrument signed by the party to be charged or by its agent duly authorized in writing or as otherwise expressly permitted herein. The parties do not intend to confer any benefit hereunder on any person, firm or corporation other than the parties hereto and lawful assignees.

(g) Time of Essence. Seller and Project Proponent hereby acknowledge and agree that time is strictly of the essence with respect to each and every term, condition, obligation and provision under this Agreement and that failure to timely perform any of the terms, conditions, obligations or provisions hereof by either party shall constitute a material breach of and a non-curable (but waivable) default under this Agreement by the party so failing to perform.

(h) Relationship of Parties. Nothing contained in this Agreement shall be deemed or construed by the parties to create the relationship of principal and agent, a partnership, joint venture or any other association between Project Proponent and Seller, except as provided in this Agreement.

(i) Construction. Headings at the beginning of each paragraph and subparagraph are solely for the convenience of the parties and are not a part of the Agreement. Whenever required by the context of this Agreement, the singular shall include the plural and the masculine shall include the feminine and vice versa. This Agreement shall not be construed as if it had been prepared by one of the parties, but rather as if both parties had prepared the same.

Unless otherwise indicated, all references to paragraphs, sections, subparagraphs and subsections are to this Agreement.

(j) Recitals/Exhibits. The Recitals set forth in this Agreement and the exhibits referenced herein are incorporated herein by this reference.

(k) Choice of Law; Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of California. Any suit, action or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the Superior Court of the County of Los Angeles, California.

(l) Counterpart Originals, Facsimile and Electronic Signatures. This Agreement may be executed in multiple counterparts, each of which is deemed to be an original, but all of which, together, shall constitute one and the same instrument. Facsimile or electronic signatures may be used in place of original signatures on this Agreement. The parties intend to be bound by the signatures on any facsimile or electronic document and hereby waive any defenses to the enforcement of the terms of this Agreement based on the use of a facsimile or electronic signature; provided, however, that the Parties hereby agree to execute and provide to each other original signatures, upon request made by either Party to the other.

(m) Representation by Counsel. Notwithstanding any rule or maxim of construction to the contrary, any ambiguity or uncertainty shall not be construed against either Project Proponent or Seller based upon authorship of any of the provisions hereof. Project Proponent and Seller each hereby warrant, represent and certify to the other as follows: (i) that the contents of this Agreement have been completely and carefully read by the representing party and counsel for the representing party; (ii) that the representing party has been separately represented by counsel and the representing party is satisfied with such representation; (iii) that the representing party's counsel has advised the representing party of, and the representing party fully understands, the legal consequences of this Agreement; and (iv) that no other person (whether a party to this Agreement or not) has made any threats, promises or representations of any kind whatsoever to induce the execution hereof, other than the performance of the terms and provisions hereof.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the dates set forth below.

[SIGNATURES FOLLOW]

SELLER:

LV-BP Investors Ranch, LLC

By: LV Petersen Ranch, LLC
Its: Manager

Date: August 2, 2018

By: Land Veritas Corp.

Its: Manager

By: H. Tracey Brownfield

Its: President

PROJECT PROPONENT

Los Angeles County Flood Control District

By: _____
Its: _____

Date: _____

APPROVED AS TO FORM:

MARY C. WICKHAM
County Counsel

By: _____
Deputy

SELLER:

LV-BP Investors Ranch, LLC

By: _____

Its: _____

Date: _____

PROJECT PROPONENT

Los Angeles County Flood Control District

By: Amphill George-Moody

Its: Deputy Director

Date: 8/1/18

APPROVED AS TO FORM:

MARY C. WICKHAM

County Counsel

By: _____

Deputy

Exhibit B

BILL OF SALE

In consideration of _____, receipt of which is hereby acknowledged, **LV-BP INVESTORS RANCH, LLC**, a Delaware limited liability company ("**Seller**"), does hereby bargain, sell and transfer to the **LOS ANGELES COUNTY FLOOD CONTROL DISTRICT** ("**Project Proponent**"), the following mitigation values ("**Mitigation Values**"):

Habitat Type	Acreage of Allocated Mitigation	Total Price
Compensatory Mitigation Values	<u>32.20</u> acres	\$ _____
	TOTAL:	\$ _____

Seller represents and warrants that it has good title to the Compensatory Mitigation Values, has good right to sell the same, and they are free and clear of all claims, liens, or encumbrances.

Seller covenants and agrees with Project Proponent to warrant and defend the sale of the Compensatory Mitigation Values against all and every person and persons whomsoever lawfully claiming the same.

SELLER:

LV-BP Investors Ranch, LLC

By: _____

Its: Manager

Date: December 3, 2018

Devil's Gate Payments

Deposit Date	Check #	Amount
8/24/2018		\$
10/10/2018		\$
11/1/2018		\$
11/9/2018		\$
11/30/2018		\$

Total \$

Exhibit C

HMMP Cost Budget

	Item	Budgeted Amount
(1)	WRA Draft & Final HMMP Report and Design, Restoration Planning & Implementation Oversight	
(2)	Fencing Cost (10,500 LF @ /LF)	
(3)	Additional Material Sourcing & Planting	TBD
(4)	Additional Irrigation (To be determined based upon # of additional plants required)	TBD
(5)	CDFW Amendment Resubmittal Fee	
(6)	WRA Reporting/Monitoring for Five Years	
(7)	Irrigation for 3 years	

NOTES:

- (1) Per executed contract with WRA.
- (2) 10,500 LF provides fencing around perimeter of entire restoration/creation area. Additional fencing not included. If the agencies require additional fencing, the cost will be passed through to County.
- (3) We are harvesting live stakes onsite and hand planting with Petersen Ranch staff; the HMMP assumes 8,000 plants; the cost of any plants required over this amount will be passed through to County at /plant.
- (4) If the Agencies require over 8,000, plants additional irrigation lines will be required; cost TBD on open book basis and passed through to County.
- (5) We submitted an amendment to CDFW already and expect the revisions to the Bank ledger and development plan associated with the Devils Gate PRM project to be covered by a re-submittal fee. Any amount over this will be passed through to County.
- (6) WRA will have to provide separate monitoring and reporting on the PRM project for five years; after five years, we plan to fold the reporting requirements into the Bank's monitoring and reporting.
- (7) 50 Acre Feet per year at /AF (includes pumping costs) for 3 years; if Agencies require 5 years of irrigation in the HMMP, costs for up to 2 additional years will be passed through to County (after 5 years, irrigation costs covered by the endowment).

As-Built Report for the Devil's Gate Off-Site Mitigation Project



April 23, 2019

Crystal Franco, P.E.
Los Angeles County Flood Control District
900 S. Fremont Avenue
Alhambra, CA 91803

Re: Devil's Gate Off-Site Turnkey Project As-Built Report [USACE Section 404 Permit: SPL-2014-00591, CDFW Lake or Streambed Alteration Agreement: 1600-2015-0263-R5].

Dear Crystal:

In compliance with the Habitat Mitigation and Monitoring Plan (HMMP) for the Devil's Gate Off-Site Mitigation Project (Mitigation Site), WRA, Inc. (WRA) respectfully submits this letter to serve as notification for the completion of the restoration activities on the Mitigation Site. Included in this letter is a summary of activities that were conducted during the implementation phase. As stated in the HMMP, the planned mitigation activities will include installing wildlife-friendly cattle exclusion fencing, removing and managing invasive plant species, planting mulefat and willow live stakes, and supplementing hydrology when necessary to sustain the new habitat area. Photographs of the site prior to and during the construction phase of implementation are also included in Appendix A.

Mitigation Acreage

The Mitigation Site is located within Area D of the 4,103-acre Petersen Ranch Mitigation Bank located near Leona Valley, Los Angeles County, California. The sag pond in its center is the critical feature of the Mitigation Site and will be the aquatic resource intended to support the implemented mitigation activities. Implementation of the HMMP was anticipated to result in 17.41 acres of Wetland Riparian Enhancement, 8.19 acres of Riparian Buffer Enhancement, 3.06 acres of Riparian Buffer Preservation, and 3.54 acres of upland buffer preservation. During implementation of the HMMP, an additional 2.06 acres of riparian habitat was planted resulting in a total of 17.41 acres of Wetland Riparian Enhancement, 10.26 acres of Riparian Buffer Enhancement, 3.06 acres of Riparian Buffer Preservation, and 3.54 acres of upland buffer preservation. This results in an overall excess of acreage as depicted in Table 1. The boundaries associated with the 404 mitigation acreage is shown in Appendix B.

Table 1: Proposed and As-built 404 Mitigation Acreage for the Devil's Gate Off-site HMMP

404 Mitigation Types	Proposed Acreage	As-built Acreage	Difference
Wetland Riparian Enhancement	17.41	17.41	0.0
Riparian Buffer Enhancement	8.19	10.26	2.07
Riparian Buffer Preservation	3.06	3.06	0.0
Upland Buffer Preservation	3.54	3.54	0.0
Total	32.20*	34.27	2.07*

*The 0.01-acre discrepancy in Total Proposed Acreage shown in Tables 1 and 2 is due to rounding and was reported in the HMMP as such.

Proposed mitigation actions were anticipated to create 6.36 acres of new riparian habitat consisting of a matrix of mulefat and willow dominated communities. Implementation of the HMMP also anticipated restoring an additional 19.25 acres of existing riparian habitat. These restored habitats were expected to be converted into dense intact stands of riparian scrub. The HMMP proposed these activities combined would result in 25.60 acres of new willow and mulefat dominated riparian habitats within the Mitigation Site. In addition, 6.60 acres of alluvial scrub habitat will be preserved on the alluvial fan that feeds into Pond D, and in the ephemeral drainage on the southwest side of the Mitigation Site. During implementation of the HMMP an additional 2.06 acres of mulefat/willow scrub was planted resulting in a total of 8.39 acres of Mulefat/Willow Scrub Creation, 19.28 acres Mulefat/Willow Scrub Restoration, and 6.60 acres Alluvial Scrub Preservation. This results in an overall difference in acreage as depicted in Table 2. The boundaries associated with the 1600 mitigation acreage is shown in Appendix C

Table 2: Proposed and As-built 1600 Mitigation Acreage for the Devil's Gate Off-site

1600 Mitigation Types	Proposed Acreage	As-built Acreage	Difference
Mulefat/Willow Scrub Creation	6.36	8.39	2.03
Mulefat/Willow Scrub Restoration	19.25	19.28	0.03
Sub-Total Mulefat/Willow	25.61	27.67	2.06
Alluvial Scrub Preservation	6.60	6.60	0.0
Total Mitigation Acreage	32.21*	34.27	2.06*

*The 0.01-acre discrepancy in Total Proposed Acreage shown in Tables 1 and 2 is due to rounding and was reported in the HMMP as such.

A Conservation Easement will be recorded over the 32.21 acres needed to meet the Devil's Gate Permit requirements. The remaining 2.06 acres of excess mulefat/willow habitat will be folded into the Area D portion of the Petersen Ranch Mitigation Bank.

Habitat Restoration Activities

Planting Areas

As outlined in the HMMP's Planting and Fencing Plan, the proposed planting included 6,170 mulefat (*Baccharis salicifolia*) live stakes and a mix of red willow (*Salix laevigata*) and arroyo willow (*S. lasiolepis*) totaling 1,256 live stakes. Planting activities began November 27, 2018 and were completed March 15, 2019 resulting in the installation of 9,338 mulefat live stakes and 1,1106 mixed red and arroyo willow live stake plantings. Planting used a clustered approach in order to create large patches of dense cover relatively quickly with open spaces between clusters anticipated to fill in over time, as outlined in the HMMP. Planting areas are depicted in the As-

Built drawing shown in Appendix D and include those portions of the decommissioned road that overlap with the prescribed planting areas.

As proposed in the HMMP all plantings were live pole cuttings harvested from plants within the Bank Property to preserve local genetics. Willow plantings were focused in the wettest portion of the Mitigation Site, primarily around the sag pond, as well as a few other locations where groundwater seeps are sufficient to support the species. Mulefat plantings are more widespread throughout the Mitigation Site. The Mitigation Site is anticipated to be supported by the natural hydrology of the pond and shallow subsurface groundwater. Supplemental irrigation may be provided on an as-needed basis. Invasive species were treated within the area prior to planting, and will continue to be treated on an ongoing basis.

Cattle Exclusion Fencing

As proposed in the HMMP, a wildlife-friendly cattle exclusion fence is being installed around the planting areas to prevent livestock from grazing on riparian plants. Alignment of the cattle exclusion fencing will differ slightly to what is outlined in the HMMP to avoid sensitive habitat while providing full constructability. The updated fence alignment is shown in Appendix B.

Summary

We have reached completion of the restoration activities at the Devil's Gate Turnkey Mitigation site and have demonstrated that the constructed habitats are substantially consistent with the HMMP. A Conservation Easement will be recorded over the 32.21 acres of willow/mulefat habitat required to meet the Devil's Gate off-site compensatory mitigation requirements. The excess 2.06 acres that have been planted, will be excluded from the Devil's Gate off-site Mitigation Area Conservation Easement and will be incorporated into Area D of the Petersen Ranch Mitigation Bank.

If you have any questions regarding this submittal, please do not hesitate to contact me at 415-524-7238 or by email at bello@wra-ca.com

Sincerely,

Nate Bello, WRA

Copy to:

Veronica Mardis, P.E.
Los Angeles County Flood Control District
900 S. Fremont Avenue
Alhambra, CA 91803

Bonnie Rogers
U.S. Army Corps of Engineers
Los Angeles District, Regulatory Division
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Los Angeles, CA 90017

Steve Gibson
California Department of Fish and Wildlife
4665 Lampson Avenue, Suite C
Los Alamitos, CA 90720

Valerie Carrillo Zara
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Enclosures:

Appendix A Photo documentation of Pre- and Post-Planting

Appendix B 404 Mitigation Acreage

Appendix C 1600 Mitigation Acreage

Appendix D As-Built Figure

Appendix A



Mulefat and willow planting area pre-restoration.



Mulefat and willow planting area pre-restoration.



Mulefat and willow planting area pre-restoration.



Live stake



Mulefat and willow planting areas post-restoration (northwest)



Mulefat and willow planting areas post-restoration (north)



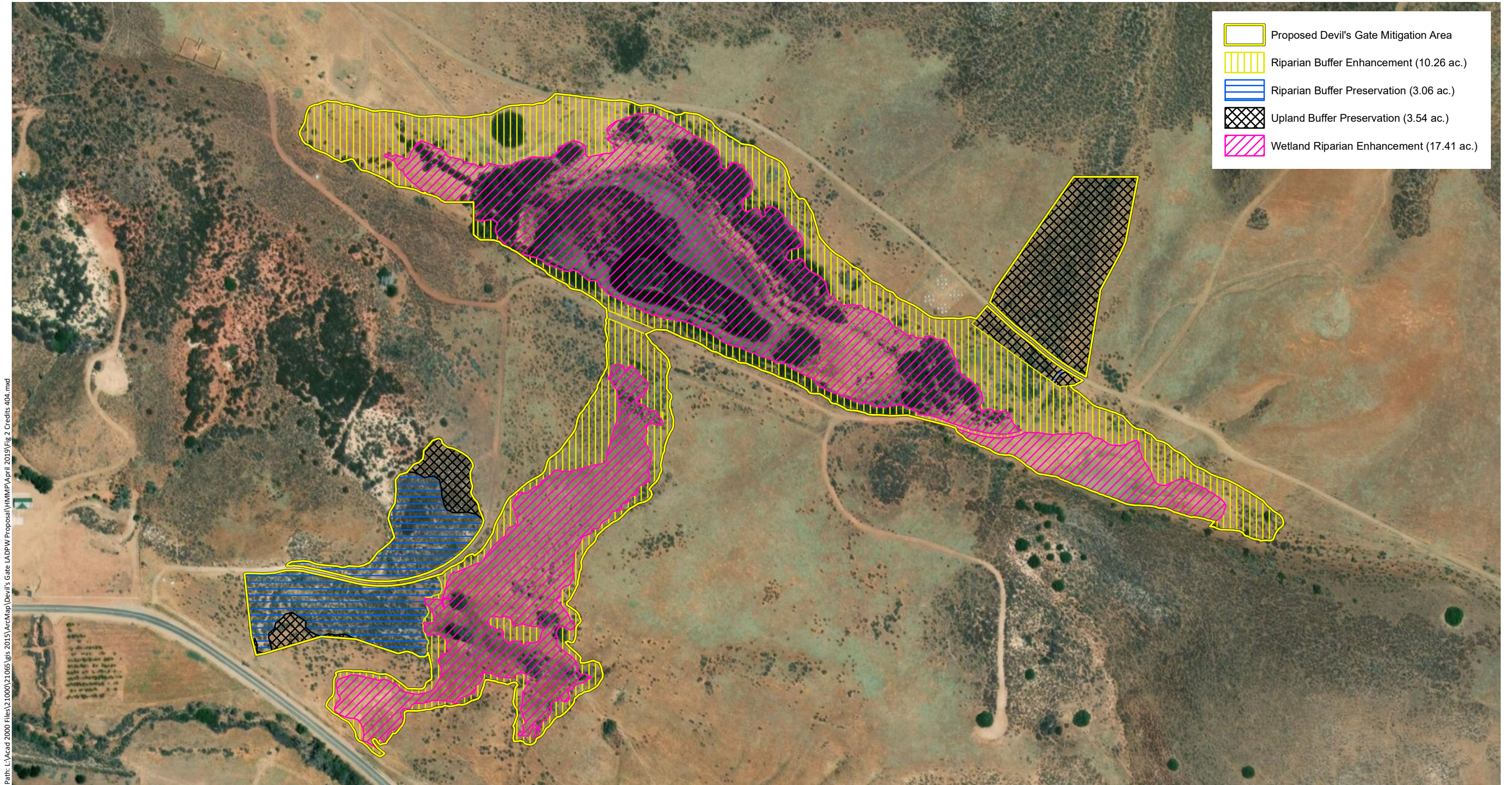
Mulefat and willow planting areas post-restoration (northeast corner)



Mulefat and willow planting areas post-restoration (south side)



Mulefat and willow planting areas post-restoration (south side)

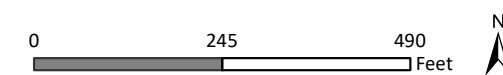


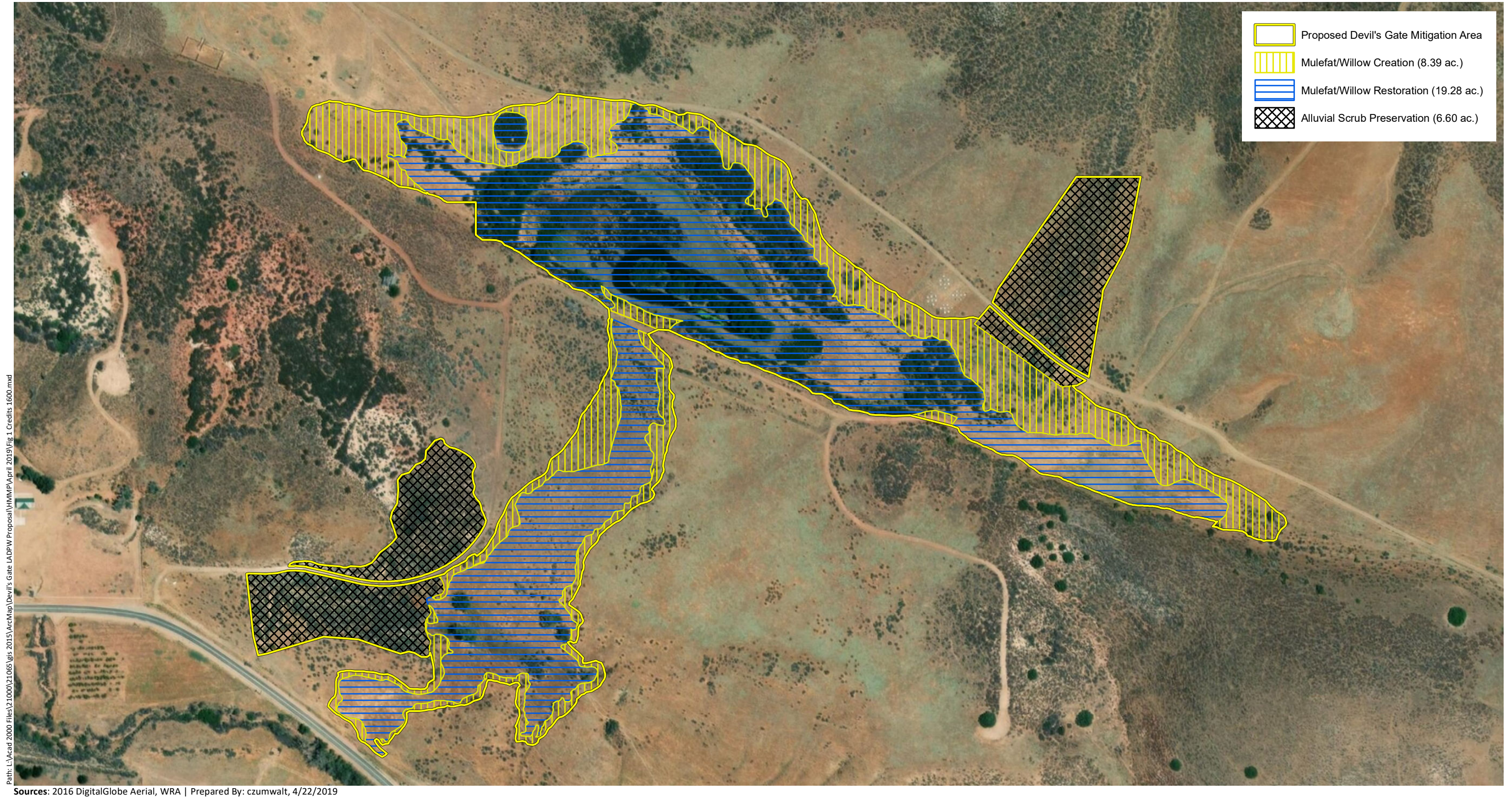
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Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 4/22/2019

Appendix B. 404 Mitigation Types

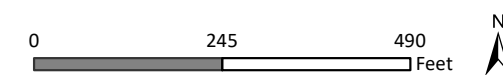
Petersen Ranch Mitigation Bank
Los Angeles County, California

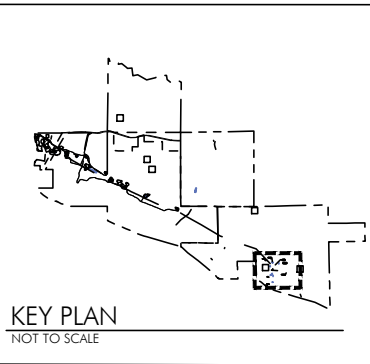
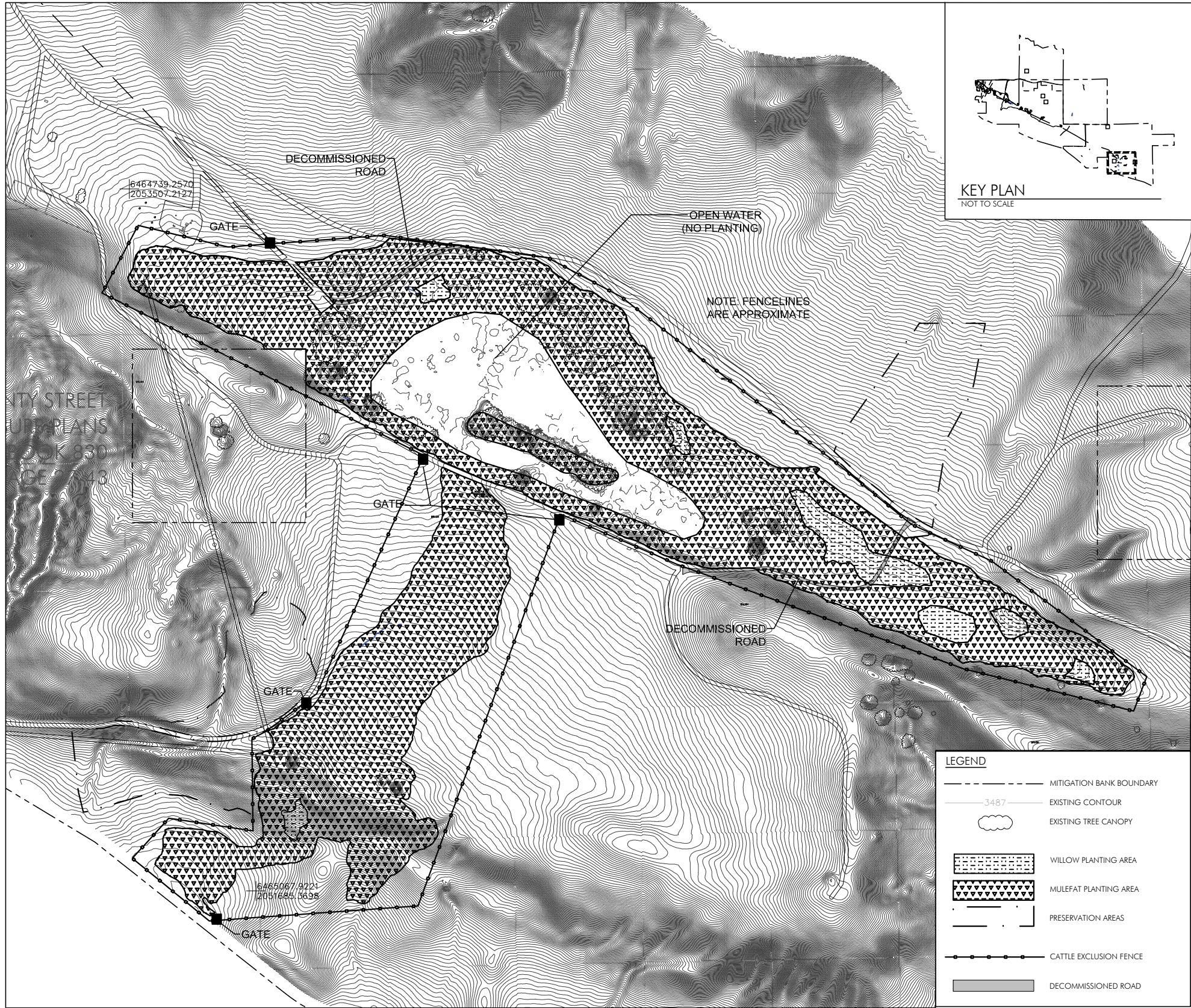




Appendix C. 1600 Mitigation Types As-built

Petersen Ranch Mitigation Bank
Los Angeles County, California



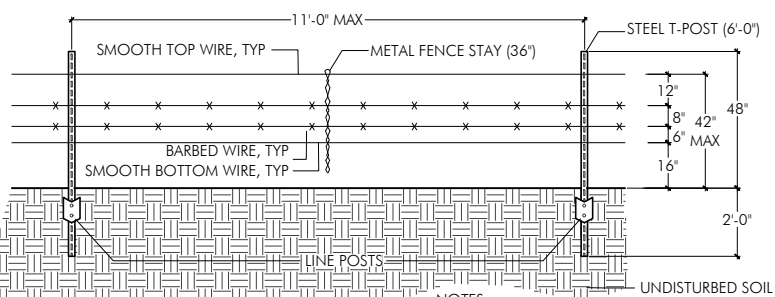
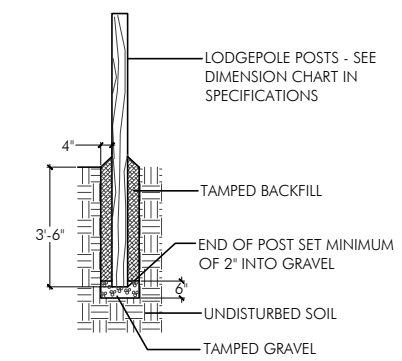
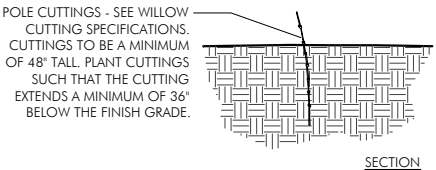


MULEFAT AREA PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	QUANTITY
BACCHARIS SALICIFOLIA	MULEFAT	4' LIVE STAKE	9,338

WILLOW AREA PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	QUANTITY
SALIX LAEVIGATA	RED WILLOW	4' LIVE STAKE	885
SALIX LASIOLEPIS	ARROYO WILLOW	4' LIVE STAKE	221



NOTES:
1. WILDLIFE VISIBILITY MARKERS: EVERY 50 FEET THE CONTRACTOR SHALL IMPLEMENT DURABLE VINYL MARKERS TO INCREASE WIRE VISIBILITY.

PLANTING AND FENCING PLAN

FENCE LINE SECTION

wra
ENVIRONMENTAL CONSULTANTS
2169-G East Francisco Blvd.
San Rafael, CA 94901
(415) 454-8868 Phone
(415) 454-0129 Fax

WRA JOB #21065				
DATE: 04/20/2019				
DESIGNED BY: RBB/RFP				
DRAWN BY: RFP				
CHECKED BY: RBB	NO.	DATE	BY	REVISIONS

PETERSEN RANCH
MITIGATION BANK
LEONA VALLEY, LOS ANGELES COUNTY CA

FIGURE 4: DEVIL'S GATE
OFFSITE MITIGATION
AS-BUILT PLAN

2020 Annual Monitoring Report (Year 1) Devil's Gate Off-Site Mitigation Project

2020 ANNUAL MONITORING REPORT (YEAR 1)

DEVIL'S GATE OFF-SITE MITIGATION PROJECT

LOS ANGELES COUNTY, CALIFORNIA

USACE FILE No. SPL-2014-00591

CDFW TRACKING No. 1600-2015-0263-R5

RWQCB FILE No. 15-053



Prepared for:

Los Angeles County Flood Control District
P.O. Box 1460
Alhambra, California 91802-1460
(626) 458-6100

Prepared by:

WRA, Inc.
2169-G East Francisco Boulevard
San Rafael, CA 94901
Attn: Nate Bello
bello@wra-ca.com
(415) 524.7238

WRA #21065

OCTOBER 2020



DISTRIBUTION PAGE

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Los Angeles, CA 90013

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Appendix A – Transect Species List
Appendix B – Transect and Plot Photos

LIST OF PREPARERS

Nate Bello – Principal-in-Charge
Marlene Tyner-Valencourt – Project Manager
Brian Bartell – Restoration Specialist
Matthew Schliebe – Biologist
Chris Zumwalt – GIS Analyst
Tyler Hanson – Botanist
Stephanie Gad – Conservation Analyst

LIST OF ACRONYMS

BEI	Bank Enabling Instrument
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
GPS	Global Positioning System
HMMP	Habitat Mitigation and Monitoring Plan
LACFCD	Los Angeles County Flood Control District
RWQCB	Regional Water Quality Control Board
USACE	United States Army Corps of Engineers
WOUS	Waters of the United States
WRA	WRA, Inc.

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1.0 PROJECT OVERVIEW

This is the first annual report for the Devil's Gate Off-Site Mitigation Project as required under the terms of the approved Devil's Gate Off-Site Mitigation Project Habitat Mitigation and Monitoring Plan (HMMP; WRA 2018). The USACE permit authorizing the HMMP requires the first annual report be submitted to the USACE, RWQCB, and CDFW (Permitting Agencies) one full year after planting by October 1. Subsequent reports will be submitted annually by October 1st thereafter for the five-year period commencing with planting.

Restoration activities at the Devil's Gate Off-Site Mitigation Project Site were completed as outlined in the as-built memo submitted to the Permitting Agencies and dated April 23, 2019 (WRA 2019). This report includes information on the site conditions, development activities, and performance monitoring for 2020.

1.1 Permit File Numbers

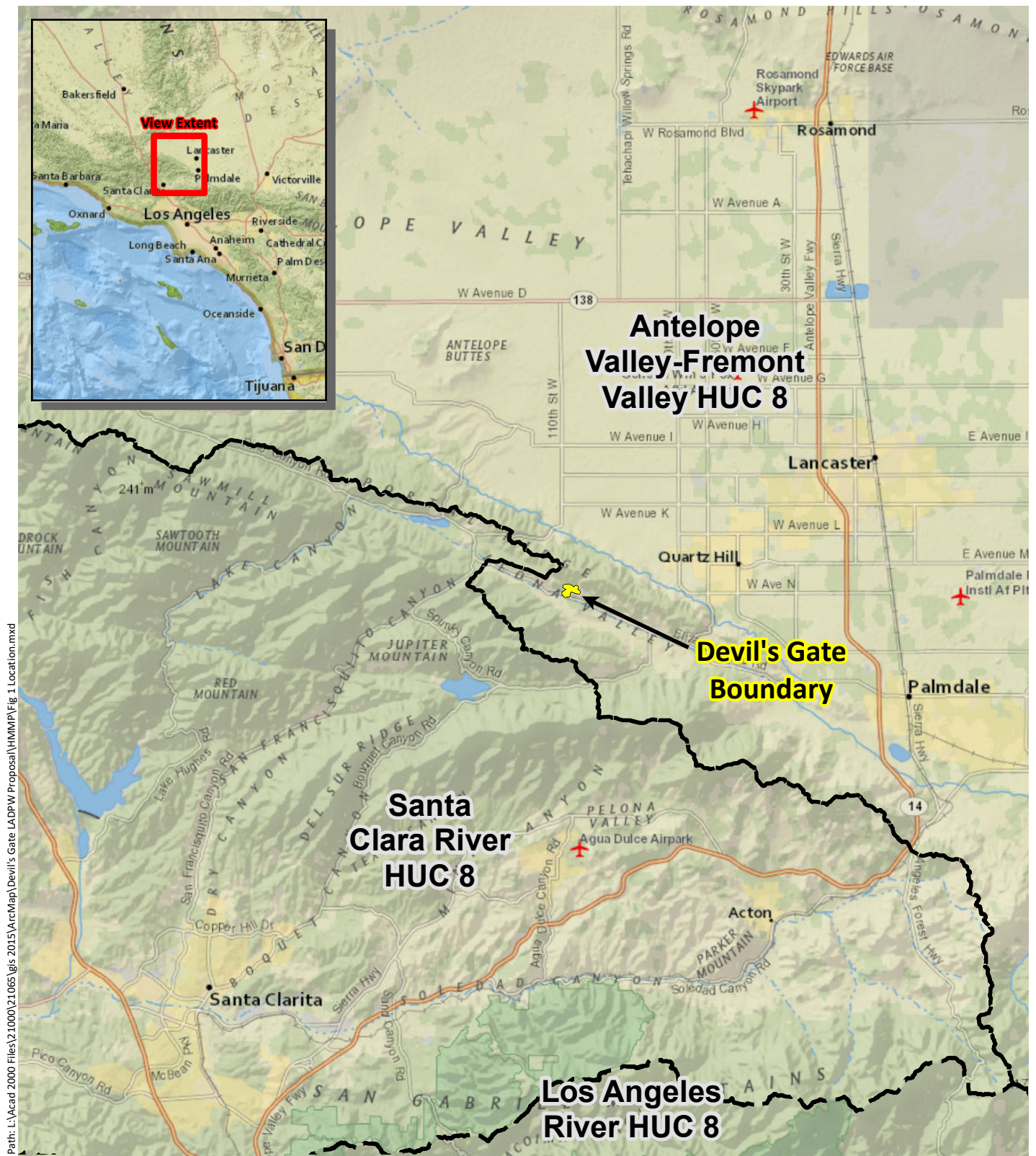
- U.S. Army Corps of Engineers Section 404 (File No. SPL-2014-00591)
- California Department of Fish and Wildlife Section 1602 Streambed Alteration Agreement (Notification No. 1600-2015-0263-R5)
- Los Angeles Regional Water Quality Control Board Section 401 Water Quality Certification (File No. 15-053)

This annual report is prepared pursuant to the above permits, as set forth by the HMMP prepared by WRA, Inc. (WRA), dated October 17, 2018.

1.2 Project Description

The Devil's Gate Off-Site Mitigation Project (Project) serves as an off-site mitigation project for the Los Angeles County Flood Control District (LACFCD) Devil's Gate Sediment Removal and Maintenance Project, which was proposed to remove vegetation and 1.7 million cubic yards (cy) of sediment from a 65.56-acre area within the reservoir above the Devil's Gate Dam (Impact Site). The Sediment Removal Project will directly impact 1.52 acres of United States Army Corps of Engineers (USACE) jurisdictional wetlands and 32.54 acres of USACE non-wetland Waters of the United States (WOUS). LACFCD proposed to compensate for these temporary and permanent impacts through a combination of on-site and off-site mitigation projects, as required by the USACE Section 404 Permit (SPL-2014-00591), the California Department of Fish and Wildlife (CDFW) Lake or Streambed Alteration Agreement (1600-2015-0263-R5), and the Regional Water Quality Control Board (RWQCB) Section 401 Certification (15-053). On-site mitigation objectives are described in the Devil's Gate Sediment Removal and Management Project Habitat Mitigation and Monitoring Plan (ECORP 2018).

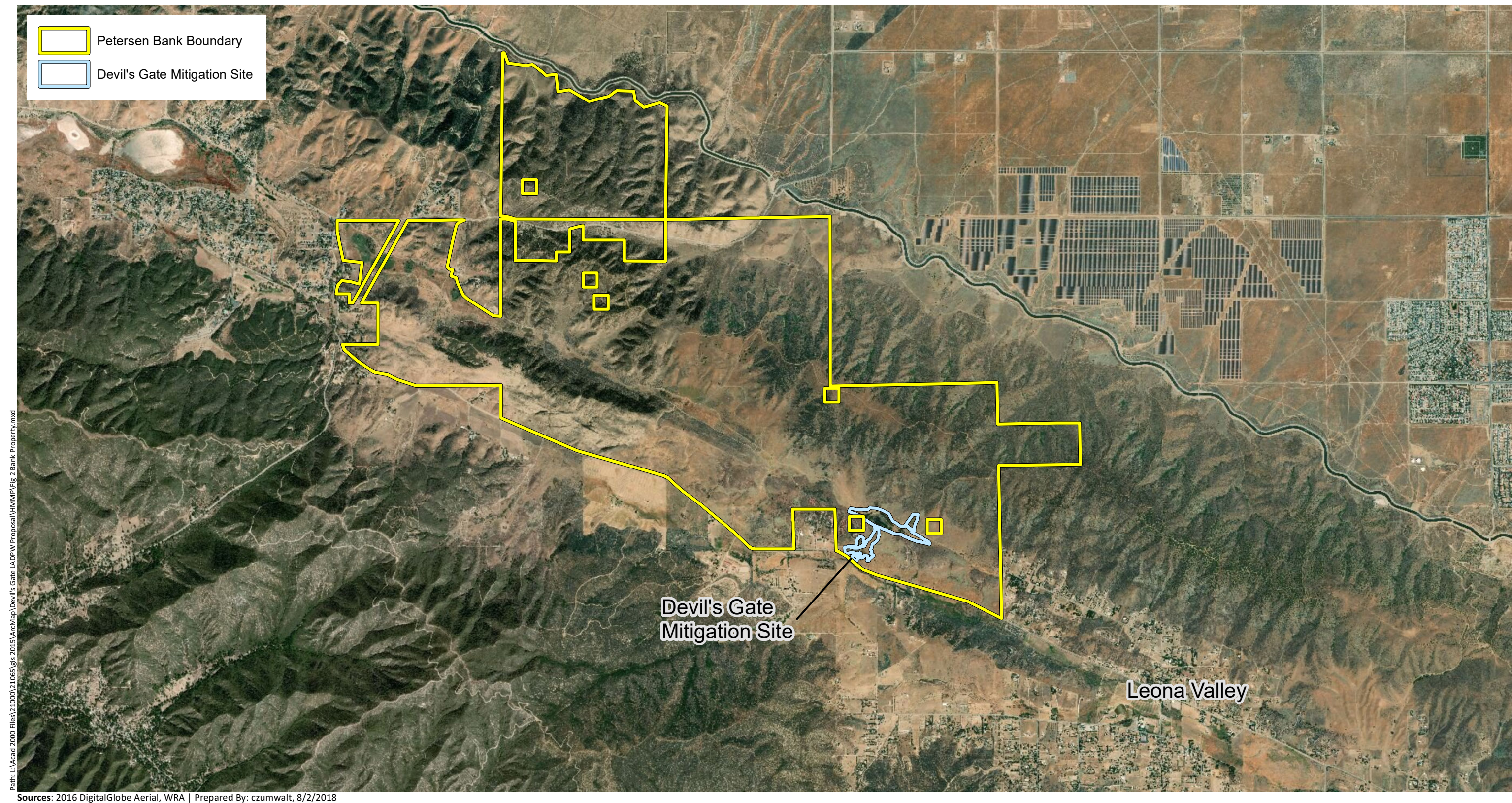
LACFCD satisfied the off-site mitigation requirement by engaging Land Veritas Corp (Bank Sponsor) to implement the Project in a 31.55-acre portion of the Petersen Ranch Mitigation Bank (Bank). The Bank is located in northern Los Angeles County near Leona Valley, California (Figure 1). The Project took place at and surrounding a large sag pond in Area D (Mitigation Site) of the Bank (Figure 2). Mitigation actions focused on enhancing existing seasonal wetlands that support mulefat (*Baccharis salicifolia*) and willow (*Salix* sp.) populations, creating new mulefat/willow dominated habitats, and preserving alluvial scrub areas around a large sag pond. The created, restored, and preserved communities are of a similar type and provide similar or greater functions to those affected at the Impact Site.



Sources: National Geographic, WRA | Prepared By: czumwalt, 8/2/2018

Figure 1. Location Map

Petersen Ranch Mitigation Bank
Los Angeles County, California



1.3 Monitoring and Reporting Tasks

This report addresses the Year 1 monitoring and reporting requirements of the Mitigation Site outlined in the HMMP, including the management and maintenance tasks completed this year, a description of the overall condition of the Mitigation Site, and the status of development activities; performance monitoring activities and results; and management and maintenance activities proposed for the upcoming year, including proposed remedial actions.

1.4 Status Summary

Habitat restoration and enhancement activities were completed in April 2019, as described in the as-built report letter dated April 23, 2019. This includes planting of over 10,000 willow and mulefat live stakes and installation of cattle exclusion fencing. The mitigation site is now in Year 1 of the management and monitoring period, which will continue until the final (Year 5) performance standards have been met.

2.0 MITIGATION SITE EXISTING CONDITIONS

2.1 Location

The Mitigation Site is located approximately 32 miles north of the Impact Site within the agency approved Petersen Ranch Mitigation Bank. The 31.55-acre Mitigation Site is located within the eastern portion of the Bank (Figure 2). The Mitigation Site lies within Phase D of the Bank Property which is part of the larger, 4,103-acre Bank. Within Phase D, a large sag pond and associated wetland complex had been identified as having opportunities for improving the existing habitat. Opportunities include establishment and enhancement of wetlands, non-wetland WOUS and associated buffer habitats. The buffer habitats will be restored and enhanced to not only provide protection for the on-site aquatic resources but also to improve the overall function of the watershed. Additional details describing the mitigation bank can be found in the Bank Enabling Instrument (BEI) (Land Veritas Corp. 2016) and in the Biological Resource Inventory (Exhibit H, of the BEI).

2.2 Existing Habitat

A biological inventory was conducted by WRA at the Bank Property in January and February of 2013 (WRA 2013). In total, 11 biological communities were identified within the Mitigation Site: two wetlands and waters communities, four riparian communities, two sensitive terrestrial communities, and three non-sensitive terrestrial communities. The two communities targeted for restoration at the Mitigation Site are highlighted below.

Mulefat thickets (*Baccharis salicifolia* Shrubland alliance), 1600, PC, G5 S4. The Mulefat thickets alliance is widespread in canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels (Sawyer et. al, 2009). This alliance covered 6.21 acres of the Mitigation Area. Mulefat thickets integrate with Fremont cottonwood forest, arroyo willow thickets, stretchberry thickets, and Mexican rush marshes. Mulefat comprised greater than 50 percent relative cover in the shrub layer. Typically, mulefat was the only species in the shrub layer. In rare instances, other shrub species included arroyo willow (*Salix lasiolepis*), elderberry (*Sambucus nigra* ssp. *caerulea*), and stretchberry (*Forestiera pubescens*). Herbaceous groundcover was composed of Mexican rush (*Juncus mexicanus*), clustered field sedge (*Carex praegracilis*), stinging nettle (*Urtica dioica*), ripgut brome (*Bromus diandrus*), and ruderal weeds.

Red willow thickets (*Salix laevigata* Woodland Alliance), 1600, Porter-Cologne, G3 S3. Red willow thickets are widespread and occur in ditches, floodplains, lake edges, and low gradient depositions along streams (Sawyer et. al, 2009). This alliance covered 0.65 acres of the Mitigation Area, covering an area within Pond D itself. Red willow comprised greater than 50 percent relative cover in the tree canopy, or greater than 30 percent relative cover in the tree canopy if arroyo willow was in the subcanopy. The understory shrub layer often contained mulefat. Herbaceous groundcover was composed of Mexican rush, clustered field sedge, stinging nettle, water smartweed (*Persicaria amphibia*), ripgut brome, and ruderal weeds.

3.0 MITIGATION ACTIVITIES

The Project involved installing cattle exclusion fencing, removing and managing invasive plant species, planting mulefat and willow, and supplementing hydrology when necessary to sustain the restored habitat, as well as guaranteeing the long-term legal protection of the Mitigation Site with a conservation easement.

3.1 Preservation Areas

Two distinct preservation areas are located in the northeast and southwest of the Mitigation Site. They are dominated by California buckwheat (*Eriogonum fasciculatum*) in the northeast, and Parish's sagebrush (*Artemisia tridentata* ssp. *parishii*), thick leafed yerba santa (*Eriodictyon crassifolium*), and California buckwheat in the southwest. In total, 6.60 acres have been preserved. These areas are located on alluvial fans and ephemeral drainages that receive periodic sediment and surface flows and support high quality habitat for xeric riparian communities.

3.2 Planting Areas

Planting areas are within and immediately surrounding areas that previously supported sparse or scattered stands of mulefat, willow, and other riparian species. These areas were planted with mulefat and willow live stakes to achieve an average density of 500-stems per acre, similar to existing high density mulefat and willow stands within the Mitigation Site. Initial planting used a clustered approach that created large patches of dense cover, with open spaces between clusters. Over time, spaces between clusters are anticipated to fill in to achieve dense cover of mulefat and willow. In total, 27.67 acres have been planted.

4.0 MONITORING AND PERFORMANCE STANDARDS

This section details annual performance standards and monitoring methods. Monitoring will be conducted annually for five years to demonstrate success of the mitigation plantings. Monitoring will be conducted in spring or early summer, and will be timed to precede the blooming periods of target weed species, so that any necessary control measures can be implemented prior to the invasive species setting seed. Percent cover of mulefat and willow species within the Mitigation Site will be assessed using plots spaced along four permanent 50-meter transects. Survivorship of planted mulefat and willow stakes will be assessed by surveying irrigation lines and counting dead plants. Target invasive plant species will be mapped annually and treated on an as-needed basis. Success will be evaluated based on achieving the target standards presented below.

Restoration and enhancement activities were completed at the Mitigation Site in April 2019; this report therefore summarizes the first year of annual monitoring.

4.1 Planting Area Success Criteria

Success criteria for mulefat and willow installed in the planting areas is based on survival rates and absolute cover assessed by visual observation during the five-year monitoring period. Absolute cover of mulefat and willow is assessed in planting areas using the methods outlined in Section 4.2. Additionally, absolute cover of California Invasive Plant Council (Cal-IPC) rated High broad-leaved plant species will be assessed in conjunction with mulefat and willow cover. The criteria that are used to assess the success of the Mitigation Site are shown in Table 1.

Table 1. Performance Standards for Planting Areas

PERFORMANCE STANDARD	MONITORING YEAR					MONITORING FREQUENCY
	1	2	3	4	5	
By year 2, the planting areas must contain 10% or more absolute cover of mulefat or willow, or demonstrate 80% survivorship.		X				Annually
By year 3, the planting areas must contain 25% or more absolute cover of mulefat or willow, or demonstrate 80% survivorship			X			Annually
By year 4, planting areas must contain 40% or more absolute cover of mulefat or willow.				X		Annually
By year 5, planting areas must contain 68% or more absolute cover of mulefat or willow					X	Annually
Percent cover of Cal-IPC rated high broad leaved invasive plant species must cover no more than 10% absolute cover of the Mitigation Site.		X	X	X	X	Annually

4.2 Methods

The Mitigation Site planting areas were monitored for cover of willow and mulefat and survivorship of plantings. Absolute cover of willow and mulefat was monitored in planting areas using four permanent transects. Planted container stock were counted within the planting areas to assess survivorship. Qualitative health status was also assessed by counting plants that appeared stressed (e.g., displaying indicators such as yellowing, leaf drop, limb sacrifice, etc.).

Permanent 50-meter transects were established within planting areas (Figure 3). Transects were permanently marked in the field using T-posts. Global Positioning System (GPS) points were recorded in order to repeat transects in future years, and photos were taken at the start and end of each transect. Each 50-meter transect was surveyed by walking a 2.5-meter wide belt transect and recording species and

species cover class¹ every 5 meters, resulting in 10 sampling plots per transect. Species and species cover class were recorded within each plot in order to assess the performance standards outlines in Table 1. A photograph was taken of each plot.

Survivorship surveys were conducted to supplement mulefat and willow cover data and to identify areas that may be in need of maintenance. Survivorship surveys were conducted concurrently with the vegetation cover monitoring. Year 1 survivorship monitoring consisted of targeted surveys in areas with lower vegetation cover. Individual mulefat and willow stakes were tallied and identified as either alive or dead. Percent survivorship was calculated by dividing the number of observed living mulefat or willow stakes by the total number of stakes installed for each species, not including stakes that have been replaced.

4.3 Maintenance Activities

Maintenance activities during the five-year plant establishment period in the created and enhanced riparian areas will include:

1. Erosion control and repair on slopes, should an extreme storm event occur.
2. Inspections for colonization of non-native plants and actions to control them.
3. Inspections of wildlife friendly cattle exclusion fencing to ensure no grazing inside the Mitigation Site occurs and actions to repair the fence as needed.
4. Adjustment to water augmentation methods to ensure proper hydrologic conditions for plant establishment.

These conditions will be checked multiple times per year and if deficiencies are noted, they will be assessed, documented, and remedied as quickly as necessary to prevent further damage.

¹ Cover classes are as follows: 0=<1%, 1=1-5%, 2=5-25%, 3=25-50%, 4=50-75%, 5=75-95%, 6=95-100%

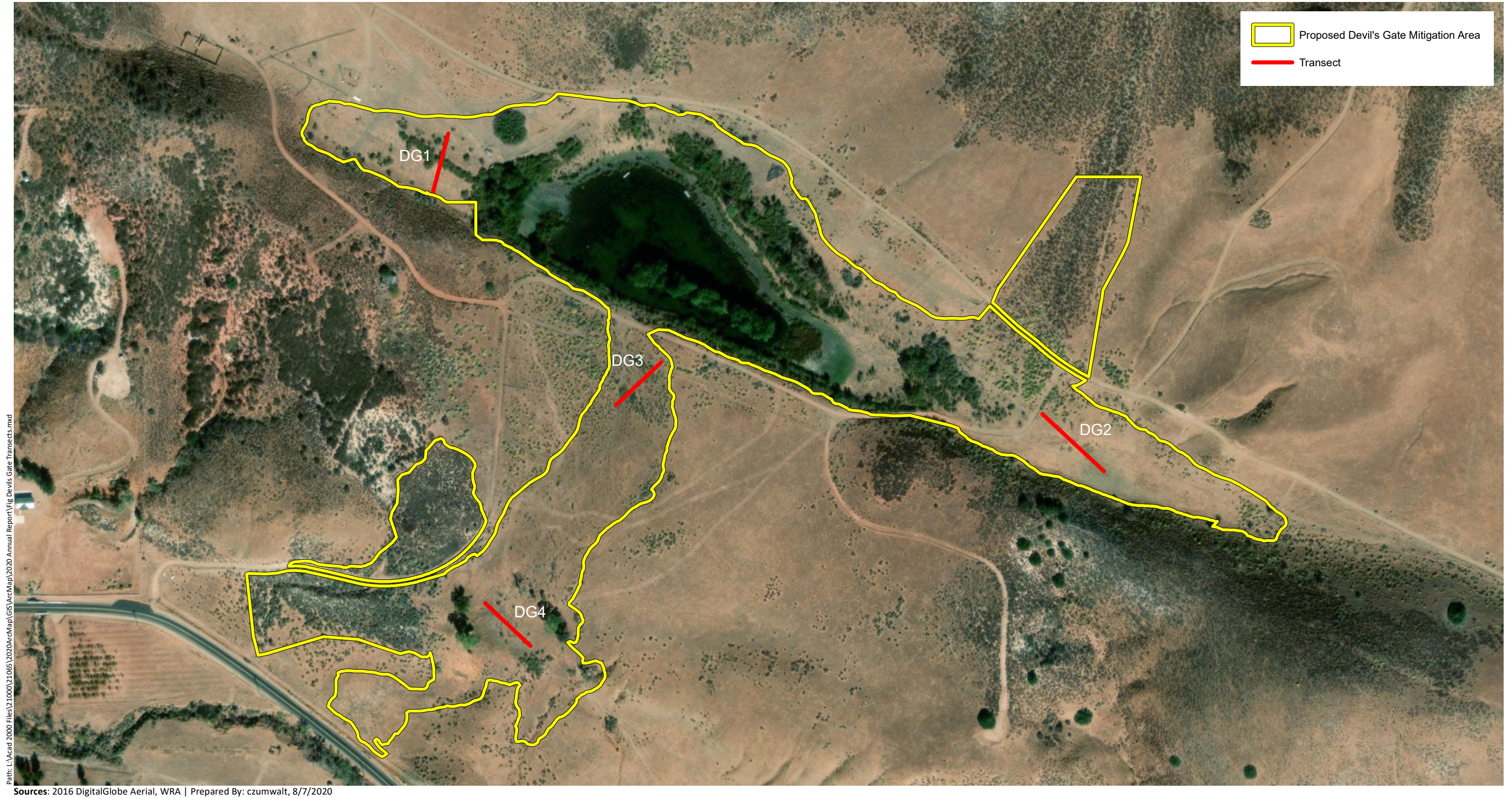


Figure 3. Mitigation Site Monitoring Locations

5.0 RESULTS

Year 1 Monitoring activities were completed at the Mitigation Site in May 2020. There are no success criteria to meet in Year 1 of the performance monitoring period (see Table 1). However, analysis of Year 1 monitoring data indicated that the Mitigation Site is performing well enough to already meet Year 2 performance criteria. Cover of mulefat and willow is variable at the four monitoring transects, averaging 17 percent absolute cover. No broad leaved invasive species rated High by Cal-IPC were detected at any of the monitoring transects. Survivorship surveys did not detect any dead mulefat or willow plantings. However, due to the targeted nature of the Year 1 survivorship surveys, it was estimated through visual observation that the site-wide percent survivorship was roughly 95% for both mulefat and willow. . Mulefat and willow cover results are presented in Table 2. Invasive broad-leaved plant cover is presented in Table 3.

Mulefat was more abundant than willow within the monitoring transects and was the dominant woody riparian species. Other native species with notable absolute cover within transects included beardless wild rye (*Elymus triticoides*; 8.7%), western vervain (*Verbena lasiostachys*; 4.3%), tarragon (*Artemisia dracunculus*; 3.8%), and seaside heliotrope (*Heliotropium curassavicum* var. *oculatum*; 3.0%). Non-native grass cover was moderate and included many of the species commonly encountered during performance monitoring efforts over the rest of the Bank, such as ripgut brome (8.7%), soft chess (*Bromus hordeaceus*, 1.3%) red brome (*B. rubens*; 2.5%), cheatgrass (*B. tectorum*; 3.6%), rattail sixweeks grass (*Festuca myuros*; 8.7%), and foxtail barley (*Hordeum murinum*; 5.0%) with trace cover of both slim oat (*Avena barbata*) and medusa head (*Elymus caput-medusae*). Non-native forb cover was low. Cal-IPC Moderate broad-leaf species included short-podded mustard (*Hirschfeldia incana*) at all four transects but only totaling 1.5 percent cover, and bull thistle (*Cirsium vulgare*) at transect DG4 with 2.6 percent cover.

A full species list for the four monitoring transects is supplied in Appendix A. Photopoints and transect photos are collected in Appendix B.

Table 2. Mulefat and Willow Cover Within Mitigation Site

TRANSECT	ABSOLUTE COVER				YEAR 1 PERFORMANCE STANDARD MET?
	MULEFAT	WILLOW	COMBINED	YEAR 1 PERFORMANCE STANDARD	
DG1	23.0%	0.0%	23.0%	N/A	N/A
DG2	2.6%	0.6%	3.2%	N/A	N/A
DG3	38.1%	0.0%	38.1%	N/A	N/A
DG4	3.6%	0.3%	3.9%	N/A	N/A
Average	16.8%	0.2%	17.0%	N/A	N/A

Table 3. Invasive Broad-Leaved Cover

TRANSECT	CAL-IPC HIGH COVER*	YEAR 1 PERFORMANCE STANDARD	YEAR 1 PERFORMANCE STANDARD MET?
DG1	0.0%	N/A	N/A
DG2	0.0%	N/A	N/A
DG3	0.0%	N/A	N/A
DG4	0.0%	N/A	N/A
Average	0.0%	N/A	N/A

**Species rated High per Cal-IPC (Annual grasses excluded)*

6.0 SUMMARY AND MANAGEMENT RECOMMENDATIONS

6.1 Mulefat and Willow Cover

No Year 1 performance standard for mulefat and willow cover was set for the Mitigation Site. The Year 2 performance standard is: The planting areas must contain 10% or more absolute cover of mulefat or willow, or demonstrate 80% survivorship. The Mitigation Site is meeting the Year 2 performance standard for mulefat and willow cover a year ahead of schedule. Though the Mitigation Site is meeting the Year 2 performance standards, the Year 1 monitoring data indicates low cover of mulefat and willow in transects DG2 and DG4. The reason for the low cover is due to the timing of annual monitoring efforts and phenology of the mulefat and willows. The phenology of willow and mulefat during the May monitoring visit was early, with both species just starting to produce foliage after winter senescence. Older, and more robust individuals were generally further along in foliage growth, but the majority of the live stakes had little foliage with small young leaves during the May monitoring visit. This became evident during a subsequent site visit on September 10, 2020, when a significant increase in foliar abundance was observed throughout the Mitigation Site (Figures 4 and 5). Phenotypic variations in leaf phenology are common to perennial plants grown in similar environments and reflect underlying genetic diversity (Weih 2009), which may explain the difference in cover observed in the spring between the two sets of transects. Future annual monitoring efforts will take place later in the growing season in order to better align with the biology of the planted species and overall performance of the Mitigation Site.

Figure 4. Late season foliar abundance at DG2, looking north (September 2020).



Figure 5. Late season foliar abundance at DG2, looking south (September 2020).



6.2 Invasive Cover

No Year 1 performance standard for invasive cover was set for the Mitigation Site. The Year 2 performance standard is: Percent cover of Cal-IPC rated high broad-leaved invasive plant species must cover no more than 10 percent absolute cover of the Mitigation Site. As shown in Table 3, no Cal-IPC rated High broad-leaved plant species have been recorded in the monitoring transects and the Mitigation Site is already meeting this performance standard a year ahead of schedule.

6.3 Management

6.3.1 Biological Resources

Weeds surrounding each planted stake are cleared in the spring and managed throughout the growing season. It is recommended that treatment of invasive non-native species within the Mitigation Site continues in conjunction with invasive species treatments across the rest of the Bank Property. Although no broad-leaved species ranked High by Cal-IPC are present in the Site, three Cal-IPC High grasses are present: red brome, cheatgrass, and medusa head. Additionally, six Cal-IPC Moderate species are also present within the site: four non-native grasses and two broad leaf species (Appendix A). Red brome and cheatgrass are locally abundant in the region, and within the Bank property, these species will be managed to reduce competition for the live stakes. Medusa head populations are small and localized in the Bank property and will be targeted for eradication. Treatment of these species will improve the habitat quality of the restoration areas and ensure that target functions and values are met for the Site.

6.3.2 Infrastructure and Facilities

Installation of the cattle exclusion fencing and associated gates was completed concurrent with restoration activities in early 2019. The fence remains intact, cattle have been successfully excluded from the Site, and no repairs to the fence have been required. Additionally, no erosion control measures were necessary this year.

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APPENDIX A – TRANSECT SPECIES LIST

Scientific Name	Common Name	CAL-IPC Status	Wetland Status (AW 2016)	DG1	DG2	DG3	DG4	AVG
Bare	Bare			0.9%	1.1%	8.8%	13.5%	6.1%
Litter	Litter			21.8%	30.0%	35.3%	17.3%	26.1%
Acmispon americanus var. americanus	Spanish lotus	-	UPL		0.5%			0.1%
Amsinckia intermedia	Common fiddleneck	-	-	0.2%	0.1%			0.1%
Artemisia californica	Coastal sage brush	-	-		0.1%			0.0%
Artemisia dracunculus	Tarragon	-	-		2.3%	8.3%	4.5%	3.8%
Asclepias fascicularis	Milkweed	-	FAC		0.3%	0.1%	0.2%	0.1%
Astragalus douglasii var. douglasii	Douglas's milkvetch	-	-			0.3%		0.1%
Avena barbata	Slim oat	Moderate	-				0.1%	0.0%
Baccharis salicifolia ssp. salicifolia	Mule fat	-	FAC	23.0%	2.6%	38.1%	3.6%	16.8%
Bromus diandrus	Ripgut brome	Moderate	-	16.5%	2.3%	2.5%	13.5%	8.7%
Bromus hordeaceus	Soft chess	Limited	FACU	0.3%	2.7%	1.3%	0.8%	1.3%
Bromus rubens	Red brome	High	UPL		0.4%	5.5%	4.2%	2.5%
Bromus tectorum	Downy chess	High	-	9.6%	4.3%	0.3%	0.2%	3.6%
Carex praegracilis	Field sedge	-	FACW	5.8%	1.8%	0.8%	1.0%	2.3%
Castilleja exserta	Owl's clover	-	-		0.1%			0.0%
Cirsium occidentale	Western thistle	-	-		0.3%			0.1%
Cirsium vulgare	Bullthistle	Moderate	FACU				2.6%	0.6%
Clarkia purpurea ssp. quadrivulnera	Purple clarkia	-	-			0.4%		0.1%
Corethrogyne filaginifolia	Common sandaster	-	-			0.1%		0.0%
Cucurbita foetidissima	Missouri gourd	-	-	0.1%	0.3%			0.1%
Datura wrightii	Jimsonweed	-	UPL	0.1%		0.1%		0.0%
Descurainia sophia	Herb sophia	Limited	-	0.3%		0.1%		0.1%
Distichlis spicata	Salt grass	-	FAC		3.0%	0.1%	0.3%	0.8%
Elymus caput-medusae	Medusa head	High	-				0.3%	0.1%
Elymus triticoides	Beardless wild rye	-	FAC	8.2%	25.5%		0.4%	8.5%
Epilobium brachycarpum	Willow herb	-	-		0.1%			0.0%
Ericameria nauseosa	Rubber rabbitbrush	-	-		0.5%		2.9%	1.4%
Erigeron canadensis	Canada horseweed	-	FACU	0.1%		1.1%	0.1%	0.3%
Eriogonum davidsonii	Davidson buckwheat	-	-		0.5%	0.3%		0.2%
Eriophyllum confertiflorum	Yellow yarrow	-	-		0.3%			0.1%
Erodium cicutarium	Red stemmed filaree	Limited	-		6.6%	2.9%	0.3%	2.4%
Erythranthe guttata	Seep monkeyflower	-	OBL	0.3%	0.1%			0.1%
Festuca myuros	Rattail sixweeks grass	Moderate	FACU		5.8%	28.5%	0.6%	8.7%
Grindelia camporum	Gumweed	-	FACW	0.3%	3.6%	0.2%	3.4%	1.8%
Heliotropium curassavicum var. oculatum	Seaside heliotrope	-	FACU			0.5%	11.6%	3.0%
Hirschfeldia incana	Short-podded mustard	Moderate	-	2.0%	1.6%	1.3%	0.9%	1.5%
Hordeum murinum	Foxtail barley	Moderate	FACU	11.3%	7.5%	0.3%	0.9%	5.0%
Juncus mexicanus	Mexican rush	-	FACW	2.5%	3.5%	2.3%	0.6%	2.2%
Lactuca serriola	Prickly lettuce	-	FACU		0.7%	0.3%	1.9%	0.7%
Lepidium appelianum	Hairy whitetop	Limited	UPL	0.6%				0.1%
Lupinus bicolor	Miniature lupine	-	-			0.2%		0.1%
Malvella leprosa	Alkali mallow	-	FACU		0.1%	0.1%		0.0%
Marrubium vulgare	White horehound	Limited	FACU					0.0%
Melilotus albus	White sweetclover	-	-	0.1%	0.3%	0.3%	1.8%	0.6%
Melilotus indicus	Annual yellow sweetclover	-	FACU	1.2%	0.9%	0.3%	0.7%	0.8%
Pseudognaphalium californicum	Ladies' tobacco	-	-			0.2%		0.0%
Pseudognaphalium leucocephalum	White cudweed	-	-			0.1%		0.0%
Rumex crispus	Curly dock	Limited	FAC		0.3%		0.1%	0.1%
Salix laevigata	Red willow	-	FACW		0.6%			0.2%
Salix lasiolepis	Arroyo willow	-	FACW				0.3%	0.1%
Sidalcea malviflora	Wild hollyhock	-	FACW				1.2%	0.3%
Sisymbrium altissimum	Tumble mustard	-	FACU	0.1%	0.5%	0.2%		0.2%
Sonchus asper ssp. asper	Prickly sow thistle	-	FAC			0.1%	2.9%	0.7%
Stachys albens	Cobwebby hedge nettle	-	OBL	4.7%	0.1%			1.2%
Stipa pulchra	Purple needle grass	-	-				10.8%	2.7%
Tragopogon dubius	Goat's beard	-	-	0.1%	0.1%			0.0%
Urtica dioica	Stinging nettle	-	FAC	0.3%				0.1%
Verbena lasiostachys	Western vervain	-	FAC	5.8%	3.1%	8.1%	0.2%	4.3%
Total				115.5%	113.4%	151.2%	102.5%	120.6%

APPENDIX B – TRANSECT AND PLOT PHOTOS



Pre-restoration photo of western lobe of Mitigation Site looking to the northwest.



Western lobe of Mitigation Site looking to the northwest. Taken September 10, 2020.



Pre-restoration photo of the northern section of the Mitigation Site looking to the northeast.



Northern section of the Mitigation Site looking to the northeast. Taken September 10, 2020.



Pre-restoration photo of southern section of Mitigation Site looking to the southeast.



Southern section of the Mitigation Site looking to the southeast. Taken September 10, 2020.



Pre restoration photo of the Mitigation Site taken from the northeastern lobe looking to the northwest.



Mitigation Site taken from the northeastern lobe looking to the northwest. Taken September 11, 2020.



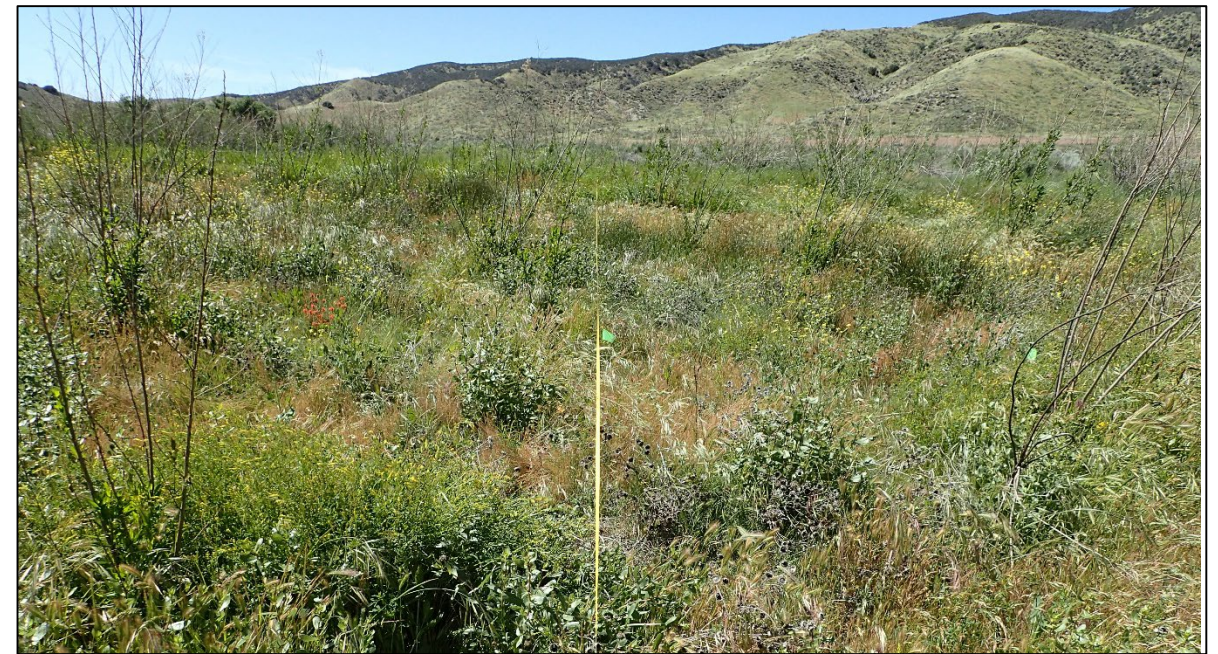
Transect DG1. Taken May 14, 2020.



Transect DG1. Taken May 14, 2020.



Transect DG2. Taken May 14, 2020.



Transect DG2. Taken May 14, 2020.



Transect DG3. Taken May 15, 2020.



Transect DG3. Taken May 15, 2020.



Transect DG4. Taken May 14, 2020.



Transect DG4. Taken May 14, 2020.

2021 Annual Monitoring Report (Year 2) Devil's Gate Off-Site Mitigation Project

2021 ANNUAL MONITORING REPORT (YEAR 2)

DEVIL'S GATE OFF-SITE MITIGATION PROJECT

LOS ANGELES COUNTY, CALIFORNIA

USACE FILE No. SPL-2014-00591

CDFW TRACKING No. 1600-2015-0263-R5

RWQCB FILE No. 15-053



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LIST OF ACRONYMS

BEI	Bank Enabling Instrument
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
GPS	Global Positioning System
HMMP	Habitat Mitigation and Monitoring Plan
LACFCD	Los Angeles County Flood Control District
NNIP	Non-Native Invasive Plant
RWQCB	Regional Water Quality Control Board
USACE	United States Army Corps of Engineers
WOUS	Waters of the United States
WRA	WRA, Inc.

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1.0 PROJECT OVERVIEW

This is the second annual report for the Devil's Gate Off-Site Mitigation Project as required under the terms of the approved Devil's Gate Off-Site Mitigation Project Habitat Mitigation and Monitoring Plan (HMMP; WRA 2018). The United States Army Corps of Engineers (USACE) permit authorizing the HMMP requires the annual reports be submitted to the USACE, the California Department of Fish and Wildlife (CDFW), and the California Department of Fish and Wildlife (CDFW) (Permitting Agencies) by October 1st throughout the five-year maintenance and monitoring period.

Restoration activities at the Devil's Gate Off-Site Mitigation Project Site were completed as outlined in the as-built memo submitted to the Permitting Agencies and dated April 23, 2019 (WRA 2019). This report includes information on the site conditions, continued restoration activities, performance monitoring, and management recommendations.

1.1 Permit File Numbers

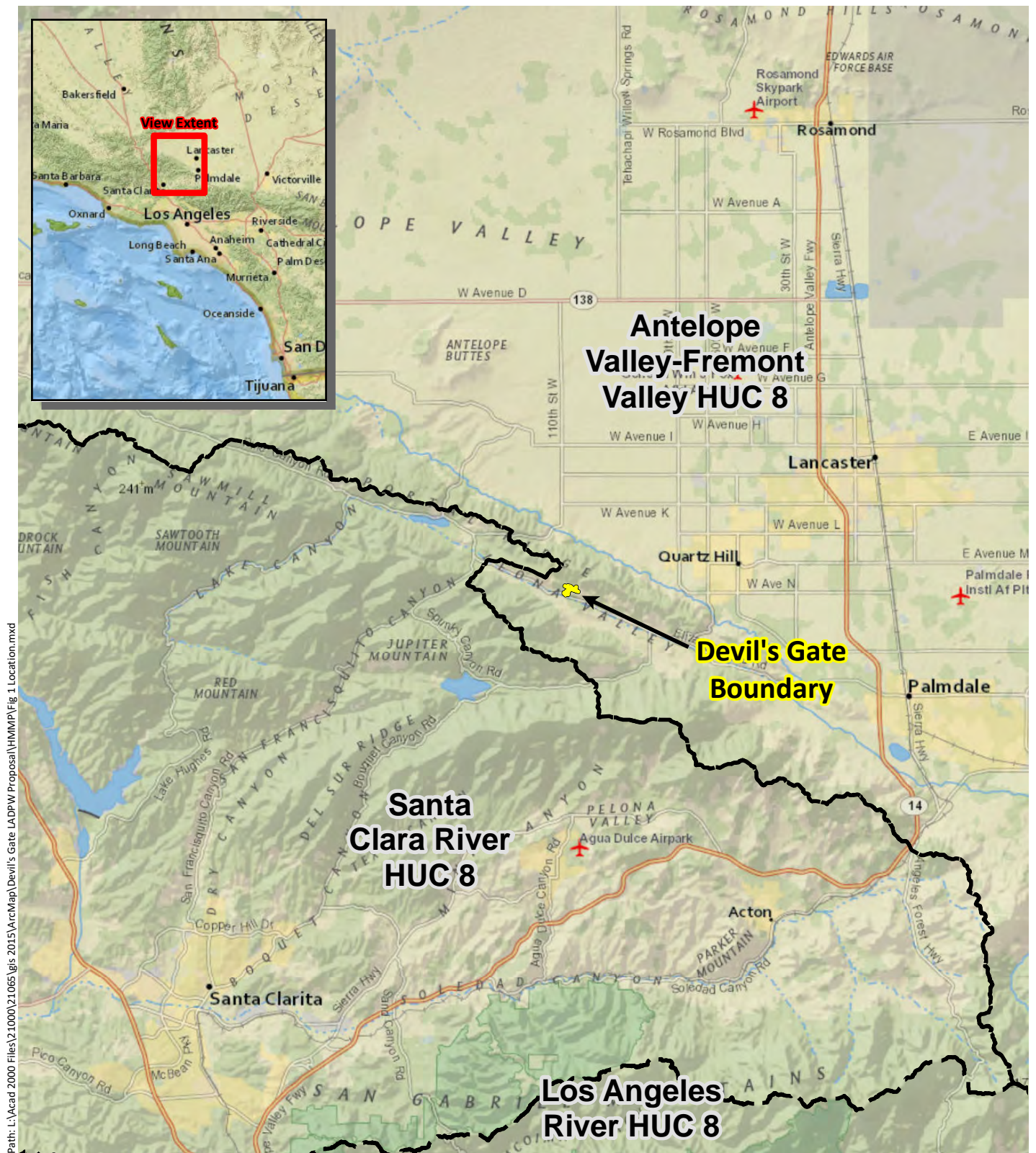
- U.S. Army Corps of Engineers Section 404 (File No. SPL-2014-00591)
- California Department of Fish and Wildlife Section 1602 Streambed Alteration Agreement (Notification No. 1600-2015-0263-R5)
- Los Angeles Regional Water Quality Control Board Section 401 Water Quality Certification (File No. 15-053)

This annual report is prepared pursuant to the above permits, as set forth by the HMMP prepared by WRA, Inc. (WRA), dated October 17, 2018.

1.2 Project Description

The Devil's Gate Off-Site Mitigation Project (Project) serves as an off-site mitigation project for the Los Angeles County Flood Control District (LACFCD) Devil's Gate Sediment Removal and Maintenance Project, which was proposed to remove vegetation and 1.7 million cubic yards (cy) of sediment from a 65.56-acre area within the reservoir above the Devil's Gate Dam (Impact Site). The Sediment Removal Project will directly impact 1.52 acres of USACE jurisdictional wetlands and 32.54 acres of USACE non-wetland Waters of the United States (WOUS). LACFCD proposed to compensate for these temporary and permanent impacts through a combination of on-site and off-site mitigation projects, as required by the USACE Section 404 Permit (SPL-2014-00591), the CDFW Lake or Streambed Alteration Agreement (1600-2015-0263-R5), and the RWQCB Section 401 Certification (15-053). On-site mitigation objectives are described in the Devil's Gate Sediment Removal and Management Project Habitat Mitigation and Monitoring Plan (ECORP 2018).

LACFCD satisfied the off-site mitigation requirement by engaging Land Veritas Corp (Bank Sponsor) to implement the Project in a 31.55-acre portion of the Petersen Ranch Mitigation Bank (Bank). The Bank is in northern Los Angeles County near Leona Valley, California (Figure 1). The Project took place at and surrounding a large sag pond (Pond D) on the east end of the Bank (Mitigation Site; Figure 2). Mitigation actions focused on enhancing existing seasonal wetlands that support mulefat (*Baccharis salicifolia*) and willow (*Salix* sp.) populations, creating new mulefat/willow dominated habitats, and preserving alluvial scrub areas around Pond D. The created, restored, and preserved communities are of a similar type and provide similar or greater functions to those affected at the Impact Site.



Sources: National Geographic, WRA | Prepared By: czumwalt, 8/2/2018

Figure 1. Location Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

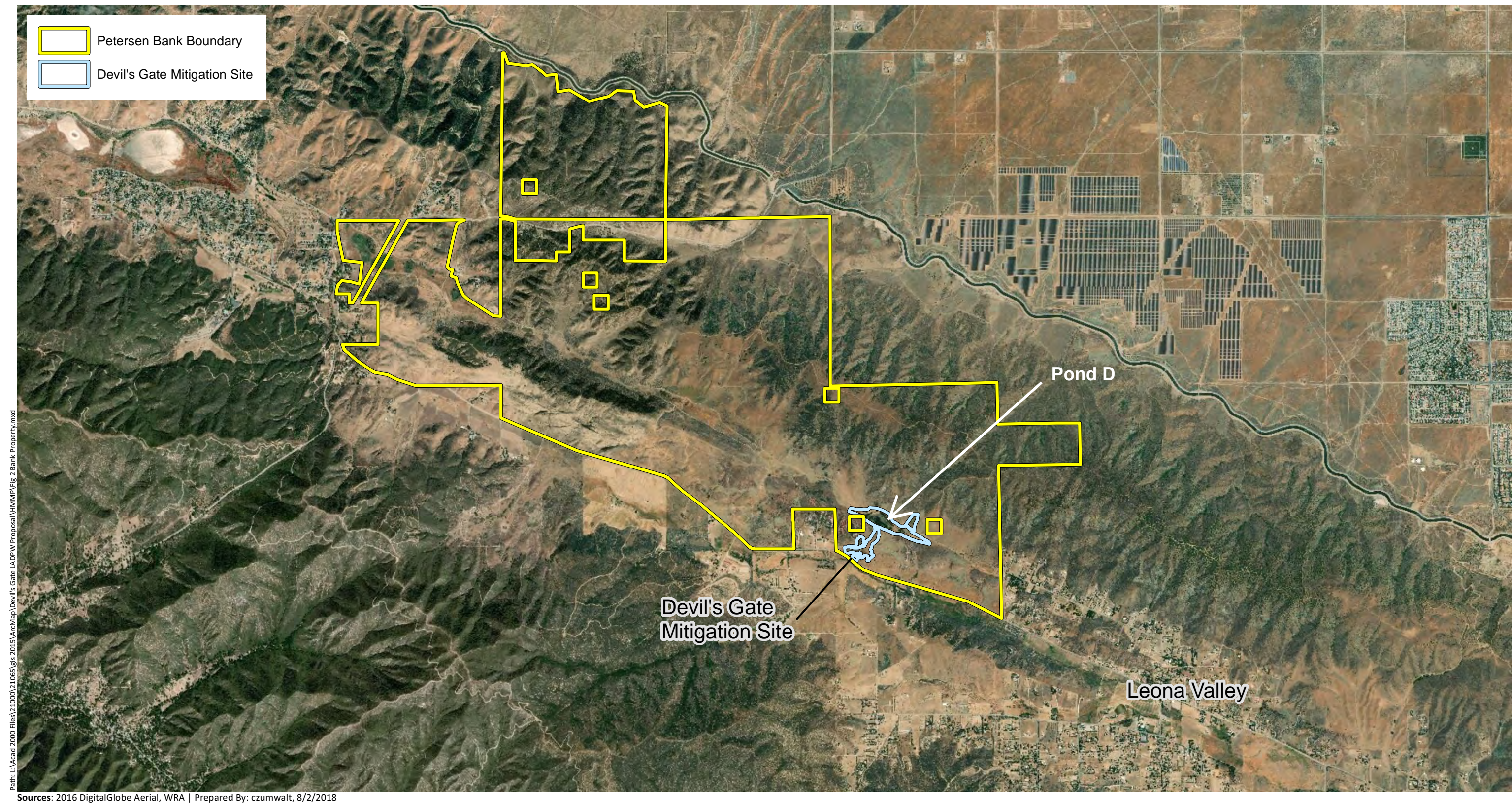
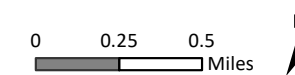


Figure 2. Bank Property Map

Petersen Ranch Mitigation Bank
Los Angeles County, California



1.3 Monitoring and Reporting Tasks

This report addresses the Year 2 monitoring and reporting requirements of the Mitigation Site outlined in the HMMP, including the management and maintenance tasks completed this year, a description of the overall condition of the Mitigation Site, and the status of maintenance activities; performance monitoring activities and results; and management and maintenance activities proposed for the upcoming year, including proposed remedial actions.

1.4 Status Summary

Habitat restoration and enhancement activities were completed in April 2019, as described in the as-built report letter dated April 23, 2019. This includes planting of over 10,000 willow and mulefat live stakes and installation of cattle exclusion fencing. The mitigation site is now in Year 2 of the management and monitoring period, which will continue until the final (Year 5) performance standards have been met. As presented in this report, the Mitigation Site is meeting all Year 2 performance standards.

2.0 MITIGATION SITE EXISTING CONDITIONS

2.1 Location

The Mitigation Site is located approximately 32 miles north of the Impact Site within the agency approved Petersen Ranch Mitigation Bank. The 31.55-acre Mitigation Site is located within the eastern portion of the Bank (Figure 2) (Figure 2). The Mitigation Site lies within Phase D of the Bank Property which is part of the larger, 4,103-acre Bank. Within Phase D, a large sag pond (Pond D) and associated wetland complex had been identified as having opportunities for improving the existing habitat. Opportunities include establishment and enhancement of wetlands, non-wetland WOUS and associated buffer habitats. The buffer habitats will be restored and enhanced to not only provide protection for the on-site aquatic resources but also to improve the overall function of the watershed. Additional details describing the mitigation bank can be found in the Bank Enabling Instrument (BEI) (Land Veritas Corp. 2016) and in the Biological Resource Inventory (BEI Exhibit H).

2.2 Existing Habitat

A biological inventory was conducted by WRA at the Bank Property in January and February of 2013 (WRA 2013). In total, 11 biological communities were identified within the Mitigation Site: two wetlands and waters communities, four riparian communities, two sensitive terrestrial communities, and three non-sensitive terrestrial communities. Descriptions of the two communities targeted for restoration at the Mitigation Site are included below. In addition, a running list of observed plant species is included as Appendix A.

Mulefat thickets (*Baccharis salicifolia* Shrubland Alliance, G5 S4, 1602 and Porter Cologne jurisdictional habitat). The Mulefat Thickets Alliance is widespread in canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels (Sawyer et. al, 2009). This alliance covered 6.21 acres of the Mitigation Site. Mulefat thickets integrate with Fremont cottonwood (*Populus fremontii*) forest, arroyo willow (*Salix lasiolepis*) thickets, stretchberry (*Forestiera pubescens*) thickets, and Mexican rush (*Juncus mexicanus*) marshes. Mulefat comprised greater than 50 percent relative cover in the shrub layer. Typically, mulefat was the only species in the shrub layer. In rare instances, other shrub species included arroyo willow, elderberry (*Sambucus nigra* ssp. *caerulea*), and stretchberry. Herbaceous groundcover was composed of Mexican rush, clustered field sedge (*Carex praegracilis*), stinging nettle (*Urtica dioica*), ripgut brome (*Bromus diandrus*), and ruderal weeds.

Red willow thickets (*Salix laevigata* Woodland Alliance, G3 S3, 1602 and Porter Cologne jurisdictional habitat). Red willow thickets are widespread and occur in ditches, floodplains, lake edges, and low gradient depositions along streams (Sawyer et. al, 2009). This alliance covered 0.65 acres of the Mitigation Site. Red willow comprised greater than 50 percent relative cover in the tree canopy, or greater than 30 percent relative cover in the tree canopy if arroyo willow was in the subcanopy. The understory shrub layer often contained mulefat. Herbaceous groundcover was composed of Mexican rush, clustered field sedge, stinging nettle, water smartweed (*Persicaria amphibia*), ripgut brome, and ruderal weeds.

3.0 MITIGATION ACTIVITIES

The Project involved installing cattle exclusion fencing, removing and managing invasive plant species, planting mulefat and willow, and supplementing hydrology when necessary to sustain the restored habitat, as well as guaranteeing the long-term legal protection of the Mitigation Site with a conservation easement.

The locations of the cattle exclusion fencing, planting areas, and preservation areas are shown in Figure 3.

3.1 Cattle Exclusion Fencing

A wildlife-friendly cattle exclusion fence was installed around the designated planting areas to prevent livestock from grazing on riparian plants. Alignment of the cattle exclusion fencing was adjusted during installation to avoid sensitive habitat while providing full constructability.

3.2 Invasive Species Management and Considerations

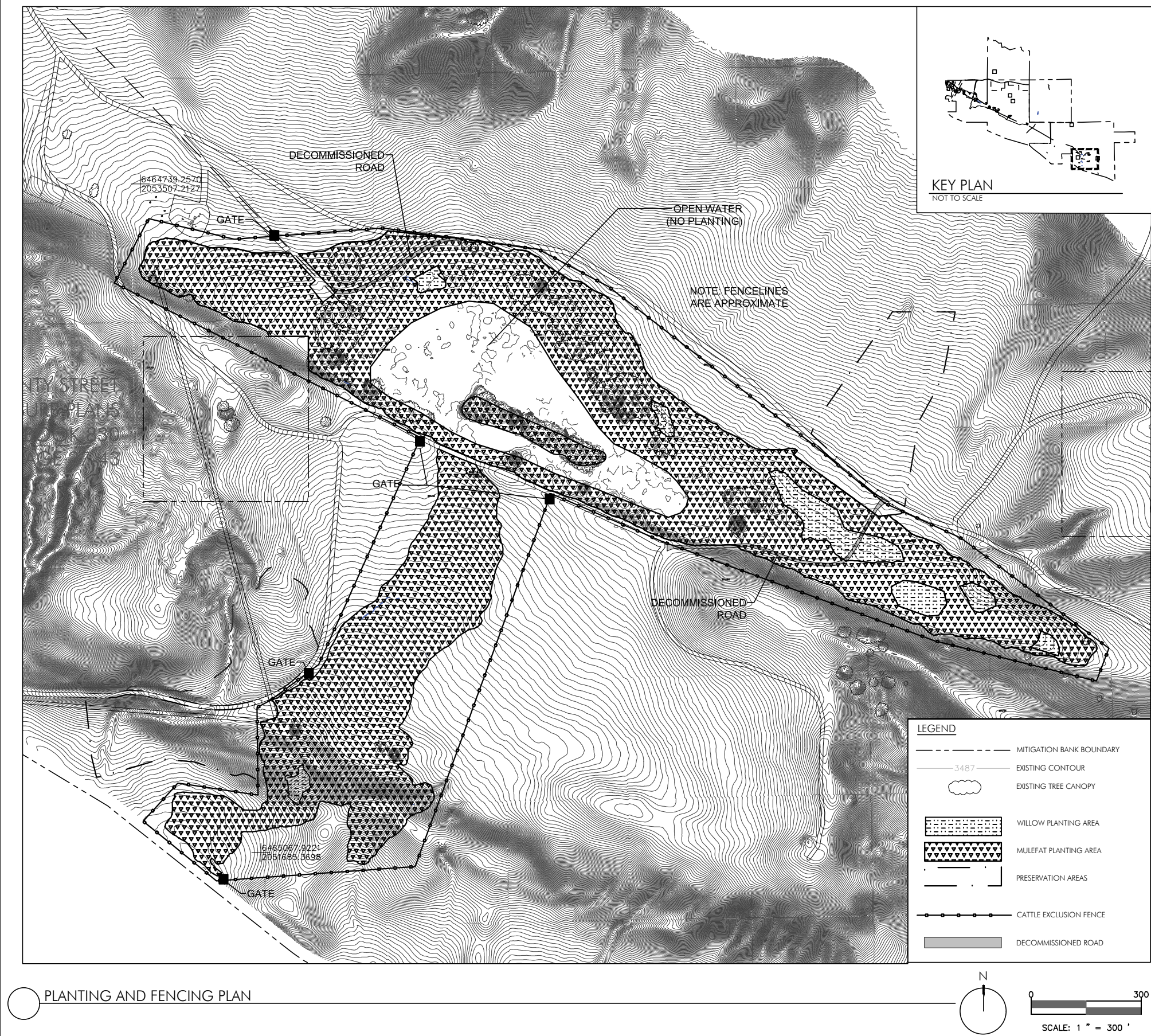
Initial weed eradication efforts included targeted grow kill cycles, and control of any non-grass invasive species present within the designated planting areas (including CAL-IPC moderate and limited species).

3.3 Planting Areas

Planting areas are within and immediately surrounding areas that previously supported sparse or scattered stands of mulefat, willow, and other riparian species. These areas were planted with 9,338 mulefat live stakes and 1,106 mixed red and arroyo willow live stake plantings to achieve an average density of 500-stems per acre, similar to existing high density mulefat and willow stands within the Mitigation Site. All plantings were live pole cuttings harvested from plants within the Bank to preserve local genetics. Willow plantings were focused in the wettest portion of the Mitigation Site, primarily around Pond D, as well as a few other locations where groundwater seeps were sufficient to support the species; mulefat plantings are therefore more widespread throughout the Mitigation Site. In total, 27.67 acres were planted.

3.4 Preservation Areas

Two distinct preservation areas are located in the northeast and southwest of the Mitigation Site. They are dominated by California buckwheat (*Eriogonum fasciculatum*) in the northeast, and Parish's sagebrush (*Artemisia tridentata* ssp. *parishii*), thick leafed yerba santa (*Eriodictyon crassifolium*), and California buckwheat in the southwest. In total, 6.60 acres have been preserved. These areas are located on alluvial fans and ephemeral drainages that receive periodic sediment and surface flows and support high quality habitat for xeric riparian communities.

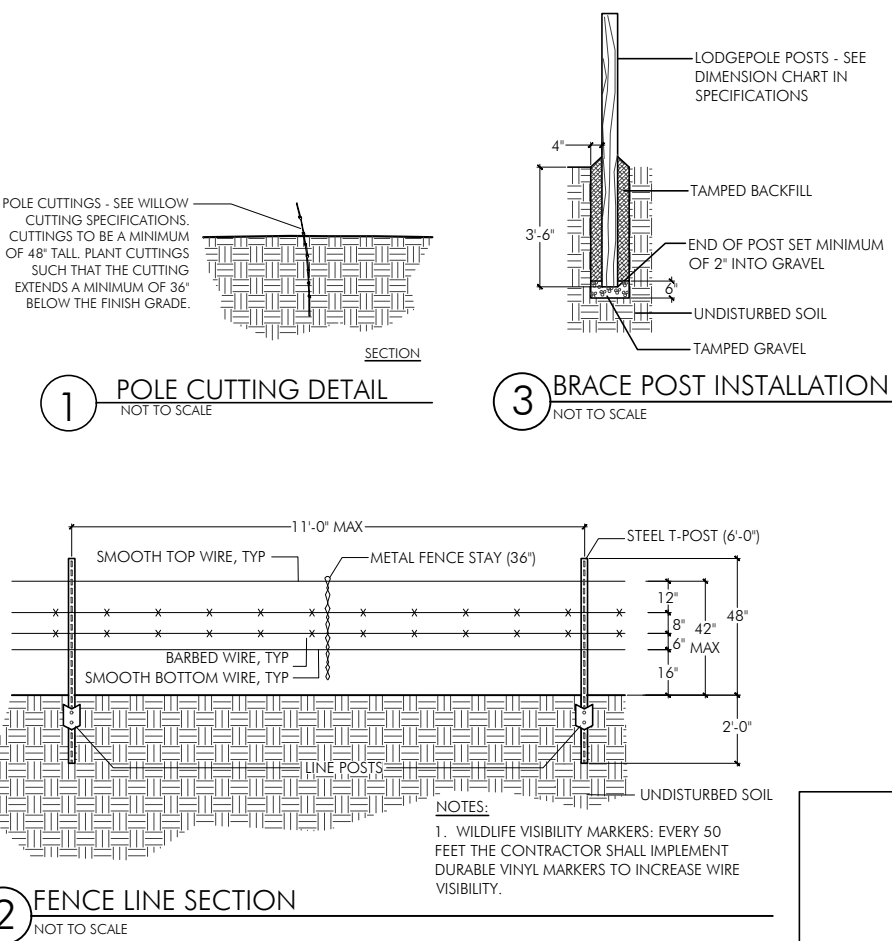


MULEFAT AREA PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	QUANTITY
BACCHARIS SALICIFOLIA	MULEFAT	4' LIVE STAKE	9,338

WILLOW AREA PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	QUANTITY
SALIX LAEVIGATA	RED WILLOW	4' LIVE STAKE	885
SALIX LASIOLEPIS	ARROYO WILLOW	4' LIVE STAKE	221



PLANTING AND FENCING PLAN

FENCE LINE SECTION

BRACE POST INSTALLATION

4.0 MONITORING AND PERFORMANCE STANDARDS

This section details annual performance standards and monitoring methods. Monitoring will be conducted annually throughout the monitoring and maintenance period in order to demonstrate success of the mitigation activities. Monitoring will be conducted in spring or early summer, and will be timed to follow the blooming periods of target weed species, so that any necessary control measures can be implemented prior to the invasive species setting seed. Percent cover of mulefat and willow species within the Mitigation Site will be assessed using plots spaced along four permanent 50-meter transects. Survivorship of planted mulefat and willow stakes will be assessed by surveying irrigation lines and counting dead plants. Target invasive plant species will be mapped annually and treated on an as-needed basis. Success will be evaluated based on achieving the target standards presented below.

Restoration and enhancement activities were completed at the Mitigation Site in April 2019; this report therefore summarizes the second year of annual monitoring.

4.1 Planting Area Success Criteria

Success criteria for mulefat and willow installed in the planting areas are based on survival rates and absolute cover assessed by visual estimation during the five-year monitoring period. Absolute cover of mulefat and willow is assessed in planting areas using the methods outlined in Section 4.2. Additionally, absolute cover of California Invasive Plant Council (Cal-IPC) rated High broad-leaved plant species will be assessed in conjunction with mulefat and willow cover. The criteria that are used to assess the success of the Mitigation Site are shown in Table 1.

Table 1. Performance Standards for Planting Areas

PERFORMANCE STANDARD	MONITORING YEAR					MONITORING FREQUENCY
	1	2	3	4	5	
By year 2, the planting areas must contain 10% or more absolute cover of mulefat or willow, or demonstrate 80% survivorship.		X				Annually
By year 3, the planting areas must contain 25% or more absolute cover of mulefat or willow, or demonstrate 80% survivorship			X			Annually
By year 4, planting areas must contain 40% or more absolute cover of mulefat or willow.				X		Annually
By year 5, planting areas must contain 68% or more absolute cover of mulefat or willow					X	Annually
Percent cover of Cal-IPC rated high broad leaved invasive plant species must cover no more than 10% absolute cover of the Mitigation Site.		X	X	X	X	Annually

4.2 Performance Monitoring Methods

The Mitigation Site planting areas were monitored for cover and survivorship of willow and mulefat plantings, and cover of Cal-IPC High-rated broad-leaved invasive species (“invasive weeds”). Absolute cover of willow, mulefat, and invasive weeds was monitored in planting areas using four permanent transects. Survivorship of planted willow and mulefat stakes was assessed within the planting areas.

Permanent 50-meter transects were established within planting areas (Figure 4). Transects were permanently marked in the field using T-posts. Global Positioning System (GPS) points were recorded to repeat transect monitoring in future years, and photos were taken at the start and end of each transect. Each 50-meter transect was surveyed by walking a 2.5 meter wide belt transect and recording species and species cover class¹ every 5 meters, resulting in 10 sampling plots per transect. Species and species cover class were recorded within each plot in order to assess the performance standards outlined in Table 1. A photograph was taken of each plot.

Survivorship surveys were conducted to supplement mulefat and willow cover data and to identify areas that may need maintenance. Survivorship surveys were conducted concurrently with the vegetation cover monitoring and weed mapping. Individual dead mulefat and willow stakes were tallied, and the total number of surviving plants was calculated by subtracting the number of observed dead mulefat or willow stakes from the total number of live stakes installed for each species, not including stakes that have been

¹ Cover classes are as follows: 0=<1%, 1=1-5%, 2=5-25%, 3=25-50%, 4=50-75%, 5=75-95%, 6=95-100%

replaced. Percent survivorship was then calculated for mulefat and willow by dividing the total number of surviving plants by the total number of live stakes installed for each species, not including stakes that have been replaced.

4.3 Inspections for Mitigation Maintenance

Maintenance inspections and activities during the five-year plant establishment period in the created and enhanced riparian areas are required to facilitate the restoration (Table 2). These conditions will be checked multiple times per year and if deficiencies are noted, they will be assessed, documented, and remedied as quickly as necessary to prevent further damage per the corresponding maintenance action listed in Table 2.

Table 2: Maintenance Inspection Types and Actions

Inspection Type	Corresponding Maintenance Action
Signs of erosion	Repair of slopes and installation of erosion protections
Non-native invasive plants (NNIPs) mapping	Plant removal or management to control establishment and spread
Condition of cattle exclusion fencing	Fence repair
Proper hydrologic conditions	Adjust water augmentation

Mapping of non-native, invasive plant (NNIP) species targeted for management was conducted concurrently with the survivorship monitoring surveys. Two WRA biologists traversed the entire planting area on foot, and mapped each target NNIP species occurrence that was encountered. The targets of the survey were NNIP species rated Cal-IPC High, Moderate, or Limited that are specifically known to be nuisance species either regionally or locally. Mapping was not conducted within preservation areas.

Other species that are not of regional or local concern were not mapped, but their presence was recorded in the Mitigation Site Species List (Appendix A).

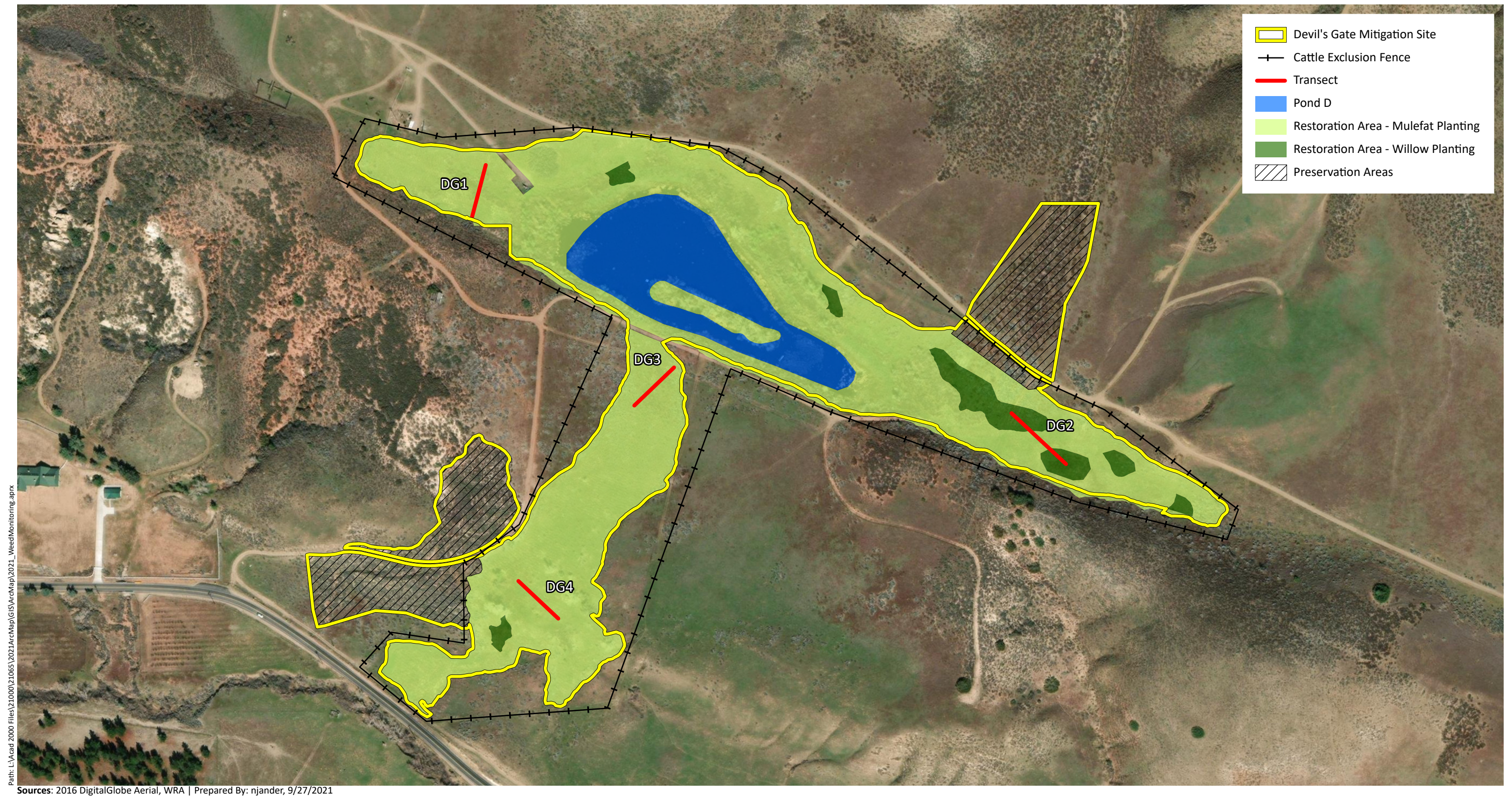


Figure 4. Mitigation Site Monitoring Locations

5.0 RESULTS

Year 2 monitoring activities were completed at the Mitigation Site in June 2021. Currently the Mitigation Site is meeting all Year 2 success criteria (Table 3, Table 4). In addition, the Mitigation Site is performing well enough to meet all success criteria for Year 3 of the performance monitoring period (see Table 1 for Year 3 performance standards). Appendix A presents all species observed within the Mitigation Site during both transect and site-wide surveys.

5.1 Performance Monitoring

The complete annual monitoring data for the four monitoring transects is included in Appendix B and is summarized in Table 3. Survivorship data is summarized below in Table 4 and depicted below in Figure 5. Photo monitoring photos and transect photos are included in Appendix C.

5.1.1 Mulefat and Willow Cover

Cover of mulefat and willow is variable at the four monitoring transects, averaging 33% absolute cover (Table 3). Mulefat was more abundant than willow within the monitoring transects and was the dominant woody riparian species. Other native species with notable absolute cover within transects included beardless wild rye (*Elymus triticoides*; 11.3%), tarragon (*Artemisia dracunculus*; 10.6%), field sedge (*Carex praegracilis*; 8.1%), and western vervain (*Verbena lasiostachys*; 8.9%).

5.1.2 Cal-IPC High Broad-Leaved Invasive Species Cover

Percent cover of Cal-IPC rated high broad leaved invasive plant species was 0.0% across all transects (Table 3). One Cal-IPC High-rated broad-leaved invasive species individual, perennial pepperweed (*Lepidium latifolium*), was noted elsewhere in the Mitigation Site's planting areas (see Section 5.2.2 and Figure 6), outside of the sampling transects.

5.1.3 Survivorship

Survivorship for mulefat, willow, and combined was over 99% (Table 4). Annual monitoring survivorship surveys detected minimal amounts of dead mulefat or willow plantings, with only eight dead mulefat and ten dead willows observed. The results of Year 2 mortality mapping are shown in Figure 5.

5.2 Mitigation Maintenance Inspections

5.2.1 Erosion

There were no indications of erosion observed at the Mitigation Site this year. Therefore, no maintenance activities were implemented to address erosion issues.

Table 3. Year 2 Performance Monitoring Results – Absolute Cover of Mulefat and Willow and Absolute Cover of Non-Native Invasive Broad-Leaved Plant Species within the Mitigation Site

PERFORMANCE METRIC	DG1	DG2	DG3	DG4	AVERAGE	YEAR 2 PERFORMANCE STANDARD	YEAR 2 PERFORMANCE STANDARD MET?
Mulefat and Willow Total Absolute Cover	48.8%	15.5%	45.8%	22.1%	33.0%	>10%	Yes
Cal-IPC High Cover*	0.0%	0.0%	0.0%	0.0%	0.0%	<10%	Yes
*Broad-leaved plant species rated High per Cal-IPC (grasses excluded)							

Table 4. Year 2 Performance Monitoring Results – Percent Survivorship of Mulefat and Willow within the Mitigation Site

SCIENTIFIC NAME	COMMON NAME	NUMBER OF OBSERVED MORTALITIES	TOTAL NUMBER OF LIVE STAKES INSTALLED	TOTAL NUMBER OF STAKES REPLACED IN YEAR 1	TOTAL NUMBER OF SURVIVING PLANTS	PERCENT SURVIVORSHIP	YEAR 2 PERFORMANCE STANDARD MET?
<i>Baccharis salicifolia</i>	Mulefat	8	9,338	0	9,330	99.9%	N/A
<i>Salix</i> spp.	Willow	10	1,106	0	1,096	99.1%	
Combined		18	10,444	0	10,426	99.8%	Yes



Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: njander, 9/27/2021

Figure 5: Mulefat and Willow Mortality Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

0 215 430
Feet

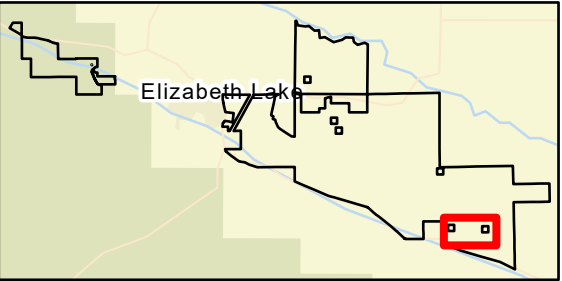


Devil's Gate Mitigation Site

Individual Mortality

Mule fat (*Baccharis salicifolia*) (8)

Willow (*Salix* spp.) (10)



5.2.2 Target Non-Native Invasive Plant Species Mapping

Several NNIP species of concern were observed within the Mitigation Site and were targeted for management. Management actions were rapidly deployed to control the spread of these species and are detailed below.

Three Cal-IPC High grasses are present: red brome, cheatgrass, and medusahead (*Elymus caput-medusae*). Red brome and cheatgrass were the most abundant of the Cal-IPC High species present at the Mitigation Site, and both are locally abundant in the region and within the Bank property. These species are managed within the Mitigation Site to promote the establishment of native species. Conversely, only one medusahead skeleton from the previous season was observed within the Mitigation Site; no new recruitment was observed this year. Medusahead populations are small and localized within the Bank property and are the subject of eradication efforts by Land Veritas staff to prevent recruitment into the Mitigation Site.

Perennial pepperweed, a broad-leaved plant species ranked High by Cal-IPC, was observed at the Mitigation Site this year. Although perennial pepperweed has been documented within the Petersen Ranch Mitigation Bank in the past, this is the first time it has been observed within the Mitigation Site. Given the extent of its presence, the novelty of the observation is likely due to the visual similarity of perennial pepperweed and hairy whitetop (*Lepidium appelianum*), another broad-leaved plant species rated Limited by CAL-IPC, while the two species are in their vegetative stages. Land Veritas staff have been trained or retrained on the identification of these two species and have begun working on controlling populations of perennial pepperweed.

Several occurrences of Russian knapweed (*Rhaponticum repens*; Cal-IPC Moderate) were observed within the Mitigation Site. This species has been targeted for removal and Ranch staff were given specific management and removal directions to ensure this species is controlled utilizing best practices.

The results of the Year 2 target NNIP species mapping are shown on Figure 6.

In addition to the NNIPs targeted for management, other NNIPs of regional or local concern are also present within the Mitigation Site, including:

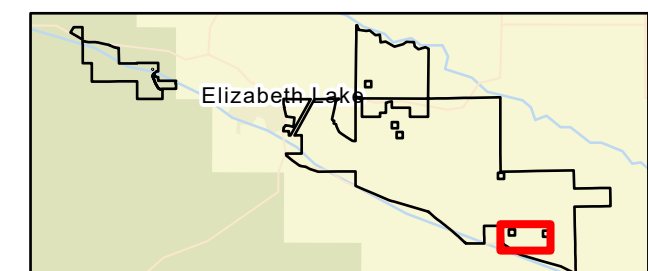
- Three Cal-IPC Moderate species: one non-native grass (ripgut brome) and two broad-leaved species (bull thistle [*Cirsium vulgare*] and short-pod mustard [*Hirschfeldia incana*]);
- Two Cal-IPC Limited species: hairy whitetop (*Lepidium appelianum*) and horehound (*Marrubium vulgare*); and
- One unrated broad-leaved species of regional or local concern is present within the Mitigation Site: annual yellow sweetclover (*Melilotus indicus*).

Land Veritas staff have been trained on the identification of these species and appropriate control strategies to facilitate rapid weed management efforts upon observation during regular surveys of the Mitigation Site throughout the year.



Figure 6. Target Non-Native Invasive Plants within Mitigation Site Planting Areas

*Not surveyed for NNIPs.



5.2.3 Cattle Exclusion Fencing

Installation of the cattle exclusion fencing and associated gates was completed concurrent with restoration activities in early 2019. The fence remains intact, cattle have been successfully excluded from the Mitigation Site, and no major repairs to the fence have been required.

5.2.4 Hydrologic Conditions

Irrigation maintenance has been conducted concurrently with regular site maintenance. Only a limited number of irrigation repairs have been necessary thus far, and the irrigation system continues to function properly. Repairs included:

- A few large couplings were replaced and/or reconnected throughout the year; and
- Minor repairs to tubes and emitters were completed as part of regular irrigation system maintenance.

No significant impacts to site hydrology due to the issues were observed as the repairs were made quickly after being discovered.

6.0 SUMMARY AND MANAGEMENT RECOMMENDATIONS

6.1 Performance Monitoring Summary

6.1.1 Mulefat and Willows Cover and Survivorship

The Year 2 performance standard is: The planting areas must contain 10% or more absolute cover of mulefat and/or willow, or demonstrate 80% survivorship. The Year 2 annual monitoring revealed that the average cover of mulefat and willow across the Mitigation Site is 33.0% (Table 3); which surpasses the Year 2 performance standard. In addition, survivorship of the installed mulefat and willow stakes were assessed to be 99.8% (Table 4), which also surpasses the Year 2 performance standard.

Though the Mitigation Site is meeting the Year 2 performance standards, the annual monitoring data indicates low cover of mulefat and willow at transects DG2 and DG4. The likely reason for the low cover at DG2 is prolonged ponding, and despite the low cover of mulefat, this transect had the highest willow cover. Additionally, the transect is dominated by native species. Year 2 annual monitoring at DG2 revealed the total absolute cover of native species is 77.0%, with the dominant native species consisting of beardless wild rye (31.0% absolute cover), western vervain (6.6% absolute cover), and red willow (6.5% absolute cover). While DG4 is meeting the Year 2 performance standards, the margin of success is narrow, and the associated portion of the Mitigation Site should be monitored closely in order to ensure successful establishment of installed live stakes. It should be noted that portions of DG4 with lower mulefat cover are dominated by other native perennials including tarragon, gumweed, and foothill needle grass (*Stipa lepida*).

The Mitigation Site is meeting the Year 2 performance standard for absolute cover of mulefat and willow and survivorship.

6.1.2 Cal-IPC High Broad-Leaved Invasive Species Cover

The Year 2 performance standard for non-native invasive cover at the Mitigation Site is: Percent cover of Cal-IPC rated High broad-leaved invasive plant species must cover no more than 10% absolute cover of the Mitigation Site. As shown in Table 3, no Cal-IPC High rated broad-leaved plant species have been recorded in the monitoring transects. One Cal-IPC High rated broad-leaved invasive species individual, perennial pepperweed, was documented outside of the sampling transects within the planting areas; however, the absolute cover of this individual plant was not enough to affect Mitigation Site performance. The location of this individual can be seen in Figure 6.

The Mitigation Site is meeting the Year 2 performance standard for percent absolute cover of Cal-IPC rated High broad-leaved invasive plant species.

6.2 Management Recommendations

6.2.1 Biological Resources

NNIPs surrounding each planted stake are cleared in the spring and managed throughout the growing season. It is recommended that NNIP treatment within the Mitigation Site continue in conjunction with invasive species treatments across the rest of the Bank Property.

Specific NNIP management actions may include:

- Regular qualitative surveys for target NNIP species by Land Veritas staff;
- Implementation of best management practices for individual NNIP species as issues arise;
- Focused eradication efforts of target NNIP species documented in the Mitigation Site, such as perennial pepperweed and medusahead;
- Regular training of Land Veritas staff on identification of target and other NNIP species of concern.

6.2.2 Infrastructure and Facilities

The Mitigation Site's infrastructure and facilities will be subject to regular standard maintenance to ensure proper function. Land Veritas staff will complete regular and frequent walk-throughs of the Mitigation Site to identify potential maintenance needs, including the condition of the cattle exclusion fencing and the functioning of the irrigation system. Issues will be immediately addressed and repaired. Land Veritas staff will also survey the Mitigation Site for evidence of erosion following large rain events, and implement erosion mitigation strategies as appropriate.

7.0 REFERENCES

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- WRA 2018 WRA, Inc. 2018. Devil's Gate Off-Site Mitigation Project Habitat Mitigation and Monitoring Plan. Petersen Ranch Mitigation Bank. Los Angeles County, California. October 2018.
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APPENDIX A – MITIGATION SITE OBSERVED SPECIES LIST

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish lotus	native	annual herb	-	-	UPL
<i>Artemisia douglasiana</i>	California mugwort	native	perennial herb	-	-	FAC
<i>Artemisia tridentata</i> ssp. <i>parishii</i>	Parish's sagebrush	native	shrub	-	-	-
<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	Big sagebrush	native	shrub	-	-	-
<i>Asclepias fascicularis</i>	Milkweed	native	perennial herb	-	-	FAC
<i>Astragalus douglasii</i> var. <i>douglasii</i>	Douglas's milkvetch	native	perennial herb	-	-	-
<i>Avena barbata</i>	Slim oat	non-native (invasive)	annual, perennial grass	-	Moderate	-
<i>Baccharis pilularis</i>	Coyote brush	native	shrub	-	-	-
<i>Baccharis salicifolia</i> ssp. <i>salicifolia</i>	Mule fat	native	shrub	-	-	FAC
<i>Bolboschoenus maritimus</i> ssp. <i>paludosus</i>	Saltmarsh bulrush	native	perennial grasslike herb	-	-	OBL
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
<i>Bromus rubens</i>	Red brome	non-native (invasive)	annual grass	-	High	UPL
<i>Bromus tectorum</i>	Cheat grass	non-native (invasive)	annual grass	-	High	-
<i>Carex praegracilis</i>	Field sedge	native	perennial grasslike herb	-	-	FACW
<i>Castilleja subinclusa</i> ssp. <i>subinclusa</i>	Long leaf paintbrush	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Cirsium vulgare</i>	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
<i>Corethrogyne filaginifolia</i>	Common sandaster	native	perennial herb	-	-	-
<i>Croton setiger</i>	Turkey-mullein	native	perennial herb	-	-	-
<i>Cucurbita foetidissima</i>	Missouri gourd	native	perennial herb, vine	-	-	-
<i>Datura wrightii</i>	Jimsonweed	native	perennial herb	-	-	UPL
<i>Descurainia sophia</i>	Herb sophia	non-native (invasive)	annual herb	-	Limited	-
<i>Distichlis spicata</i>	Salt grass	native	perennial grass	-	-	FAC
<i>Eleocharis macrostachya</i>	Spike rush	native	perennial grasslike herb	-	-	OBL
<i>Elymus caput-medusae</i>	Medusa head	non-native (invasive)	annual grass	-	High	-
<i>Elymus condensatus</i>	Giant wild rye	native	perennial grass	-	-	FACU
<i>Elymus glaucus</i>	Blue wildrye	native	perennial grass	-	-	FACU
<i>Elymus triticoides</i>	Beardless wild rye	native	perennial grass	-	-	FAC
<i>Ericameria linearifolia</i>	Interior goldenbush	native	shrub	-	-	-
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	native	shrub	-	-	-
<i>Erigeron canadensis</i>	Canada horseweed	native	annual herb	-	-	FACU
<i>Erigeron foliosus</i> var. <i>foliosus</i>	Thread stemmed fleabane	native	perennial herb, shrub	-	-	-
<i>Eriogonum davidsonii</i>	Davidson buckwheat	native	annual herb	-	-	-
<i>Eriogonum fasciculatum</i>	California buckwheat	native	shrub	-	-	-
<i>Erodium cicutarium</i>	Red stemmed filaree	non-native (invasive)	annual herb	-	Limited	-
<i>Erythranthe guttata</i>	Seep monkeyflower	native	perennial herb (rhizomatous)	-	-	OBL
<i>Euphorbia albomarginata</i>	Rattlesnake sandmat	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Euthamia occidentalis</i>	Western goldenrod	native	perennial herb	-	-	FACW
<i>Festuca myuros</i>	Rattail sixweeks grass	non-native (invasive)	annual grass	-	Moderate	FACU
<i>Grindelia camporum</i>	Gumweed	native	perennial herb	-	-	FACW
<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	Seaside heliotrope	native	perennial herb	-	-	FACU
<i>Hirschfeldia incana</i>	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Farmer's foxtail	non-native (invasive)	annual grass	-	Moderate	FACU
<i>Juncus mexicanus</i>	Mexican rush	native	perennial grasslike herb	-	-	FACW
<i>Juncus orthophyllus</i>	Straight leaved rush	native	perennial grasslike herb	-	-	FACW
<i>Juniperus osteosperma</i>	Utah juniper	native	tree, shrub	-	-	-
<i>Lactuca serriola</i>	Prickly lettuce	non-native	annual herb	-	-	FACU
<i>Lepidium appelianum</i>	Hairy whitetop	non-native (invasive)	perennial herb	-	Limited	UPL
<i>Lepidium latifolium</i>	Perennial pepperweed	non-native (invasive)	perennial herb	-	High	FAC
<i>Malacothamnus fasciculatus</i> var. <i>fasciculatus</i>	Chaparral bush mallow	native	shrub	-	-	-
<i>Malvella leprosa</i>	Alkali mallow	native	perennial herb	-	-	FACU
<i>Marrubium vulgare</i>	White horehound	non-native (invasive)	perennial herb	-	Limited	FACU
<i>Melilotus indicus</i>	Annual yellow sweetclover	non-native	annual herb	-	-	FACU
<i>Peucephyllum schottii</i>	Desert pine	native	shrub	-	-	-
<i>Poa bulbosa</i>	Bulbous blue grass	non-native	perennial grass	-	-	FACU
<i>Poa secunda</i>	Pine bluegrass	native	perennial grass	-	-	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Polygonum aviculare</i>	Prostrate knotweed	non-native	annual, perennial herb	-	-	FAC
<i>Polypogon monspeliensis</i>	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Cottonwood	native	tree	-	-	FAC
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	non-native	annual herb	-	-	FAC
<i>Rafinesquia californica</i>	California chicory	native	annual herb	-	-	-
<i>Rhaponticum repens</i>	Russian knapweed	non-native (invasive)	perennial herb	-	Moderate	-
<i>Rumex crispus</i>	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC
<i>Salix laevigata</i>	Red willow	native	tree	-	-	FACW
<i>Salix lasiolepis</i>	Arroyo willow	native	tree, shrub	-	-	FACW
<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Blue elderberry	native	shrub	-	-	FACU
<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	Tule	native	perennial grasslike herb	-	-	OBL
<i>Senecio flaccidus</i>	Shrubby ragwort	native	shrub	-	-	-
<i>Sisymbrium altissimum</i>	Tumble mustard	non-native	annual herb	-	-	FACU
<i>Solanum xanti</i>	Nightshade	native	perennial herb, shrub	-	-	-
<i>Sonchus asper</i> ssp. <i>asper</i>	Prickly sow thistle	non-native	annual herb	-	-	FAC
<i>Sporobolus airoides</i>	Alkali sacaton	native	perennial grass	-	-	FAC
<i>Stachys albens</i>	Cobwebby hedge nettle	native	perennial herb	-	-	OBL
<i>Stephanomeria exigua</i>	Small wirelettuce	native	annual herb	-	-	-
<i>Stipa lepidota</i>	Foothill needle grass	native	perennial grass	-	-	-
<i>Tragopogon dubius</i>	Goat's beard	non-native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Typha latifolia</i>	Broadleaf cattail	native	perennial herb (aquatic)	-	-	OBL
<i>Urtica dioica</i>	Stinging nettle	native	perennial herb	-	-	FAC
<i>Verbena lasiostachys</i>	Western vervain	native	perennial herb	-	-	FAC
<i>Xanthium strumarium</i>	Cocklebur	native	annual herb	-	-	FAC

▪ All species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2021]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2021]

¹ **California Native Plant Society. 2021. Inventory of Rare and Endangered Plants (online edition, v9-01 0.0). Sacramento, California. Online at: <http://rareplants.cnps.org/>; most recently accessed: September 2021**

FE: Federal Endangered
 FT: Federal Threatened
 SE: State Endangered
 ST: State Threatened
 SR: State Rare

Rank 1A: Plants presumed extinct in California

Rank 1B: Plants rare, threatened, or endangered in California and elsewhere

Rank 2: Plants rare, threatened, or endangered in California, but more common elsewhere

Rank 3: Plants about which we need more information – a review list

Rank 4: Plants of limited distribution – a watch list

² **California Invasive Plant Council. 2021. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: <http://www.cal-ipc.org/paf/>; most recently accessed: September 2021**

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.

Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically

Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically

Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

³ **U.S. Army Corps of Engineers. 2018. National Wetland Plant List, version 3.4. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. Online at: <http://wetland-plants.usace.army.mil/>; most recently accessed: September 2021.**

OBL: Almost always found in wetlands

FACW: Usually found in wetlands

FAC: Equally found in wetlands and uplands

FACU: Usually not found in wetlands

UPL: Almost never found in wetlands

NL: Not listed, assumed almost never found in wetlands

NI: No information; not factored during wetland delineation

APPENDIX B – ANNUAL MONITORING DATA

Site and Transect:	DG1
Date:	6/17/2021
Staff:	TSH & SG
Transect length:	50m
Starting Point:	0m
Data Entry:	MCS 7/15/21
Data QC:	SG 8/30/21

	Photo #:					
Scientific Name	Common Name	Origin	Form	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
Bare	Bare					
Litter	Litter					
<i>Asclepias fascicularis</i>	Milkweed	native	perennial herb	-	-	FAC
<i>Baccharis salicifolia</i> ssp. <i>salicifolia</i>	Mule fat	native	shrub	-	-	FAC
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
<i>Bromus tectorum</i>	Cheat grass	non-native (invasive)	annual grass	-	High	-
<i>Carex praegracilis</i>	Field sedge	native	perennial grasslike herb	-	-	FACW
<i>Cirsium vulgare</i>	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
<i>Descurainia sophia</i>	Herb sophia	non-native (invasive)	annual herb	-	Limited	-
<i>Distichlis spicata</i>	Salt grass	native	perennial grass	-	-	FAC
<i>Elymus triticoides</i>	Beardless wild rye	native	perennial grass	-	-	FAC
<i>Euthamia occidentalis</i>	Western goldenrod	native	perennial herb	-	-	FACW
<i>Grindelia camporum</i>	Gumweed	native	perennial herb	-	-	FACW
<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	Seaside heliotrope	native	perennial herb	-	-	FACU
<i>Hirschfeldia incana</i>	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
<i>Juncus mexicanus</i>	Mexican rush	native	perennial grasslike herb	-	-	FACW
<i>Lactuca serriola</i>	Prickly lettuce	non-native	annual herb	-	-	FACU
<i>Melilotus indicus</i>	Annual yellow sweetclover	non-native	annual herb	-	-	FACU
<i>Stachys albens</i>	Cobwebby hedge nettle	native	perennial herb	-	-	OBL
<i>Urtica dioica</i>	Stinging nettle	native	perennial herb	-	-	FAC
<i>Verbena lasiostachys</i>	Western vervain	native	perennial herb	-	-	FAC

[illegible]

APPENDIX C – PHOTO MONITORING AND TRANSECT PHOTOS



Pre-restoration photo of western lobe of Mitigation Site looking to the northwest.



Western lobe of Mitigation Site looking to the northwest. Taken September 10, 2020.



Western lobe of Mitigation Site looking to the northwest. Taken June 24, 2021.



Pre-restoration photo of the northern section of the Mitigation Site looking to the northeast.



Northern section of the Mitigation Site looking to the northeast. Taken September 10, 2020.



Northern section of the Mitigation Site looking to the northeast. Taken June 24, 2021.



Pre-restoration photo of southern section of Mitigation Site looking to the southeast.



Southern section of the Mitigation Site looking to the southeast. Taken September 10, 2020.



Southern section of the Mitigation Site looking to the southeast. Taken June 24, 2021.



Pre restoration photo of the Mitigation Site taken from the northeastern lobe looking to the northwest.



Mitigation Site taken from the northeastern lobe looking to the northwest.
Taken September 11, 2020.



Mitigation Site taken from the northeastern lobe looking to the northwest.
Taken June 24, 2021.



Transect DG1. Taken June 17, 2021.



Transect DG1. Taken June 17, 2021.



Transect DG2. Taken June 17, 2021.



Transect DG2. Taken June 17, 2021.



Transect DG3. Taken June 17, 2021.



Transect DG3. Taken June 17, 2021.



Transect DG4. June 16, 2021.



Transect DG4. Taken June 16, 2021.