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."

Sami Kabar	Principal Engineer
Print Name [1]	**Affiliation and Job Title**
Signature	4/3/2024 **Date**

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

I hereby authorize Keith Hala 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.

	4/3/2024
Permittee's Signature	Date

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

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

MARK PESTRELLA, Director

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ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
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P.O. BOX 1460
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,

MARK PESTRELLA
Director of Public Works

PA:rc
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2022-23 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

March 2024

CONTENTS

LIST OF FIGURES

LIST OF ATTACHMENTS

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 second annual report for the Project was submitted to the RWQCB in July of 2022 and it covered the activities from mid-2020 through all of 2021. This third annual report covers the period from January 2022 through June 2023.

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 initial sediment removal phase of the Project was started in November of 2018, and it was completed in August of 2021. The reservoir management phase started in 2022, after the completion of the sediment removal phase. The reservoir management phase will consist of vegetation maintenance and sediment removal. The purpose of the Project is to annually 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).

Project construction activities in the form of routine annual maintenance activities began on September 1, 2022, with the removal of emergent vegetation. The construction crew started with clearing and removing debris from the dam gate using hand tools such as potato fork, shovel, and rake. On September 15, 2022, vegetation clearing and grading for a road continued at the north end of the reservoir in preparation for sediment removal. Debris piles were made and removed via excavator and dump trucks. Small areas of emergent vegetation were cleared using bulldozers, skid steers, and front loaders in preparation for hauling activities. All vegetation removal was within the Project boundaries and monitored by the Designated Biologist on site.

Sediment hauling activities began September 19, 2022, with loading sediment into several haul trucks with one excavator. Water trucks were used to spray down the reservoir to keep dust under control. On September 22, 2022, construction crews began creating channels along the base of the east and west side slopes of the reservoir to irrigate the sides of the episodic maintenance areas. Sediment Removal hauling activities included bulldozer stockpiling sediment for removal. Sediment was loaded into Super10 end dump haul trucks using excavators and front loaders. The crew continued hauling sediment from the reservoir through October 24, 2022. Sediment removal activities during construction are shown in Photos 1-14 and location is shown in Figure 1. No construction activities occurred between October 24, 2022 through June 30, 2023.

DEVIL'S GATE RESERVOIR

Photo Number: 1
Location: South Side Near Dam Wall and Gate
Description: Crew Removing Debris from Dam Wall and Gate

Photo Number: 2
Location: South Side of the Reservoir Near Dam Wall
Description: Crew Removing Debris

Photo Number: 3
Location: South Side of the Reservoir Near Dam Wall
Description: Dozer Clearing/ Removing Vegetation

Photo Number: 4
Location: North Side of the Reservoir
Description: Dozer Clearing/ Removing Vegetation

DEVIL'S GATE RESERVOIR

Photo Number: 5
Location: Southwest Side of the Reservoir
Description: Debris Piles being made for Removal

Photo Number: 6
Location: Northwest Side of the Reservoir
Description: Debris Piles and Sediment being loaded on Hauling Truck

Photo Number: 7
Location: South Side of the Reservoir
Description: Excavator Loading Sediment on Hauling Truck

Photo Number: 8
Location: West Side of the Reservoir
Description: Water Truck Spraying Reservoir

DEVIL'S GATE RESERVOIR

Photo Number: 9
Location: Along East Side Edge of Reservoir
Description: Bulldozer Channeling

Photo Number: 10
Location: Along West Side Edge of Reservoir
Description: Bulldozer Channeling

Photo Number: 11
Location: North Side of the Reservoir
Description: Bulldozer Compiling Sediment for Excavator

Photo Number: 12
Location: South Side of the Reservoir
Description: Bulldozer Grading Reservoir

DEVIL'S GATE RESERVOIR

Photo Number: 13
Location: North of the Reservoir
Description: Dump Trucks Lining up to Collect Sediment

Photo Number: 14
Location: North Side of the Reservoir
Description: Excavator Loading Sediment into Truck

Figure 1

Location Map: Photos 1-14

Approximately 25,000 cy of sediment was removed. Overview photographs of pre-construction, during construction, and post-construction annual maintenance of the Project are shown in Photos 15-23. During the annual maintenance phase, trucks hauling sediment accessed the reservoir from two alternative roads on the east side of Devil's Gate Reservoir, due to severe erosion that occurred at the original east access road located close to the dam. To facilitate egress for the annual sediment removal these access roads that were established during the initial sediment removal project were utilized because the areas had not yet been restored. They exited the reservoir via an upgraded access road on the western edge of Devil's Gate Dam. During all activities conducted during the maintenance sediment removal, Public Works' Standard Specifications and Construction Site Best Management Practices were implemented. The map in Figure 2 shows the project area and ramps used for the sediment removal phase of the Project.

DEVIL'S GATE RESERVOIR

Photo Number: 15
Date: 8/28/2022
Description: Pre-Annual Maintenance Cleanout Overview

Photo Number: 16
Date: 8/28/2022
Description: Upstream Portion View Looking South

Photo Number: 17
Date: 9/20/2022
Description: Start of Sediment Hauling Overview of Site

Photo Number: 18
Date: 9/20/2022
Description: Upstream Portion View Looking South

DEVIL'S GATE RESERVOIR

Photo Number: 19
Date: 10/12/2022
Description: During Annual Maintenance Cleanout Overview of Site

Photo Number: 20
Date: 10/12/2022
Description: Crew Working on Site

Photo Number: 21
Date: 10/12/2022
Description: Crew Working on Site

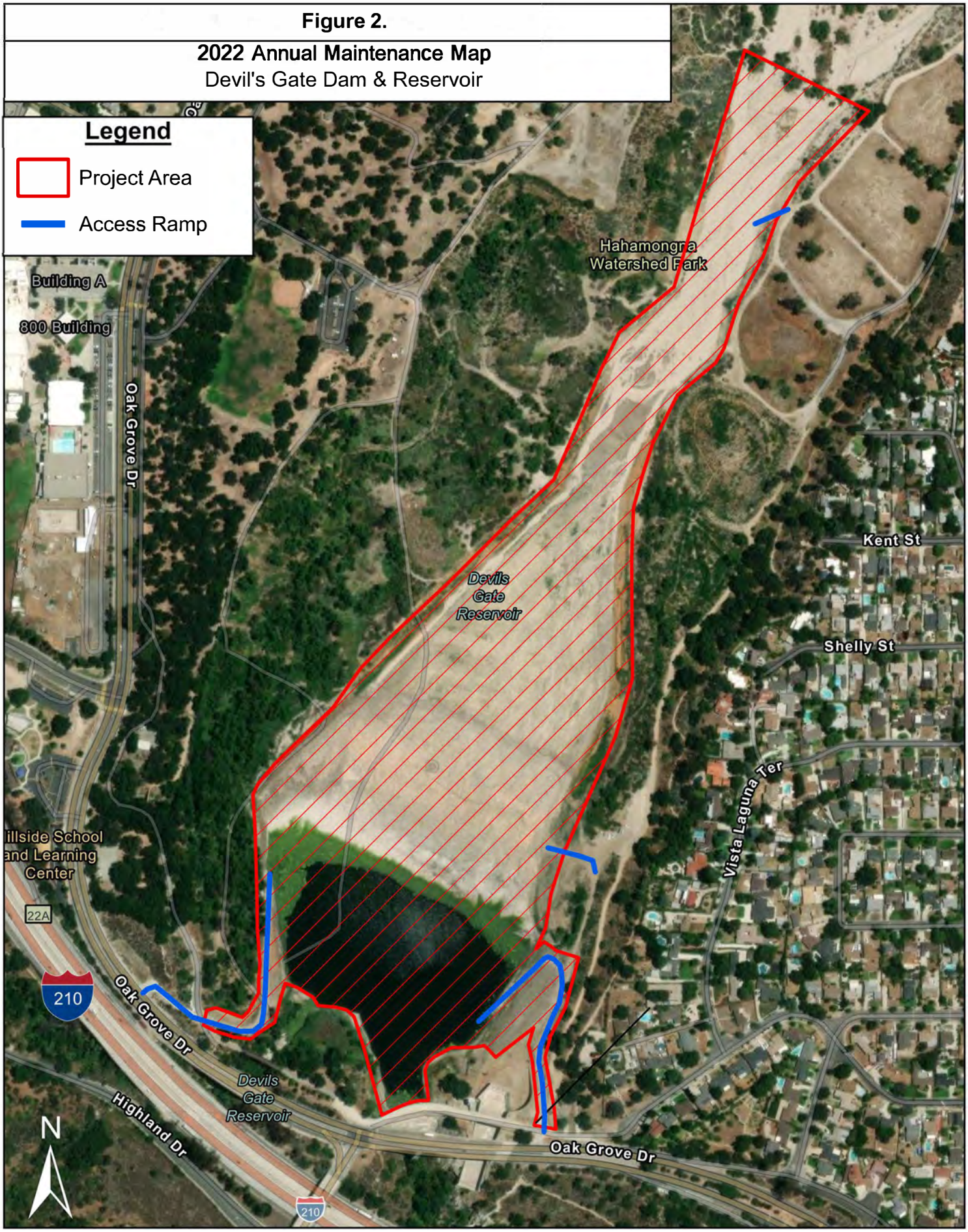
DEVIL'S GATE RESERVOIR

Photo Number: 22
Date: 11/01/2022
Description: Post-Annual Maintenance Cleanout Overview Project

Photo Number: 23
Date: 11/01/2022
Description: Upstream Portion View Looking South

Figure 2.

2022 Annual Maintenance Map
Devil's Gate Dam & Reservoir



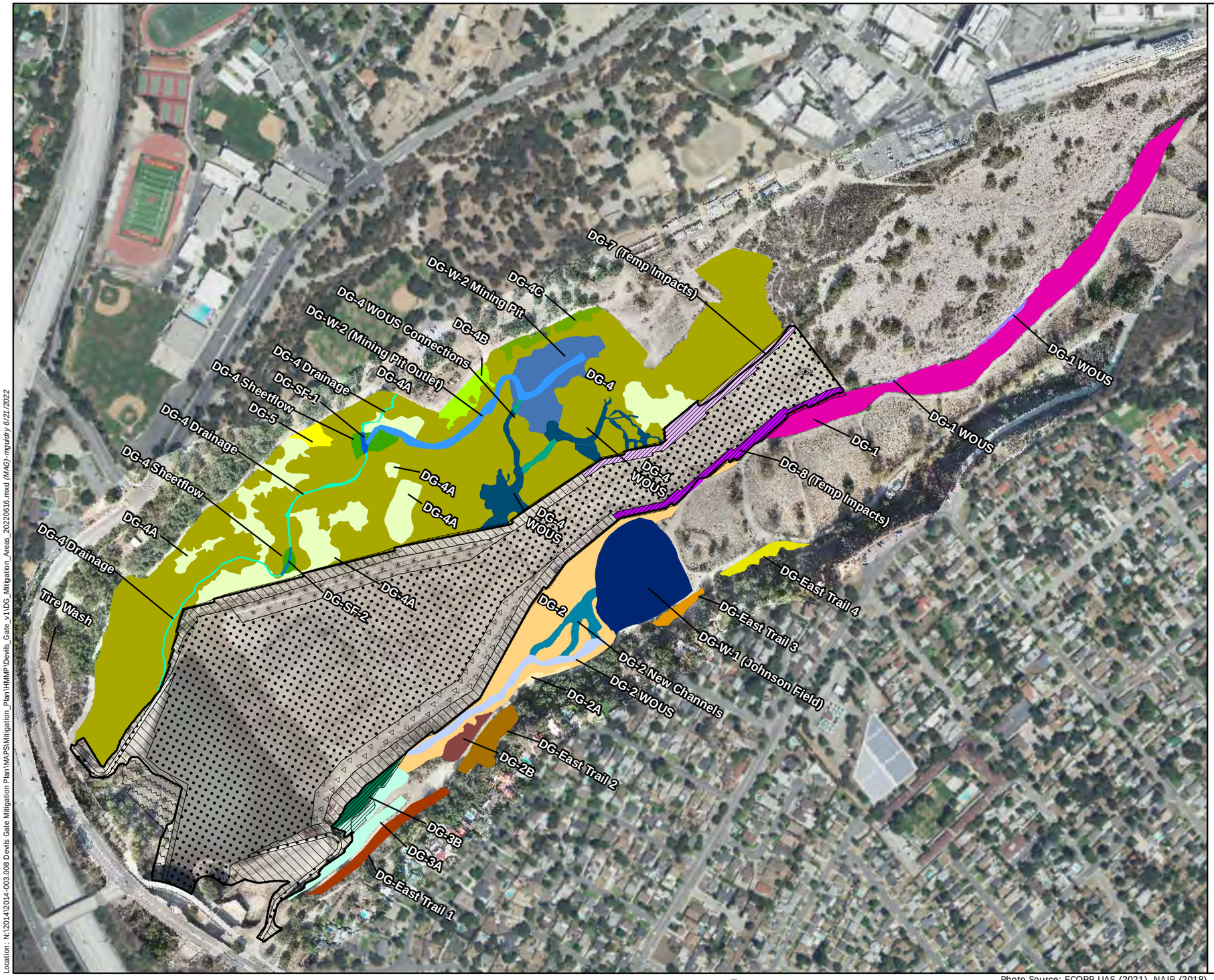
2.0 MITIGATION FOR TEMPORARY IMPACTS STATUS

Implementation of the initial vegetation clearing in the Initial Sediment Removal Area (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 or erosion of the side slopes occur due to storm high flows. In this case, the sediment will be removed from the side slope if needed and the native vegetation will be allowed to regrow; erosion on the side slope will be repaired and will be re-seeded. Figure 3 includes 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. Figure 4 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 were initiated in 2022. The restoration of these areas is scheduled to take place from 2022 through June 30, 2023. Temporary impact areas DG-EMA West and DG-EMA EAST will be allowed to naturally revegetate with native plant species.

The invasive plants were removed using a combination of hand-pulling, weed whips, shovels, hula hoes, and rakes. Species targeted during nonnative and invasive plant removal included, but were not limited to: perennial pepperweed (Lepidium latifolium), black mustard (Brassica nigra), wild radish (Raphanus sativus), poison hemlock (Conium maculatum), ripgut brome (Bromus diandrus), cheatgrass (Bromus tectorum), shortpod mustard (Hirschfeldia incana), Italian thistle (Carduus pycnocephalus), red stemmed filaree (Erodium cicutarium), dwarf nettle (Urtica urens), sweet clover (Melilotus indicus), tree tobacco (Nicotiana glauca), giant reed (Arundo donax), Russian thistle (Salsola tragus), sow thistle (Sonchus oleraceus), lambs quarters (Chenopodium album), and castor bean (Ricinus communis). These species were removed from the DG-7, DG-8, and side slope onsite restoration areas. Side slopes on the east and west sides of the reservoir were hydroseeded. Due to access issues from inundation behind the dam, the southern portion of the side slopes and Flint Wash could not be hydroseeded. In addition, the temporary impact areas (DG-7 and DG-8) could not be hydroseeded due to access issues. Photos and location of crew removing nonnative plants and weed abatement are shown in Photos 24-26 and Figure 5.

Figure 3.
Devil's Gate Mitigation Areas



Map Features

- Final Design Boundary
- Routine Annual Maintenance Area
- Side Slopes (Episodic Maintenance Areas)
- Flint Wash Temporary Impact Area
- DG - EMA West Side
- DG - EMA East Side
- Temporary Impact Area

Mitigation Areas

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

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\Mitigation_Plan\HMMP\Devils_Gate_v1\DG_Mitigation_Areas_20220616.mxd (MAG)-mguidry 6/21/2022

Scale in Feet
0 500

Photo Source: ECORP UAS (2021), NAIP (2018)

Map Date: 6/17/2022

Figure 4
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

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\restorationlanalysis\2020-09-15 Restoration_Grading\DG_Restoration_Phasing_20220617.mxd (MAG)-mguidry 6/21/2022

2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 450

Photo Source: ECORP 2021, NAIP 2018
[1] LADPW

Map Date: 6/17/2022

DEVIL'S GATE RESERVOIR

Photo Number: 24
Location: Northeast Side Slope Area
Description: Crew working on Weed Abatement- Slope

Photo Number: 25
Location: DG-EMA East Area
Description: Crew working on Weed Abatement

Photo Number: 26
Location: DG-2 Area
Description: Crew Removing Lambs Quarter

Figure 5

Location Map: Photos 24-26

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).

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. Results from the 2023 annual monitoring reports are completed and finalized at the end of the year, therefore it will not be included in this reporting period.

Phase 1

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. Phase 1 habitat restoration area is in Year 4 (2023) of being monitored and maintained. Maintenance activities included nonnative weed abatement, irrigation repair, basin repair, and erosion control.

Nonnative plant species controlled included wild oat, black mustard, red brome, poison hemlock, red stemmed filaree, foxtail barely, perennial pepperweed, horehound, curly dock (Rumex crispus), and tamarisk (Tamarix ramosissima). Nonnative plant species encountered within the mitigation areas were removed using hand tools, including hula hoes, and weed whips; 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. Photos and location of crew removing nonnative plants and weed abatement are shown in Photos 27-30 and Figure 6.

DEVIL'S GATE RESERVOIR

Photo Number: 27
Location: DG-4 Area
Description: Crew Hand pulling Weed/ Weed Abatement

Photo Number: 28
Location: DG-4 Area
Description: Weed Abatement

Photo Number: 29
Location: DG-4 Area
Description: Pre-Weeding

Photo Number: 30
Location: DG-4 Area
Description: Post-Weeding

Figure 6

Location Map: Photos 27-30

Nonnative cover tended to be low from mid-summer to late winter and invasive cover for the mitigation areas ranged from zero percent to one percent during the 2022 annual monitoring. Native cover for the Phase 1 mitigation areas continued to show improvements during 2022 (Year 3). Native cover (perennial plus annual) increased for the Coastal Sage Scrub CSS, oak woodland, riparian, and LBVI mitigation areas. Table 1 summarizes native (perennial/annual) and nonnative cover data for the mitigation areas. Map showing transect lines are shown in Attachment A.

Table 1. Percent Native/Nonnative Cover Mitigation Areas

Transect and Transect Length	Vegetation Type	Year 1 (%)	Year 2 (%)	Year 3 (%)	Year 4[1]	Year 5[1]
Riversidean Alluvial Fan Sage Scrub (RAFSS)						
DG-1 WOUS Transect 1 (35 m)	Perennial	45.0	46.4	25.0		
	Annual	0.0	0.7	0.0		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	0.0	1.4	0.0		
RAFSS Overall3	**Perennial**	**45.0**	**46.4**	**25.0**		
	Annual	**0.0**	**0.7**	**0.0**		
	Nonnative	**0.0**	**0.0**	**0.0**		
	Invasive[2]	**0.0**	**1.4**	**0.0**		
Coastal Sage Scrub (CSS)						
DG-1 Transect 1 (45 m)	Perennial	55.6	54.4	49.4		
	Annual	0.0	0.0	5.0		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	3.3	2.2	0.0		
DG-1 Transect 2 (50 m)	Perennial	35.5	57.0	44.7		
	Annual	14.1	2.5	11.3		
	Nonnative	1.8	0.0	0.0		
	Invasive[2]	7.7	3.5	0.0		
DG-1 Transect 3 (50 m)	Perennial	64.1	55.5	59.5		
	Annual	0.0	3.0	6.5		
	Nonnative	1.0	0.5	0.0		
	Invasive[2]	7.9	1.4	0.0		
DG-4 Transect 1 (50 m)	Perennial	39.0	61.8	88.2		
	Annual	5.0	16.8	8.8		
	Nonnative	1.5	0.0	2.0		
	Invasive[2]	5.5	4.3	0.0		

Table 1. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year 1 (%)**	**Year 2 (%)**	**Year 3 (%)**	**Year 4[1]**	**Year 5[1]**
DG-4 Transect 2 (40 m)	Perennial	10.0	44.4	53.8		
	Annual	0.0	0.0	1.3		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	5.0	1.9	0.0		
CSS Overall[3]	**Perennial**	**40.8**	**54.6**	**59.1**		
	Annual	**3.8**	**4.5**	**6.6**		
	Nonnative	**0.9**	**0.1**	**0.4**		
	Invasive[2]	**5.9**	**3.0**	**0.0**		
Coast Live Oak Woodland						
DG-3A Transect 1 (20 m)	Perennial	26.7	48.3	61.3		
	Annual	26.3	13.0	11.3		
	Nonnative	11.0	2.7	0.0		
	Invasive[2]	0.0	2.0	0.0		
DG-3A Transect 2 (25 m)	Perennial	18.3	51.3	52.3		
	Annual	24.7	16.7	19.7		
	Nonnative	17.0	1.0	0.0		
	Invasive[2]	0.0	1.0	0.0		
Coast Live Oak Woodland Overall[3]	**Perennial**	**22.5**	**49.8**	**56.8**		
	Annual	**25.5**	**14.8**	**15.5**		
	Nonnative	**14.0**	**1.8**	**0.0**		
	Invasive[2]	**0.0**	**1.5**	**0.0**		
Riparian						
DG-3A Transect 3 (20 m)	Perennial	15.0	25.0	31.3		
	Annual	15.0	27.5	16.3		
	Nonnative	10.0	2.5	0.0		
	Invasive[2]	0.0	0.0	0.0		
DG-3A Transect 4[4] (10 m)	Perennial	57.5	90.9	NA		
	Annual	7.5	0.0	NA		
	Nonnative	5.0	0.0	NA		
	Invasive[2]	0.0	9.2	NA		
DG-4 Transect 4 (30 m)	Perennial	33.3	70.8	76.4		
	Annual	19.2	4.2	20.3		
	Nonnative	0.0	0.0	2.5		
	Invasive[2]	4.2	3.3	2.5		
DG-4 Transect 8 (30 m)	Perennial	21.9	35.0	46.4		
	Annual	5.8	0.0	18.6		
	Nonnative	10.6	1.7	1.4		
	Invasive[2]	0.0	0.0	0.56		
Riparian Overall[3]	**Perennial**	**31.9**	**55.4**	**51.3**		
	Annual	**11.9**	**7.9**	**18.4**		

Table 1. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year 1 (%)**	**Year 2 (%)**	**Year 3 (%)**	**Year 4[1]**	**Year 5[1]**
	Nonnative	**6.4**	**1.0**	**1.3**		
	Invasive[2]	**1.1**	**3.1**	**1.0**		
Least Bell's Vireo (LBVI)						
DG-2A Transect 1 (20 m)	Perennial	32.5	35.0	65.0		
	Annual	35.0	20.0	7.5		
	Nonnative	0.0	1.25	1.3		
	Invasive[2]	5.0	6.25	1.3		
DG-2A Transect 2 (20 m)	Perennial	7.5	22.5	50.0		
	Annual	42.5	27.5	2.5		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	7.5	2.5	0.0		
DG-2B Transect 1 (20 m)	Perennial	9.2	46.3	86.3		
	Annual	60	18.8	1.3		
	Nonnative	0.8	0.0	0.0		
	Invasive[2]	5.0	0.0	0.0		
DG-2B Transect 2 (20 m)	Perennial	15.7	31.7	54.6		
	Annual	55.0	42.1	35.4		
	Nonnative	0.7	0.0	0.0		
	Invasive[2]	6.7	3.8	0.0		
DG-4 Transect 3 (25 m)	Perennial	33.0	52.0	69.4		
	Annual	0.0	0.0	4.6		
	Nonnative	0.0	0.0	3.7		
	Invasive[2]	13.0	8.0	3.7		
DG-4 Transect 5 (40 m)	Perennial	25.6	30.0	53.8		
	Annual	8.8	0.0	0.0		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	4.4	1.3	0.0		
DG-4 Transect 6 (25 m)	Perennial	49.0	64.0	87.0		
	Annual	3.0	1.0	5.0		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	2.0	5.0	0.0		
DG-4 Transect 7 (30 m)	Perennial	22.8	48.9	77.8		
	Annual	13.9	11.1	7.2		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	0.0	0.0	0.0		
DG-4B Transect 1 (25 m)	Perennial	34.0	55.7	72.0		
	Annual	6.0	9.3	4.0		
	Nonnative	0.0	1.0	0.0		
	Invasive[2]	2.0	4.0	0.0		
DG-4B Transect 2 (25 m)	Perennial	39.0	54.3	69.3		
	Annual	5.0	13.7	10.7		

Table 1. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year 1 (%)**	**Year 2 (%)**	**Year 3 (%)**	**Year 4[1]**	**Year 5[1]**
	Nonnative	0.0	1.0	0.0		
	Invasive[2]	4.0	1.0	0.0		
DG-4C Transect 1 (25 m)	Perennial	12.0	15.0	27.3		
	Annual	39.0	51.0	54.7		
	Nonnative	13.0	0.0	3.0		
	Invasive[2]	2.0	0.0	3.0		
DG-4C Transect 2 (25 m)	Perennial	29.0	30.0	54.0		
	Annual	21.0	10.0	12.0		
	Nonnative	0.0	0.0	5.0		
	Invasive[2]	0.0	0.0	0.0		
DG-5 Transect 1 (25 m)	Perennial	27.0	47.8	88.3		
	Annual	5.0	45.6	1.7		
	Nonnative	0.0	0.0	0.0		
	Invasive[2]	0.0	0.0	0.0		
LBVI Overall[3]	**Perennial**	**25.9**	**41.0**	**65.8**		
	Annual	**22.6**	**19.2**	**11.3**		
	Nonnative	**1.1**	**0.3**	**1.2**		
	Invasive[2]	**4.0**	**2.4**	**0.7**		

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

As native cover increases and nonnative seed banks are depleted from continual weed abatement, it is expected that nonnative weed cover will continue to decrease during future monitoring years. Permanent photo points were established during the Year 1 botanical monitoring and have been used for subsequent monitoring years to document the progress of the mitigation areas. Photo documentation completed during botanical monitoring in 2022 is included in Attachment B.

Container plants installed in Phase 1 mitigation areas DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5 are healthy and are becoming well established and were only showing the most prolific growth in spring. Out of the original 13,346 container plants installed during Phase 1 of restoration activities, approximately 12,427 container plants were noted as still being alive at the end of 2022 (Year 3) The overall survivorship percentage for container plants in the Phase 1 restoration areas was 93.1 percent. Table 2 presents the container plants planted, mortalities, and survivorship percentage for the mitigation area.

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

[1]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.

[2]Cumulative number of plants installed.

[3]To be determined.

Formal mortality counts were taken during the Year 1 botanical monitoring event and supplemental planting for the Phase 1 mitigation areas occurred for select locations during the Phase 3 implementation effort in the spring of 2023. During the supplemental planting effort, a total of 107 container plants and 65 stakes were installed in the DG-4 mitigation area and a total of 11 container plants and 13 stakes were installed in the DG-4C mitigation area. All of the other Phase 1 mitigation areas had sufficient survival rates and did not require supplemental planting. Container plant survivorship for 2023 (Year 4) are completed and finalized at the end of the year, therefore it will not be included in this reporting period.

The temporary aboveground poly-tube irrigation system for mitigation areas DG-2A, DG-2B, DG-3A, DG-4, DG-4B, DG-4C, and DG-5 was terminated in February of 2023. During the irrigation system inspections in 2022, 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. The irrigation system and planting basin maintained in 2022 are shown in Photos 31-34 and location in Figure 7.

Only minor erosion control for the mitigation areas was implemented during 2022 and has continued through 2023. Erosion of plant basins was addressed during regular maintenance activities. LACPW is working on design plans to redirect high intensity flows to the reservoir and repair the severe erosion that occurred in December 2021 in the DG-3A mitigation area surrounding Altadena Drain.

DEVIL'S GATE RESERVOIR

Photo Number: 31
Location: DG-4 Area
Description: Irrigation Maintenance

Photo Number: 32
Location: DG-4 Area
Description: Redefining Irrigation basins and removing nonnatives

Photo Number: 33
Location: DG-2B Area
Description: Before Basin Maintenance

Photo Number: 34
Location: DG-2B Area
Description: After Basin Maintenance

Figure 7

Location Map: Photos 31-34

Phase 2

Implementation of habitat mitigation for Phase 2 was conducted between December 2020 and May 2021 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. 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.

Phase 2 habitat restoration area is in Year 3 (2023) of being monitored and maintained. Maintenance activities 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.

Nonnative plant species controlled included wild oat, black mustard, red brome, poison hemlock, red stemmed filaree, foxtail barely, perennial pepperweed, and horehound. Nonnative plant species encountered within the mitigation areas during 2022 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. 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. If weeds had formed flowers or seeds prior to removal, the maintenance crew carefully contained the removed material to reduce the spread of seeds. Crew removing nonnative plants and weed abatement are shown in Photos 35-38 and location in Figure 8.

DEVIL'S GATE RESERVOIR

Photo Number: 35
Location: DG-W-1 (Johnson Field)
Description: Weed Abatement

Photo Number: 36
Location: DG-2 WOUS
Description: Weed Abatement

Photo Number: 37
Location: DG- 2
Description: Before Weed Removal

Photo Number: 38
Location: DG- 2
Description: After Weed Removal

Figure 8

Location Map: Photos 35-38

Native cover for the Phase 2 mitigation areas showed improvements during 2022 (Year 2). Nonnative cover during Year 2 tended to be low and mitigation areas that showed a higher level of nonnative cover during Year 1 showed improvement during Year 2. Table 3 summarizes native (perennial/annual) and nonnative cover data for the mitigation areas. Map showing transect lines are shown in Attachment C.

Table 3. Percent Native/Nonnative Cover Mitigation Areas

Transect and Transect Length	Vegetation Type	Year (%)				
		1	2	3[1]	4[1]	5[1]
Least Bell's Vireo (LBVI)						
DG-W-1 (Johnson Field) Transect 1 (100 m)	Perennial	6.5	53.0			
	Annual	3.5	24.4			
	Nonnative	1.5	0.0			
	Invasive[2]	0.0	0.0			
DG-W-1 (Johnson Field) Transect 2 (100 m)	Perennial	8.8	98.0			
	Annual	1.0	9.0			
	Nonnative	2.7	0.0			
	Invasive[2]	0.0	0.0			
DG-W-1 (Johnson Field) Transect 3 (100 m)	Perennial	8.5	63.5			
	Annual	5.5	3.0			
	Nonnative	2.0	0.0			
	Invasive[2]	0.0	0.0			
DG-2 Transect 1 (30 m)	Perennial	8.3	54.2			
	Annual	0.0	13.7			
	Nonnative	1.7	1.8			
	Invasive[2]	3.3	1.8			
DG-2 Transect 2 (25 m)	Perennial	99.3	98.3			
	Annual	0.0	0.0			
	Nonnative	0.0	0.0			
	Invasive[2]	0.7	0.0			
DG-2 Transect 3 (40 m)	Perennial	5.6	58.8			
	Annual	11.9	18.8			
	Nonnative	1.2	0.0			
	Invasive[2]	6.2	0.0			
DG-2 New Channels Transect 1 (35 m)	Perennial	24.3	89.6			
	Annual	7.1	5.4			
	Nonnative	0.0	0.8			
	Invasive[2]	2.9	0.8			

Table 3. Percent Native/Nonnative Cover Mitigation Areas						
Transect and Transect Length	**Vegetation Type**	**Year (%)**				
		1	**2**	**3[1]**	**4[1]**	**5[1]**
DG-2 New Channels Transect 2 (25 m)	Perennial	15.3	97.2			
	Annual	12.0	2.0			
	Nonnative	2.7	0.0			
	Invasive[2]	0.0	0.0			
DG-2 WOUS Transect 1 (25 m)	Perennial	17.0	62.1			
	Annual	41.0	22.9			
	Nonnative	0.0	3.6			
	Invasive[2]	8.0	0.7			
DG-2 WOUS Transect 2 (25 m)	Perennial	11.0	87.0			
	Annual	9.0	7.0			
	Nonnative	0.0	0.0			
	Invasive[2]	4.0	4.0			
DG-W-2 (Mining Pit) Transect 1 (80 m)	Perennial	49.7	68.1			
	Annual	0.0	10.0			
	Nonnative	0.0	0.6			
	Invasive[2]	0.9	0.6			
DG-W-2 (Mining Pit) Transect 2 (75 m)	Perennial	29.3	63.3			
	Annual	4.0	4.7			
	Nonnative	0.0	0.0			
	Invasive[2]	0.0	0.0			
DG-W-2 Outlet Transect 1 (25 m)	Perennial	42.0	65.8			
	Annual	0.0	24.2			
	Nonnative	0.0	0.0			
	Invasive[2]	0.0	0.0			
DG-W-2 Outlet Transect 2 (25 m)	Perennial	23.0	63.8			
	Annual	0.0	11.3			
	Nonnative	0.0	2.5			
	Invasive[2]	1.0	2.5			
LBVI Overall[3]	**Perennial**	**24.9**	**69.6**			
	Annual	**6.8**	**9.9**			
	Nonnative	**0.8**	**0.6**			
	Invasive[2]	**1.9**	**0.8**			

[1]To be determined.
[2]Invasive designation refers to nonnative plant species that have a Cal-IPC invasive plant rating of Moderate or High threat to wildlands.
[3]Average of all transects.

As native cover increases and nonnative seed banks are depleted from continual weed abatement, it is expected that nonnative weed cover will continue to decrease during future monitoring years. Photo documentation completed during botanical monitoring in 2022 is included in Attachment D.

Container plants installed in Phase 2 mitigation areas DG-2, DG-2 Waters of the U.S., DG-2 New Channels, DG-W-1 (Johnson Field), DG-W-2 (Mining Pit), DG-W-2 Outlet, DG-4 Sheet Flow and DG-SF-1 are healthy and was noted as being mostly good throughout the year, with spring and summer showing the most prolific growth. Out of the 11,440 container plants installed during Phase 2 of restoration activities, approximately 11,259 container plants survived during 2022 (Year 2). The overall survivorship percentage for container plants in the Phase 2 restoration areas was 98.4 percent. Table 4 presents the container plants planted, mortalities, and survivorship percentage for the mitigation area.

Table 4. Container Plant Survivorship

Mitigation Area	Container Plants	Year				
		1	2	3[1]	4[1]	5[1]
DG-2/DG-2 Waters of the U.S./DG-2 New Channels	Number Planted	4,646	4,646			
	Number of Mortalities	65	13			
	Survivorship (%)[1]	98.7	98.3			
DG-W-1 (Johnson Field)	Number Planted	3,989	3,989			
	Number of Mortalities	22	21			
	Survivorship (%)[1]	99.4	98.9			
DG-W-2 (Mining Pit)	Number Planted	1,958	1,958			
	Number of Mortalities	25	29			
	Survivorship (%)[1]	98.7	97.2			
DG-W-2 Outlet	Number Planted	525	525			
	Number of Mortalities	4	2			
	Survivorship (%)[1]	99.2	98.9			
DG-4 Sheet Flow/ DG-SF-1	Number Planted	322	322			
	Number of Mortalities	0	0			
	Survivorship (%)[1]	100	100			
Overall	Number Planted	11,440	11,440			
	Number of Mortalities	116	65			
	Survivorship (%)[1]	99.0	98.4			

[1]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.

Supplemental planting for the mitigation areas did not occur during 2022 of restoration activities. Formal mortality counts were taken during the 2022 botanical monitoring event and supplemental planting did not occur during Phase 3 of restoration during Spring 2023.

A temporary aboveground poly-tube irrigation system with drip emitters was installed in the Phase 2 mitigation areas. 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. The present irrigation system and planting basin being maintained by the restoration crew are shown in Photos 39-42 and location in Figure 9.

During Phase 2, only minor erosion control for the mitigation areas was necessary during 2022 and has continued through 2023. Moderate to significant erosion occurred in the DG-2 mitigation area due to heavy rainfall that occurred between October 2022 and February 2023. Repairs to the side slopes below DG-2 will be conducted in the fall of 2023 and these areas will be replanted and/or reseeded during the fall/winter of 2023/2024. Maintenance of the container plant basins was conducted on an as-needed basis.

DEVIL'S GATE RESERVOIR

Photo Number: 39
Location: DG-W-1 (Johnson Field)
Description: Fixing Irrigation Line

Photo Number: 40
Location: DG-W-1 (Johnson Field)
Description: Reshaping Basins

Photo Number: 41
Location: DG-2/DG2B
Description: Before Basin Maintenance

Photo Number: 42
Location: DG-2/DG2B
Description: After Basin Maintenance

Figure 9

Location Map: Photos 39-42

Phase 3 & 4

Implementation of Phase 3 initiated in 2022 and will be completed in 2023. Phase 3 of the restoration implementation included portions of DG-4A, DG-4 WOUS, DG-4 WOUS Outlet, Tire Wash, Flint Wash EMA, and side slopes. The restoration work in the Phase 3 mitigation areas primarily consisted of the creation or restoration of riparian habitat and Waters of the U.S. (WOUS) to satisfy the mitigation requirements of the Section 404 Permit from the U.S. Army Corp of Engineers. Activities included grading DG-4 WOUS in preparation for plantings, de-compacting soil in the tire wash area in preparation for plantings, irrigation installation in preparation for plantings, and hydroseeding with the approved native seed mix from the Habitat Restoration Plan (HRP). Additional activities associated with the restoration in the Phase 3 areas included non-native plant removal prior to the grading, irrigation system installation, and other site preparation. Weed abatement progress on side slopes and tire wash hydroseeding in 2022 are shown in Photos 43-45 and location in Figure 10.

Phase 3 plant installation effort was completed on April 28, 2023, a total of 4,124 four-inch container plants and a total of 4,967 cuttings were installed in the DG-4 WOUS, DG-4 WOUS Connections, and DG-4A mitigation areas. In addition, a total of 81 1-gallon container plants were installed in the Tire Wash mitigation area. Container plants and stakes were not installed in the Side Slopes mitigation areas; however, these areas were included in the weed removal effort and a portion of these areas were included in the seeding effort. It is anticipated that DG-4 WOUS, DG-4 WOUS Outlet, DG-4A, and the remainder of the Side Slopes will be seeded in the fall/winter of 2023. The as-built report for the Phase 3 areas will be completed following the installation of container plants and native plant cuttings and the completion of seed application. Phase 3 monitor and maintenance activities will be provided in 2023 annual report.

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 4 is scheduled for 2026, Separate as-built reports will be prepared for Phases 3 and 4.

DEVIL'S GATE RESERVOIR

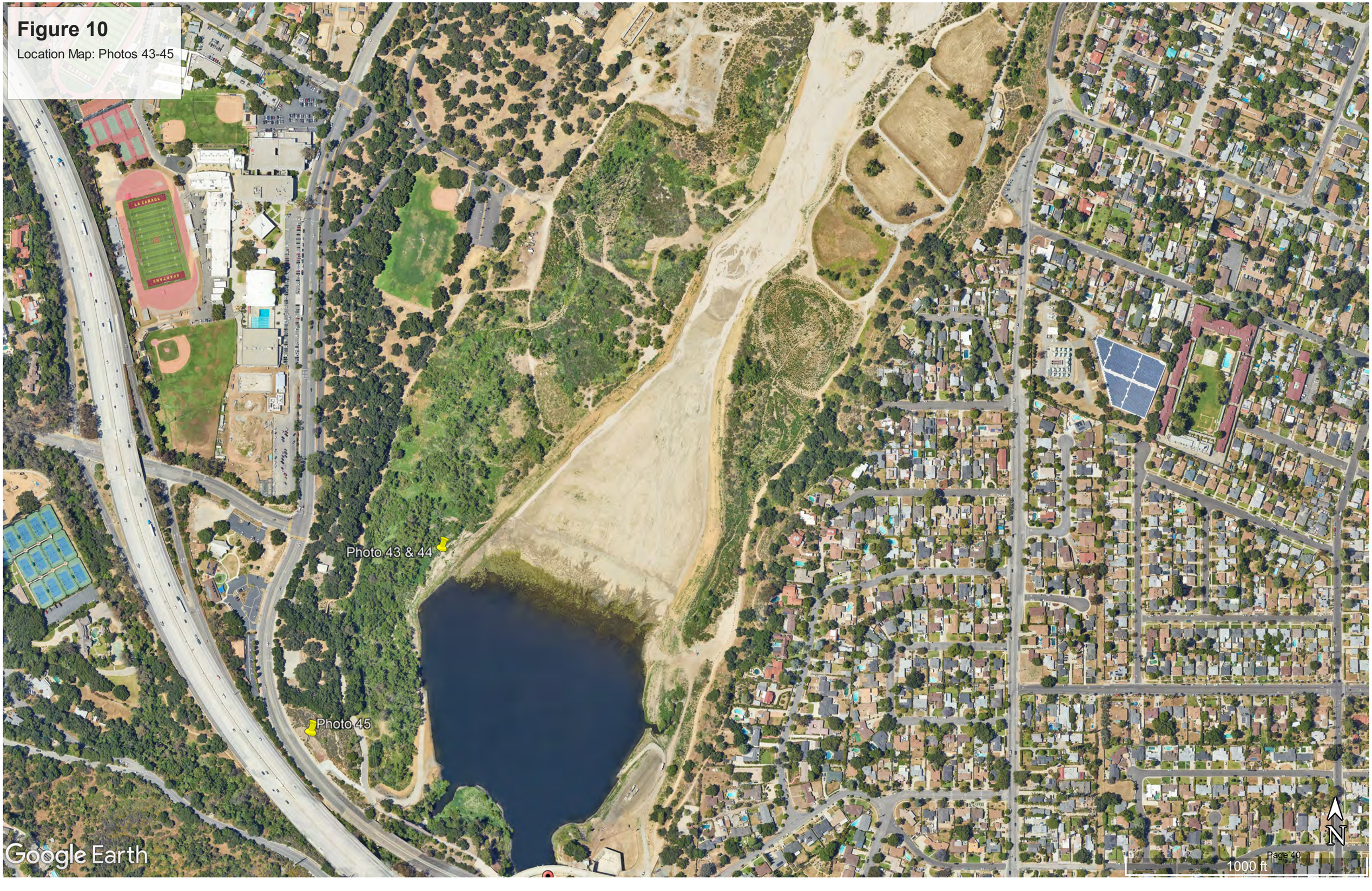
Photo Number: 43
Location: DG-4A Slope
Description: Before Weed Removal

Photo Number: 44
Location: DG-4A Slope
Description: After Weed Removal

Photo Number: 45
Location: Tire Wash Area
Description: Hydroseeding Area

Figure 10

Location Map: Photos 43-45



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 E – Agreement for Purchase and Sale of Mitigation Values.

The Mitigation Site is located approximately 32 miles north of the Impact Site within the agency approved Petersen Ranch Mitigation Bank shown in Figure 11. 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 offsite mitigation site was monitored and maintained by WRA. The mitigation site is in Year 4 of being monitored and maintained, which will continue until the final (Year 5) performance standards have been met. Maintenance included inspecting the following: signs of erosion, condition of cattle exclusion fencing, irrigation, and non-native invasive plants. Results from the 2023 annual monitoring reports are completed and finalized at the end of the year, therefore it will not be included in this reporting period.

In 2022 (Year 3), there was no indications of erosion observed in the mitigation site. The fence remains intact, and no major repairs were required, and cattle have been successfully excluded from the mitigation site. Irrigation maintenance has been conducted concurrent with regular site maintenance, and the irrigation system continues to function properly. A few irrigation repairs were needed such as couplings being replaced and/or reconnected and minor repairs to tubes and emitters. No significant impacts to the site hydrology were observed due to the irrigation system.

Several Non-native invasive plant species of concern were observed and were rapidly treated, removed, and a management plan was created to prevent their establishment and spread. The species observed within the mitigation site were three California Invasive Plant Council (Cal-IPC) high grasses (red brome, cheatgrass, and medusahead [Elmys caputmedusae]), Broad-leaved species (Perennial pepperweed), and Cal-IPC Moderate species (Russian knapweed [Rhaponticum repens]). In addition, other non-native invasive plant species of regional or local concern were also present within the Mitigation Site, which included three Cal-IPC Moderate species (ripgut brome, bull thistle [Cirsium vulgare] and short-pod mustard [Hirschfeldia incana]), two Cal-IPC Limited species (hairy whitetop [Lepidium appelianum] and horehound [Marrubium vulgare]), and unrated broad-leaved species (annual yellow sweetclover [Melilotus indicus]).

Petersen Bank Boundary

Devil's Gate Mitigation Site

Devil's Gate Mitigation Site

Leona Valley

Path: L:\Acad 2000 Files\21000\21065\gis 2015\ArcMap\Devil's Gate IADPW Proposal\MMP\Fig 2 Bank Property.mxd

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 8/2/2018

Figure 11. Bank Property Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

0 0.25 0.5 Miles

N

wra ENVIRONMENTAL CONSULTANTS

Year 3 monitoring activities were completed at the Mitigation Site in July 2022. The Mitigation Site planting areas were monitored using four permanent transects. The permanent 50-meter transects established within planting areas; DG1, DG2, DG3, and DG4 are shown in Figure 12. 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"). The performance monitoring results for the absolute cover and survivorship within the mitigation site are shown in Table 5 and 6.

Table 5. Year 3 Performance Monitoring Results – Absolute Cover of Mulefat & Willow and Absolute Cover of Non-Native Invasive Broad-Leaved Plant Species within the Mitigation Site

Performance Metric	DG1	DG2	DG3	DG4	Average	Year 3 Performance	Year 3 Performance Standard met?
Mulefat and Willow Total Absolute Cover	62%	14%	42%	35%	38%	>25%	**Yes**
Cal-IPC High Cover*	0.0%	2%	0.0%	0.0%	<1%	<10%	**Yes**
*Broad-leaved plant species rated High per Cal-IPC (grasses excluded)							

Table 6. Year 3 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 Surviving Plants	Percent of Survivorship	Year 3 Performance Standard	Year 3 Performance Standard met?
Baccharis salicifolia	Mulefat	65	9,338	9,273	99%	≥ 80%	**Yes**
Salix spp.	Willow	92	1,106	1,014	92%	≥ 80%	**Yes**
Combined		157	10,444	10,287	98%	≥ 80%	**Yes**

The Year 3 performance standard states, "The planting areas must contain 25% or more absolute cover of mulefat and/or willow or demonstrate 80% survivorship". Year 3 annual monitoring revealed the average combined cover of mulefat and willow across the Mitigation Site is 38% (Table 5), which surpasses the Year 3 performance standard. In addition, survivorship of the installed mulefat and willow stakes was 98% (Table 6).

Photos 46-53 show the progress observed at the mitigation site both prior to and following the habitat restoration and enhancement efforts. Attachment F includes more details and information regarding the performance monitoring and species list observed at the offsite mitigation site.

DEVIL'S GATE RESERVOIR

Photo Number: 46
Date: 2019
Description: Pre-Restoration of western lobe of Mitigation Site looking to the Northwest

Photo Number: 47
Date: 7/29/2022
Description: Western lobe of Mitigation Site looking to the Northwest.

Photo Number: 48
Date: 2019
Description: Pre-restoration of the Northern section of the Mitigation Site looking to the northeast.

Photo Number: 49
Date: 7/29/2022
Description: Northern section of the Mitigation Site looking to the northeast.

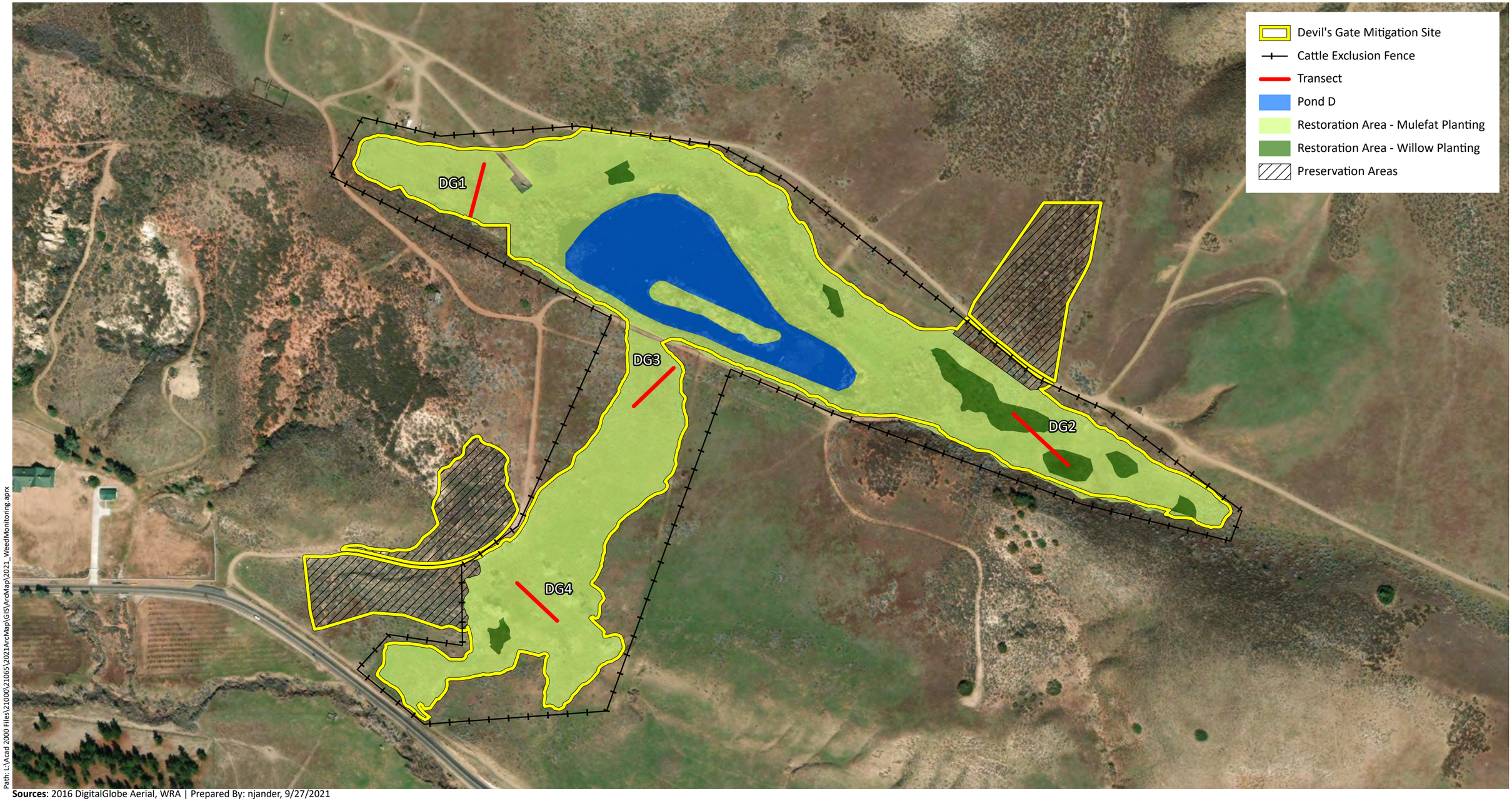
DEVIL'S GATE RESERVOIR

Photo Number: 50
Date: 2019
Description: Pre-restoration of Southern section of Mitigation Site looking to the Southeast.

Photo Number: 51
Date: 7/29/2022
Description: Southern section of the Mitigation Site looking to the Southeast.

Photo Number: 52
Date: 2019
Description: Pre-Restoration of the Mitigation Site taken from the northeastern lobe looking to the Northwest.

Photo Number: 53
Date: 7/29/2022
Description: Mitigation Site taken from the Northeastern lobe looking to the Northwest.



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

Figure 12. Mitigation Site Monitoring Locations

Petersen Ranch Mitigation Bank
Los Angeles County, California

wra Environmental Consultants

ATTACHMENT A

Devil's Gate Phase 1 Transect Locations Map

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

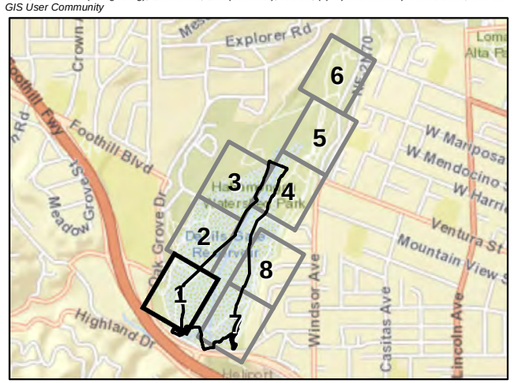
Map Features

- 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



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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

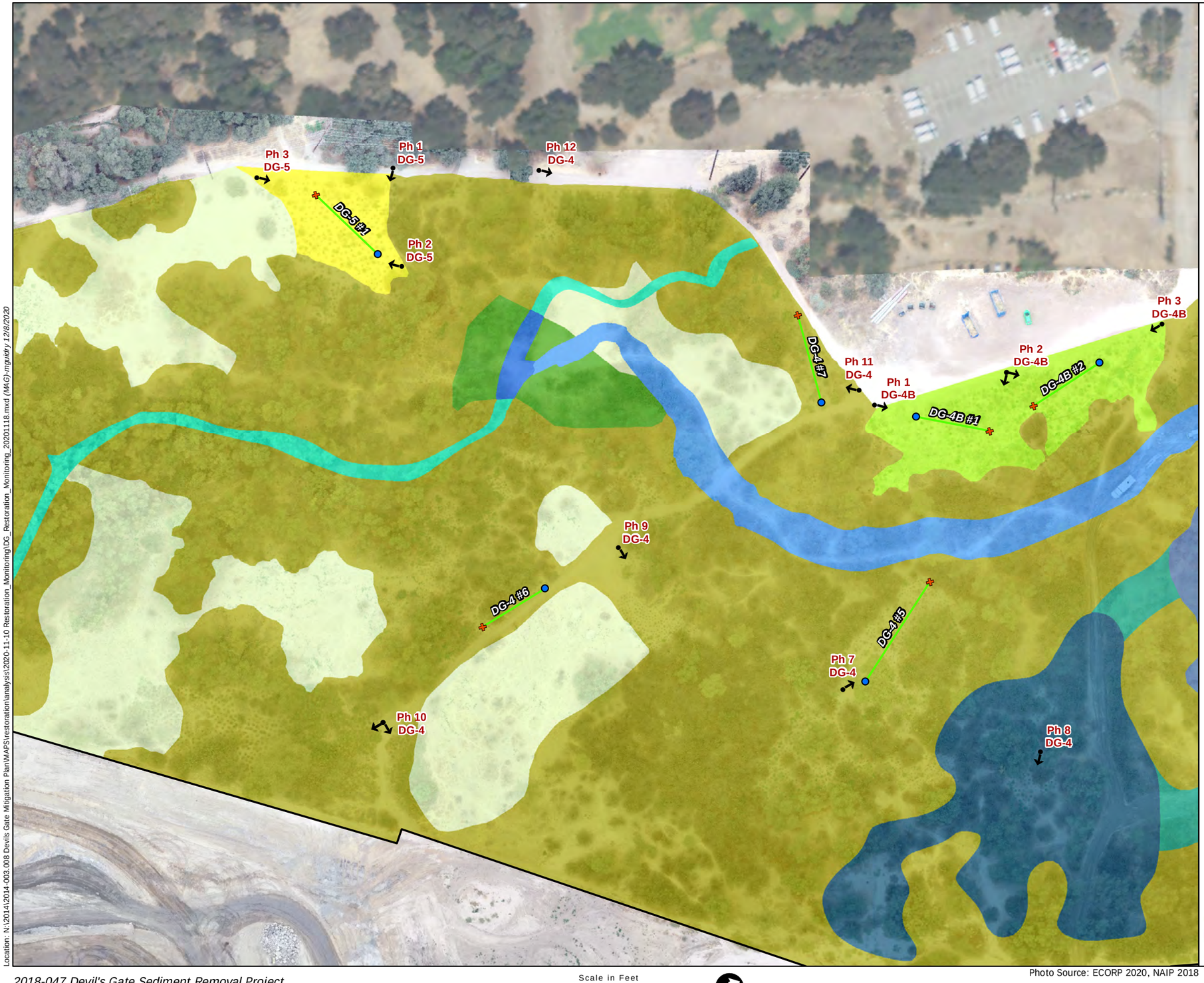
2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

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



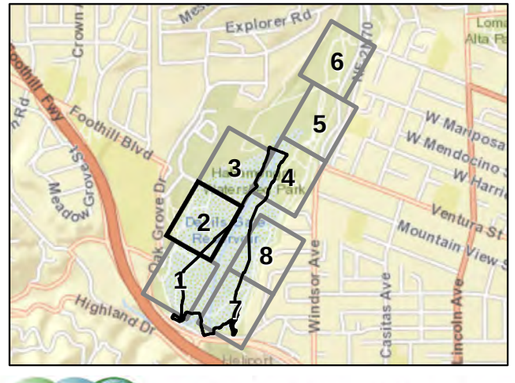
Map Features

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

Mitigation Areas

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

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



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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

2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

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

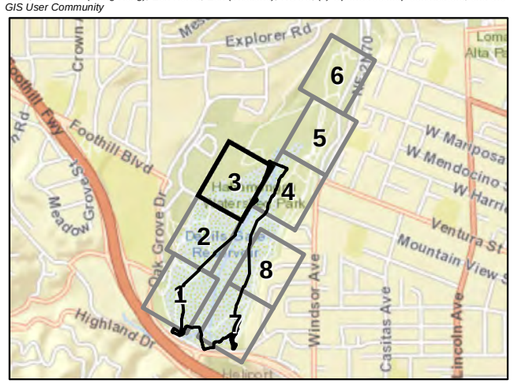
Map Features

- 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



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

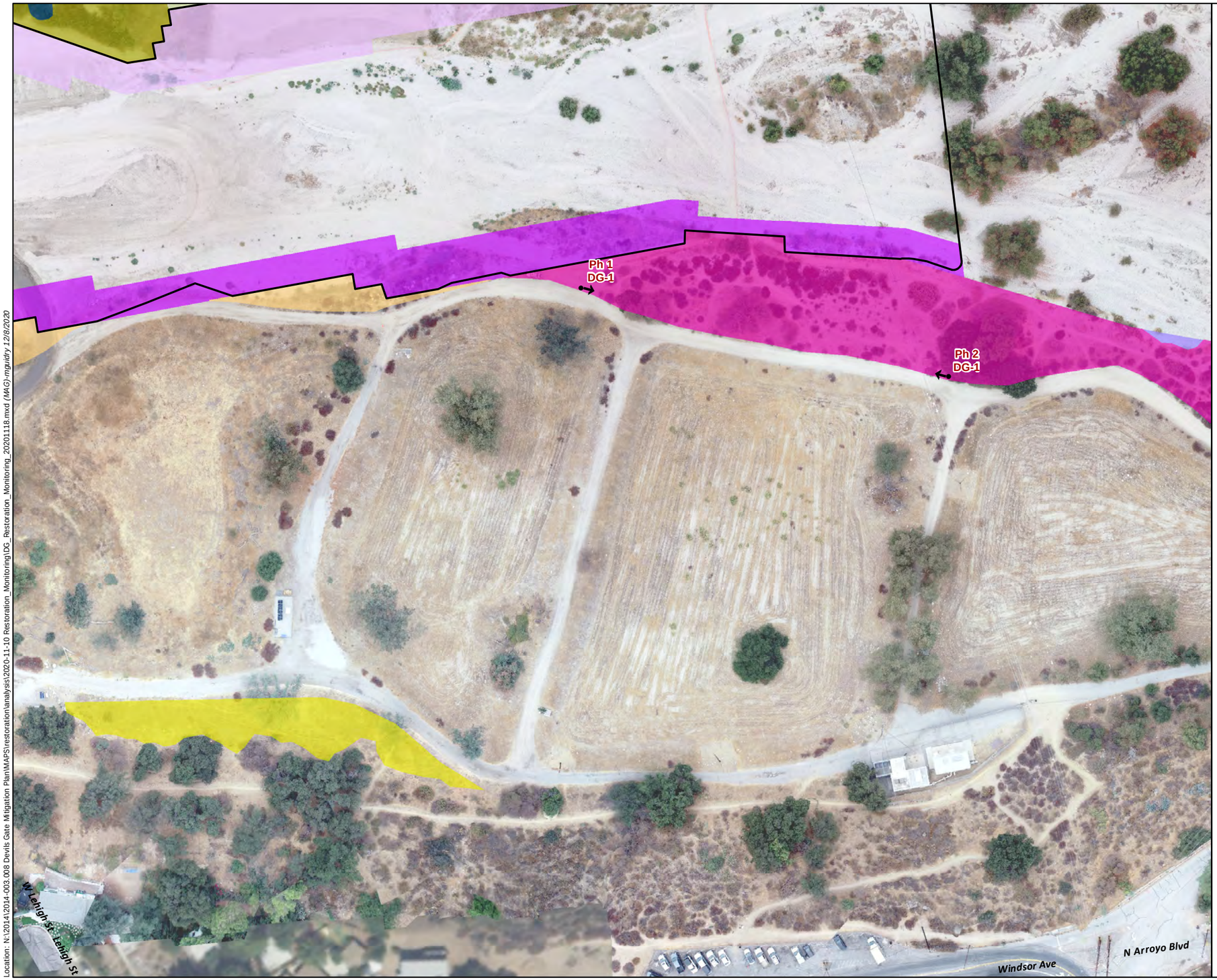
2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

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



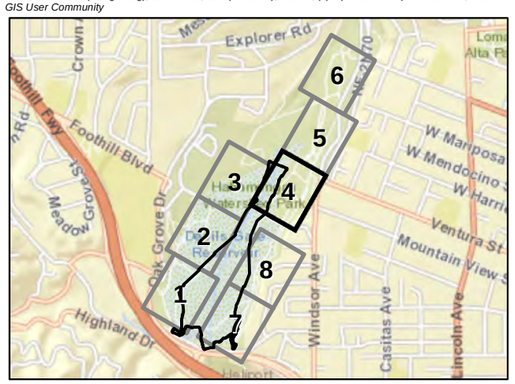
Map Features

- Final Design Boundary
- Photo Location and Direction

Mitigation Areas

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

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



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

2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

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

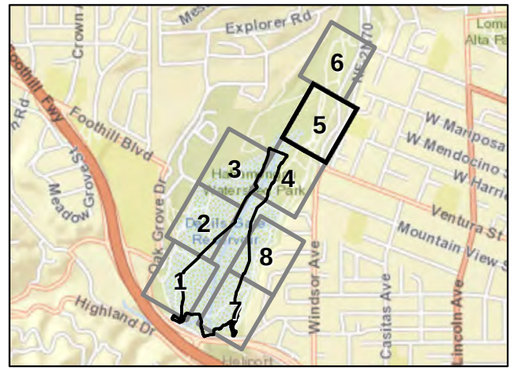
Map Features

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

Mitigation Areas

- DG-1
- DG-1 WOUS

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



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2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

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

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 6 of 8

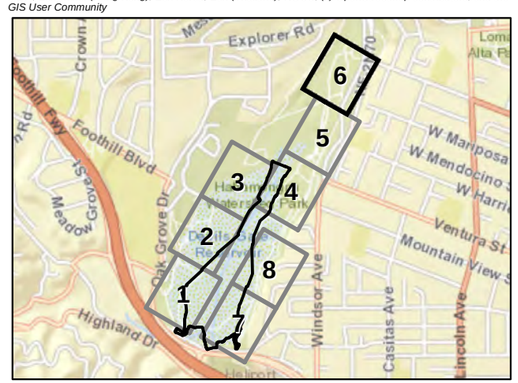
Map Features

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

Mitigation Areas

- DG-1

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



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

2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

Figure 5. Transect Locations
Onsite Mitigation Areas
Page 7 of 8

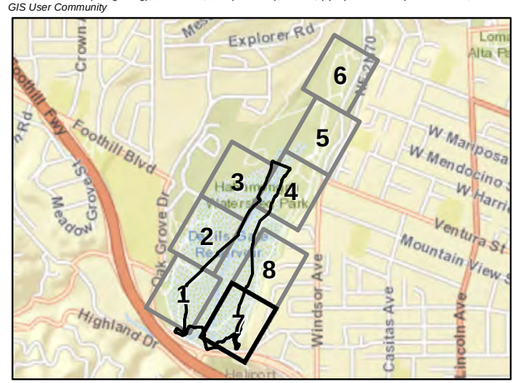
Map Features

- 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



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

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

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

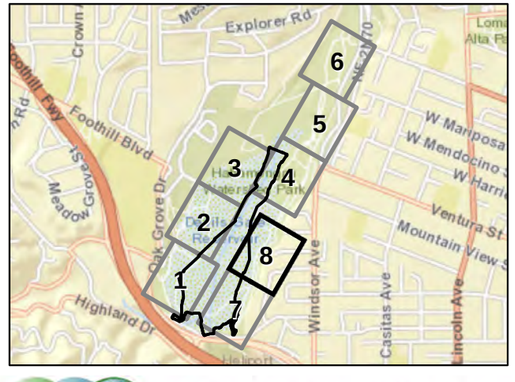
Map Features

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

Mitigation Areas

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

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



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

2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 100

Photo Source: ECORP 2020, NAIP 2018

Map Date: 12/8/2020

ATTACHMENT B

Devil's Gate Phase 1 Year 3 Photo Documentation

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

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

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

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

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

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

Photo 7: Mitigation Area DG-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-4 Transect #1 Start

Photo 22: Mitigation Area DG-4 Transect #1 End

Photo 23: Mitigation Area DG-4 Transect #2 Start

Photo 24: Mitigation Area DG-4 Transect #2 End

Photo 25: Mitigation Area DG-4 Transect #3 Start

Photo 26: Mitigation Area DG-4 Transect #3 End

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

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

Photo 29: Mitigation Area DG-4 Transect #5 Start

Photo 30: Mitigation Area DG-4 Transect #5 End

Photo 31: Mitigation Area DG-4 Transect #6 Start

Photo 32: Mitigation Area DG-4 Transect #6 End

Photo 33: Mitigation Area DG-4 Transect #7 Start

Photo 34: Mitigation Area DG-4 Transect #7 End

Photo 35: Mitigation Area DG-4 Transect #8 Start

Photo 36: Mitigation Area DG-4 Transect #8 End

Photo 37: Mitigation Area DG-4B Transect #1 Start

Photo 38: Mitigation Area DG-4B Transect #1 End

Photo 39: Mitigation Area DG-4B Transect #2 Start

Photo 40: Mitigation Area DG-4B Transect #2 End

Photo 41: Mitigation Area DG-4C Transect #1 Start

Photo 42: Mitigation Area DG-4C Transect #1 End

Photo 43: Mitigation Area DG-4C Transect #2 Start

Photo 44: Mitigation Area DG-4C Transect #2 End

Photo 45: Mitigation Area DG-5 Transect #1 Start

Photo 46: Mitigation Area DG-5 Transect #1 End

Photo 47: Mitigation Area DG-1 Photo Point #1, Facing NE

Photo 48: Mitigation Area DG-1 Photo Point #2, Facing SW

Photo 49: Mitigation Area DG-1 Photo Point #3, Facing NE

Photo 50: Mitigation Area DG-1 Photo Point #3, Facing SW

Photo 51: Mitigation Area DG-1 Photo Point #4, Facing SW

Photo 52: Mitigation Area DG-1 Photo Point #5, Facing NE

Photo 53: Mitigation Area DG-1 Photo Point #5, Facing SE

Photo 54: Mitigation Area DG-1 Photo Point #6, Facing SW

Photo 55: Mitigation Area DG-2A Photo Point #1, Facing SW

Photo 56: Mitigation Area DG-2A Photo Point #2, Facing NW

Photo 57: Mitigation Area DG-2A Photo Point #3, Facing SW

Photo 58: Mitigation Area DG-2A Photo Point #4, Facing NW

Photo 59: Mitigation Area DG-2B Photo Point #1, Facing NE

Photo 60: Mitigation Area DG-2B Photo Point #1, Facing SE

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

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

Photo 63: Mitigation Area DG-2B Photo Point #3, Facing NW

Photo 64: Mitigation Area DG-2B Photo Point #3, Facing SW

Photo 65: Mitigation Area DG-2B Photo Point #4, Facing NW

Photo 66: Mitigation Area DG-2B Photo Point #4, Facing W

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

Photo 68: Mitigation Area DG-3A Photo Point #1, Facing SE

Photo 69: Mitigation Area DG-3A Photo Point #2, Facing SE

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

Photo 71: Mitigation Area DG-3A Photo Point #4, Facing N

Photo 72: Mitigation Area DG-3A Photo Point #4, Facing SW

Photo 73: Mitigation Area DG-3A Photo Point #5, Facing NW

Photo 74: Mitigation Area DG-3A Photo Point #5, Facing W

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

Photo 76: Mitigation Area DG-3A Photo Point #6, Facing NW

Photo 77: Mitigation Area DG-3A Photo Point #7, Facing NW

Photo 78: Mitigation Area DG-3A Photo Point #7, Facing SW

Photo 79: Mitigation Area DG-4 Photo Point #1, Facing SE

Photo 80: Mitigation Area DG-4 Photo Point #2, Facing S

Photo 81: Mitigation Area DG-4 Photo Point #2, Facing W

Photo 82: Mitigation Area DG-4 Photo Point #3, Facing SW

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

Photo 84: Mitigation Area DG-4 Photo Point #5, Facing NE

Photo 85: Mitigation Area DG-4 Photo Point #5, Facing S

Photo 86: Mitigation Area DG-4 Photo Point #6, Facing NE

Photo 87: Mitigation Area DG-4 Photo Point #7, Facing NW

Photo 88: Mitigation Area DG-4 Point #8, Facing SE

Photo 89: Mitigation Area DG-4 Photo Point #9, Facing E

Photo 90: Mitigation Area DG-4 Photo Point #10, Facing E

Photo 91: Mitigation Area DG-4 Photo Point #10, Facing S

Photo 92: Mitigation Area DG-4 Photo Point #11, Facing SW

Photo 93: Mitigation Area DG-4 Photo Point #12, Facing N

Photo 94: Mitigation Area DG-4 Photo Point #13, Facing NE

Photo 95: Mitigation Area DG-4 Photo Point #14, Facing S

Photo 96: Mitigation Area DG-4 Photo Point #15, Facing NE

Photo 97: Mitigation Area DG-4B Photo Point #1, Facing NE

Photo 98: Mitigation Area DG-4B Photo Point #2, Facing NE

Photo 99: Mitigation Area DG-4B Photo Point #2, Facing SE

Photo 100: Mitigation Area DG-4B Photo Point #3, Facing S

Photo 101: Mitigation Area DG-4C Photo Point #1, Facing NE

Photo 102: Mitigation Area DG-4C Photo Point #2, Facing S

Photo 103: Mitigation Area DG-4C Photo Point #3, Facing NE

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

Photo 105: Mitigation Area DG-5 Photo Point #1, Facing S

Photo 106: Mitigation Area DG-5 Photo Point #2, Facing SW

Photo 107: Mitigation Area DG-5 Photo Point #3, Facing NE

Photo 108: RAFSS Reference Transect Start

Photo 109: RAFSS Reference Transect End

Photo 110: CSS Reference Transect Start

Photo 111: CSS Reference Transect End

Photo 112: Coast Live Oak Woodland Reference Transect Start

Photo 113: Coast Live Oak Woodland Reference Transect End

Photo 114: Riparian Scrub Reference Transect Start

Photo 115: Riparian Scrub Reference Transect End

Photo 116: Riparian Woodland Reference Transect Start

Photo 117: Riparian Woodland Reference Transect End

Photo 118: LBVI Reference Transect #1 Start

Photo 119: LBVI Reference Transect #1 End

Photo 120: LBVI Reference Transect #2 Start

Photo 121: LBVI Reference Transect #2 End

Photo 122: Overview LBVI Reference Site

Photo 123: Overview LBVI Reference Site

Photo 124: Overview LBVI Reference Site

Photo 125: Overview LBVI Reference Site

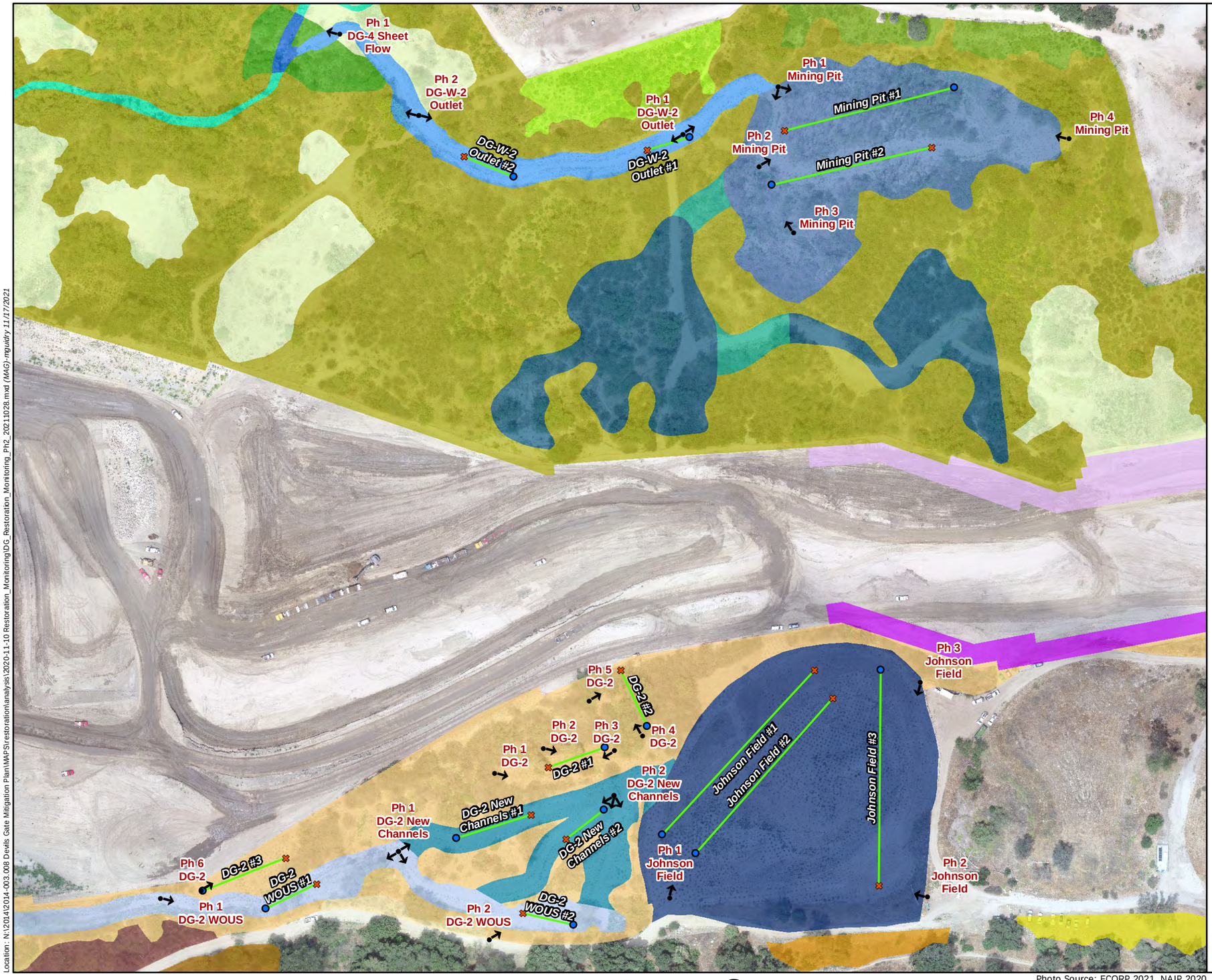
Photo 126: Overview LBVI Reference Site

Photo 127: Overview LBVI Reference Site

ATTACHMENT C

Devil's Gate Phase 2 Transect Locations Map

Figure 5. Transect Locations Mitigation Areas



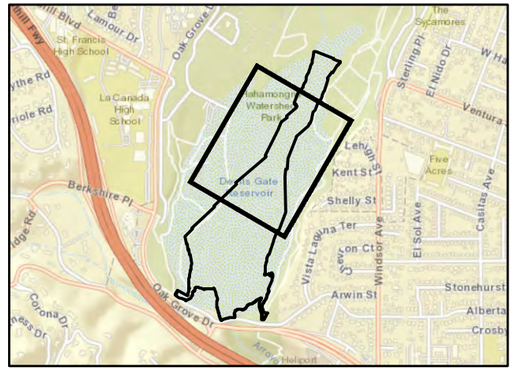
Map Features

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

Mitigation Areas

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

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



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2018-047 Devil's Gate Sediment Removal Project

Scale in Feet
0 150

Photo Source: ECORP 2021, NAIP 2020

Map Date: 11/1/2021

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

ATTACHMENT D

Devil's Gate Phase 2 Year 2 Photo Documentation

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

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

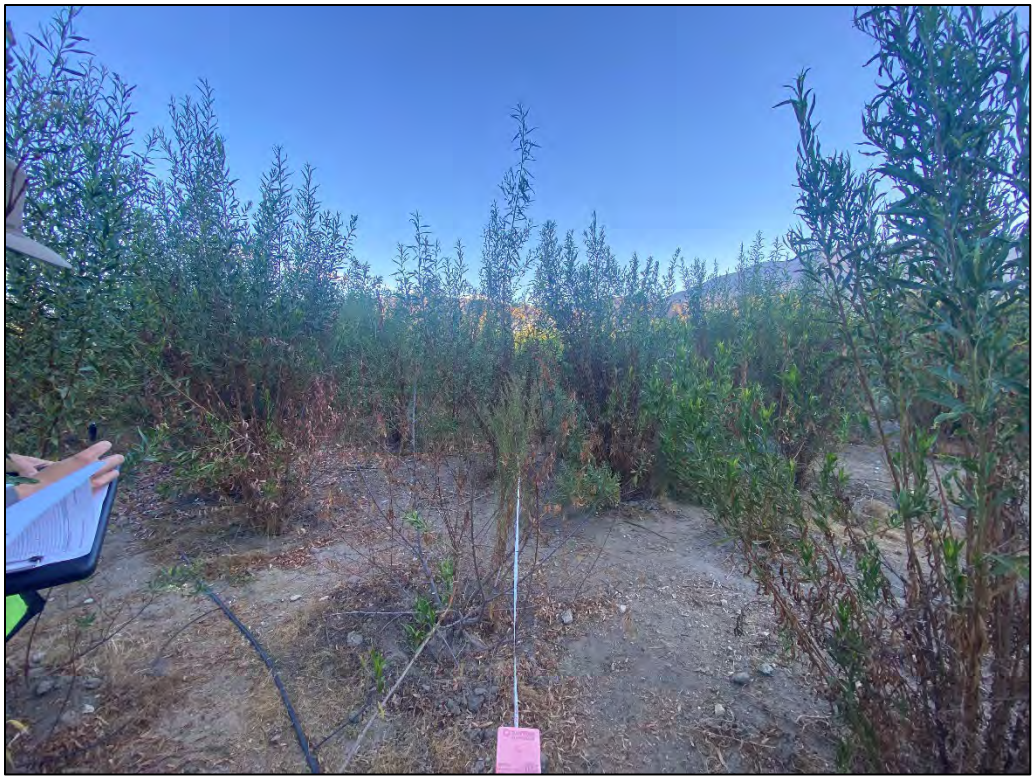

Photo 3: Mitigation Area DG-W-1 Transect #2 Start

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Photo 42: Mitigation Area DG-2 New Channels Photo Point #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 E

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 mimimum 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, nothwithstanding the foregoing, the aggregate amount of any such cost increase, together with any increase described in Section 8(d), below, shall not exceed [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]

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

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** 

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

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: _____
Its: DEPUTY DIRECTOR

Date: 8/1/18

APPROVED AS TO FORM:

MARY C. WICKHAM
County Counsel

By: _____
Deputy

Exhibit A

MITIGATION SITE

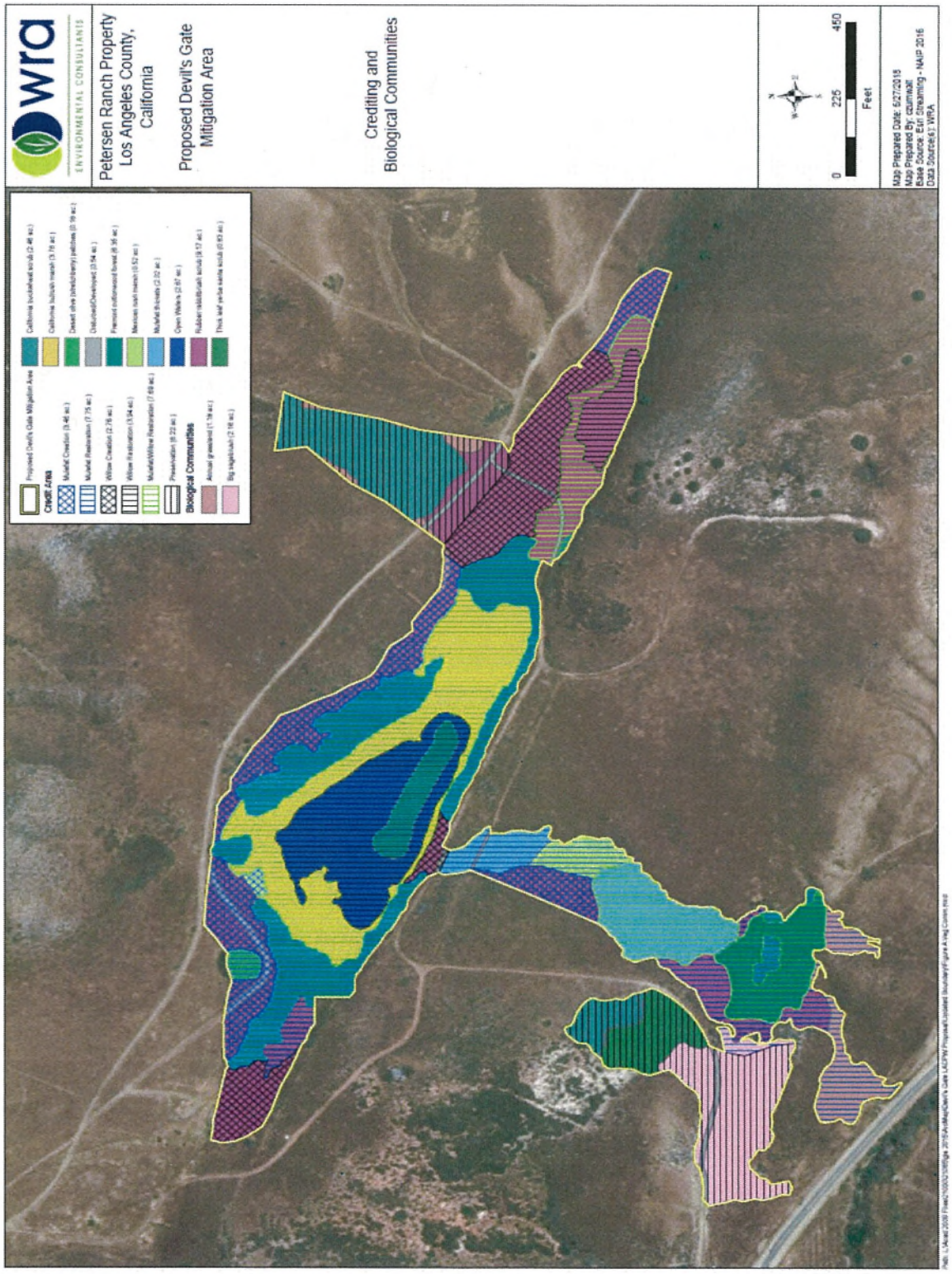

Exhibit B

BILL OF SALE

In consideration of [redacted], 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	32.20 acres	$ [redacted]
	TOTAL:	$ [redacted]

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	[redacted]	$ [redacted]
10/10/2018		$
11/1/2018		$
11/9/2018		$
11/30/2018		$

Total $ [redacted]

Exhibit C

HMMP Cost Budget

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

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 [redacted]/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 [redacted]/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).

2022 Annual Monitoring Report (Year 3)

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, CA 91802-1460
(626) 458-6100

Attn: Keith Hala

KHALA@dpw.lacounty.gov

October 2022

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

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Los Angeles Region
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Los Angeles, CA 90013

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List of Preparers

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Jill McGrady	Senior Conservation Specialist
Brian Bartell	Restoration Specialist
Stephanie Gad	Conservation Analyst
Ivy Poisson	Biologist
Patty Jaramillo	Biologist
Neal Jander	Biologist

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
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 PROJECT OVERVIEW

This is the third 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 Regional Water Quality Control Board (RWQCB) (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

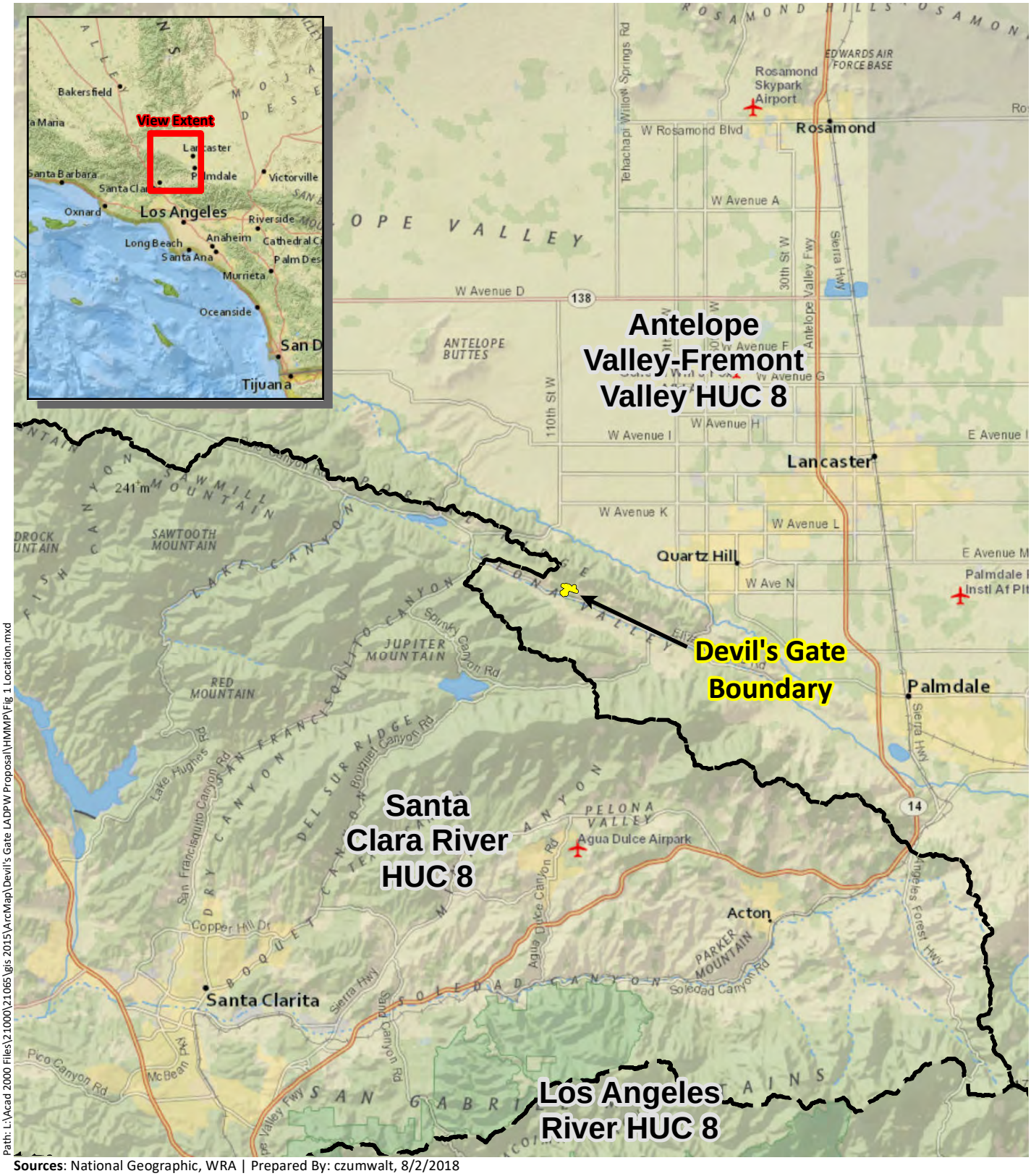
- U.S. Army Corps of Engineers Section 404 (File No. SPL-2014-00591)
- California Department of Fish and Wildlife Section 1602 Streambed Alteration Agreement (Notification No. 1600-2015-0263-R5)
- Los Angeles Regional Water Quality Control Board Section 401 Water Quality Certification (File No. 15-053

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.



Path: L:\Acad 2000 Files\2 1000\21065\gis 2015\ArcMap\Devil's Gate LADPW Proposal\HMMP\Fig 1 Location.mxd

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

Figure 1. Location Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

0 1 2 Miles N

wra ENVIRONMENTAL CONSULTANTS

Petersen Bank Boundary

Devil's Gate Mitigation Site

Devil's Gate Mitigation Site

Leona Valley

0 0.25 0.5 Miles

N

Path: L:\Acad 2000 Files\21000\21065\gis 2015\ArcMap\Devil's Gate IADPW Proposal\HMMP\Fig 2 Bank Property.mxd

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 8/2/2018

Figure 2. Bank Property Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

wra ENVIRONMENTAL CONSULTANTS

1.3 Monitoring and Reporting Tasks

This report addresses the Year 3 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 3 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 3 performance standards.

2 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 (Pond D) and associated wetland complex had been identified as having opportunities for improvement of 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, Appendix A presents a list of observed plant species at the Mitigation Site.

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 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.

Figure 3 presents the locations of the cattle exclusion fencing, planting areas, and preservation areas.

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

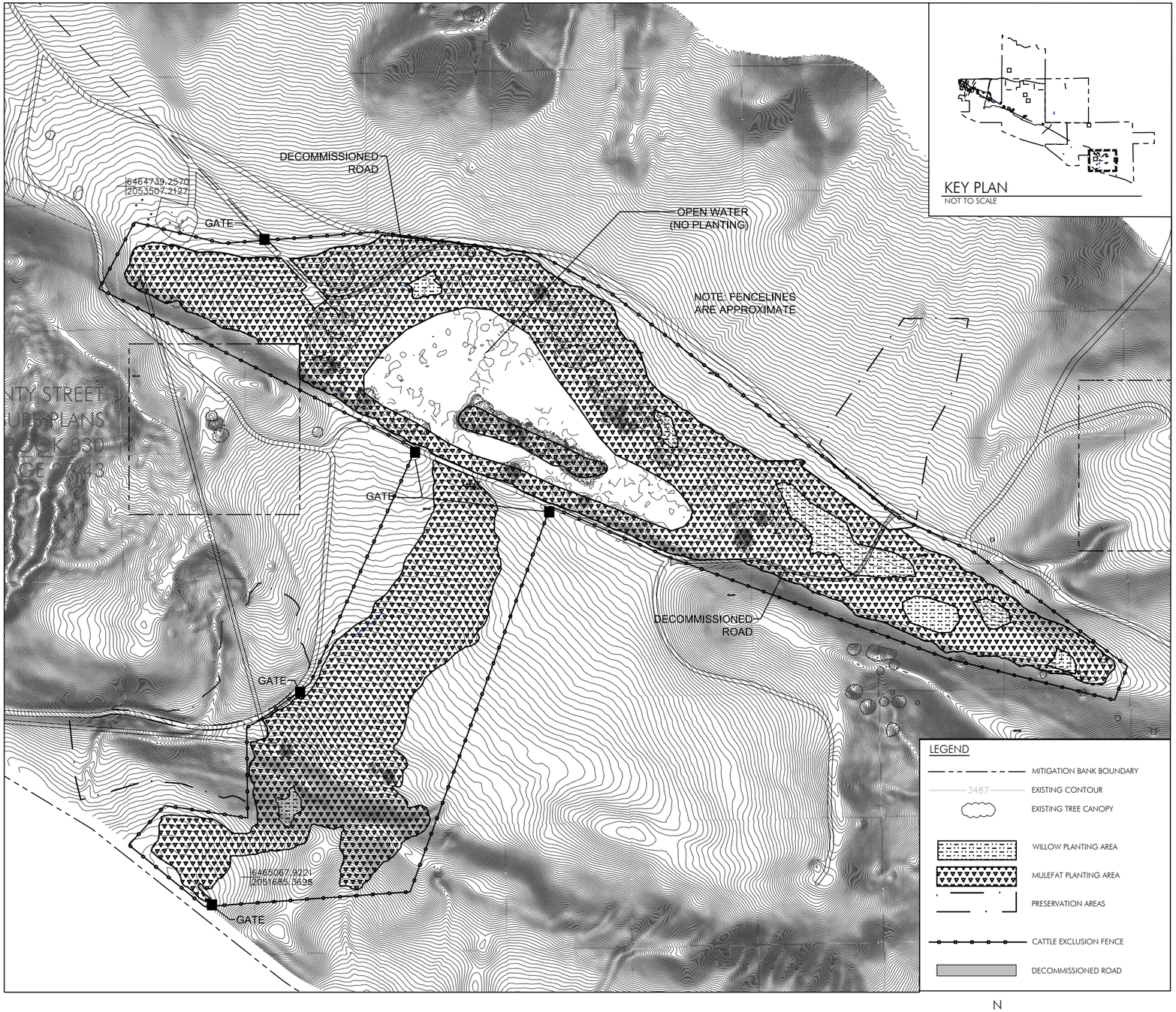
Initial weed eradication efforts included targeted grow kill cycles, and control of any non-grass invasive species present within the designated planting areas (including CAL-IPC moderate and limited species).

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 only 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 were 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.



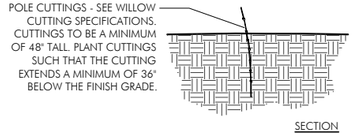
PLANTING AND FENCING PLAN

MULEFAT AREA PLANT SCHEDULE

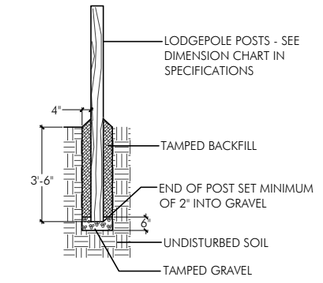
BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	QUANTITY
BACCHARIS SALICIFOLIA	MULEFAT	4' LIVE STAKE	9,338

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



1 POLE CUTTING DETAIL
NOT TO SCALE



3 BRACE POST INSTALLATION
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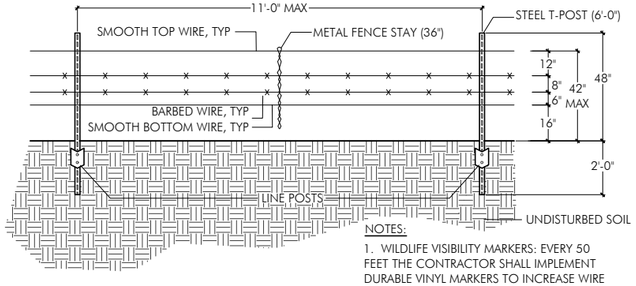


NOTES:
1. WILDLIFE VISIBILITY MARKERS: EVERY 50 FEET THE CONTRACTOR SHALL IMPLEMENT DURABLE VINYL MARKERS TO INCREASE WIRE VISIBILITY.

2 FENCE LINE SECTION
NOT TO SCALE

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 ANGLES COUNTY CA

FIGURE 3: DEVIL'S GATE OFFSITE MITIGATION AS-BUILT PLAN

Sheet 1
Of 1
Scale: as shown

4 MONITORING AND PERFORMANCE STANDARDS

This section details annual performance standards and monitoring methods. Monitoring will be conducted annually throughout the monitoring and maintenance period 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, so this report summarizes the third 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 is 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 class[1] every 5 meters, resulting in 10 sampling plots per transect. Species and species cover class were recorded within each plot to assess the performance standards outlined in Table 1. A photograph was taken at the beginning and end of each transect (Appendix C). The cover of mulefat and willow was then calculated by averaging the sums of the cover of mulefat and willow for each transect.

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. 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.

[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%*

4.3 Inspections for Mitigation Maintenance

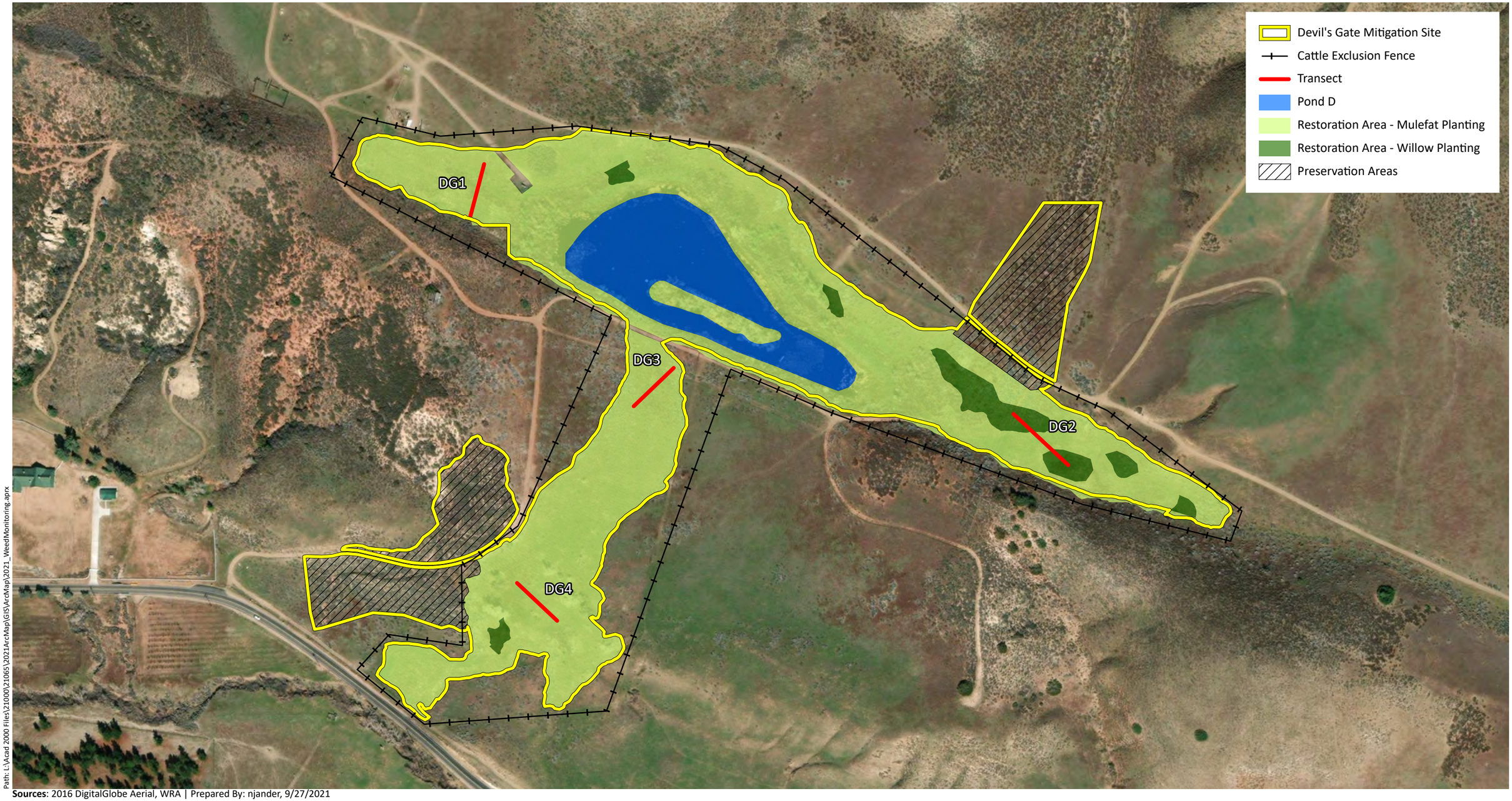
Maintenance inspections and activities during the five-year plant establishment period in the created and enhanced riparian areas are required to facilitate the restoration (Table 2). Conditions are evaluated multiple times per year and if deficiencies are noted, they are assessed, documented, and remedied as quickly as necessary to prevent further damage, per the corresponding maintenance action described 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 regularly throughout the year. WRA biologists traversed the planting area on foot, focusing on locations where target NNIPs had been observed in past years, and mapped each target NNIP species occurrence that was encountered. The targets of the surveys 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).



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

Figure 4. Mitigation Site Monitoring Locations

Petersen Ranch Mitigation Bank
Los Angeles County, California

wra Environmental Consultants

5 RESULTS

Year 3 monitoring activities were completed at the Mitigation Site in July 2022. Currently the Mitigation Site is meeting all Year 3 success criteria (Table 3, Table 4). 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 38% 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 (12%), tarragon (10%), field sedge (10%), and Mexican rush (7%).

5.1.2 Cal-IPC High Broad-Leaved Invasive Species Cover

Percent cover of Cal-IPC rated high broad-leaved invasive plant species averaged less than 1% across all transects (Table 3). Only one Cal-IPC High-rated broad-leaved invasive species, perennial pepperweed (*Lepidium latifolium),* was observed in the Mitigation Site (see Section 5.2.2 and Figure 6).

5.1.3 Survivorship

The combined survivorship of mulefat and willow was 98% (Table 4). Annual monitoring survivorship surveys detected minimal numbers of dead mulefat or willow plantings, with only 65 dead mulefat and 92 dead willows observed. The results of Year 3 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 3 Performance Monitoring Reults – Absolute Cover of Mulefat & Willow and Absolute Cover of Non-Native Invasive Broad-Leaved Plant Species within the Mitigation Site

PERFORMANCE METRIC	DG1	DG2	DG3	DG4	AVERAGE	YEAR 3 PERFORMANCE STANDARD	YEAR 3 PERFORMANCE STANDARD MET?
Mulefat and Willow Total Absolute Cover	62%	14%	42%	35%	38.0%	>25%	**Yes**
Cal-IPC High Cover*	0.0%	2%	0.0%	0.0%	<1%	<10%	**Yes**
**Broad-leaved plant species rated High per Cal-IPC (grasses excluded)*							

Table 4. Year 3 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 SURVIVNG PLANTS	PERCENT SURVIVORSHIP	YEAR 3 PERFORMANCE STANDARD	YEAR 3 PERFORMANCE STANDARD MET?
Baccharis salicifolia	Mulefat	65	9,338	9,273	99%	≥80%	**Yes**
***Salix* spp.**	Willow	92	1,106	1,014	92%	≥80%	**Yes**
Combined		157	10,444	10,287	98%	≥80%	**Yes**

Path: L:\Acad 2000 Files\210000\21065\2022ArcMap\ArcMap\MarkupPTS_20220823\MarkupPTS_20220823.aprx

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: njander, 9/13/2022

*Not surveyed for NNIPs.

Figure 5. Mulefat and Willow Mortality Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

0 275 550 Feet

N

wra Environmental Consultants

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. In previous years, only one medusahead skeleton occurrence was observed within the Mitigation Site. This small population was monitored several times throughout the year to ensure that treat was properly timed and that any surviving individuals were treated during follow-up treaments.In addition to the previously documented population, a new population was observed at the southern end of the Mitigation Site, next to Elizabeth Lake Road. This new medusahead population was not discovered until after it had already set seed, but the maintenance crews have been informed of its presence and its extent. Treatment for this new medusa head occurrence will begin in 2023.

Perennial pepperweed, a broad-leaved plant species ranked High by Cal-IPC, observed for the first time at the Mitigation Site in 2021, continues to be treated in the areas it was observed. One population has expanded and is now present in low densities at the DG4 monitoring transect (Figure 4). Land Veritas staff have been trained or retrained on the identification of this species and best practices for controlling perennial pepperweed, and efforts to control populations of perennial pepperweed, are ongoing.

Russian knapweed (*Rhaponticum repens;* Cal-IPC Moderate) has been observed within the Mitigation Site in past years, but no observations were made this year. This species continues to be 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 3 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: 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.

Path: L:\Acad 2000 Files\21000\21065\2022ArcMap\ArcMap\MarkupPTS_20220823\MarkupPTS_20220823.aprx

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: njander, 9/13/2022

*Not surveyed for NNIPs.

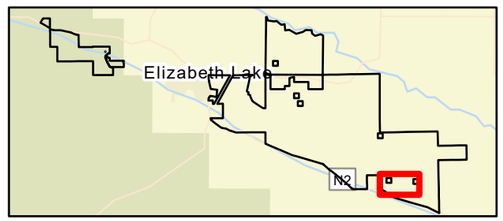


Figure 6. Target Non-Native Invasive Plants within Mitigation Site Planting Areas

Petersen Ranch Mitigation Bank
Los Angeles County, California

0 205 410 Feet

N

wra Environmental Consultants

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 concurrent with regular site maintenance, and the irrigation system continues to function properly. Only a limited number of irrigation repairs have been necessary thus far, and no significant impacts to the site hydrology have occurred due to malfunctions in the irrigation system. 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.

The irrigation system was modified in early spring to reduce the amount of water ponding near transect DG 2 (Figure 4). The irrigation lines were cut and capped just upslope from the area that experiences regular ponding. The ends of the irrigation lines were left in place, should they need to be reconnected in the future.

6 SUMMARY AND MANAGEMENT RECOMMENDATIONS

6.1 Performance Monitoring Summary

6.1.1 Mulefat and Willows Cover and Survivorship

The Year 3 performance standard states, "The planting areas must contain 25% or more absolute cover of mulefat and/or willow, or demonstrate 80% survivorship". Year 3 annual monitoring revealed the average combined cover of mulefat and willow across the Mitigation Site is 38% (Table 3), which surpasses the Year 3 performance standard. In addition, survivorship of the installed mulefat and willow stakes was 98% (Table 4).

Although the Mitigation Site is meeting the Year 3 performance standards, the annual monitoring data indicates low cover of mulefat and willow at transect DG2. The likely reason for the low cover at DG2 is prolonged ponding and heavy soils. Despite the low mulefat and willow cover, the transect is dominated by native species. Year 3 annual monitoring at DG2 revealed the total absolute cover of native species is 86.1%, with the dominant native species consisting of beardless wild rye (28.0% absolute cover), tarragon (10% absolute cover), Spanish lotus (*Acmispon americanus* var. *americanus*; 9% absolute cover), mulefat (9% absolute cover) and Mexican rush (9% absolute cover). While there is relatively low cover of mulefat and willow at this transect, the prevalence of native and wetland species and the presence of a mixture of open canopy and closed canopy habitat types is consistent with the objective seeking to improve the riparian habitat structure and increase the riparian habitat diversity (Section 1.2, WRA 2018). As such, no management actions are recommended.

The Mitigation Site is meeting the Year 3 performance standard for absolute cover and survivorship of mulefat and willow.

6.1.2 Cal-IPC High Broad-Leaved Invasive Species Cover

The Year 3 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". Year 3 annual monitoring revealed the average cover of Cal-IPC High broad-leaved invasive plant species was less than 1% absolute cover (Table 3). Only one Cal-IPC High rated broad-leaved invasive species individual, perennial pepperweed, was documented within the Mitigation Site, and it was only observed at transect DG2. In addition, the absolute cover of perennial pepperweed at DG2 was much lower than the performance standard in isolation, with only 2% absolute cover. The distribution of perennial pepperweed within the Mitigation Site can be seen in Figure 6, and eradication efforts to control this species will continue.

The Mitigation Site is meeting the Year 3 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; and
- 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 proper function 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 REFERENCES

Baldwin et al. 2012 Baldwin BG, DH Goldman, DJ Keil, R Patterson, TJ Rosatti, and DH Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California. Second Edition. University of California Press, Berkeley, CA.

ECORP 2018 ECORP Consulting, Inc. 2018. Devil's Gate Sediment Removal and Management Project. Final Habitat Restoration Plan. Pasadena, California, Los Angeles County. November 2018.

Land Veritas Corp 2016 Land Veritas Corp. 2016. Petersen Ranch Mitigation Bank Bank Enabling Instrument. Online at: https://ribits.usace.army.mil/ribits_apex/f?p=107:278:6186733530681::NO:RP,278:P278_BANK_ID:2854

Sawyer et al. 2009 Sawyer JO, T Keeler-Wolf, and JM Evens. A Manual of California Vegetation, Second Edition. California Native Plant Society in collaboration with California Department of Fish and Game. Sacramento, CA.

Weih 2009 Weih, M. 2009. Genetic and environmental variation in spring and autumn phenology of biomass willows (Salix spp.): effects on shoot growth and nitrogen economy. Tree Physiology 29(12):1479–1490. Online at https://doi.org/10.1093/treephys/tpp081

WRA 2013 WRA, Inc. Biological Resources Inventory: Petersen Ranch. Leona Valley, Los Angeles County, California. March 2013.

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.

WRA 2019 WRA, Inc. 2019. Devil's Gate Off-Site Project As-Built Report Letter. April 23, 2019.

APPENDIX A. MITIGATION SITE OBSERVED SPECIES LIST

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]
Acmispon americanus var. *americanus*	Spanish lotus	native	annual herb	-	-	UPL
Artemisia dracunculus	Tarragon	native	perennial herb	-	-	FACU
Asclepias fascicularis	Milkweed	native	perennial herb	-	-	FAC
Astragalus douglasii	Douglas's milkvetch	native	perennial herb	-	-	-
Baccharis salicifolia ssp. *salicifolia*	Mule fat	native	shrub	-	-	FAC
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
Bromus rubens	Red brome	non-native (invasive)	annual grass	-	High	UPL
Bromus tectorum	Cheat grass	non-native (invasive)	annual grass	-	High	-
Carex praegracilis	Field sedge	native	perennial grasslike herb	-	-	FACW
Castilleja affinis ssp. *affinis*	Coast Indian paint brush	native	perennial herb	-	-	-
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
Corethrogyne filaginifolia	Common sandaster	native	perennial herb	-	-	-
Croton setiger	Turkey-mullein	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]
Cucurbita foetidissima	Missouri gourd	native	perennial herb, vine	-	-	-
Datura wrightii	Jimsonweed	native	perennial herb	-	-	UPL
Descurainia sophia	Herb sophia	non-native (invasive)	annual herb	-	Limited	-
Distichlis spicata	Salt grass	native	perennial grass	-	-	FAC
Elymus triticoides	Beardless wild rye	native	perennial grass	-	-	FAC
Ericameria linearifolia	Interior goldenbush	native	shrub	-	-	-
Ericameria nauseosa	Rubber rabbitbrush	native	shrub	-	-	-
Erigeron canadensis	Canada horseweed	native	annual herb	-	-	FACU
Eriogonum davidsonii	Davidson buckwheat	native	annual herb	-	-	-
Eriogonum elongatum var. *elongatum*	Long stemmed buckwheat	native	perennial herb	-	-	-
Euthamia occidentalis	Western goldenrod	native	perennial herb	-	-	FACW
Festuca myuros	Rattail sixweeks grass	non-native (invasive)	annual grass	-	Moderate	FACU
Grindelia camporum	Gumweed	native	perennial herb	-	-	FACW
Helianthus annuus	Hairy leaved sunflower	native	annual herb	-	-	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]
Heliotropium curassavicum var. *oculatum*	Seaside heliotrope	native	perennial herb	-	-	FACU
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
Hordeum murinum	Foxtail barley	non-native (invasive)	annual grass	-	Moderate	FACU
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW
Juncus orthophyllus	Straight leaved rush	native	perennial grasslike herb	-	-	FACW
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU
Lepidium appelianum	Hairy whitetop	non-native (invasive)	perennial herb	-	Limited	UPL
Malvella leprosa	Alkali mallow	native	perennial herb	-	-	FACU
Marrubium vulgare	White horehound	non-native (invasive)	perennial herb	-	Limited	FACU
Melilotus albus	White sweetclover	non-native	annual, biennial herb	-	-	-
Melilotus indicus	Annual yellow sweetclover	non-native	annual herb	-	-	FACU
Polypogon monspeliensis	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW
Pseudognaphalium californicum	Ladies' tobacco	native	annual, perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]
Rumex crispus	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC
Salix laevigata	Red willow	native	tree	-	-	FACW
Senecio flaccidus	Shrubby ragwort	native	shrub	-	-	-
Sidalcea malviflora	Wild hollyhock	native	perennial herb	-	-	FACW
Solanum xanti	Nightshade	native	perennial herb, shrub	-	-	-
Sonchus asper ssp. *asper*	Prickly sow thistle	non-native	annual herb	-	-	FAC
Stachys albens	Cobwebby hedge nettle	native	perennial herb	-	-	OBL
Stipa lepida	Foothill needle grass	native	perennial grass	-	-	-
Stipa pulchra	Purple needle grass	native	perennial grass	-	-	-
Tragopogon dubius	Goat's beard	non-native	perennial herb	-	-	-
Urtica dioica	Stinging nettle	native	perennial herb	-	-	FAC
Verbena lasiostachys	Western vervain	native	perennial herb	-	-	FAC

All species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2022]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2022] or Inventory of Rare and Endangered Plants (CNPS 2022). Sp.: “species”, intended to indicate that the observer was confident in the identity of the genus but uncertain which species.

[1] **California Native Plant Society. 2019. Inventory of Rare and Endangered Plants (online edition, v9-01 1.5). Sacramento, California. Online at: http://rareplants.cnps.org/; most recently accessed: September 2022.**

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. 2019. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: http://www.cal-ipc.org/paf/; most recently accessed: September 2019.**

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. 2020. National Wetland Plant List, version 3.5. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. Online at: http://wetland-plants.usace.army.mil/**

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

Quadrat Size:	**5m x 2.5m**		
Photo #:			
(start, finish)			

Class

0 (0.5)	**<1**	**4 (62.5)**	**50-75%**
1 (2.5)	**1-5%**	**5 (85)**	**75-95%**
2 (15)	**5-25%**	**6 (97.5)**	**>95%**
3 (37.5)	**25-50%**		

	Photo #:					
Scientific Name	**Common Name**	**Origin**	**Form**	**Rarity Status**	**CAL-IPC Status**	**Wetland Status (AW 2016)**
Bare	Bare					
Litter	Litter					
Baccharis salicifolia ssp. salicifolia	Mule fat	native	shrub	-	-	FAC
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
Bromus rubens	Red brome	non-native (invasive)	annual grass	-	High	UPL
Bromus tectorum	Cheat grass	non-native (invasive)	annual grass	-	High	-
Carex praegracilis	Field sedge	native	perennial grasslike herb	-	-	FACW
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
Descurainia sophia	Herb sophia	non-native (invasive)	annual herb	-	Limited	-
Distichlis spicata	Salt grass	native	perennial grass	-	-	FAC
Elymus triticoides	Beardless wild rye	native	perennial grass	-	-	FAC
Erigeron canadensis	Canada horseweed	native	annual herb	-	-	FACU
Heliotropium curassavicum var. oculatum	Seaside heliotrope	native	perennial herb	-	-	FACU
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW
Stachys albens	Cobwebby hedge nettle	native	perennial herb	-	-	OBL
Urtica dioica	Stinging nettle	native	perennial herb	-	-	FAC
Verbena lasiostachys	Western vervain	native	perennial herb	-	-	FAC

	Mid-Point Absolute Cover (%)										
	0	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**Transect**
Bare	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	2.5%	0.7%
Litter	15.0%	62.5%	37.5%	2.5%	37.5%	37.5%	15.0%	15.0%	15.0%	15.0%	25.3%
Baccharis salicifolia ssp. salicifolia	85.0%	85.0%	85.0%	15.0%	97.5%	97.5%	62.5%	37.5%	15.0%	37.5%	61.8%
Bromus diandrus		2.5%	15.0%					0.5%	15.0%	37.5%	7.1%
Bromus rubens		0.5%	0.5%								0.1%
Bromus tectorum	0.5%										0.1%
Carex praegracilis			2.5%	15.0%	2.5%	62.5%	62.5%	62.5%		15.0%	22.3%
Cirsium vulgare			0.5%				0.5%				0.1%
Descurainia sophia								0.5%			0.1%
Distichlis spicata							2.5%	15.0%	37.5%		5.5%
Elymus triticoides	62.5%	15.0%	15.0%	85.0%	37.5%						21.5%
Erigeron canadensis									2.5%		0.3%
Heliotropium curassavicum var. oculatum	2.5%	15.0%	2.5%								2.0%
Hirschfeldia incana		0.5%	0.5%								0.1%
Juncus mexicanus	0.5%	2.5%	15.0%	15.0%	2.5%	2.5%	2.5%	15.0%	15.0%	15.0%	8.6%
Stachys albens	15.0%	2.5%	0.5%					0.5%	2.5%	15.0%	3.6%
Urtica dioica						2.5%					0.3%
Verbena lasiostachys			0.5%	2.5%							0.3%
Total cover	**181.5%**	**186.5%**	**175.5%**	**135.5%**	**178.0%**	**203.0%**	**146.0%**	**147.0%**	**103.0%**	**137.5%**	**159.4%**
Vegetative cover	**166.0%**	**123.5%**	**137.5%**	**132.5%**	**140.0%**	**165.0%**	**130.5%**	**131.5%**	**87.5%**	**120.0%**	**133.4%**
Native cover	**165.5%**	**120.0%**	**121.0%**	**132.5%**	**140.0%**	**165.0%**	**130.0%**	**130.5%**	**72.5%**	**82.5%**	**126.0%**
***Salix* sp. cover**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Mulefat cover	**85.0%**	**85.0%**	**85.0%**	**15.0%**	**97.5%**	**97.5%**	**62.5%**	**37.5%**	**15.0%**	**37.5%**	**61.8%**
***Salix* sp. & mulefat cover**	**85.0%**	**85.0%**	**85.0%**	**15.0%**	**97.5%**	**97.5%**	**62.5%**	**37.5%**	**15.0%**	**37.5%**	**61.8%**
High invasive broad-leaf cover	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Site and Transect:	DG2
Date:	6/17/2021
Staff:	TSH & SG
Transect length:	50m
Starting Point:	0m
Data Entry:	MCS 7/15/21
Data QC:	SG 8/31/21

Quadrat Size:	**5m x 2.5m**		
Photo #:			
(start, finish)			

Class			
0 (0.5)	**<1**	**4 (62.5)**	**50-75%**
1 (2.5)	**1-5%**	**5 (85)**	**75-95%**
2 (15)	**5-25%**	**6 (97.5)**	**>95%**
3 (37.5)	**25-50%**		

	Photo #:						**Mid-Point Absolute Cover (%)**										
Scientific Name	**Common Name**	**Origin**	**Form**	**Rarity Status**	**CAL-IPC Status**	**Wetland Status (AW 2016)**	**0**	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**Transect**
Bare	Bare						0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	2.5%	2.5%	15.0%	15.0%	3.8%
Litter	Litter						2.5%	2.5%	2.5%	2.5%	2.5%	15.0%	15.0%	15.0%	15.0%	15.0%	8.8%
Acmispon americanus var. americanus	Spanish lotus	native	annual herb	-	-	UPL		2.5%				37.5%	15.0%	15.0%	15.0%	2.5%	8.8%
Artemisia dracunculus	Tarragon	native	perennial herb	-	-	FACU			2.5%	0.5%			2.5%	15.0%	37.5%	37.5%	9.6%
Asclepias fascicularis	Milkweed	native	perennial herb	-	-	FAC	0.5%					0.5%	0.5%		0.5%		0.2%
Baccharis salicifolia ssp. salicifolia	Mule fat	native	shrub	-	-	FAC	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%					9.0%
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-	2.5%	2.5%	0.5%							0.5%	0.6%
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU	2.5%	0.5%	2.5%	0.5%			0.5%				0.7%
Bromus rubens	Red brome	non-native (invasive)	annual grass	-	High	UPL										0.5%	0.1%
Bromus tectorum	Cheat grass	non-native (invasive)	annual grass	-	High	-							15.0%	15.0%	15.0%		4.5%
Carex praegracilis	Field sedge	native	perennial grasslike herb	-	-	FACW	15.0%	15.0%	2.5%	15.0%	2.5%	15.0%					6.5%
Castilleja affinis ssp. affinis	Coast Indian paint brush	native	perennial herb	-	-	-		0.5%									0.1%
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU	0.5%	2.5%									0.3%
Cucurbita foetidissima	Missouri gourd	native	perennial herb, vine	-	-	-									2.5%	15.0%	1.8%
Descurainia sophia	Herb sophia	non-native (invasive)	annual herb	-	Limited	-				0.5%							0.1%
Distichlis spicata	Salt grass	native	perennial grass	-	-	FAC	37.5%	15.0%	37.5%	2.5%		0.5%			2.5%		9.6%
Elymus triticoides	Beardless wild rye	native	perennial grass	-	-	FAC			2.5%	37.5%	85.0%	37.5%	62.5%	15.0%	37.5%	0.5%	27.8%
Ericameria nauseosa	Rubber rabbitbrush	native	shrub	-	-	-	0.5%	2.5%				0.5%	0.5%	2.5%	2.5%		0.9%
Erigeron canadensis	Canada horseweed	native	annual herb	-	-	FACU	0.5%	0.5%	2.5%				0.5%	2.5%	2.5%	2.5%	1.2%
Eriogonum davidsonii	Davidson buckwheat	native	annual herb	-	-	-										0.5%	0.1%
Eriogonum elongatum var. elongatum	Long stemmed buckwheat	native	perennial herb	-	-	-								0.5%	0.5%		0.1%
Grindelia camporum	Gumweed	native	perennial herb	-	-	FACW	2.5%	2.5%	2.5%	0.5%							0.8%
Helianthus annuus	Hairy leaved sunflower	native	annual herb	-	-	FACU						0.5%	0.5%				0.1%
Heliotropium curassavicum var. oculatum	Seaside heliotrope	native	perennial herb	-	-	FACU	2.5%	2.5%									0.5%
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-			0.5%			0.5%	0.5%	2.5%	2.5%	0.5%	0.7%
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW		15.0%	15.0%	37.5%	2.5%	15.0%	2.5%	0.5%	2.5%		9.1%
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU	0.5%	2.5%	2.5%	2.5%	0.5%		0.5%	0.5%	2.5%	2.5%	1.5%
Lepidium latifolium	Perennial pepperweed	non-native (invasive)	perennial herb	-	High	FAC		15.0%	0.5%								1.6%
Malvella leprosa	Alkali mallow	native	perennial herb	-	-	FACU	2.5%	0.5%									0.3%
Marrubium vulgare	White horehound	non-native (invasive)	perennial herb	-	Limited	FACU		0.5%		2.5%							0.3%
Melilotus albus	White sweetclover	non-native	annual, biennial herb	-	-	-	15.0%									15.0%	3.0%
Total cover							**118.5%**	**129.0%**	**104.5%**	**125.0%**	**111.5%**	**139.0%**	**136.0%**	**101.5%**	**156.0%**	**122.5%**	**124.4%**
Vegetative cover							**115.5%**	**126.0%**	**101.5%**	**122.0%**	**108.5%**	**123.5%**	**118.5%**	**84.0%**	**126.0%**	**92.5%**	**111.8%**
Native cover							**76.5%**	**71.5%**	**80.0%**	**108.5%**	**105.0%**	**122.0%**	**84.5%**	**51.0%**	**103.5%**	**58.5%**	**86.1%**
***Salix* sp. cover**							**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**15.0%**	**15.0%**	**2.5%**	**15.0%**	**4.8%**
Mulefat cover							**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**9.0%**
***Salix* sp. & mulefat cover**							**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**2.5%**	**15.0%**	**13.8%**
High invasive broad-leaf cover							**0.0%**	**15.0%**	**0.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.6%**

Site and Transect:	DG3
Date:	6/17/2021
Staff:	TSH & SG
Transect length:	50m
Starting Point:	0m
Data Entry:	MCS 7/15/21
Data QC:	SG 8/31/21

Quadrat Size:	**5m x 2.5m**		
Photo #:			
(start, finish)			

Class

0 (0.5)	**<1**	**4 (62.5)**	**50-75%**
1 (2.5)	**1-5%**	**5 (85)**	**75-95%**
2 (15)	**5-25%**	**6 (97.5)**	**>95%**
3 (37.5)	**25-50%**		

	Photo #:						**Mid-Point Absolute Cover (%)**										
Scientific Name	**Common Name**	**Origin**	**Form**	**Rarity Status**	**CAL-IPC Status**	**Wetland Status (AW 2016)**	**0**	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**Transect**
Bare	Bare						2.5%	15.0%	2.5%	2.5%	2.5%	15.0%	15.0%	0.5%	0.5%	2.5%	5.9%
Litter	Litter						15.0%	15.0%	37.5%	15.0%	15.0%	15.0%	15.0%	85.0%	37.5%	15.0%	26.5%
Acmispon americanus var. americanus	Spanish lotus	native	annual herb	-	-	UPL						0.5%					0.1%
Artemisia dracunculus	Tarragon	native	perennial herb	-	-	FACU	15.0%	15.0%	37.5%	2.5%	15.0%	15.0%			15.0%	37.5%	15.3%
Asclepias fascicularis	Milkweed	native	perennial herb	-	-	FAC						0.5%	0.5%				0.1%
Baccharis salicifolia ssp. salicifolia	Mule fat	native	shrub	-	-	FAC	2.5%	37.5%	62.5%	62.5%	15.0%	15.0%	62.5%	85.0%	62.5%	15.0%	42.0%
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-	2.5%										0.3%
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU		2.5%			0.5%	0.5%					0.4%
Bromus rubens	Red brome	non-native (invasive)	annual grass	-	High	UPL	0.5%	37.5%	15.0%	15.0%	15.0%	37.5%	15.0%		15.0%	15.0%	16.6%
Bromus tectorum	Cheat grass	non-native (invasive)	annual grass	-	High	-	2.5%	15.0%	0.5%			0.5%	0.5%				1.9%
Carex praegracilis	Field sedge	native	perennial grasslike herb	-	-	FACW				15.0%							1.5%
Corethrogyne filaginifolia	Common sandaster	native	perennial herb	-	-	-		0.5%									0.1%
Croton setiger	Turkey-mullein	native	perennial herb	-	-	-		2.5%									0.3%
Datura wrightii	Jimsonweed	native	perennial herb	-	-	UPL		0.5%							0.5%		0.1%
Distichlis spicata	Salt grass	native	perennial grass	-	-	FAC					15.0%						1.5%
Ericameria nauseosa	Rubber rabbitbrush	native	shrub	-	-	-	15.0%	15.0%		15.0%	15.0%	2.5%	37.5%		2.5%	2.5%	10.5%
Euthamia occidentalis	Western goldenrod	native	perennial herb	-	-	FACW		0.5%									0.1%
Grindelia camporum	Gumweed	native	perennial herb	-	-	FACW	2.5%	0.5%			2.5%	15.0%	2.5%				2.3%
Helianthus annus	Hairy leaved sunflower	native	annual herb	-	-	FACU					2.5%						0.3%
Heliotropium curassavicum var. oculatum	Seaside heliotrope	native	perennial herb	-	-	FACU							2.5%	2.5%		2.5%	0.8%
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-	2.5%	2.5%		0.5%	2.5%	0.5%			0.5%	2.5%	1.2%
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW			15.0%	2.5%	15.0%	2.5%	2.5%	2.5%			4.0%
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU				0.5%							0.1%
Malvella leprosa	Alkali mallow	native	perennial herb	-	-	FACU							0.5%				0.1%
Marrubium vulgare	White horehound	non-native (invasive)	perennial herb	-	Limited	FACU		0.5%									0.1%
Melilotus indicus	Annual yellow sweetclover	non-native	annual herb	-	-	FACU	0.5%			2.5%	2.5%	0.5%	0.5%			15.0%	2.2%
Trichostema lanceolatum	Vinegarweed	native	annual herb	-	-	FACU		2.5%	2.5%	15.0%	15.0%	2.5%	2.5%				4.0%
Verbena lasiostachys	Western vervain	native	perennial herb	-	-	FAC		0.5%									0.1%
						Total cover	**61.0%**	**163.0%**	**173.0%**	**148.5%**	**133.0%**	**123.0%**	**157.0%**	**175.5%**	**134.0%**	**107.5%**	**137.6%**
						Vegetative cover	**43.5%**	**133.0%**	**133.0%**	**131.0%**	**115.5%**	**93.0%**	**127.0%**	**90.0%**	**96.0%**	**90.0%**	**105.2%**
						Native cover	**35.0%**	**75.0%**	**117.5%**	**112.5%**	**95.0%**	**53.5%**	**111.0%**	**90.0%**	**80.5%**	**57.5%**	**82.8%**
						***Salix* sp. cover**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
						Mulefat cover	**2.5%**	**37.5%**	**62.5%**	**62.5%**	**15.0%**	**15.0%**	**62.5%**	**85.0%**	**62.5%**	**15.0%**	**42.0%**
						***Salix* sp. & mulefat cover**	**2.5%**	**37.5%**	**62.5%**	**62.5%**	**15.0%**	**15.0%**	**62.5%**	**85.0%**	**62.5%**	**15.0%**	**42.0%**
						High invasive broad-leaf cover	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Site and Transect:	DG4
Date:	6/16/2021
Staff:	TSH & SG
Transect length:	50m
Starting Point:	0m
Data Entry:	MCS 7/15/21
Data QC:	SG 8/31/21

Quadrat Size:	**5m x 2.5m**		
Photo #:			
(start, finish)			

Class

0 (0.5)	**<1**	**4 (62.5)**	**50-75%**
1 (2.5)	**1-5%**	**5 (85)**	**75-95%**
2 (15)	**5-25%**	**6 (97.5)**	**>95%**
3 (37.5)	**25-50%**		

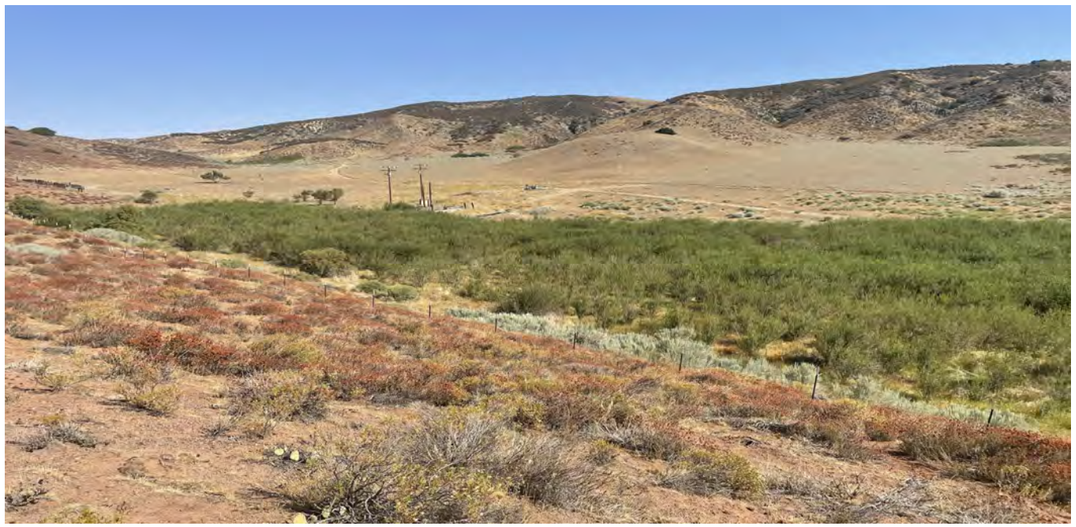
	Photo #:						**Mid-Point Absolute Cover (%)**										
Scientific Name	**Common Name**	**Origin**	**Form**	**Rarity Status**	**CAL-IPC Status**	**Wetland Status (AW 2016)**	**0**	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**Transect**
Bare	Bare						15.0%	2.5%	2.5%	15.0%	2.5%	0.5%	0.5%	0.5%	2.5%	2.5%	4.4%
Litter	Litter						62.5%	15.0%	2.5%	15.0%	2.5%	2.5%	2.5%	15.0%	15.0%	15.0%	14.8%
Artemisia dracunculus	Tarragon	native	perennial herb	-	-	FACU				15.0%	62.5%	37.5%	15.0%	2.5%			13.3%
Asclepias fascicularis	Milkweed	native	perennial herb	-	-	FAC	0.5%	2.5%	0.5%	2.5%	0.5%	2.5%	0.5%	0.5%	0.5%	0.5%	1.1%
Baccharis salicifolia ssp. salicifolia	Mule fat	native	shrub	-	-	FAC	62.5%	62.5%	62.5%	62.5%	0.5%	37.5%	37.5%	15.0%	2.5%	2.5%	34.6%
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-			0.5%	2.5%		0.5%					0.4%
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU						0.5%					0.1%
Carex praegracilis	Field sedge	native	perennial grasslike herb	-	-	FACW	15.0%	0.5%	2.5%			0.5%	15.0%	62.5%	15.0%	2.5%	11.4%
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU	2.5%	0.5%				0.5%	2.5%	0.5%			0.7%
Distichlis spicata	Salt grass	native	perennial grass	-	-	FAC						2.5%					0.3%
Elymus triticoides	Beardless wild rye	native	perennial grass	-	-	FAC			0.5%	2.5%		0.5%					0.4%
Ericameria nauseosa	Rubber rabbitbrush	native	shrub	-	-	-		0.5%	2.5%	0.5%	0.5%	15.0%	15.0%	2.5%			3.7%
Erigeron canadensis	Canada horseweed	native	annual herb	-	-	FACU							2.5%	15.0%	15.0%	37.5%	7.0%
	Seaside heliotrope	native	perennial herb	-	-	FACU					0.5%	2.5%					0.3%
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-	0.5%	0.5%	0.5%	2.5%	0.5%	0.5%					0.5%
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW	2.5%	15.0%	0.5%	0.5%		15.0%	15.0%	0.5%			4.9%
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU		0.5%					0.5%				0.1%
Malvella leprosa	Alkali mallow	native	perennial herb	-	-	FACU					0.5%	2.5%	0.5%				0.4%
Melilotus indicus	Annual yellow sweetclover	non-native	annual herb	-	-	FACU	15.0%	15.0%	2.5%	15.0%	15.0%	15.0%	15.0%	15.0%	2.5%	2.5%	11.3%
Sonchus asper ssp. asper	Prickly sow thistle	non-native	annual herb	-	-	FAC	0.5%	0.5%	0.5%			2.5%	0.5%				0.5%
Stipa pulchra	Purple needle grass	native	perennial grass	-	-	-						0.5%		2.5%	15.0%	37.5%	5.6%
Verbena lasiostachys	Western vervain	native	perennial herb	-	-	FAC			0.5%	2.5%		0.5%					0.4%
Total cover							**176.5%**	**115.5%**	**78.5%**	**136.0%**	**85.5%**	**139.5%**	**122.5%**	**132.0%**	**68.0%**	**100.5%**	**115.5%**
Vegetative cover							**99.0%**	**98.0%**	**73.5%**	**106.0%**	**80.5%**	**136.5%**	**119.5%**	**116.5%**	**50.5%**	**83.0%**	**96.3%**
Native cover							**80.5%**	**81.0%**	**69.5%**	**86.0%**	**65.0%**	**117.0%**	**101.0%**	**101.0%**	**48.0%**	**80.5%**	**83.0%**
***Salix* sp. cover**							**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Mulefat cover							**62.5%**	**62.5%**	**62.5%**	**62.5%**	**0.5%**	**37.5%**	**37.5%**	**15.0%**	**2.5%**	**2.5%**	**34.6%**
***Salix* sp. & mulefat cover**							**62.5%**	**62.5%**	**62.5%**	**62.5%**	**0.5%**	**37.5%**	**37.5%**	**15.0%**	**2.5%**	**2.5%**	**34.6%**
High invasive broad-leaf cover							**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

APPENDIX C. PHOTO MONITORING AND TRANSECT PHOTO

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.



Western lobe of Mitigation Site looking to the northwest. Taken July 29, 2022.

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.

Northern section of the Mitigation Site looking to the northeast. Taken July 29, 2022.

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.

Southern section of the Mitigation Site looking to the southeast. Taken July 29, 2022.

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.

Mitigation Site taken from the northeastern lobe looking to the northwest. Taken July 29, 2022.

Transect DG1 Start. Taken July 27, 2022.

Transect DG1 End. Taken July 22, 2022.

Transect DG2 Start. Taken July 27, 2022.

Transect DG2 End. Taken July 27, 2022

Transect DG3 Start. Taken July 27, 2022.

Transect DG3 End. Taken July 27, 2022.

Transect DG4 Start. Taken July 27, 2022.

Transect DG4 End. Taken July 27, 2022.