APPENDIX D-3

AQUATIC RESOURCES DELINEATION REPORT

HELIX
Environmental Planning

±920-Acre Eliot Facility Study Area

Aquatic Resources Delineation Report

March 2020 | CXC-01

Prepared for:

RMC Pacific Materials, LLC
2365 Iron Point Road, Suite 120
Folsom, CA 95630

Prepared by:

HELIX Environmental Planning, Inc.
1677 Eureka Road, Suite 100
Roseville, CA 95661

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March 2020 | CXC-01

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ACRONYMS AND ABBREVIATIONS

CEMEX	RMC Pacific Materials, LLC
CWA	Clean Water Act
FAC	facultative plants
FACU	facultative upland plants
FACW	facultative wetland plants
GIS	Geographic Information System
GPS	Global Positioning System
HELIX	HELIX Environmental Planning, Inc.
HUC	Hydrologic Unit Code
msl	mean sea level
NRCS	Natural Resources Conservation Service
OBL	obligate wetland plants
OHWM	ordinary high water mark
SWRCB	State Water Resources Control Board
UPL	upland
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WQC	Water Quality Certification

EXECUTIVE SUMMARY

This report presents the results of the updated delineation of the aquatic resources at the ±920-acre Eliot Facility Study Area (Study Area), located in Alameda County, California. Aquatic resources were identified and delineated following the technical guidelines provided in the *Corps of Engineers Wetlands Delineation Manual* (USACE Manual) (Environmental Laboratory 1987) and the U.S. Army Corps of Engineers (USACE) *Arid West Regional Supplement* (Regional Supplement) (USACE 2008b). The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. The jurisdictional boundaries for other waters of the U.S. were identified based on the presence of an ordinary high water mark (OHWM) as defined in 33 C.F.R. 328.3(c)(6).

A total of 318.98 acres of aquatic resources were delineated within the Study Area consisting of depressional seasonal marsh, riverine seasonal marsh, willow riparian wetland, intermittent streams, a perennial stream (Arroyo del Valle), ephemeral drainage, breached quarry ponds, seasonal excavated basin, quarry ponds, silt pond, percolation ponds, and excavated basin.

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1.0 INTRODUCTION

The purpose of this document is to present the results of a formal delineation of aquatic resources, including wetlands, within the ±920-acre Eliot Facility Study Area located in unincorporated Alameda County (Figure 1, *Site and Vicinity*). This report and the resulting delineation were prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2016), The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (2008b) and A Field Guide to the Identification of the ordinary high water mark (OHWM) in the Arid West Region of the Western United States (2008a). This report presents the results from Foothill Associates and HELIX Environmental Planning (HELIX) review of available literature, aerial photographs, soil surveys (Figure 2, *Soils*), and fieldwork within the Study Area (Foothill Associates 2019). The delineation methodology is described in this report, followed by the results of the delineation. Contact information and directions to the Study Area are provided in Appendix A. Details regarding soils, topography, hydrology, and vegetation are summarized herein. Wetland Delineation Data Forms are provided in Appendix B. A detailed delineation map that illustrates potential waters of the U.S. within the Study Area is included as Figure 3, *Aquatic Resources Delineation Map* and a list of plant species observed during the delineation is provided in Appendix C.

1.1 PROJECT DESCRIPTION

RMC Pacific Materials, LLC (CEMEX) owns and operates the Eliot Quarry, a ±920-acre sand and gravel mining facility, located between the cities of Livermore and Pleasanton, at 1544 Stanley Boulevard in unincorporated Alameda County. CEMEX and its predecessors-in-interest have been continuously mining for sand and gravel at the Eliot Quarry since at least 1906. In addition to mining and reclamation, existing permitted and accessory uses at the Eliot Quarry include aggregate, asphalt and ready-mix concrete processing, as well as ancillary uses such as aggregate stockpiling, load-out, sales, construction materials recycling, and equipment storage and maintenance. CEMEX's mining operations at the site are vested per pre-1957 mining activities and Alameda County Quarry Permits Q-1 (1957), Q-4 (1957), and Q-76 (1969). Surface mining reclamation activities at the site are currently conducted pursuant to Surface Mining Permit and Reclamation Plan No. SMP-23 (SMP-23), approved in 1987.

Under the Eliot Quarry SMP-23 Reclamation Plan Amendment Project (Project), CEMEX proposes a revised Reclamation Plan that serves to adjust reclamation boundaries and contours, enhance drainage and water conveyance facilities, incorporate a pedestrian and bike trail, and achieve current surface mining reclamation standards. The planned post-mining end uses are water management, open space, and agriculture (non-prime).

Consistent with prior approvals, the Project will develop Lake A and Lake B, which are the first two lakes in the Chain of Lakes pursuant to the Alameda County Specific Plan for Livermore-Amador Valley Quarry Area Reclamation adopted in 1981 (Specific Plan). Upon reclamation, Lake A and Lake B, along with their appurtenant water conveyance facilities, will be dedicated to the Zone 7 Water Agency (Zone 7) for purposes of water storage, conveyance and recharge management.

Lake A reclamation will include installation of a surface water diversion from the Arroyo del Valle to Lake A; conversion of a berm that crosses the west side of the lake to a small island to allow water to flow across the lake; installation of a water conveyance pipeline from Lake A to future Lake C (located off-site to the northwest); and an overflow outlet to allow water to flow back into Arroyo del Valle when

Lake A water levels are high to prevent flooding in the localized area. The final surface area of Lake A will be 81 acres as compared to 208 acres in SMP-23. No further mining will occur in Lake A.

Lake B reclamation will include installation of a pipeline turn-out from Lake A, a water pipeline conduit to future Lake C, and an overflow outlet to allow water to flow back into Arroyo del Valle when Lake B water levels are high. The final bottom elevation of Lake B is proposed at 150 feet above mean sea level (msl), in order to maximize the available aggregate resource. The final surface area of Lake B will be 208 acres as compared to 243 acres in SMP-23.

To facilitate the southerly progression of Lake B, the Project includes realignment and restoration of a ±5,800 linear foot reach of the Arroyo del Valle. The proposed Arroyo del Valle realignment will result in an enhanced riparian corridor that flows around, rather than through (as currently anticipated in SMP-23), Lake B. The Arroyo del Valle realignment was contemplated in the Specific Plan and subject to environmental review in 1981.

Outside of Lake A and Lake B, reclamation treatment for other disturbed areas, including the Lake J excavation (not part of the Chain of Lakes), processing plant sites, and process water ponds will involve backfills and/or grading for a return to open space and/or agriculture.

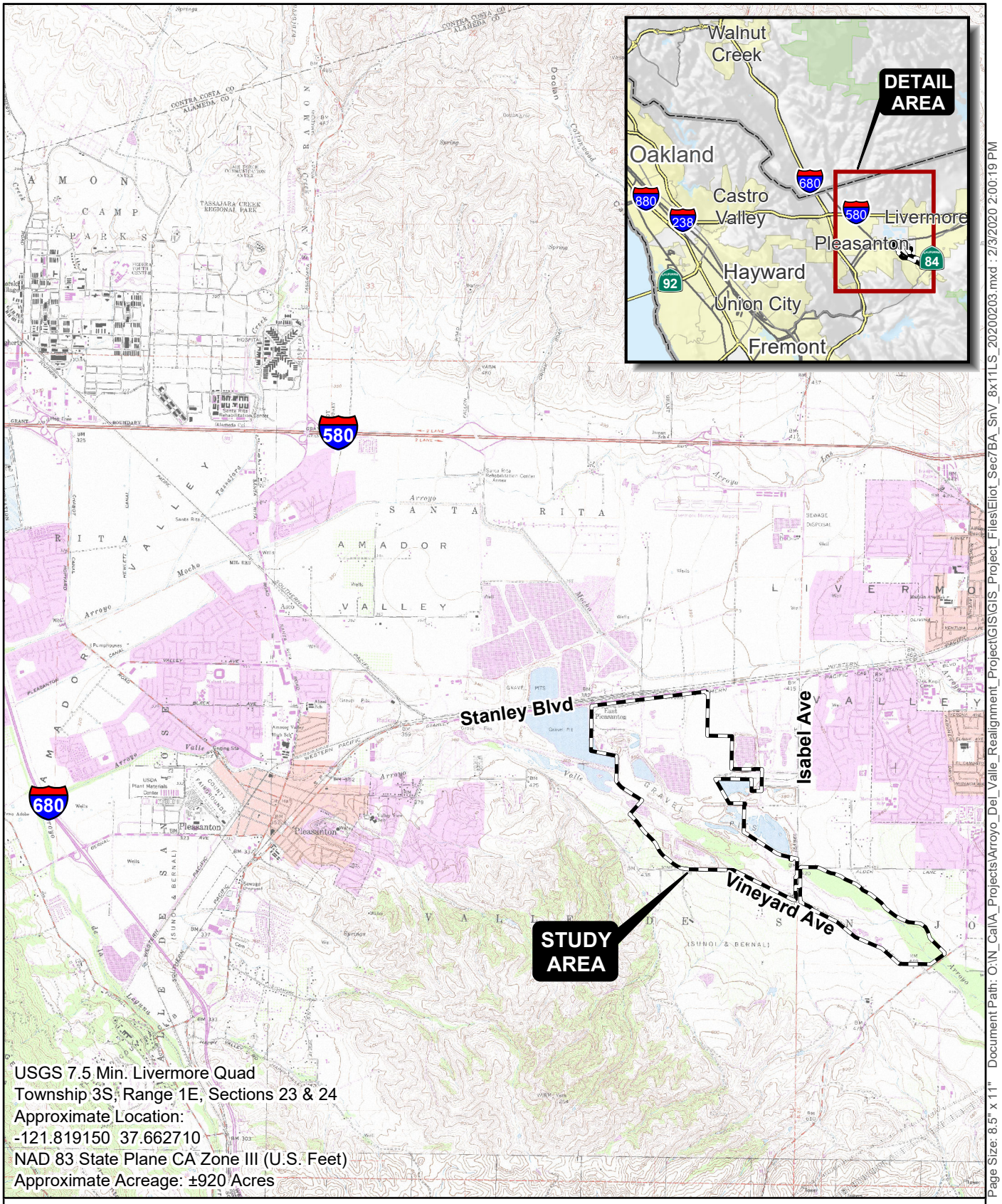
The Project is a modification of an approved project. Except as outlined above, CEMEX proposes no change to any fundamental element of the existing operation (e.g., mining methods, processing operations, production levels, truck traffic, or hours of operation). A more complete description of the proposed Project is contained in CEMEX's Project Description, Revised Reclamation Plan, and other application materials provided to the County.

2.0 REGULATORY SETTING

The U.S. Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA). Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a Federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Section 404 of the CWA requires approval prior to discharging dredged or fill material into the waters of the United States. Typical activities requiring Section 404 permits are:

- Depositing of fill or dredged material in waters of the U.S. or adjacent wetlands;
- Site development for residential, commercial, or recreational developments resulting in discharging dredged or fill material into waters of the United States;
- Construction of revetments, groins, breakwaters, levees, dams, dikes, and weirs; and
- Placement of riprap and road fills.



SITE AND VICINITY

HELIX Environmental Planning

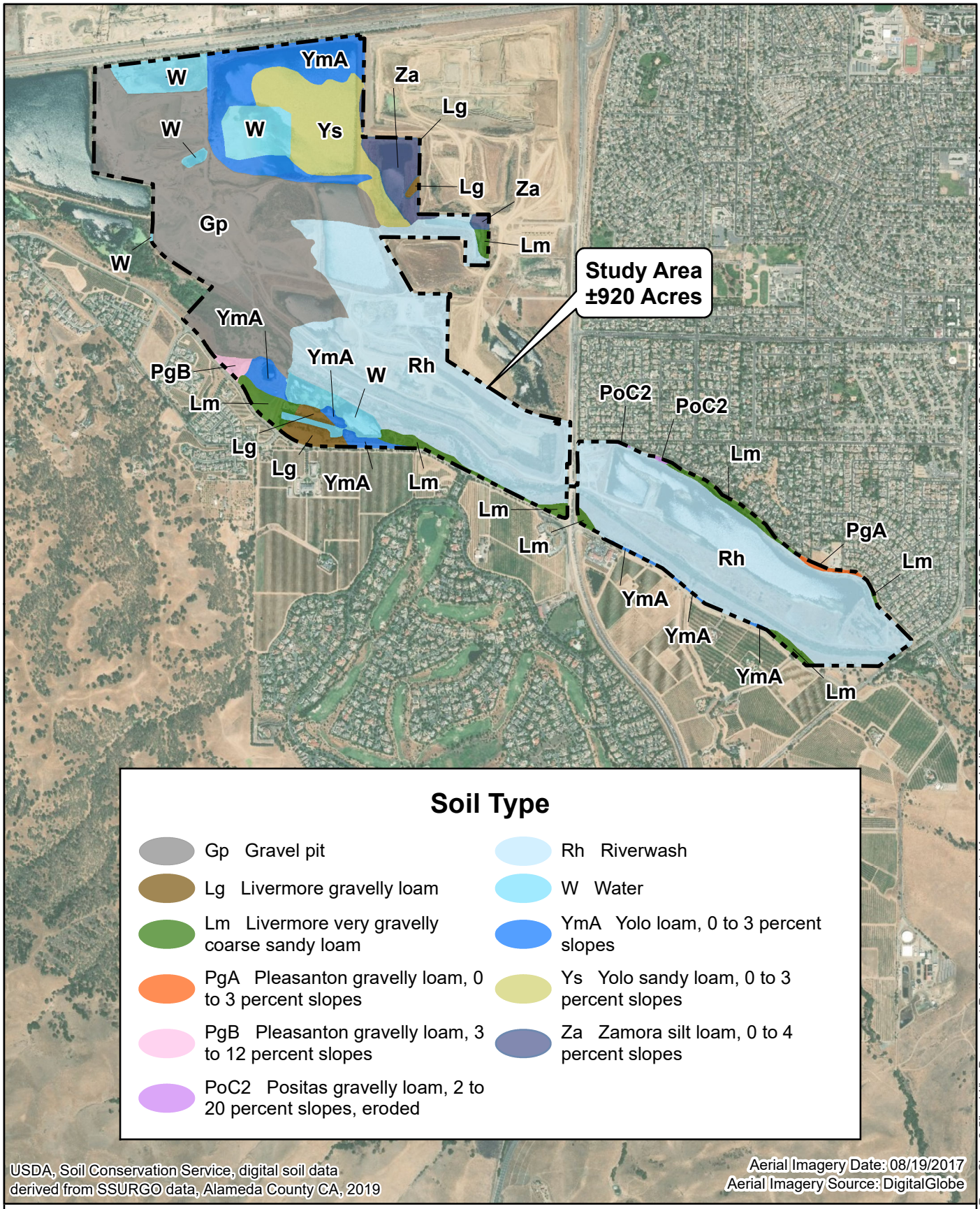
N

0 0.5 1
Miles
1 in = 1 mile

Drawn By: JCD
Date: 2/3/2020

FIGURE 1

ELIOT FACILITY



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SOILS

HELIX Environmental Planning

N

0 1,120 2,240
Feet
1 inch = 2,240 feet

Drawn By: JCD
Date: 3/23/2020

FIGURE 2

ELIOT FACILITY

Aerial Imagery Date: 08/19/2017
Aerial Imagery Source: DigitalGlobe

37° 40' 21.873" N
121° 50' 0.419" W

37° 38' 48.273" N
121° 47' 9.216" W

STANLEY BL
E STANLEY BL
VINEYARD AV
ISABEL AV
RUBY HILL DR
E RUBY HILL DR
ALDEN LN
HOLMES ST
LEXINGTON WY
WETMORE RD
E VALLECITOS RD

A1 A2 A3
B1 B2 B3 B4
C2 C3 C4
D2 D3 D4
E3 E4 E5 E6
F5 F6 F7
G6 G7

AQUATIC RESOURCES

CLASSIFICATION	ACREAGE*	LENGTH FT
Depressional Wetlands		
Seasonal Marsh	0.06	n/a
Riverine Wetlands		
Seasonal Marsh	0.09	496
Willow Riparian Wetland	2.69	1,410
Other Aquatic Resources		
Intermittent Stream	0.34	597
Perennial Stream	66.96	13,275
Ephemeral Drainage	0.09	241
Breached Quarry Pond	17.14	n/a
Seasonal Excavated Basin	0.14	n/a
Quarry Pond	122.66	n/a
Silt Pond	108.50	n/a
Percolation Pond	0.07	n/a
Excavated Basin	0.24	n/a
TOTAL:	**318.98**	**16,019**

*Acreages calculated at 6 significant figures and subsequently rounded.

Aquatic Resources Individual Feature Acreage Table

Depressional Seasonal Marsh

Label	Acres	Length	Latitude	Longitude
DSM-01	0.060	n/a	37.647351	-121.790115
Subtotal:	**0.06**			

Riverine Seasonal Marsh

Label	Acres	Length	Latitude	Longitude
RSM-01	0.093	496	37.647787	-121.790010
Subtotal:	**0.09**	**496**		

Intermittent Stream

Label	Acres	Length	Latitude	Longitude
IS-01	0.073	233	37.659792	-121.826075
IS-02	0.060	92	37.655707	-121.814638
IS-03	0.115	140	37.649619	-121.798676
IS-04	0.089	132	37.649487	-121.798417
Subtotal:	**0.34**	**597**		

Willow Riparian Wetland

Label	Acres	Length	Latitude	Longitude
WRW-01	1.440	803	37.648509	-121.788137
WRW-02	1.253	607	37.647607	-121.788519
Subtotal:	**2.69**	**1,410**		

Perennial Stream

Label	Acres	Length	Latitude	Longitude
PS-01	66.955	13,275	37.655215	-121.810293
Subtotal:	**66.96**	**13,275**		

Ephemeral Drainage

Label	Acres	Length	Latitude	Longitude
ED-01	0.086	241	37.655738	-121.815427
Subtotal:	**0.09**	**241**		

Breached Quarry Pond

Label	Acres	Length	Latitude	Longitude
BQP-01	6.646	n/a	37.657994	-121.820938
BQP-02	10.492	n/a	37.656715	-121.819081
Subtotal:	**17.14**			

Quarry Pond

Label	Acres	Length	Latitude	Longitude
QP-A	59.914	n/a	37.651541	-121.795675
QP-B	7.899	n/a	37.654156	-121.802433
QP-C	1.790	n/a	37.665756	-121.812563
QP-D	15.770	n/a	37.667833	-121.816088
QP-E	0.974	n/a	37.668403	-121.833069
QP-F	1.357	n/a	37.658903	-121.823106
QP-G	13.016	n/a	37.664173	-121.818286
QP-H	9.744	n/a	37.666459	-121.819215
QP-I	1.744	n/a	37.668714	-121.827588
QP-J	10.456	n/a	37.661698	-121.820985
Subtotal:	**122.66**			

Seasonal Excavated Basin

Label	Acres	Length	Latitude	Longitude
SEB-01	0.139	n/a	37.659009	-121.825185
Subtotal:	**0.14**			

Silt Pond

Label	Acres	Length	Latitude	Longitude
S-01	108.503	n/a	37.670817	-121.822263
Subtotal:	**108.50**			

Percolation Pond

Label	Acres	Length	Latitude	Longitude
PP-01	0.010	n/a	37.648494	-121.794254
PP-02	0.013	n/a	37.647530	-121.792150
PP-03	0.029	n/a	37.647086	-121.790980
PP-04	0.016	n/a	37.646968	-121.789737
Subtotal:	**0.07**			

Excavated Basin

Label	Acres	Length	Latitude	Longitude
EB-01	0.242	n/a	37.659186	-121.825498
Subtotal:	**0.24**			

TOTAL:	318.98	16,019

NOTES

- Aquatic resources are subject to U.S. Army Corps of Engineers verification.
- Aquatic resources were mapped by Foothill Associates on 11/15/2017, 11/16/2017, 4/3/2018, and 4/4/2018, and by HELIX on 11/25/2019 and 11/26/2019 using a Trimble Global Positioning System
- Delineated By: C. Marks and C. Singer
- This delineation utilizes the Corps' 1987 three-parameter methodology and Arid West Supplement to delineate jurisdictional waters of the U.S.
- The Hydrologic Unit Code for this site is 180500040406 and 180500040302.
- Digital base data provided by WRA Environmental Consultants.
- Coordinate System: NAD 83 UTM Zone 10N
- Projection: Transverse Mercator
- Datum: North American Datum 1983

Other Features

- Corner Coordinates
- Culvert
- Photo Point
- Upland Data Point
- Wetland Data Point
- Ordinary High Water Mark
- Study Area ±920 Acres

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 03/18/2020

N

0 1,500 3,000
Feet

1 : 18,000

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE 1

ELIOT FACILITY

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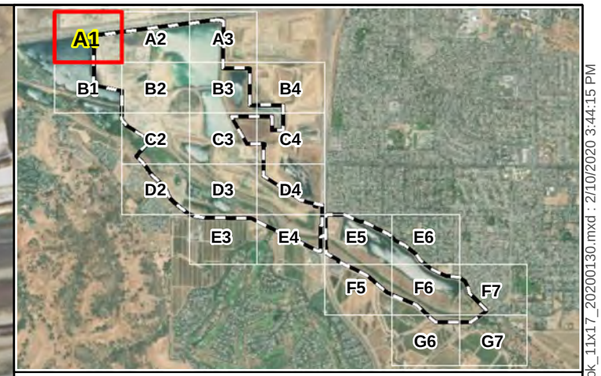

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

N

0 200 400 800
Feet

1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE A1

ELIOT FACILITY

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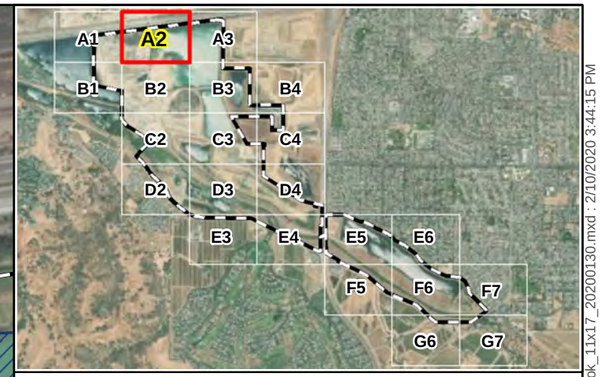

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Silt Pond - 108.50 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

N

0 200 400 800
Feet
1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE A2

ELIOT FACILITY

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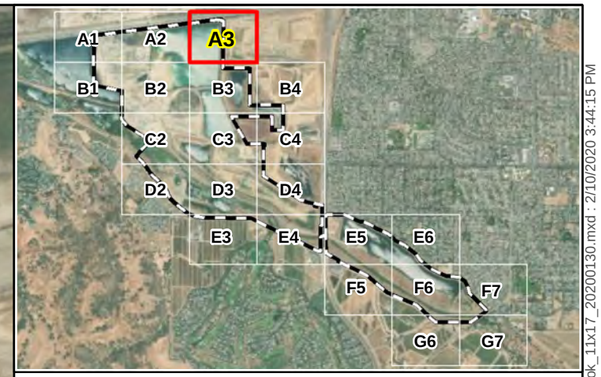

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Silt Pond - 108.50 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

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Feet
1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE A3

ELIOT FACILITY

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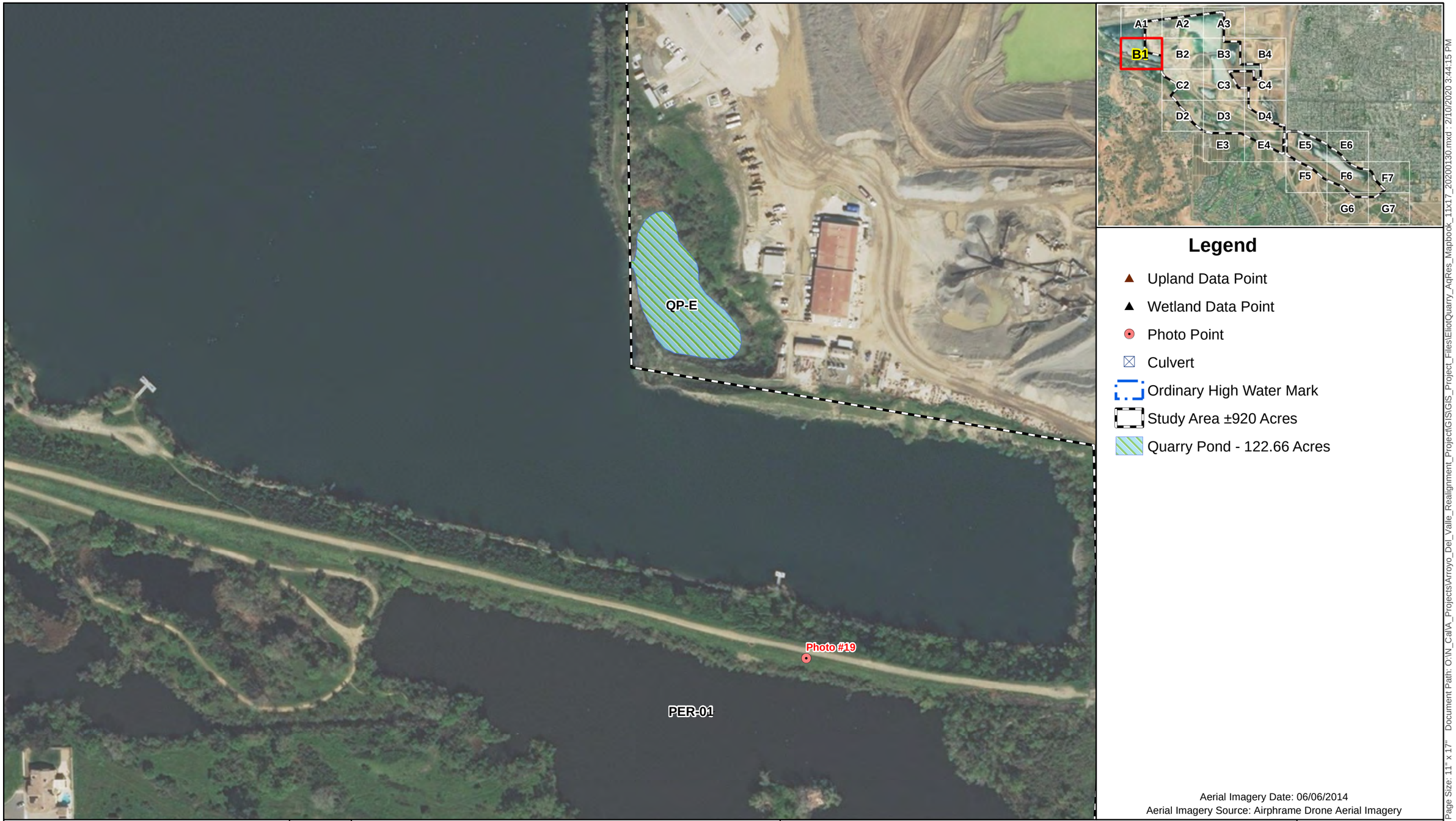

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

N

0 200 400 800
Feet
1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE B1

ELIOT FACILITY

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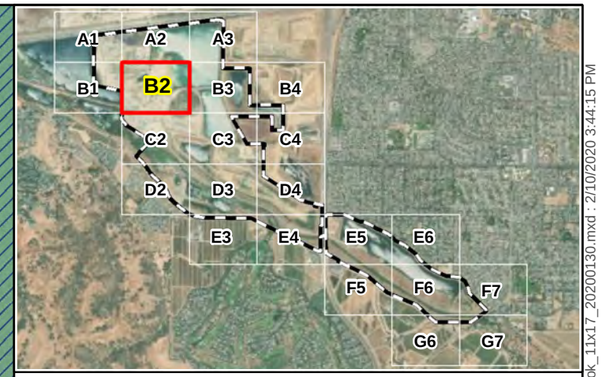

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Quarry Pond - 122.66 Acres
- Silt Pond - 108.50 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

N

0 200 400 800
Feet

1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE B2

ELIOT FACILITY

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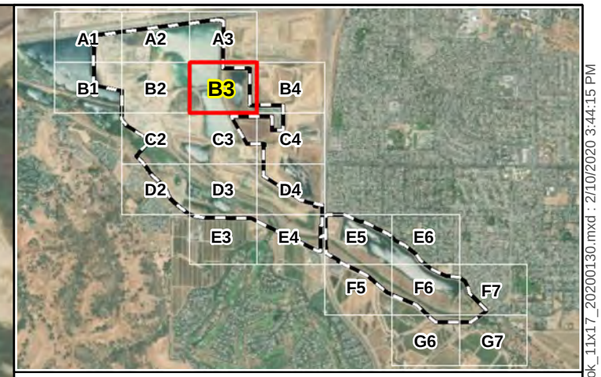


Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Quarry Pond - 122.66 Acres
- Silt Pond - 108.50 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

N

0 200 400 800
Feet

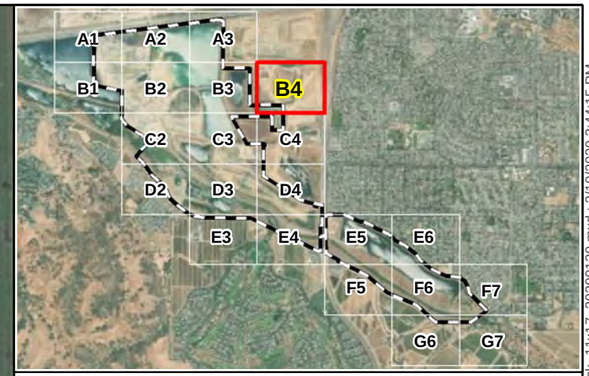
1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE B3

ELIOT FACILITY

Page Size: 11" x 17" Document Path: O:\N_CalVA_Projects\Arroyo_Del_Valle_Realignment_Project\GIS\GIS_Project_Files\EliotQuarry_AqRes_Mapbook_11x17_20200130.mxd - 2/10/2020 3:44:15 PM



Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

N

0 200 400 800
Feet

1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE B4

ELIOT FACILITY

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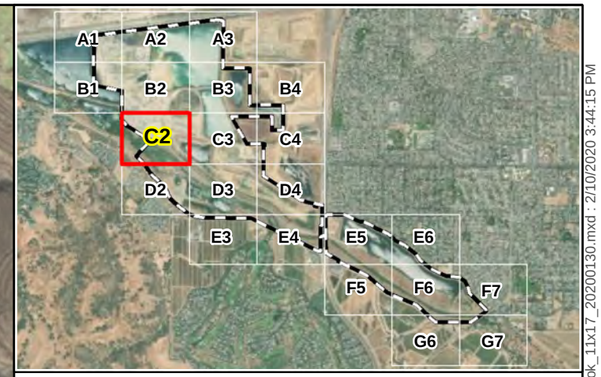

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Perennial Stream - 66.96 Acre
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

N

0 200 400 800
Feet

1 : 2,400

ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE C2

ELIOT FACILITY

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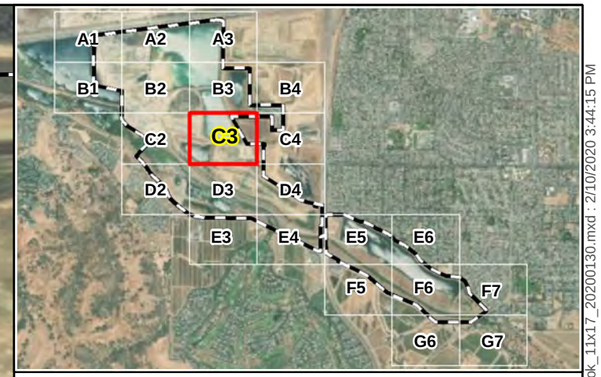

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE C3

ELIOT FACILITY

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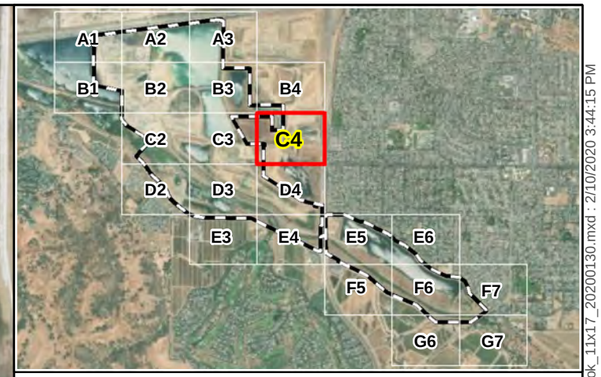

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE C4

ELIOT FACILITY

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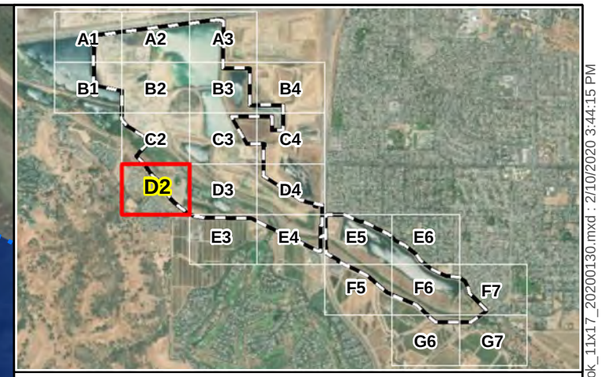

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Intermittent Stream - 0.34 Acre
- Perennial Stream - 66.96 Acre
- Breached Quarry Pond - 17.14 Acres
- Seasonal Excavated Basin - 0.14 Acre
- Quarry Pond - 122.66 Acres
- Excavated Basin - 0.24 Acre

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE D2

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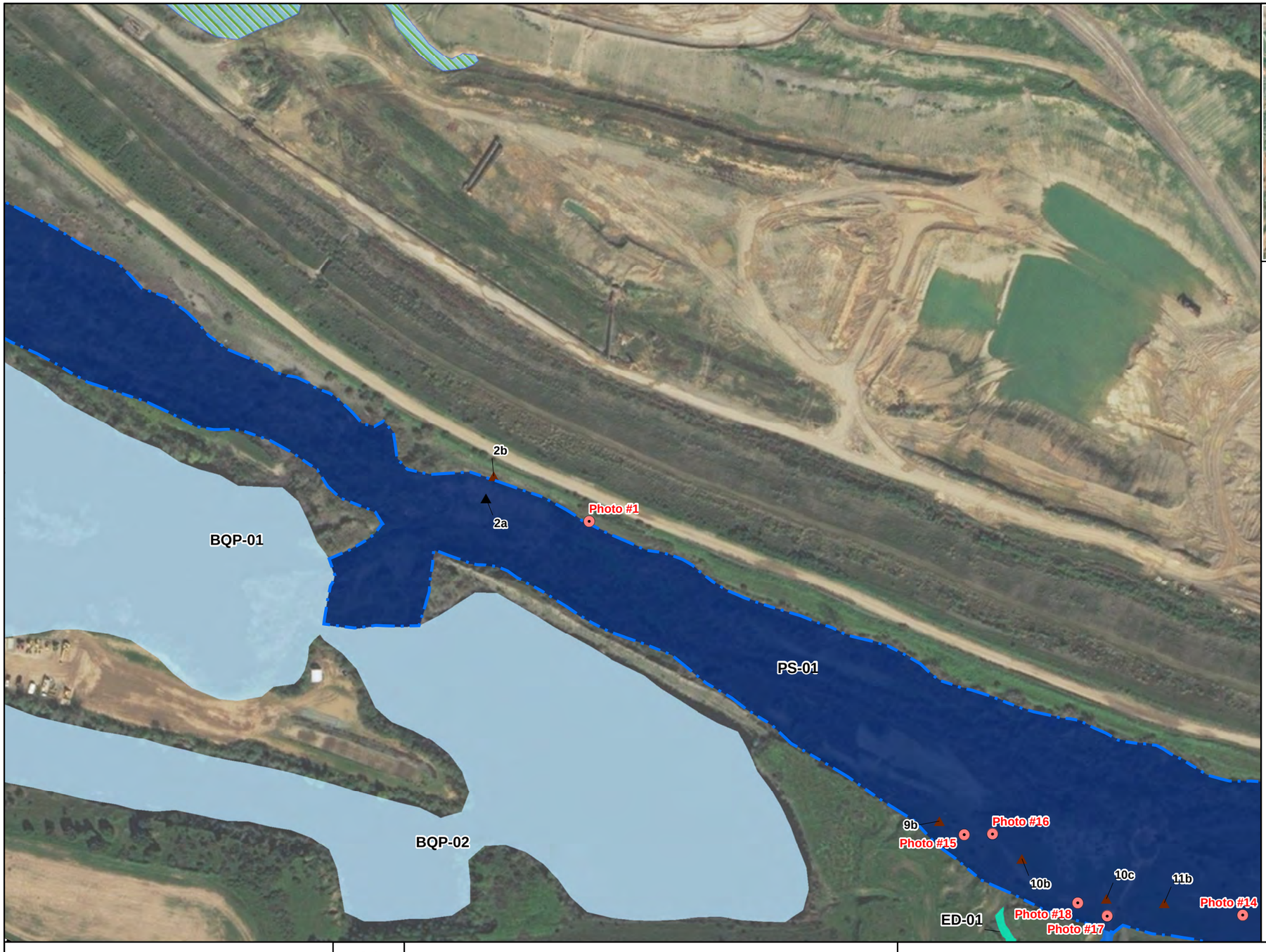

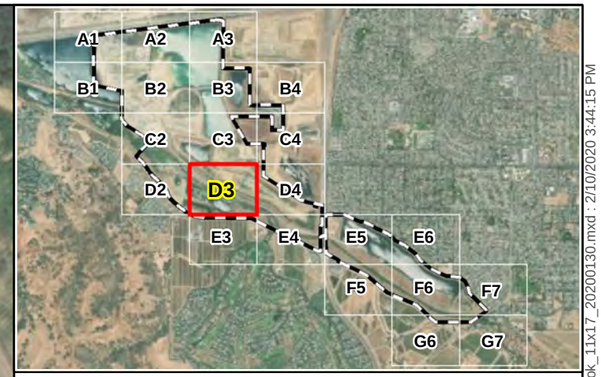

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Intermittent Stream - 0.34 Acre
- Perennial Stream - 66.96 Acre
- Ephemeral Drainage - 0.09 Acre
- Breached Quarry Pond - 17.14 Acres
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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Delineation Date: 2/15/2019 Revised 02/10/2020

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE D3

ELIOT FACILITY

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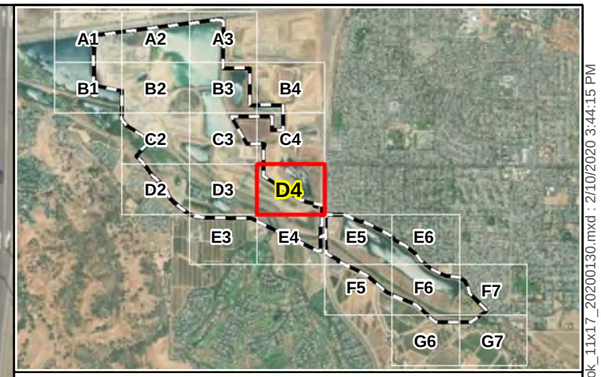

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Perennial Stream - 66.96 Acre

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE D4

ELIOT FACILITY

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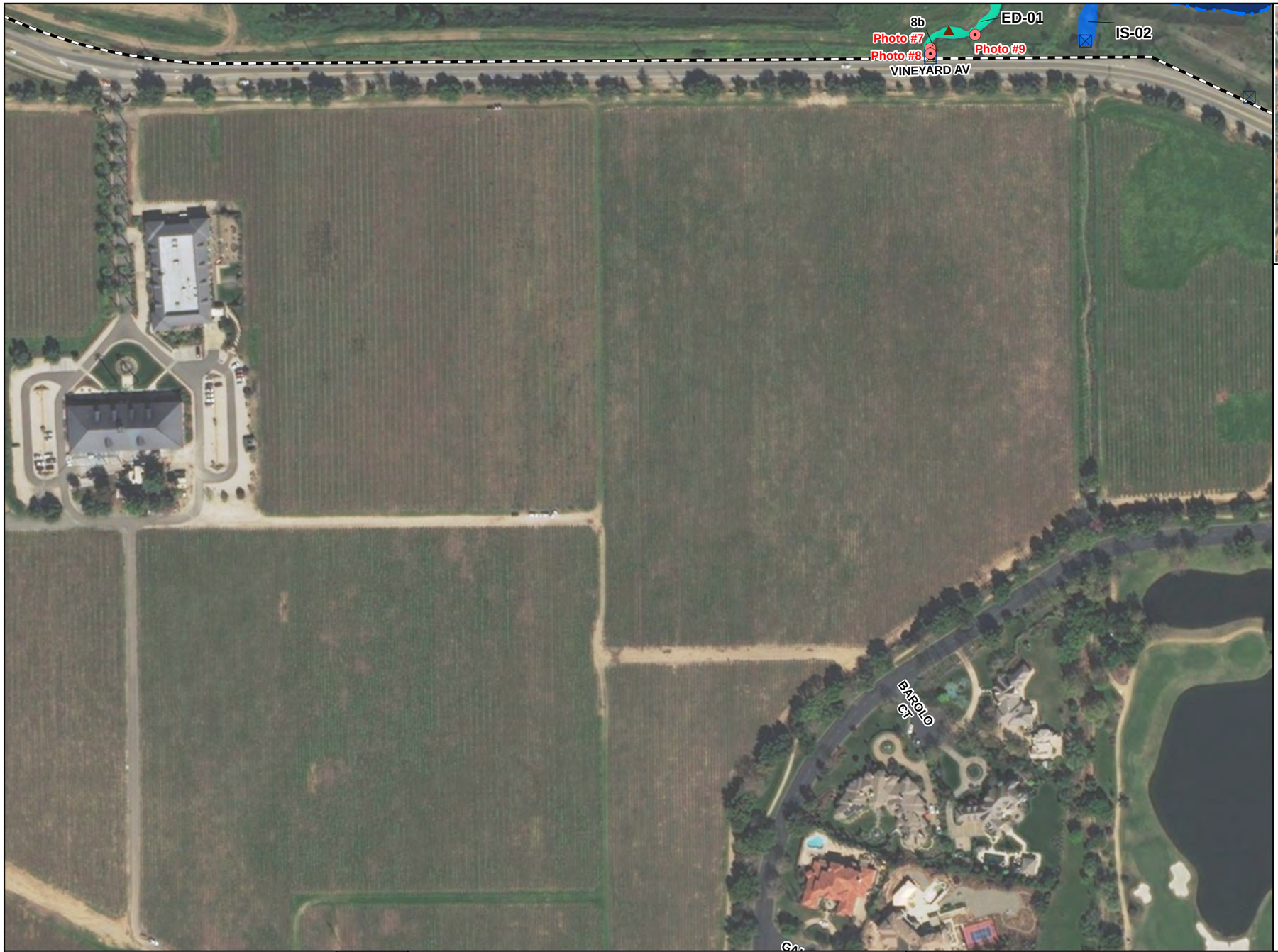

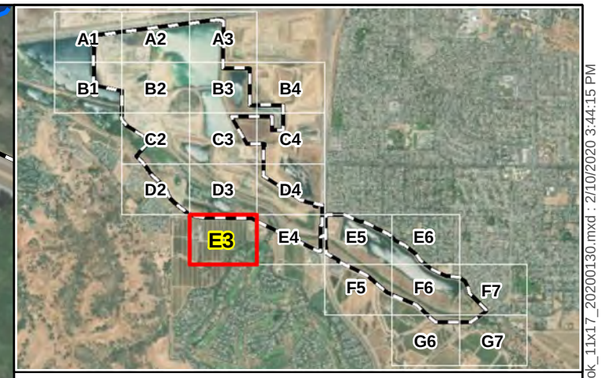

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Intermittent Stream - 0.34 Acre
- Perennial Stream - 66.96 Acre
- Ephemeral Drainage - 0.09 Acre

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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Delineation Date: 2/15/2019 Revised 02/10/2020

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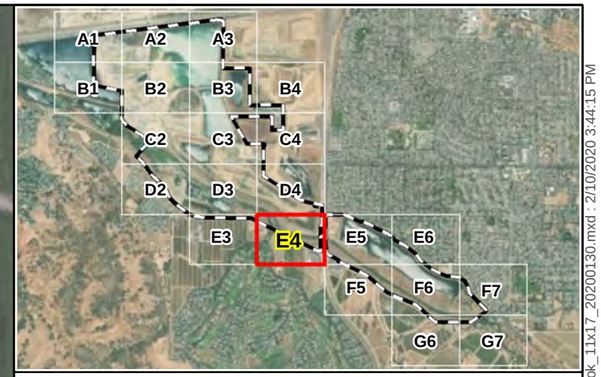
ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE E3

ELIOT FACILITY

Page Size: 11" x 17" Document Path: O:\N_Cal\A_Projects\Arroyo_Del_Valle_Realignment_Project\GIS\GIS_Project_Files\EliotQuarry_AqRes_Mapbook_11x17_20200130.mxd - 2/10/2020 3:44:15 PM



Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Perennial Stream - 66.96 Acre

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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Delineation Date: 2/15/2019 Revised 02/10/2020

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE E4

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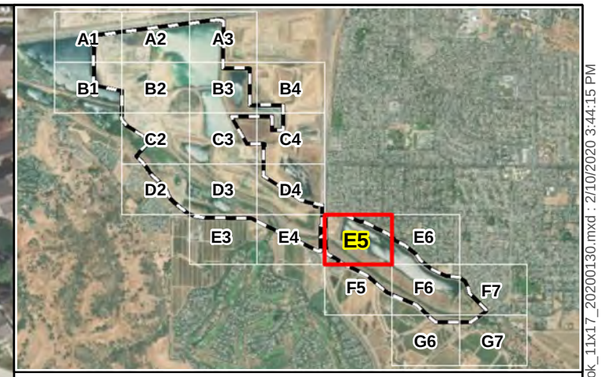

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Perennial Stream - 66.96 Acre
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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Delineation Date: 2/15/2019 Revised 02/10/2020

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE E5

ELIOT FACILITY

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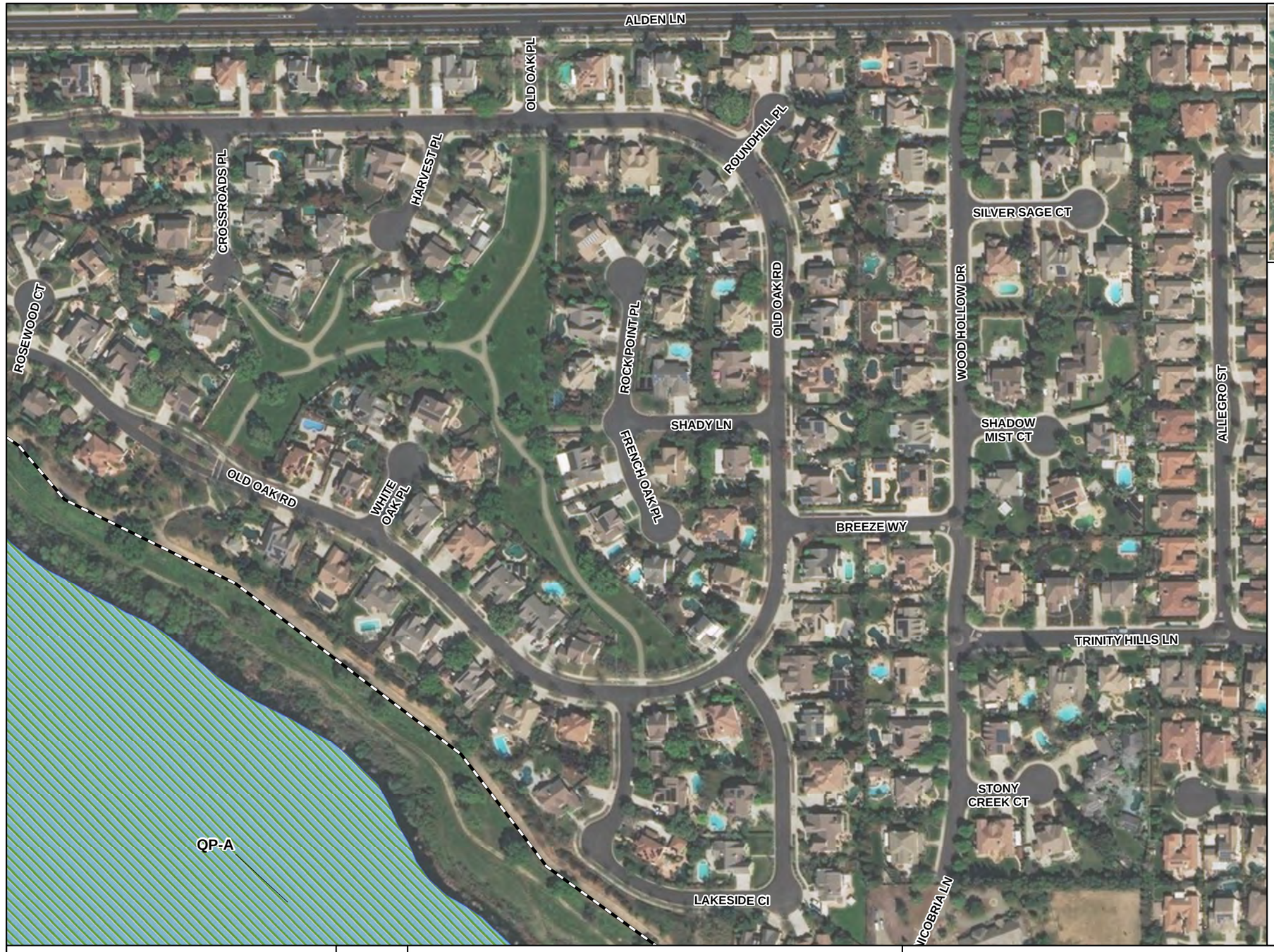

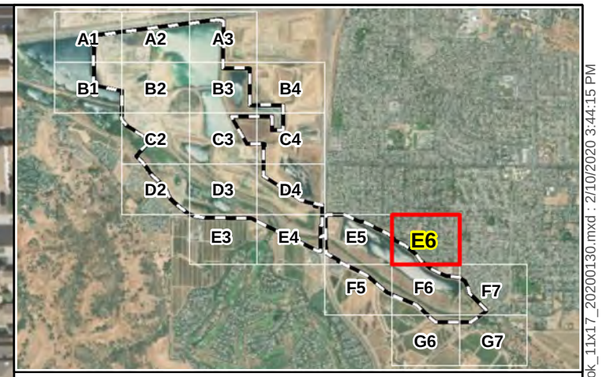

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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Delineation Date: 2/15/2019 Revised 02/10/2020

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE E6

ELIOT FACILITY

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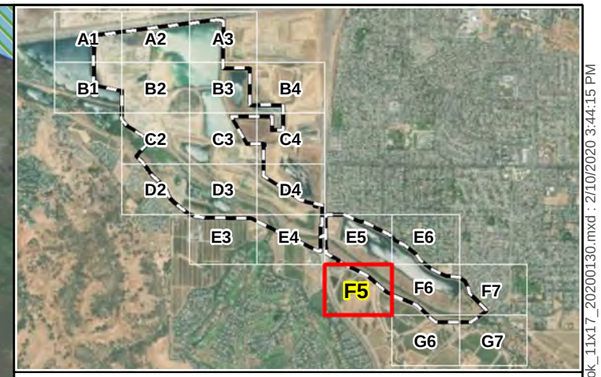

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Intermittent Stream - 0.34 Acre
- Perennial Stream - 66.96 Acre
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

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Delineation Date: 2/15/2019 Revised 02/10/2020

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE F5

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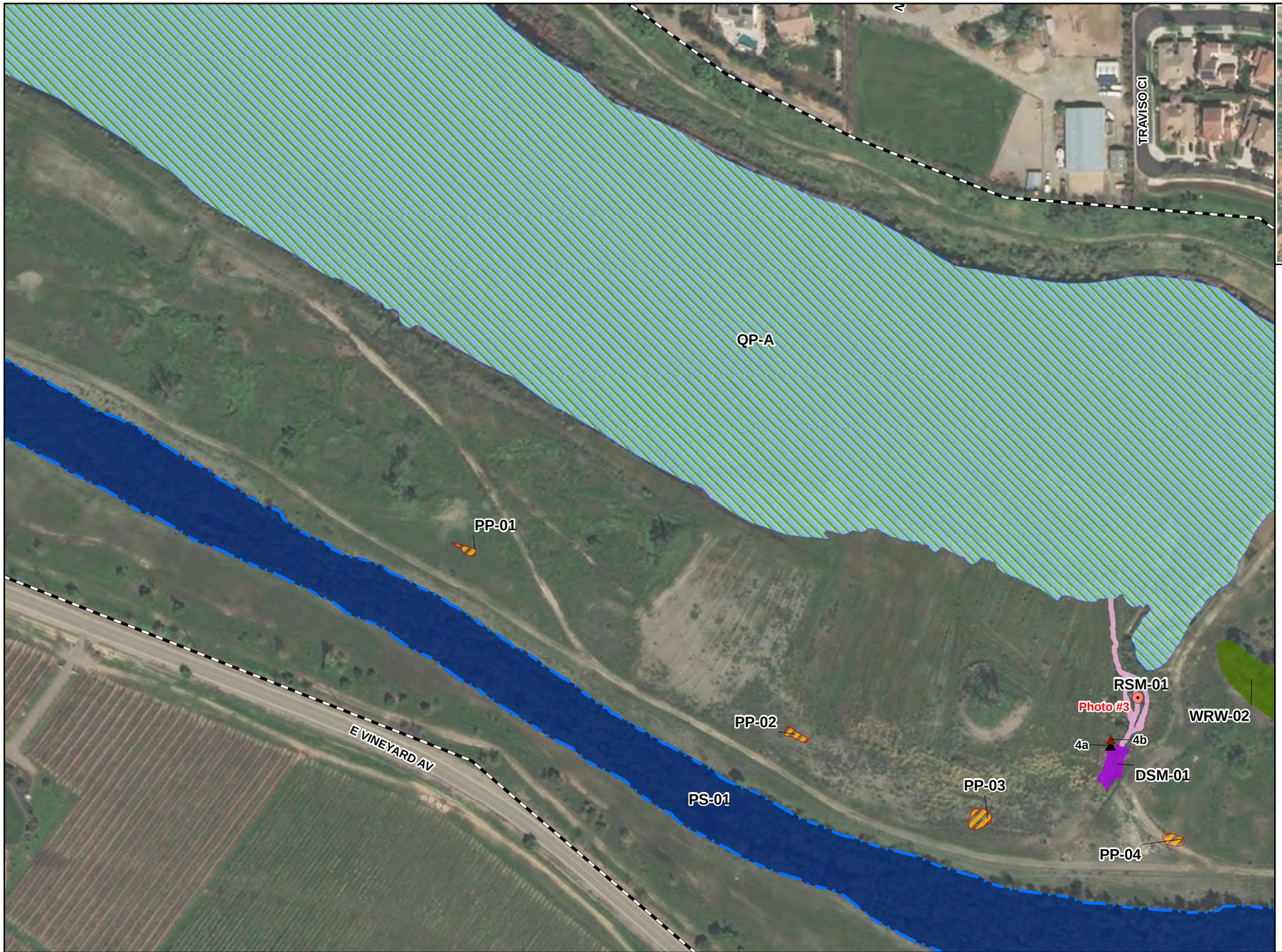

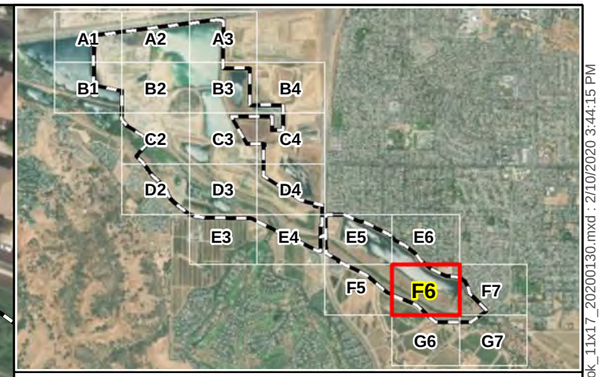

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Depressional Seasonal Marsh - 0.06 Acre
- Riverine Seasonal Marsh - 0.09 Acre
- Willow Riparian Wetland - 2.69 Acres
- Perennial Stream - 66.96 Acre
- Quarry Pond - 122.66 Acres
- Percolation Pond - 0.07 Acre

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

Drawn By: MUB, JCD
Delineation Date: 2/15/2019 Revised 02/10/2020

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE F6

ELIOT FACILITY

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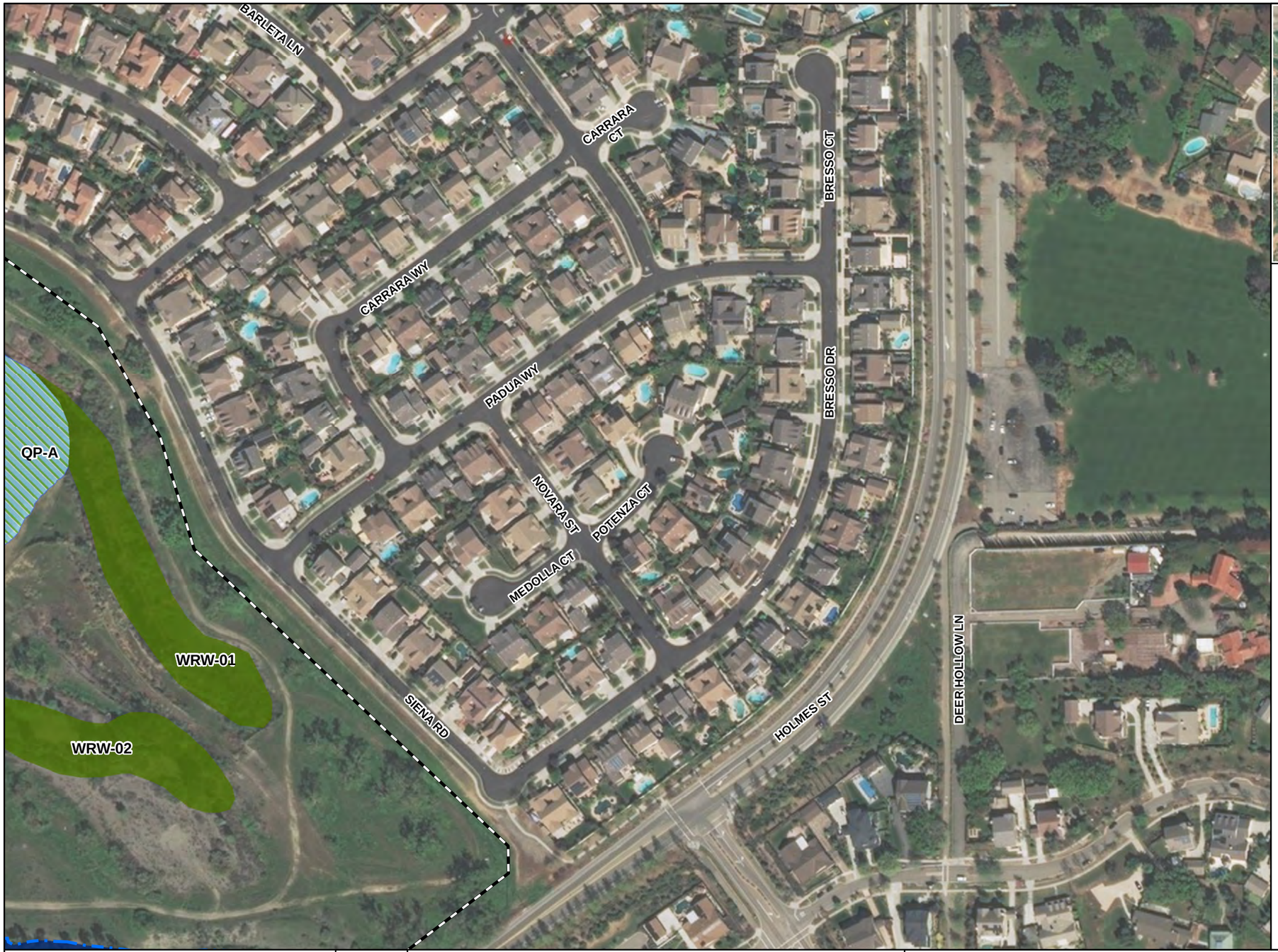

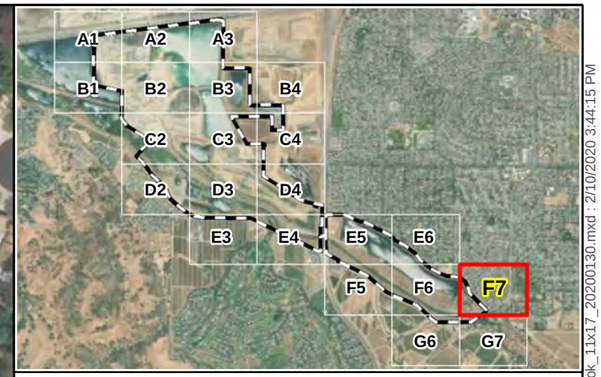

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Willow Riparian Wetland - 2.69 Acres
- Perennial Stream - 66.96 Acre
- Quarry Pond - 122.66 Acres

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE F7

ELIOT FACILITY

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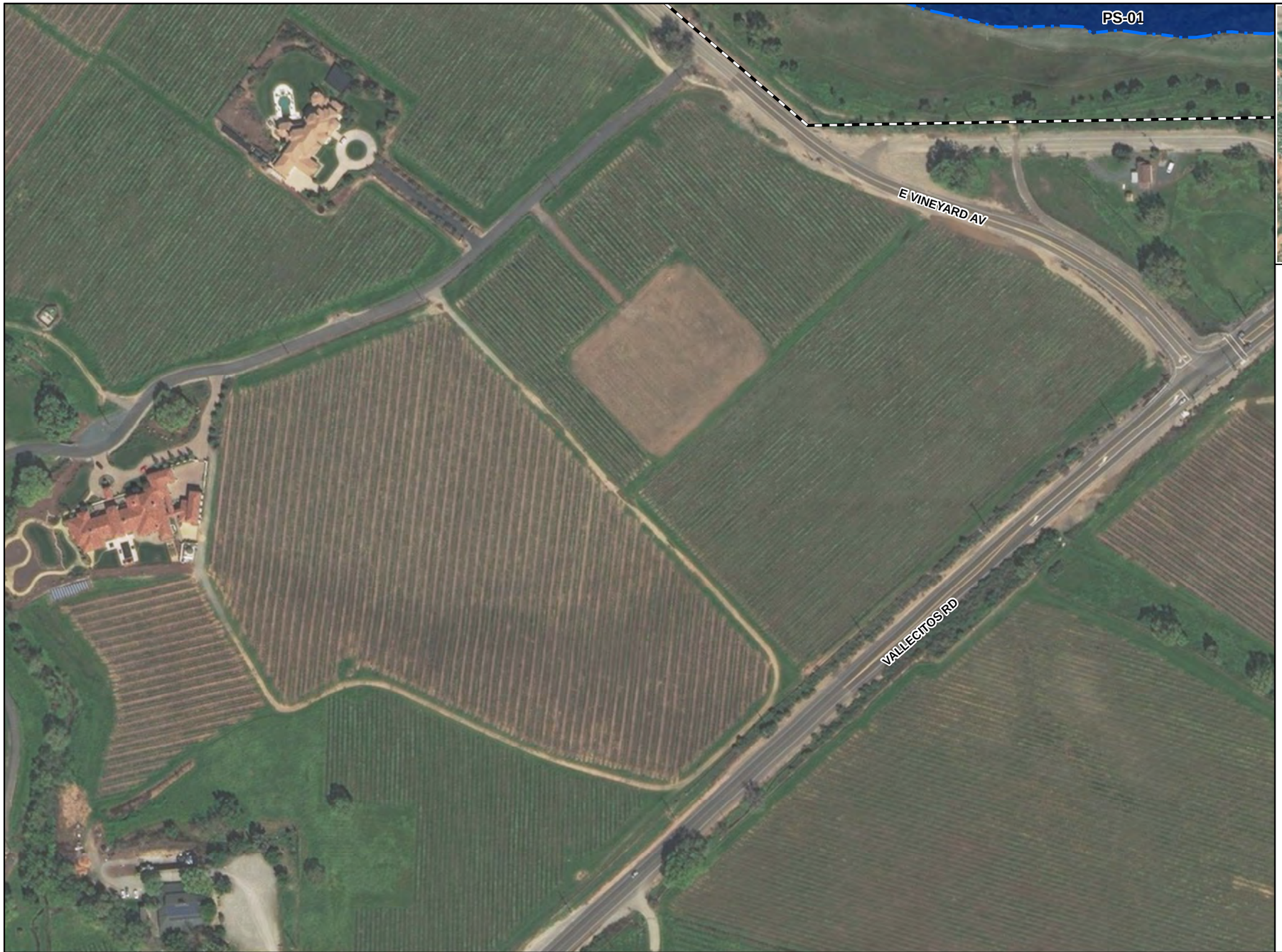

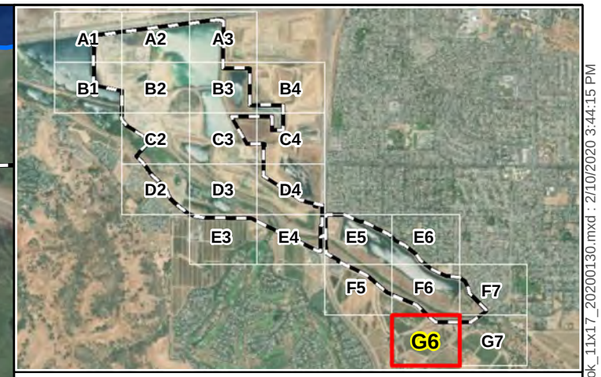

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Perennial Stream - 66.96 Acre

Aerial Imagery Date: 06/06/2014
Aerial Imagery Source: Airphrame Drone Aerial Imagery

HELIX Environmental Planning

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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE G6

ELIOT FACILITY

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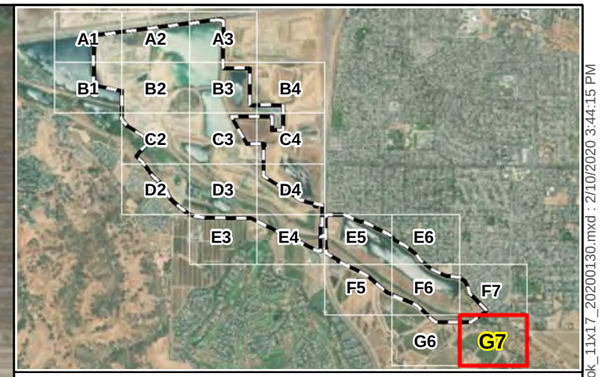

Legend

- Upland Data Point
- Wetland Data Point
- Photo Point
- Culvert
- Ordinary High Water Mark
- Study Area ±920 Acres
- Perennial Stream - 66.96 Acre

Aerial Imagery Date: 06/06/2014
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ELIOT FACILITY
AQUATIC RESOURCES DELINEATION MAP

FIGURE 3
PAGE G7

ELIOT FACILITY

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2.1.1 Waters of the U.S.

Any person, firm, or agency planning to alter or work in Waters of the U.S., including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 United States Code [USC] 1344). Waters of the U.S. are defined as:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate wetlands;

(3) The territorial seas;

(4) All impoundments of waters otherwise identified as waters of the United States under this section;

(5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;

(6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;

(7) All waters in paragraphs (a)(7)(i) through (v) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (a)(7)(i) through (v) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

(i) ***Prairie potholes.*** Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.

(ii) ***Carolina bays and Delmarva bays.*** Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.

(iii) ***Pocosins.*** Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.

(iv) ***Western vernal pools.*** Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.

(v) ***Texas coastal prairie wetlands.*** Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.

(8) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

Within non-tidal waters that meet the definition given above, and in the absence of adjacent wetlands, the indicator used by the USACE to determine the lateral extent of its jurisdiction is the OHWM, which is defined as that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Wetlands are defined under the CFR Part 328.3 as those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The USACE has determined that not all features which meet the waters of the U.S. definition are, in fact, considered waters of the U.S. Normally, features not considered waters of the U.S. include:

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the U.S. Environmental Protection Agency (USEPA).

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

(ii) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(i) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(iv) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

(vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Other features may be excluded based on Federal court rulings (e.g., SWANCC and Rapanos) or by regulation. Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. The California Department of Fish and Wildlife (CDFW) requires notification prior to commencement, and a Streambed Alteration Agreement (SAA) pursuant to California Fish and Game Code Subsection 1600 et seq., if a proposed activity would result in the alteration of a stream, river, or lake in California.

On January 23, 2020, the USEPA and the USACE finalized the Navigable Waters Protection Rule to define Waters of the U.S. and establish federal regulatory authority under the Clean Water Act. The rule will become effective 60 days after publication in the Federal Register. To date, the rule has not yet been published.

2.1.2 Waters of the State

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by section 401 of the Federal CWA. Although the Clean Water Act is a Federal law, section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues WQC for discharges requiring U.S. Army Corps of Engineers' (Corps) permits for fill and dredge discharges within waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water

Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Office of Administrative Law approved the Procedures on August 28, 2019, and the Procedures will become effective on May 28, 2020. The SWRCB circulated draft implementation Guidance on the Procedures in February 2020, with final Guidance anticipated in April 2020.

Under the Procedures and the State Water Code (Water Code §13050(e)), "waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to waters of the State, which includes waters of the U.S. and non-federal waters of the State, requires filing of an application under the Procedures.

3.0 METHODS

3.1 SITE SPECIFIC REFERENCES

Available information pertaining to the natural resources of the region and specific to the Study Area were reviewed. All references reviewed for this delineation are listed in Section 6.0. Pertinent site-specific reports, online resources and general references utilized for the delineation include the following:

- Baldwin. G., D. Goldman, D. Keil, R. Patterson, and T.J. Rosatti. 2012. *The Jepson Manual, 2nd Edition*. Vascular Plants of California. ISBN: 9780520253124. January 12, 2013. 1,600 pp;
- Calflora. 2017. *Information on California plants for education, research and conservation. Berkeley, California*. Available online at: http//www.calflora.org/;
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, MS;
- GretagMacbeth. 2000. Munsell Soil Color Charts. New Windsor, NY;
- Lichvar, R.W., Butterwick, M., Melvin, N.C., and Kirchner, W. 2016. *The National Wetland Plant List: 2016 Wetland Ratings*. Phytoneuron 2016-30: 1–17. Published April 28, 2016. ISSN 2153 733X;
- U.S. Army Corps of Engineers (USACE). 2008a. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. U.S. Army Engineer Research and Development Center. Vicksburg, MS;
- USACE. 2008b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). U.S. Army Engineer Research and Development Center. Vicksburg, MS;

- USACE. 2016b. *National Wetland Plant List Viewer v3.3*. Available: http://wetland_plants.usace.army.mil;

- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 1966. Soil Survey of the Alameda Area, California. USDA, NRCS, in cooperation with the Regents of the University of California (Agricultural Experiment Station);

- USDA, NRCS. 2017b. *Web Soil Survey*. Available: http://websoilsurvey.sc.egov.usda.gov;

- U.S. Fish and Wildlife Service. 2018. *National Wetlands Inventory Mapper*. Available at: https://www.fws.gov/wetlands/data/Mapper.html. Accessed; and

- U.S. Geological Survey (USGS). 1961. *Livermore, California*. 7.5-minute series topographic quadrangle (photo revised 1980). U.S. Department of the Interior.

3.2 RESEARCH AND FIELD METHODOLOGY

This delineation utilized the USACE's 1987 three-parameter (vegetation, hydrology, and soils) methodology to delineate aquatic resources. The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid west Region was also used in conjunction with the Corps Manual for delineations. Where differences in the two documents occur, the Regional Supplement takes precedence over the Corps Manual. In addition, the USACE's Field Guide to the Identification of the OHWM in the Arid west Region of the United States was utilized in order to delineate other waters of the U.S.

The Arid west Region consists of all or significant portions of 11 states, including California (USACE 2008b). This region is differentiated from other surrounding areas by having a predominantly dry climate and long summer dry season. Vegetation characteristics of the Arid west Region include little to no forest cover consisting of mainly annual grasslands, shrublands, hardwood savannas, deciduous woodlands, and pinyon/juniper woodlands. The Arid west Supplement was used on this site because it is located in the Mediterranean California Land Resource Region (LRR C), an area which is characterized by warm, wet winters and dry summers.

The three-parameter methodology requires the collection of data on soils, vegetation, and hydrology at several locations to establish the jurisdictional boundary of wetlands. Additional methods to identify and delineate other waters of the U.S. (e.g., streams, drainages, lakes) were used as applicable. The method typically used for delineation of non-wetland waters of the U.S. is the delineation of the OHWM.

A review of historic and recent aerial photographs, topographic maps, and soils survey data was conducted before reviewing and conducting the delineation of the Study Area (USDA 2018). Initial field surveys were conducted on November 15 and 16, 2017, and April 3 and 4, 2018. On November 5, 2019, a field verification of aquatic resources delineated within the Study Area was conducted with representatives from HELIX and the USACE. A subsequent email from the USACE was received on November 7, 2019, with questions regarding additional features that needed to be evaluated, as well as a reassessment of the previously mapped boundary of the Arroyo del Valle OHWM. At the request of the USACE, HELIX biologists conducted another site assessment on November 25 and 26, 2019, to delineate potential new aquatic features within an added portion in the southwest portion of the Study Area, and to confirm existing mapping of previously delineated features.

The Study Area was visually inspected on foot and data collected on vegetation, soils, and hydrology. The channel of the Arroyo del Valle was surveyed for wetland hydrology indicators such as, but not limited to, the presence of litter or debris, wracking, matted vegetation, scouring, deposition and the presence of a bed and bank. A list of all plant species observed during the delineation and their respective wetland indicator status is provided in Appendix C. Correlations were developed between the three parameters (vegetation, hydrology, and soils) to make wetland determinations. Specifically, plots at data point locations were evaluated to determine the composition and identification of dominant plant species. The indicator status of all dominant plant species [as determined by the current National Wetland Plant List] (USACE 2019) was applied and evaluated as part of the vegetation assessment portion of the wetland determination process. The plant indicator status includes the following categories:

Obligate wetland plants (OBL):	Occur almost always under natural wetland conditions (estimated probability > 99%).
Facultative wetland plants (FACW):	Usually occur in wetlands, but occasionally found in non-wetlands (67-99%).
Facultative plants (FAC):	Equally likely to occur in wetlands and non-wetlands (34-66%).
Facultative upland plants (FACU):	Usually occur in non-wetlands, but occasionally found in wetlands (1-33%).
Upland (UPL):	Occur almost always under natural conditions in non-wetlands (>99%); may occur in wetlands in other regions.

The absolute cover was estimated for each vegetation stratum; these strata include tree, sapling/shrub, herb, and woody vine. Species that are dominant in more than one stratum were counted multiple times. Some wetland plant communities may fail a test based only on dominant species. Where indicators of hydric soils and hydrology are present, and vegetation is not dominated by hydrophytes, the vegetation was re-evaluated with the prevalence index, which takes into consideration all plant species in the community, not just the subset of dominant species.

The onsite soils were examined for hydric indicators. Hydric soil indicators are described in the Field Indicators of Hydric Soils in the U.S., Version 7.0 (USDA, NRCS 1966 and 2019). If one or more of these indicators are present, then the soil is hydric. Nearly all hydric soils exhibit characteristic morphologies that are caused by anaerobic, reduced soil conditions due to prolonged soil saturation. The most commonly observed indicators are related to iron (Fe) and manganese (Mn) redox concentrations or depletions. Less commonly observed indicators include gleyed matrix and black histic (low amounts of Fe-Mn and accumulations of organic carbon).

Observations were made and recorded for both primary and secondary wetland hydrology indicators, if present. Without monitoring or direct observation of inundation/saturation, indirect indicators of wetland hydrology are typically used and include primary indicators such as water marks, drift lines, and sediment deposits, or secondary indicators such as crayfish burrows or the FAC-neutral test. These results are presented in Figure 3.

3.3 GPS DATA INTEGRATION

Boundaries of wetlands and other waters of the U.S. within the Study Area were surveyed and mapped with a Trimble GeoXT Global Positioning System (GPS) hand-held unit. This is a mapping-grade GPS unit capable of real-time differential correction and sub-meter accuracy. The GPS data were downloaded from the unit and differentially corrected utilizing Trimble Pathfinder Office software and appropriate base station data, and then converted to ESRI® shape file format. Data are typically exported to the Geographic Information System (GIS) software in the State Plane coordinate system (NAD 83) with units as "survey feet". Within the GIS, data are edited, and linear features are built into polygons using recorded width information. All wetland shape files are merged to create a single wetland file with calculated acreages.

4.0 RESULTS

4.1 SITE LOCATION AND LAND USE

4.1.1 Site Location

The approximate 920-acre Study Area is located in unincorporated Alameda County, between the cities of Pleasanton and Livermore. The Study Area occurs within portions of Sections 13, 14, 19, 23, 24, 29, and 30, within Township 3 South, and Ranges 1 and 2 East of the USGS 7.5-minute series Livermore quadrangle. The approximate location of the center of the Study Area is 37° 39’ 40.438” North, 121° 48’ 54.723” West (Figure 1).

4.1.2 Land Use

The majority of the Study Area is an active sand and gravel quarry that has been continuously mined for over 100 years. Primary land uses surrounding the Study Area include industrial scale mining activities (Vulcan Materials Quarry), residential housing, agricultural activities, and open space in the form of Shadow Cliffs Regional Recreation Area and Sycamore Grove Park. There is no foreign commerce associated with aquatic resources within the Study Area.

4.1.3 Site History

The Eliot Facility is a sand and gravel quarry that has been mined for over 100 years. During that time, nearly the entirety of the Study Area has been repeatedly and regularly disturbed by mining activities, including the Arroyo del Valle. Mining activities are currently ongoing and dynamic. The long-term actively mined nature of the Study Area has produced a highly degraded non-natural landscape both within the Arroyo del Valle and within the surrounding upland areas.

4.2 PHYSICAL FEATURES

4.2.1 Soils

The Natural Resource Conservation Service (NRCS) has mapped and identified eleven map units occurring within the Study Area (Figure 2): Livermore Gravelly Loam; Livermore Very Gravelly Coarse Sandy Loam; Pleasanton Gravelly Loam, 0 to 3 Percent Slopes; Pleasanton Gravelly Loam, 3 to

12 Percent Slopes; Positas Gravelly Loam, 2 to 20 Percent Slopes, Eroded; Yolo Loam, 0 to 3 Percent Slopes; Yolo Loam Over Gravel, 0 to 3 Percent Slopes; Yolo Sandy Loam, 0 to 3 Percent Slopes; Zamora Silt Loam, 0 to 4 Percent Slopes; Gravel Pit; and Riverwash. Also depicted in Figure 2 there are features consisting largely of open water, including silt ponds and quarry ponds. The general characteristics and properties associated with these map units are described below.

(Lg) Livermore Gravelly Loam: This soil type occurs on alluvial fans and fluvial terraces. The parent material is alluvium derived from sandstone and shale. Most areas of this soil type are nearly level and have slopes of three percent or less. The amount of gravel ranges from 20 to 40 percent. The available water storage is low, and it is somewhat excessively drained. The hydric soils list for Alameda County does not identify this soil type as hydric (USDA, NRCS 1966 and 2019).

(Lm) Livermore Very Gravelly Coarse Sandy Loam: This soil type occurs on alluvial fans and fluvial terraces. The parent material is alluvium derived from sandstone and shale. Most areas of this soil type are level or nearly so, with slopes no greater than seven percent. The percent of gravel ranges from 40 to 75 percent. The available water storage is low, and it is somewhat excessively drained. The hydric soils list for Alameda County does not identify this soil type as hydric (USDA, NRCS 1966 and 2019).

(PgA) Pleasanton Gravelly Loam, 0 to 3 Percent Slopes: This soil type occurs on alluvial fans and fluvial terraces. The parent material is alluvium derived from sandstone and shale. It is reddish-brown in color, medium acidic to moderately alkaline clay substrate. This soil type is extremely hard when dry and plastic when wet. The available water storage is moderate, and it is well drained. This soil type is used for pasture, range, and dry farming. The hydric soils list for Alameda County does not identify this soil type as hydric (USDA, NRCS 1966 and 2019).

(PgB) Pleasanton Gravelly Loam, 3 to 12 Percent Slopes: This soil type occurs on alluvial fans and fluvial terraces. The parent material is alluvium derived from sandstone and shale. The available water storage is moderate, and it is well drained. This soil type is used for farming activities. The hydric soils list for Alameda County does not identify this soil type as hydric (USDA, NRCS 1966 and 2019).

(PoC2) Positas Gravelly Loam, 2 to 20 Percent Slope, Eroded: This soil type is located on fluvial terraces. The parent material is alluvium derived from sandstone and shale. The available water storage is low, and it is well drained. These soils have less than 35 percent clay, moderate drainage, very slow permeability, and very high runoff. The hydric soils list for Alameda County does not identify this soil type as hydric (USDA, NRCS 1966 and 2019).

(YmA) Yolo Loam, 0 to 3 Percent Slopes: This soil type occurs on alluvial fans. The parent material is alluvium derived from sedimentary rock. The available water storage is high, and it is well drained. This soil type is composed of 85 percent of Yolo and similar soils, and 15 percent of minor components made up of 5 percent Unnamed, 5 percent Sycamore, and 5 percent Livermore soils. The hydric soils list for Alameda County does not identify this soil type as hydric; however, the unnamed soil inclusion is rated as hydric (USDA, NRCS 1966 and 2019).

(Yo) Yolo Loam Over Gravel, 0 to 3 Percent Slopes: This soil type is located on valley floors. The parent material is alluvium derived from sandstone and shale. The available water storage is moderate, and it is well drained. The permeability is moderately-high to high and the surface runoff is low. This soil type is composed of 85 percent of Yolo and similar soils, and 15 percent of minor components made up of 5 percent Unnamed, 5 percent Sycamore, and 5 percent Livermore soils. The hydric soils list for Alameda

County does not identify this soil type as hydric; however, the unnamed soil inclusion is rated as hydric (USDA, NRCS 1966 and 2019).

(Ys) Yolo Sandy Loam, 0 to 3 Percent Slopes: This soil type occurs on fans and valley floors. The parent material is alluvium derived from sandstone and shale. The available water storage is moderate, and it is well drained. This soil type is composed of 85 percent of Yolo and similar soils, and 15 percent of minor components made up of 5 percent Unnamed, 5 percent Sycamore, and 5 percent Livermore soils. The hydric soils list for Alameda County does not identify this soil type as hydric; however, the unnamed soil inclusion is rated as hydric (USDA, NRCS 1966 and 2019).

(Za) Zamora Silt Loam, 0 to 4 Percent Slopes: This soil type occurs on flood plains. The available water storage is high, and it is well drained. This soil has parent material consisting of alluvium derived from sandstone and shale. This soil is composed of 85 percent of Zamora and similar soils, and 15 percent of minor components made up of 10 percent Pleasanton, and 5 percent Rincon soils. The hydric soils list for Alameda County does not identify this soil type as hydric (USDA, NRCS 1966 and 2019).

(GP) Gravel Pit: This unit consists of gravel substrate. It is composed of 95 percent Gravel pit, and 5 percent of minor components made up of 5 percent of Unnamed soils. The hydric soils list for Alameda County does not identify this unit as hydric; however, the unnamed soil inclusion is rated as hydric (USDA, NRCS 1966 and 2019).

(Rh) Riverwash: This unit occurs in channels and is excessively drained. The permeability is very high, and the surface runoff is negligible. This soil has parent material consisting of alluvium derived from sandstone and shale. This soil is composed of 100 percent Riverwash. The hydric soils list for Alameda County identifies this soil type as hydric (USDA, NRCS 1966 and 2019). Riverwash is the map unit that occurs within the Arroyo del Valle. The hydric soils list for Alameda County identifies this map unit as having a positive hydric rating and a hydric criterion of four. According to the NRCS, a map unit with a hydric criterion of four is correlated to map unit components that are frequently flooded for a long duration or very long duration during the growing season such that:

a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or

b. Show evidence that the soils meet the definition of a hydric soil.

(W) Water: Areas mapped as water in the Study Area generally consist of relatively large areas of open water, such as quarry ponds and silt ponds (USDA, NRCS 2019).

4.2.2 Topography

The vast majority of the topography within the Study Area has been severely altered as the result of continual mining activities for over 100 years, resulting in a highly degraded, artificially contoured landscape. The topography within the Study Area varies from nearly flat to steeply sloped and consists of many man-made topographic alterations including but not limited to basins, ponds, the channel of the Arroyo del Valle and adjacent slopes, actively mined areas, gravel piles, sand piles and an intricate and dynamic road network that facilitates the movement of heavy mining equipment as well as the accrual and removal of aggregate material. The elevation within the Study Area ranges from approximately 254 to 460 feet (77 to 140 meters) above msl.

4.2.3 Regional Hydrology

The Study Area is located within Land Resource Region C, an area characterized as having a Mediterranean climate of relatively warm wet winters and dry summers. Most precipitation falls between November and April (U.S. Climate Data 2019). According to Weather Underground, the average annual rainfall for Livermore, located approximately four miles northeast of the Study Area, is 14.61 inches (Weather Underground 2017). At the time the initial delineation was conducted, rainfall totals for the 2017-2018 season were below normal. However, the 2016-2017 water year was officially California's second wettest year on record and many primary and secondary wetland hydrology indicators from that water year, if present, would persist into the 2017-2018 water year.

Direct precipitation, runoff from adjacent uplands, groundwater, stormwater runoff, arroyos, creeks, tidal lagoons (Lake Merritt) and artificial impoundments in the form of ponds and reservoirs constitute the majority of the hydrologic resources within the greater region.

The hydrology of the region has been significantly and permanently altered via the construction and management of a network of flood control structures such as levees, pump stations and related hydrologic resource manipulation and management activities such as the channelization of natural creeks and the impoundment of hydrologic resources. For example, the construction of Del Valle Dam resulted in the creation Lake Del Valle, a reservoir. Currently, the hydrology of the Arroyo del Valle is supplemented via controlled releases from Del Valle Dam and it now functions as an unnatural, highly altered and degraded system.

The Arroyo del Valle flows through the southern portion of the Study Area and is part of the Alameda Creek Watershed, one of the major drainages of the Livermore/Amador Valley. The Arroyo del Valle begins in northeastern Santa Clara County and flows northwesterly into Alameda County where it is impounded by Del Valle Dam and forms Lake Del Valle. The Arroyo del Valle then flows downstream and westward from Lake Del Valle and eventually through the Study Area. The Arroyo del Valle is tributary to Arroyo de la Laguna, itself a tributary to Alameda Creek. In turn, Alameda Creek is tributary to the San Francisco Bay, a Traditionally Navigable Water, approximately 18 air miles from the Study Area.

4.2.4 Site-Specific Hydrology

The Study Area is located within two watersheds: Dry Creek-Arroyo Valle, Hydrologic Unit Code (HUC) 180500040503 and Lower Arroyo Mocho, HUC 180500040503. The hydrology within the Study Area has been severely altered due to continual mining activities which have occurred for over 100 years and the upstream construction of flood control/prevention infrastructure, i.e., the Del Valle Dam.

Mining activities have resulted in the repeated channelization and relocation of the Arroyo del Valle, affecting the duration and rate of flows as well as overall stream flow dynamics. The upstream section of the Arroyo del Valle, from the Study Area's southeastern boundary at Vallecitos Road and approximately to the point where it flows under Highway 84, has been artificially straightened and channelized; it is relatively narrow and constrained to a much greater degree than the channel downstream of Highway 84, which exhibits a meandering nature.

The Arroyo del Valle is a perennial stream depicted as a blue-line waterway on the USGS Livermore, California 7.5-minute series topographic quadrangle. Prior to the construction of Del Valle Dam in 1968, the Arroyo del Valle would have conveyed flows after significant storm events during the wet season

and/or after significant unseasonable storm events. Post-dam construction, the Arroyo del Valle flows year-round due to the controlled release of water from Del Valle Dam.

Direct precipitation, runoff from adjacent uplands, groundwater, stormwater runoff and the controlled upstream release of water from Del Valle Dam constitute the majority of the hydrologic resources within the Study Area. Artificially created aquatic resources on the site include silt ponds used to capture and store stormwater runoff, quarry ponds that were created when excavation activities occurred at a depth below the water table, causing the permeation of groundwater and periodic stream flows through inlet channels into inactive mine pits, percolation ponds, as well as breached quarry ponds that are artificial excavated pits within the OHWM of the Arroyo del Valle. Additional hydrologic features identified and mapped within the Study Area include one perennial stream (the Arroyo del Valle) and three intermittent streams. Diagnostic characteristics of the features mapped within the Study Area are defined and discussed below in Section 4.4.

The U.S. Fish and Wildlife Wetland Inventory Mapper has mapped five (5) wetland communities within the Study Area including Freshwater Forested/Shrub Wetland, Riverine habitat, Lake, Freshwater Pond, and Freshwater Emergent Wetland (USFWS 2019).

4.3 VEGETATION

The vegetation communities within the Study Area have been severely degraded as a result of intensive and ongoing mining activities for over 100 years. The majority of vegetation communities that once occurred within the Study Area have either been entirely displaced with primarily non-native species or have been severely altered and/or impacted by continual mining activities occurring for over 100 years. The vegetation within the actively mined portions of the Study Area is predominantly limited to locations around mining infrastructure, between and alongside roads utilized to access the active quarry, relatively undisturbed piles of sand and gravel, and other areas that have remained undisturbed for sufficient periods of time to allow colonization by primarily annual non-native plant species. In the southern and western portions of the Study Area immediately adjacent to and within the Arroyo del Valle, the vegetation has had much longer to re-establish in areas that were previously impacted by mining activities and broadly consists of more perennial, riparian plant species. The vegetation types occurring in the Study Area are described below. A complete list of plant species observed within the Study Area is included in Appendix C.

Upland Vegetation Communities

4.3.1 Disturbed/Developed/Actively Mined

Current and past mining-related activities have created a large amount of disturbed and degraded land within the Study Area. These areas are dominated by ruderal plant species; in other words, those plant species first able to colonize disturbed areas. Representative plant species observed within these portions of the Study Area include but are not limited to the following species: soft chess (*Bromus hordeaceous*), ripgut brome (*Bromus diandrus*), foxtail chess (*Bromus madritensis*), slim oat (*Avena barbata*), and yellow star-thistle (*Centaurea solstitialis*).

Within the Facility, there are several active mining and gravel extraction areas and pits that have been excavated to depths that sometimes reach the groundwater level and therefore are at least periodically inundated on aerial imagery. These areas are categorized as active industrial mining ponds. These active

industrial mining ponds do not have formal delineated boundaries as they are subject to change due to ongoing mining activities. These active industrial mining ponds have been excavated in upland areas and their groundwater pools are solely the result of the depth of excavation of the pits. Therefore, these features are not represented on Figure 3 and are not further discussed in this report.

4.3.2 Sycamore Woodland

Sycamore woodland occurs within the southeastern portion of the Study Area. This vegetation type is comprised primarily of California sycamore (*Platanus racemosa*) with an understory most commonly composed of non-native plant species such as, smilo grass (*Stipa miliacea* var. *miliacea*), milk thistle (*Silybum marianum*), soft chess, ripgut brome, slim oat, and yellow star-thistle.

4.3.3 Native Revegetation Area

Native revegetation areas occur primarily within the southeastern portion of the Study Area. This vegetation type is comprised of valley oak *(Quercus lobata*), coast live oak (*Quercus agrifolia* var. *agrifolia*), and occasionally northern California black walnut (*Juglans hindsii*), and California sycamore.

4.3.4 Ruderal grassland

Ruderal grasslands are areas that have been disturbed by human activity. When vegetation is present, the areas are similar to non-native grasslands and include ripgut brome (*Bromus diandrus*), slender oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), and milk thistle (*Silybum marianum*). Some native species were also present within this biological community including coyote brush (*Baccharis pilularis*) and toyon (*Heteromeles arbutifolia*).

Aquatic Communities

4.3.5 Willow Riparian Wetland

Willow riparian wetland occurs both Swithin and outside of the OHWM of the Arroyo del Valle within the Study Area. For the portions of this community within the OHWM of the Arroyo del Valle, it is included in the perennial stream acreage in Figure 3. This vegetation type is comprised primarily of narrow-leaved willow (*Salix exigua* var*. hindsiana*) cattails (*Typha* spp.), tall flatsedge (*Cyperus eragrostis*), tule (*Schoenoplectus acutus* var. *occidentalis*), Bigelow's sneezeweed (*Helenium bigelovii*), watercress (*Nasturtium officinale*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii* ssp. fremontii), and white alder (*Alnus rhombifolia*).

4.3.6 Giant Reed-Willow Riparian Wetland

This biological community is similar to willow riparian wetland described above, but is dominated by giant reed (*Arundo donax*) and willow (*Salix* spp.) trees, with interspersed pampas grass. This community is entirely within the OHWM of the Arroyo del Valle and therefore included in the perennial stream acreage in Figure 3.

4.3.7 Freshwater Marsh

Freshwater marsh includes both depressional and riverine seasonal marsh habitats. Portions of these communities occur both within the OHWM of the Arroyo del Valle and outside of the OHWM. The

portion of this community that occurs within the OHWM of the Arroyo del Valle is included in the perennial stream acreage in Figure 3. Marsh habitats outside of the OHWM of the Arroyo del Valle are mapped as unique features in Figure 3. This vegetation type is comprised of common reed (*Phragmites australis*), tall flatsedge, tule, and cattails.

4.3.8 Breached Quarry Pond

These features are hydrologically connected to the Arroyo del Valle stream channel and receive flows directly from the Arroyo del Valle. Overstory vegetation surrounding these features include red, sand bar, and arroyo willow. Dominant understory vegetation in the centrally located breached ponds includes tall flatsedge, fennel (*Foeniculum vulgare*), Himalayan blackberry (*Rubus armeniacus*), and rough cocklebur (*Xanthium strumarium*). The northern breached quarry pond is dominated by overstory of cottonwoods and willows with steep banks dominated by coyote brush and non-native grasses.

4.3.9 Quarry Pond

These man-made features are a result of aggregate mining activities. These mining pits are now used for water storage and supply for the active mining and processing operations. Dominant vegetation within riparian fringes of these features include red willow, and arroyo willow along the eastern portion of Quarry Pond A. Additionally, elderberry shrubs (*Sambucus nigra* ssp. *caerulea*) and white sage (*Salvia apiana*) line the margins of Quarry Pond A in the eastern portion of the Study Area.

4.3.10 Silt Pond

This actively managed man-made basin is part of ongoing quarry operations. Vegetation cover is moderate and dominated by non-native grasses and forbs such as soft chess, ripgut brome, and slim oat. Milk thistle and coyote brush line the steep slopes of the pond.

4.4 CLASSIFICATION OF AQUATIC RESOURCES

As discussed previously in Section 2.0, aquatic resources are classified into multiple types based on topography, edaphics (soils), vegetation, and hydrologic regime. Primarily, the USACE recognizes two distinctions: wetlands and non-wetland waters of the U.S. Non-wetland waters are commonly referred to as “other waters”.

Aquatic features delineated within the Study Area include: 0.06 acre of depressional seasonal marsh, 0.09 acre of riverine seasonal marsh, 2.69 acres of willow riparian wetland, 0.34 acre of intermittent stream, 66.96 acres of perennial stream (Arroyo del Valle), 0.09 acre of ephemeral drainage, 17.14 acres of breached quarry ponds, 0.14 acre of seasonal excavated basin, 122.66 acres of quarry ponds, 108.50 acres of silt ponds, 0.07 acre of percolation ponds, and 0.24 acre of excavated basin (Figure 3). A description of all the features delineated within the Study Area are provided in the following sections. Representative photographs of aquatic features are included in Appendix D.

4.4.1 Depressional Seasonal Marsh

A total of 0.06 acre of depressional seasonal marsh was delineated within the Study Area outside of the Arroyo Del Valle (Figure 3). Depressional seasonal marshes are wetlands that are seasonally inundated or saturated, but inundation/saturation persists for some period into the warm season. The persistence

of inundation/saturation into the warm season permits the growth of primarily perennial herbaceous plant species capable of withstanding extended periods of inundation or saturated soil conditions. These features are typically located on the fringes of naturally occurring or artificially created impoundments, such as ponds or reservoirs. These features are also associated with slow moving riverine systems where natural and/or artificial flows persist into the warm season. The depressional seasonal marsh within the Study Area appears to be associated with the historic alignment of the Arroyo del Valle although it is not hydrologically connected to the current stream alignment. Vegetation observed in the seasonal marsh within the Study Area included: cattail, pampas grass (*Cortaderia jubata*), and stinkwort (*Dittrichia graveolens*).

4.4.2 Riverine Seasonal Marsh

A total of 0.09 acre (approximately 496 linear feet) of riverine seasonal marsh was delineated within the Study Area outside of the Arroyo del Valle (Figure 3). Seasonal marshes are those wetlands that are seasonally saturated and/or inundated and the saturation/inundation persists for some period into the warm season, but generally not beyond. Plants species found within riverine seasonal marshes are typically adapted to this hydrologic regime. Riverine seasonal marshes are dominated by unidirectional flow of water for some portion of the wet season. Riverine seasonal marshes are typically represented by areas that receive additional hydrology from nearby perennial features during high flow or flood level events. These features are typically located along the fringes of slow moving, low gradient riverine systems or at the lower extents of the downstream terminus of riverine seasonal features. Vegetation observed in the riverine seasonal marsh within the Study Area was similar to the depressional seasonal marsh described above.

4.4.3 Willow Riparian Wetland

A total of 2.69 acres (approximately 1,410 linear feet) of willow riparian wetland was delineated within the Study Area outside of the Arroyo del Valle (Figure 3). Riparian wetlands support a relatively dense vegetation cover comprised mainly of riparian tree and shrub species. Riparian wetlands typically occur adjacent to perennial, flowing features such as creeks and streams. In this case, the willow riparian wetland is associated with an arm of Quarry Pond A. From a review of historical photos, this area appears to follow the historical alignment of the Arroyo del Valle before it was realigned for mining operations associated with Quarry Pond A. The willow riparian wetland does not appear to be hydrologically connected with the current alignment of the Arroyo del Valle. Plant species observed within this community are described in Section 4.3.3.

4.4.4 Intermittent Stream

A total of 0.34 acre (approximately 597 linear feet) of intermittent streams were delineated within the Study Area (Figure 3). The intermittent streams originate from outside of the Study Area. They are conveyed into the Study Area via culverts installed on Vineyard Avenue and are directly tributary to the Arroyo del Valle. These features generally lack adjacent wetland vegetation, the banks being commonly dominated by upland non-native plant species, but generally exhibit a well-defined bed and bank and were flowing at the time they were delineated.

4.4.5 Perennial Stream (Arroyo del Valle)

A total of 66.96 acres of perennial stream (the Arroyo del Valle) (approximately 13,275 linear feet) was delineated within the Study Area (Figure 3). Perennial streams are features that may not meet the three-parameter criteria for hydrophytic vegetation, wetland hydrology, and hydric soils but do convey water and exhibit an OHWM. Perennial streams generally convey unidirectional water flows throughout the entire year and typically consist of a bed and bank and a channel which may be vegetated in part or in full or devoid of vegetation altogether due to the scouring effects of flowing water. Perennial streams are often bordered by wetland vegetation communities of various composition and cover depending on flow rates, duration of flows and soil types. Perennial streams also often include wetland vegetation types within the OHWM, as is the case with the Arroyo del Valle.

The majority of the channel of the Arroyo del Valle is vegetated with hydrophytic plant species such as, but not limited to, the following: mule fat (*Baccharis salicifolia* ssp. *salicifolia*) red willow, arroyo willow, narrow leaved willow, white alder, giant reed, common reed, tule, and cattails. Conversely, there are many gravel bars (primarily but not solely within the lower stretch of the Arroyo del Valle, downstream of Highway 84) that are nearly unvegetated or sparsely vegetated. These gravel bars are generally bound by perennial hydrophytic vegetation on one or both sides.

Additionally, it was observed that some areas within the OHWM exhibit soil deposition and development as opposed to the more dominant gravel and cobble riverwash in the majority of the Arroyo del Valle. These soils are assumed to be hydric based on their submersed setting and, in conjunction with the associated dominant hydrophytic perennial plant species and wetland hydrology, support wetlands. These wetland types occur entirely within the OHWM of the Arroyo del Valle as depicted in Figure 3 and therefore were not differentiated from the perennial stream.

A thorough examination of indicators observed in the field was undertaken to evaluate whether the Arroyo del Valle consists of one or more confined, narrow, and entrenched channels or whether it constitutes a broader area constrained by local topography. The following physical characteristics and indicators were observed within the OHWM of the Arroyo del Valle: presence of litter and debris, wracking, matted vegetation, disturbed leaf litter, scouring, deposition, and the presence of a bed and bank.

Based on the indicators observed in the field, it was determined that the Arroyo del Valle does not consist of one or more confined, narrow channels but is a broad channel confined by local topography.

4.4.6 Ephemeral Drainage

A total of 0.09 acre of ephemeral drainage (approximately 241 linear feet) was delineated within the Study Area (Figure 3). This feature occurs immediately to the north of Vineyard Avenue within the southern portion of the Study Area. This feature is described as a riverine feature that only exists for a short period of time. This feature did not contain hydric soils or support hydrophytic vegetation, but demonstrated an OHWM. This feature is fed by a large concrete culvert that runs under Vineyard Avenue, and water flows in a general south to north direction. This feature terminates at the dirt road that bisects the OHWM of the perennial stream (Arroyo del Valle). Upon analysis of aerial imagery, this drainage does not appear to inundate for long durations. However, scouring was observed at the terminus of this feature and it appears that during rain events with high water flows, water drains north

across the dirt road, along the down sloping topography, which eventually flows into the perennial stream (Arroyo Del Valle).

4.4.7 Breached Quarry Ponds

A total of 17.14 acres of breached quarry ponds were delineated within the Study Area (Figure 3). These features were created as result of excavation directly related to past mining activities. These features either receive direct flows from the Arroyo del Valle or otherwise contribute to the hydrology of the Arroyo del Valle. These features were initially created during the regular process of mining activities and are entirely man-made.

4.4.8 Seasonal Excavated Basin

A total of 0.14 acre of seasonal excavated basin was delineated within the Study Area (Figure 3). This feature occurs immediately to the north of Vineyard Avenue within the south-central portion of the Study Area. This feature is an excavated, palustrine feature that contains persistent emergent hydrophytic vegetation and is seasonally flooded. This feature is an artificially excavated basin, and it meets the three parameter criteria for a wetland, demonstrating indicators for hydric soils, hydrology, and hydrophytic vegetation. This feature receives water from direct seasonal precipitation, stormwater run-off from the surrounding landscape, and overflow from two culverts. One culvert runs under Vineyard Avenue and drains directly into the southern portion of the basin. The other culvert occurs along the northwestern border and receives water from the excavated basin described below.

4.4.9 Quarry Pond

A total of 122.66 acres of quarry ponds were delineated within the Study Area (Figure 3). All of the quarry ponds within the Study Area were formed when excavation activities associated with sand and gravel mining occurred at depths greater than the water table, causing water to fill them. There is no above ground hydrologic connection between the quarry ponds within the Study Area and the Arroyo del Valle. As stated in 40 CFR § 120.2 (2)(ix) and 33 CFR §328.3 (b)(9), water-filled depressions created in dry land incidental to mining or construction activity including pits excavated for obtaining fill, sand, or gravel that fill with water may not meet the definition of waters of the U.S.

4.4.10 Silt Pond

A total of 108.50 acres of silt ponds were delineated within the Study Area (Figure 3). As with the quarry ponds, the silt ponds within the Study Area were formed when excavation activities associated with sand and gravel mining occurred below the level of the water table, thus allowing water to fill them. There is no above ground hydrologic connection between the silt ponds within the Study Area and the Arroyo del Valle. As stated in 40 CFR § 120.2 (2)(ix) and 33 CFR §328.3 (b)(9), water-filled depressions created in dry land incidental to mining or construction activity including pits excavated for obtaining fill, sand, or gravel that fill with water may not meet the definition of waters of the U.S.

4.4.11 Percolation Pond

A total of 0.07 acre of percolation ponds were delineated within the Study Area (Figure 3). As with the other pond features, the percolation ponds were constructed and associated with sand and gravel mining. These small features were created to allow accumulated water to percolate back into the water

table. These features were generally dry during the site visits and based on the grassland community within these features observed during the site visit, they appear to generally be dry. There is no above ground hydrologic connection between the percolation ponds and the Arroyo del Valle. As stated in 40 CFR 120.2(2)(ix) and 33 CFR §328.3 (b)(9), water-filled depressions created in dry land incidental to mining or construction activity including pits excavated for obtaining fill, sand, or gravel that fill with water may not meet the definition of waters of the U.S.

4.4.12 Excavated Basin

A total of 0.24 acre of excavated basin was mapped within the Study Area in the follow up field delineation based on USACE comments on the draft delineation (Figure 3). This feature occurs immediately to the north of Vineyard Avenue within the south-central portion of the Study Area. This feature is an excavated, palustrine feature that has an unconsolidated bottom, and becomes saturated. This feature is an artificially excavated basin, that does not contain hydric soil indicators or support hydrophytic vegetation, but contains an OHWM. This feature collects water from direct seasonal precipitation and stormwater run-off from the surrounding landscape. A culvert runs under a dirt road along the top of the basin and has two outfalls, one to the northwest that drains down a hillslope that eventually terminates into the perennial stream (Arroyo del Valle), and one to the southeast that drains into the excavated basin. These culvert outfalls occur at the same elevation and drain water either to the northwest or southeast; however, if inundation levels were to reach maximum capacity of the feature, it does not appear that water would overflow onto the opposite side of the culvert outfall. Another culvert occurs along the southeastern edge of this feature that drains southeast into the seasonal excavated basin described above.

5.0 CONCLUSIONS

A total of 318.98 acres of aquatic resources, were mapped within the Study Area. Wetlands delineated within the Study Area include depressional seasonal marsh, riverine seasonal marsh, willow riparian wetland, and seasonal excavated basin. Other aquatic resources mapped within the Study Area include intermittent streams, perennial stream, ephemeral drainage, breached quarry pond, quarry ponds, silt ponds, percolation ponds, and excavated basin. Table 1 below provides the resource type, corresponding Cowardin alpha numeric code, acreage per feature type, linear feet, if applicable, and summary of the total acreage of other waters delineated within the Study Area. The likely jurisdictional status of each feature type under the Clean Water Act is included in Table 1. Jurisdiction of aquatic resource types is subject to verification by the USACE. Appendix E includes the complete Aquatic Resources Spreadsheet.

Table 1
AQUATIC RESOURCES WITHIN THE STUDY AREA

Aquatic Resources Classification	Aquatic Resources Classification (*Cowardin Code*)	Aquatic Resource Size		Potentially Jurisdictional
		(acres)	*(linear feet)*	
Depressional Seasonal Marsh	PEM	0.06	—	Yes
Riverine Seasonal Marsh	PEM	0.09	496	Yes
Willow Riparian Wetland	PFO	2.69	1,410	Yes
Intermittent Stream	R4SB	0.34	597	Yes
Perennial Stream (Arroyo del Valle)	R2UB	66.96	13,275	Yes
Breached Quarry Pond	R2UB	17.14	—	Yes
Quarry Pond	L1UB	122.66	—	No
Silt Pond	L2UB	108.50	—	No
Percolation Pond	L2UB	0.07	—	No
Seasonal Excavated Basin	PEM	0.14	—	Yes
Excavated Basin	PUB	0.24	—	No
Ephemeral Drainage	R6	0.09	241	Yes
	TOTAL:	**318.98**	**16,019**	

PEM = palustrine emergent; PFO = palustrine forested

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Appendix A

Contact Information and Directions

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Appendix A
Contact Information and Directions

Client Contact Information:	Yasha Saber Managing Partner Compass Land Group 4110 Truxel Road, Suite 130 Sacramento, CA 95834 Phone Number: (916) 825-4997 Email: ysaber@compassland.net
Delineation Conducted by:	David Bise, Senior Biologist Charlotte Marks, Biologist Marisa Brilts, Biologist HELIX Environmental Planning, Inc. 1677 Eureka Road, Suite 100 Roseville, CA 95661 Phone Number: (916) 435-1202 Email: davidb@helixepi.com Cristian Singer, Senior Botanist Foothill Associates 590 Menlo Drive, Suite 5 Rocklin, CA 95765 Phone Number: (916) 435-1202
Directions to the Study Area:	From Sacramento, take Interstate 80 (I-80) West towards San Francisco for approximately 50 miles. Take exit 40 for Interstate 680 (I-680) toward Benicia/San Jose. Take I-680 for approximately 40 miles. Take exit 30A in order to merge onto Interstate 580 East (I-580) toward Stockton. Take exit 47 for Santa Rita Road toward Tassajara Road. Follow the signs for Downtown and merge onto Santa Rita Road. Turn left onto Valley Avenue and then turn left again onto Stanley Boulevard. Travel for approximately 1.5 miles, and the Study Area will be on the right at 1544 Stanley Boulevard.

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Appendix B

Routine Wetland Determination Data Sheets

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 1A

Investigator(s): David Bise, Cristian Singer Section, Township, Range: 23, T3S, R1E

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): concave Slope (%): ~1

Subregion (LRR): Land Resource Region C Lat: 37.662962 Long: -121.827347 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: R3 (Upper perennial, ri

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Wetland vegetation dominant, hydric soil indicators present, wetland hydrology indicators present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Arundo donax	30	Yes	FACW
2. Baccharis salicifolia ssp. salicifolia	5	No	FAC
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Berula erecta	15	Yes	OBL
2. Rumex sp.	2	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	17 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 48 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation dominant.

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	95	7.5YR 4/6	5	C	M	Sandy,cob	Cobble up to 3-4" diameter

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Soil profile is mixture of sand and cobble. Redox features observed in portions of soil profile where sand has accumulated sufficiently.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 10

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 1B

Investigator(s): David Bise, Cristian Singer Section, Township, Range: N23, T3S, R1E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): ~55

Subregion (LRR): Land Resource Region C Lat: 37.66298 Long: -121.827338 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: N/A: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Upland vegetation dominant, no hydric soil indicators, no wetland hydrology indicators, upland topography.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lupinus bicolor	15	Yes	UPL
2. Bromus diandrus	15	Yes	UPL
3. Centaurea solstitiaqlis	15	Yes	UPL
4. Erodium botrys	10	No	FACU
5. Avena sp.	5	No	UPL
6. Eschscholzia californica	5	No	UPL
7. Carduus pycnocephalus	5	No	UPL
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation dominant.

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/2	100	N/A: No redox				Silty, sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils but no hydric soil indicators observed in the field. Data point location is well above the bed of the arroyo on adjacent, steep hillslope.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators. Upland topography; point is above the bed of the arroyo on a hillslope.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 2A

Investigator(s): David Bise, Cristian Singer Section, Township, Range: 24, T 3S, R 1E

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): none Slope (%): ~1

Subregion (LRR): Land Resource Region C Lat: 37.658168 Long: -121.81858 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: R3 (Upper perennial, ri

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Coarse textured soil lacking clear hydric soil indicators. In the absence of clear hydric soil indicators, soils were considered hydric based on presence of wetland vegetation and wetland hydrology and position within the landscape. Riverwash is listed as hydric on the National List of Hydric Soils.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Phragmites australis	95	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation dominant.

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/2	100	N/A: No redox				Sandy, gr	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Lower sand content compared to previous wetland point (1A). This location has very coarse textured soils that lack enough fine material in order for clear hydric soil indicators to be observed. Point exhibits strong wetland vegetation and strong wetland hydrology indicators and is located within the bed of the arroyo.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 2B

Investigator(s): David Bise, Cristian Singer Section, Township, Range: 24, T 3S, R 1E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): ~1

Subregion (LRR): Land Resource Region C Lat: 37.658219 Long: -121.81855 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: N/A: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Point is unvegetated, lacks hydric soil indicators, lacks wetland hydrology indicators and exhibits upland topography.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: NaN (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Unvegetated.

SOIL

Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y 3/2	100	N/A: No redox				Sandy, co	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils but this point lacks hydric soil indicators, lacks wetland vegetation, lacks wetland hydrology indicators and the position of the point within the landscape is upland (located above the bed of the arroyo).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators. Point is located above the bed of the arroyo.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 3A

Investigator(s): David Bise, Cristian Singer Section, Township, Range: 19, T 3S, R2E

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): none Slope (%): ~1

Subregion (LRR): Land Resource Region C Lat: 37.651068 Long: -121.800944 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: R3 (Upper perennial, ri

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Hydrophytic vegetation dominant, hydric soil indicator present, wetland hydrology present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Typha angustifoia	55	Yes	OBL
2. Lysimachia arvensis	5	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation dominant.

SOIL

Sampling Point: 3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100	N/A: No redox				Coarse sil	Somewhat mucky, greasy

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ✓ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Very low chroma. Soil texture somewhat mucky, greasy. Shovel refusal just beyond depth of four inches due to large cobbles.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 5"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 3B

Investigator(s): David Bise, Cristian Singer Section, Township, Range: 19, T 3S, R2E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): ~1

Subregion (LRR): Land Resource Region C Lat: 37.651032 Long: -121.80099 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: N/A: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Upland vegetation dominant, no hydric soil indicators, no wetland hydrology indicators.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Baccharis pilularis ssp. consanguinea	5	Yes	UPL
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Dittrichia graveolens	15	Yes	UPL
2. Festuca bromoides	15	Yes	UPL
3. Bromus hordeaceus	10	Yes	FACU
4. Plantago lanceolata	10	Yes	FAC
5. Foeniclulum vulgare	5	No	UPL
6. Avena sp.	5	No	UPL
7. Centaurea solstitialis	5	No	UPL
8.			
	65	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation dominant.

SOIL

Sampling Point: 3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100	N/A: No redox				Coarse,g	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils but this point lacks hydric soil indicators, lacks wetland vegetation, lacks wetland hydrology indicators and the position of the point within the landscape is upland (located on a hillslope). Shovel refusal at 8 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland topography: point is located on a slope.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 4A

Investigator(s): David Bise, Cristian Singer Section, Township, Range: 30, T3S, R2E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): ~5

Subregion (LRR): Land Resource Region C Lat: 37.647451 Long: -121.790129 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: RP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Coarse textured soil lacking clear hydric soil indicators. In the absence of clear hydric soil indicators, soils were considered hydric based on presence of wetland vegetation and wetland hydrology indicators and position within the landscape. Riverwash is listed as hydric on the National List of Hydric Soils.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix sp.	15	Yes	FACW
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Typha angustifolia	50	Yes	OBL
2. Medicago sp.	10	No	FACU
3. Cortaderia jubata	10	No	FACU
4. Dittrichia graveolens	2	No	UPL
5.			
6.			
7.			
8.			
	72 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 28 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Indicator status of Salix sp. applied based on ecological setting (saturated soil). Hydrophytic vegetation dominant.

SOIL

Sampling Point: 4A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 3/2	100	N/A: No redox				Gravelly	
3-10	5Y 3/1	100	N/A: no redox				Gravelly	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Riverwash is listed as hydric on the National List of Hydric Soils. Low chroma. Coarse textured soil lacking clear hydric soil indicators. In the absence of clear hydric soil indicators, soils were considered hydric based on presence of wetland vegetation and strong wetland hydrology indicators and position within the landscape.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 8

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility City/County: Unincorporated/Alameda Sampling Date: 04/03/2018

Applicant/Owner: CEMEX State: CA Sampling Point: 4B

Investigator(s): David Bise, Cristian Singer Section, Township, Range: 30, T3S, R2E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): ~1

Subregion (LRR): Land Resource Region C Lat: 37.647483 Long: -121.790126 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: N/A: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Upland vegetation dominant, no hydric soil indicators, no wetland hydrology indicators.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Baccharis pilularis ssp. consanguinea	30	Yes	UPL
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Cortaderia jubata	20	Yes	FACU
2. Bromus hordeaceus	10	Yes	FACU
3. Medicago sp.	10	Yes	FACU
4. Geranium dissectum	5	No	UPL
5.			
6.			
7.			
8.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation dominant.

SOIL

Sampling Point: 4B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 3/2	100	N/A: No redox				Gravelly	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils but this point lacks hydric soil indicators, lacks wetland vegetation, lacks wetland hydrology indicators and the position of the point within the landscape is upland (located on a hillslope). Shovel refusal at 12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 5B

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1.0

Subregion (LRR): C Lat: 37.6592292615 Long: -121.825601498 Datum: NAD 83

Soil Map Unit Name: Pleasanton gravelly loam, 3 to 12 percent slopes (PgB) NWI classification: PUB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Excavated artificial basin; 2 culverts located at the east and west of basin; overflow drains west into another basin. Photo points 10 and 11

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Avena spp.	82	Yes	UPL
2. Rumex crispus	8	No	FAC
3. Vicia spp.	5	No	UPL
4. Silybum marianum	3	No	UPL
5. Geranium molle	2	No	UPL
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

*At time of survey, grass within the botton of the basin was not identifiable due to lack of seed heads; however, prior season Avena spp. was observed along the margins and sides of the basin.

SOIL

Sampling Point: 5B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	99	5 YR 4/6	<1	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

Due to depth restrictions, presence of hydric soil indicators could only be ruled out to a maximum depth of 6 inches; however, since other hydric soil indicators may be present at further depths, then hydric soils are assumed to be present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Topographical low area; excavated basin

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 5C

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 1.0

Subregion (LRR): C Lat: 37.6592375666 Long: -121.825342488 Datum: NAD 83

Soil Map Unit Name: Pleasanton gravelly loam, 3 to 12 percent slopes (PgB) NWI classification: PUB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Excavated artificial basin; 2 culverts located at the east and west of basin; overflow drains west into another basin
Photo points 10 and 11

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Avena spp.	45	Yes	UPL
2. Erodium spp.	15	Yes	FACU
3. Vicia spp.	5	No	UPL
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 35 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

*At time of survey, grass within the botton of the basin was not identifiable due to lack of seed heads; however, prior season Avena spp. was observed along the margins and sides of the basin.

SOIL

Sampling Point: 5C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/3	100						Sandy Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Due to depth restrictions, presence of hydric soil indicators could only be ruled out to a maximum depth of 4 inches; however, since other hydric soil indicators may be present at further depths, then hydric soils are assumed to be present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Topographical low area; excavated basin

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 6a

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1-2

Subregion (LRR): C Lat: 37.6589831205 Long: -121.825304192 Datum: NAD 83

Soil Map Unit Name: Pleasanton gravelly loam, 3 to 12 percent slopes (PgB) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Excavated depressional basin; 2 culverts located at the west and south of basin; receives overflow from basin to the west and water from culvert in south
Photo points 11 and 12

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	24	Yes	FACW
2.			
3.			
4.			
	24	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Schoenoplectus acutus var. occidentalis	55	Yes	OBL
2. Cyperus eragrostis	10	No	FACW
3. Rumex crispus	5	No	FAC
4. Lythrum hyssopifolia	1	No	OBL
5.			
6.			
7.			
8.			
	71	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 6a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/2	88	2.5 YR 3/6	12	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Topographical low area; excavated basin; soil moist

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 6b

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): C Lat: 37.6589542262 Long: -121.825308881 Datum: NAD 83

Soil Map Unit Name: Pleasanton gravelly loam, 3 to 12 percent slopes (PgB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Photo points 11 and 12

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Avena spp.	76	Yes	UPL
2. Geranium molle	20	Yes	UPL
3. Vicia spp.	1	No	UPL
4.			
5.			
6.			
7.			
8.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 3 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 6b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	99	10 YR 6/8	1	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

Depth restriction due to rocks present throughout soil profile

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sloped side of excavated basin

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 7a

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): C Lat: 37.6590543401 Long: -121.82502161 Datum: NAD 83

Soil Map Unit Name: Pleasanton gravelly loam, 3 to 12 percent slopes (PgB) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Seasonal excavated basin; Photo points 11 and 12

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Schoenoplectus acutus var. occidentalis	74	Yes	OBL
2. Cyperus eragrostis	5	No	FACW
3. Rumex crispus	5	No	FAC
4. Erodium spp.	1	No	FACU
5.			
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 7a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	83	2.5 YR 3/6	17	C	PL		Sandy Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Topographical low area; excavated basin; soil moist

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 7b

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): C Lat: 37.6590722746 Long: -121.824973093 Datum: NAD 83

Soil Map Unit Name: Pleasanton gravelly loam, 3 to 12 percent slopes (PgB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Photo points 11 and 12

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Avena spp.	85	Yes	UPL
2. Erodium spp.	5	No	FACU
3. Eschscholzia californica	5	No	UPL
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 7b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/3	100						Sandy Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Due to depth restrictions, presence of hydric soil indicators could only be ruled out to a maximum depth of 6 inches; however, since other hydric soil indicators may be present at further depths, then hydric soils are assumed to be present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sloped side of excavated basin

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 8b

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 37.6555864614 Long: -121.815635233 Datum: NAD 83

Soil Map Unit Name: Yolo Loam, calcareous substratum, 0-6 percent slopes, MLRA 14 (YmA) NWI classification: R6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

established bed and bank; channelized flow due to large cement box culvert at Vineyard Ave
Photo Points 7 and 8

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans hindsii	25	Yes	FAC
2.			
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Carduus pycnocephalus ssp. pycnocephalus	45	Yes	UPL
2. Silybum marianum	20	Yes	UPL
3. Avena spp.	10	No	UPL
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 8b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 YR 3/2	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Due to depth restrictions, presence of hydric soil indicators could only be ruled out to a maximum depth of 5 inches; however, since other hydric soil indicators may be present at further depths, then hydric soils are assumed to be present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Bed and bank; OHWM; topographically low channel

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/25/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 8c

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): C Lat: 37.6556696214 Long: -121.81553333 Datum: NAD 83

Soil Map Unit Name: Livermore very gravelly coarse sandy loam (Lm) NWI classification: R6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Established bed and bank; channelized flow due to large cement box culvert at Vineyard Ave.
Photo point 9

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Avena spp.	55	Yes	UPL
2. Bromus hordeaceus	40	Yes	UPL
3. Epilobium brachycarpum	5	No	UPL
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 8c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/2	100						Sandy Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Due to depth restrictions, presence of hydric soil indicators could only be ruled out to a maximum depth of 4 inches; however, since other hydric soil indicators may be present at further depths, then hydric soils are assumed to be present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Defined bed and bank with an OHWM; topographically low channel

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/26/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 9b

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 37.656410566 Long: -121.81568712 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rh) NWI classification: R2UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Occurs within the OHWM of the Arroyo del Valle; Photo Points 15 and 16

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Centaurea solstitialis	45	Yes	UPL
2. Avena spp.	42	Yes	UPL
3. Eriogonum spp.	5	No	UPL
4.			
5.			
6.			
7.			
8.			
	92 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 8 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 9b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 3/2	100						Sandy Clay Cobble (2"-3" cobble)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Soil profile is mixture of sand and cobble. Redox features were not observed within the soil profile, however, there was depth restriction due to rocks/cobble present throughout soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

topographically low; within the OHMW of the Arroyo del Valle

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/26/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 10b

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 37.6562111841 Long: -121.815154775 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rh) NWI classification: R2UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Occurs within the OHWM of the Arroyo del Valle

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Avena spp.	55	Yes	UPL
2. Centaurea solstitialis	33	Yes	UPL
3. Eschscholzia californica	7	No	UPL
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 10b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11	10 YR 3/2	100						Sandy Cobble (3"-5" cobble)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Soil profile is mixture of sand and cobble. Redox features were not observed within the soil profile, however, there was depth restriction due to rocks/cobble present throughout soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

topographically low; within the OHMW of the Arroyo del Valle

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/26/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 10c

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): C Lat: 37.6559982485 Long: -121.814610773 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rh) NWI classification: R2UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Occurs within the OHWM of the Arroyo del Valle; Photo Points 17 and 18

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Avena spp.	63	Yes	UPL
2. Hirschfeldia incana	12	No	UPL
3. Centaurea solstitialis	10	No	UPL
4. Trifolium hirtum	10	No	UPL
5. Dittrichia graveolens	5	No	UPL
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 10c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/4	100						Sandy Loam
5-8	10 YR 3/4	100						Sandy Loam Cobble (1"-3" cobbl

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Soil profile is mixture of sand and cobble. Redox features were not observed within the soil profile, however, there was depth restriction due to rocks/cobble present throughout soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

topographically low; within the OHMW of the Arroyo del Valle

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/26/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 11b

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 37.6559734381 Long: -121.814235187 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rh) NWI classification: R2UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Occurs within the OHWM of the Arroyo del Valle

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Avena spp.	40	Yes	UPL
2. Centaurea solstitialis	35	No	UPL
3. Hirschfeldia incana	15	No	UPL
4. Bromus hordeaceus	10	No	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 11b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100						Sandy Loam Cobble (1"-2" cobbl
6-8	10 YR 3/2	100						Sandy Loam Cobble (2"-4" cobbl

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Soil profile is mixture of sand and cobble. Redox features were not observed within the soil profile, however, there was depth restriction due to rocks/cobble present throughout soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

topographically low; historically floods during rain events; within OHMW of Arroyo del Valle

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/26/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 11c

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 37.6558886787 Long: -121.813548297 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rh) NWI classification: R2UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Occurs within the OHWM of the Arroyo del Valle; Photo Point 14

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	20	Yes	UPL
2.			
3.			
4.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Avena spp.	50	Yes	UPL
2. Centaurea solstitialis	15	No	UPL
3. Trifolium hirtum	12	No	UPL
4. Amaranthus albus	1	No	FACU
5.			
6.			
7.			
8.			
	78	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	0
FACW species _____	x 2 =	0
FAC species _____	x 3 =	0
FACU species _____	x 4 =	0
UPL species _____	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 11c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/3	100						Sandy Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Riverwash is classified as a hydric soil on the National List of Hydric Soils. Soil profile is mixture of sand and cobble. Redox features were not observed within the soil profile, however, there was depth restriction due to rocks/cobble present throughout soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

topographically low; within the OHMW of the Arroyo del Valle

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Eliot Facility / Arroyo del Valle City/County: Unincorporated Alameda Co. Sampling Date: 11/26/2019

Applicant/Owner: CEMEX State: CA Sampling Point: 11d

Investigator(s): Charlotte Marks and Marisa Brilts Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 37.6555850027 Long: -121.813201693 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rh) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Photo Point 13

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	40	Yes	UPL
2. Avena spp.	35	Yes	UPL
3. Trifolium hirtum	25	Yes	UPL
4.			
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 11d

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	10 YR 3/2	100						Sandy Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

Rocks/cobble present throughout soil profile

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

On elevated hill above the OHMW of the Arroyo del Valle

Appendix C

Plant Species Observed in the Study Area

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Appendix C
Plant Species Observed in the Study Area

Family	Species Name	Common Name	Rating*
Sapindaceae	*Acer negundo*	Boxelder	FACW
Fabaceae	*Acmispon glaber* var. *glaber*	Deerweed	UPL
Sapindaceae	*Aesculus californica*	California buckeye	UPL
Poaceae	*Aira caryophyllea*	Silver hairgrass	FACU
Betulaceae	*Alnus rhombifolia*	White alder	FACW
Amaranthaceae	*Amaranthus albus*	Tumbleweed	FACU
Asteraceae	*Artemisia californica*	Coastal sage brush	UPL
Asteraceae	*Artemisia douglasiana*	Douglas' sagewort	FAC
Poaceae	*Arundo donax*	Giant reed	FACW
Poaceae	*Avena barbata*	Slender oat	UPL
Azollaceae	*Azolla filiculoides*	American water fern	OBL
Asteraceae	*Baccharis glutinosa*	Douglas' baccharis	FACW
Asteraceae	*Baccharis pilularis* ssp. *consanguinea*	Coyote brush	UPL
Asteraceae	*Baccharis salicifolia* ssp. *salicifolia*	Mule fat	FAC
Apiaceae	*Berula erecta*	Cut leaved water parsnip	OBL
Poaceae	*Bromus diandrus*	Ripgut brome	UPL
Poaceae	*Bromus hordeaceus*	Soft chess	FACU
Poaceae	*Bromus madritensis*	Foxtail chess	UPL
Asteraceae	*Carduus pycnocephalus* ssp. *pycnocephalus*	Italian thistle	UPL
Orobanchaceae	*Castilleja exserta* ssp. *exserta*	Purple owl's clover	UPL
Rhamnaceae	*Ceanothus cuneatus* var. *cuneatus*	Buckbrush	UPL
Asteraceae	*Centaurea solstitialis*	Yellow star thistle	UPL
Asteraceae	*Cirsium vulgare*	Bull thistle	FACU
Apiaceae	*Conium maculatum*	Poison hemlock	FACW
Poaceae	*Cortaderia jubata*	Pampas grass	FACU
Euphorbiaceae	*Croton setiger*	Turkey-mullein	UPL
Cyperaceae	*Cyperus eragrostis*	Tall flatsedge	FACW
Solanaceae	*Datura stramonium*	Jimson weed	UPL
Apiaceae	*Daucus carota*	Wild carrot	UPL
Dipsacaceae	*Dipsacus fullonum*	Fuller's teasel	FAC
Asteraceae	*Dittrichia graveolens*	Stinkwort	UPL
Onagraceae	*Epilobium brachycarpum*	Annual fireweed	UPL
Onagraceae	*Epilobium ciliatum*	Fringed willowherb	FACW
Boraginaceae	*Eriodictyon californicum*	Yerba santa	UPL
Polygonaceae	*Eriogonum* sp.	Buckwheat	UPL
Geraniaceae	*Erodium botrys*	Broad leaf filaree	FACU
Geraniaceae	*Erodium moschatum*	Whitestem filaree	UPL
Papaveraceae	*Eschscholzia californica*	California poppy	UPL
Myrtaceae	*Eucalyptus* sp.	Eucalyptus	UPL
Asteraceae	*Euthamia occidentalis*	Western goldenrod	FACW
Poaceae	*Festuca perennis* (=*Lolium perenne*)	Perennial ryegrass	FAC
Moraceae	*Ficus carica*	Edible fig	FACU
Apiaceae	*Foeniculum vulgare*	Fennel	UPL
Rubiaceae	*Galium aparine*	Common bedstraw	FACU
Fabaceae	*Genista monspessulana*	French broom	UPL
Geraniaceae	*Geranium molle*	Crane's bill geranium	UPL
Asteraceae	*Gnaphalium palustre*	Lowland cudweed	FACW
Asteraceae	*Helenium bigelovii*	Bigelow's sneezeweed	FACW
Boraginaceae	*Heliotropium curassavicum* var. *occulartum*	Alkali heliotrope	FACU

Appendix C (cont.)
Plant Species Observed in the Study Area

Family	Species Name	Common Name	Rating*
Asteraceae	*Helminthotheca echioides*	Bristly ox-tongue	FAC
Rosaceae	*Heteromeles arbutifolia*	Toyon	UPL
Asteraceae	*Heterotheca grandiflora*	Telegraph weed	UPL
Brassicaceae	*Hirschfeldia incana*	Mediterranean hoary mustard	UPL
Poaceae	*Hordeum marinum* ssp. *gussoneanum*	Seaside barley	FAC
Poaceae	*Hordeum murinum*	Foxtail barley	FACU
Asteraceae	*Hypochaeris glabra*	Smooth cat's ear	UPL
Juglandaceae	*Juglans hindsii*	Northern California black walnut	FAC
Asteraceae	*Lactuca serriola*	Prickly lettuce	FACU
Araceae	*Lemna* sp.	Duckweed	OBL
Brassicaceae	*Lepidium latifolium*	Broadleaved pepperweed	FAC
Brassicaceae	*Lobularia maritima*	Sweet alyssum	UPL
Asteraceae	*Logfia gallica*	Narrowleaf cottonrose	UPL
Fabaceae	*Lotus corniculatus*	Bird's foot trefoil	FAC
Fabaceae	*Lupinus* sp.	Lupine	UPL
Myrsinaceae	*Lysimachia arvensis*	Scarlet pimpernel	FAC
Lythraceae	*Lythrum hyssopifolia*	Hyssop loosestrife	OBL
Lamiaceae	*Marrubium vulgare*	White horehound	FACU
Fabaceae	*Melilotus albus*	White sweetclover	UPL
Lamiaceae	*Mentha spicata*	Spearmint	FACW
Brassicaceae	*Nasturtium officinale*	Watercress	OBL
Apocynaceae	*Nerium oleander*	Oleander	UPL
Solanaceae	*Nicotiana* cf. *acuminata* var. *multiflora*	Tobacco	UPL
Oleaceae	*Olea europaea*	Olive	UPL
Poaceae	*Paspalum dilatatum*	Dallis grass	FAC
Polygonaceae	*Persicaria* cf. *hydropiper*	Common smartweed	OBL
Arecaceae	*Phoenix canariensis*	Canary island date palm	UPL
Poaceae	*Phragmites australis*	Common reed	FACW
Pinaceae	*Pinus* sp.	Pine	UPL
Plantaginaceae	*Plantago lanceolata*	English plantain	FAC
Platanaceae	*Platanus racemosa*	California sycamore	FAC
Poaceae	*Polypogon monspeliensis*	Rabbitfoot grass	FACW
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood	UPL
Portulacaceae	*Portulaca oleracea*	Common purslane	FAC
Rosaceae	*Prunus dulcis*	Domestic almond	UPL
Fagaceae	*Quercus agrifolia* ssp. *agrifolia*	Coast live oak	UPL
Fagaceae	*Quercus lobata*	Valley oak	FACU
Fabaceae	*Robinia pseudoacacia*	Black locust	FACU
Rosaceae	*Rubus armeniacus*	Himalayan blackberry	FAC
Polygonaceae	*Rumex crispus*	Curly dock	FAC
Polygonaceae	*Rumex pulcher*	Fiddle dock	FAC
Salicaceae	*Salix exigua* var. *hindsiana*	Narrow-leaved willow	FACW
Salicaceae	*Salix laevigata*	Red willow	FACW
Salicaceae	*Salix lasiolepis*	Arroyo willow	FACW
Chenopodiaceae	*Salsola tragus*	Tumbleweed	FACU
Lamiaceae	*Salvia apiana*	White sage	UPL
Adoxaceae	*Sambucus nigra* ssp. *caerulea*	Blue elderberry	UPL
Anacardiaceae	*Schinus molle*	Peruvian pepper tree	FACU

Appendix C (cont.)
Plant Species Observed in the Study Area

Family	Species Name	Common Name	Rating*
Cyperaceae	*Schoenoplectus acutus* var. *occidentalis*	Tule	OBL
Cupressaceae	*Sequoia sempervirens*	Coast redwood	UPL
Asteraceae	*Silybum marianum*	Milk thistle	UPL
Poaceae	*Stipa miliacea* var. *miliacea*	Smilo grass	UPL
Tamaricaceae	*Tamarix* sp.	Tamarisk	FAC
Anacardiaceae	*Toxicodendron diversilobum*	Poison-oak	FACU
Lamiaceae	*Trichostema lanceolatum*	Vinegarweed	FACU
Fabaceae	*Trifolium dubium*	Shamrock	UPL
Fabaceae	*Trifolium hirtum*	Rose clover	UPL
Typhaceae	*Typha* sp.	Cattails	OBL
Urticaceae	*Urtica dioica*	Stinging nettle	FAC
Scrophulariaceae	*Verbascum thapsus*	Common mullein	FACU
Fabaceae	*Vicia* sp.	Vetch	~
Asteraceae	*Xanthium strumarium*	Rough cockleburr	FAC

Scientific and common names from:
Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, D.H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkley
or
U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory, *Arid West 2016 Regional Wetland Plant List* (USACE 2016)

* Acronyms: FAC – facultative, FACU – facultative upland, FACW – facultative wetland, UPL – upland, OBL – obligate, -- Not Listed, considered upland

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Appendix D

Representative Site Photographs

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Photo Point 1. Looking northwest along the gravel bar within the OHWM of the perennial stream (Arroyo del Valle) in the central portion of the Study Area, during the October 26, 2017 biological survey.

Photo Point 2. Looking northwest across the perennial pond located within the northwest portion of the Study Area, during the November 1, 2017 biological survey.

Photo Point 3. Marsh habitat within the southeastern portion of the Study Area, during the April 3, 2018 delineation survey.

Photo Point 4. Looking east along Quarry Pond A in the southeastern portion of the Study Area, during the April 4, 2018 delineation survey.

Photo Point 5. Looking east along Quarry Pond C within the northeastern portion of the Study Area, during the November 2, 2017 biological survey.

Photo Point 6. Looking east along one of the breached quarry ponds in the central portion of the Study Area, during the October 26, 2017 biological survey.

Photo Point 7. Looking north along the ephemeral drainage in the central portion of the Study Area, during the November 16, 2017 delineation survey.

Photo Point 8. Looking south at the culvert that feeds the ephemeral drainage mapped during the November 25, 2019 delineation survey.

Photo Point 9. Looking southwest along the ephemeral drainage in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 10. Looking southwest at the upper excavated basin in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 11. Looking south at the lower excavated depressional basin in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 12. Looking south at both excavated basins in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 13. Looking west across the floodplain within the OHWM of the perennial stream (Arroyo del Valle) in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 14. Looking east across the floodplain within the OHWM of the perennial stream (Arroyo del Valle) in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 15. Looking northwest across the floodplain within the OHWM of the perennial stream (Arroyo del Valle) in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 16. Looking west across the floodplain with OHWM of the perennial stream (Arroyo del Valle) within the southern portion of the Study Area, during the November 15, 2017 delineation survey.

Photo Point 17. Looking west across an intermittent stream in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 18. Looking west across the floodplain within the OHWM of the perennial stream (Arroyo del Valle) in the southern portion of the Study Area, during the November 25, 2019 delineation survey.

Photo Point 19. Looking south across the perennial pond in the northeastern portion of the Study Area, during the November 26, 2019 delineation survey.

Photo Point 20. Looking south across the perennial stream (Arroyo del Valle) in the northern portion of the Study Area, during the November 26, 2019 delineation survey.

Appendix E

Aquatic Resources Excel Spreadsheet
(To be Provided in the Final Version)

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