APPENDIX G – Aquatic Resources Delineation Report: Lookout Slough Restoration Project.

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

December 20, 2018

Regulatory Division (SPK-2017-00805)

Ecosystem Investment Partners
Attn: Mr. David Urban
1505 Bridgeway, Suite 107
Sausalito, California 94965
David@ecosystempartners.com

Dear Mr. Urban:

We are responding to your November 13, 2018, request for a preliminary jurisdictional determination (JD) for the Lookout Slough Tidal Habitat Restoration site. The approximately 3,637-acre project site is located within the Yolo Bypass, at the confluence of Cache Slough and Shag Slough, bounded by Shag Slough to the east, Cache Slough to the southwest, Duck Slough to the northwest, and Latitude 38.302416°, Longitude -121.712691°, Solano County, California.

Based on available information, we concur with your aquatic resources delineation for the site as depicted on the enclosed December 11, 2018, *Appendix B. Potential Waters of the U.S., Lookout Slough Restoration Project* drawing(s) prepared by WRA Inc. (enclosure 1). The approximately 1,669.06 acres of wetlands and 344.75 acres of other waters present within the survey area are potential jurisdictional aquatic resources "waters of the United States" regulated under Section 404 of the Clean Water Act and Section 9 and 10 of the Rivers and Harbors Act.

At your request, we have completed a preliminary JD for the site. Enclosed find a copy of the *Preliminary Jurisdictional Determination Form* (enclosure 2). Please sign and return the completed form to this office, at the address listed below, within 30 days of the date of this letter. If you do not return the signed form within 30 days, we will presume concurrence and finalize the preliminary jurisdictional determination.

You may request an approved JD for this site at any time prior to starting work within waters, including after a permit decision is made.

We recommend you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary jurisdictional determination has been conducted to identify the potential limits of wetlands and other aquatic resources at the project site which may be subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and 10 of the Rivers and Harbors Act. A *Notification of Appeal Process and Request for Appeal Form* is enclosed to notify you of your options with this determination (enclosure 3).

We appreciate feedback, especially about interactions with our staff and processes.

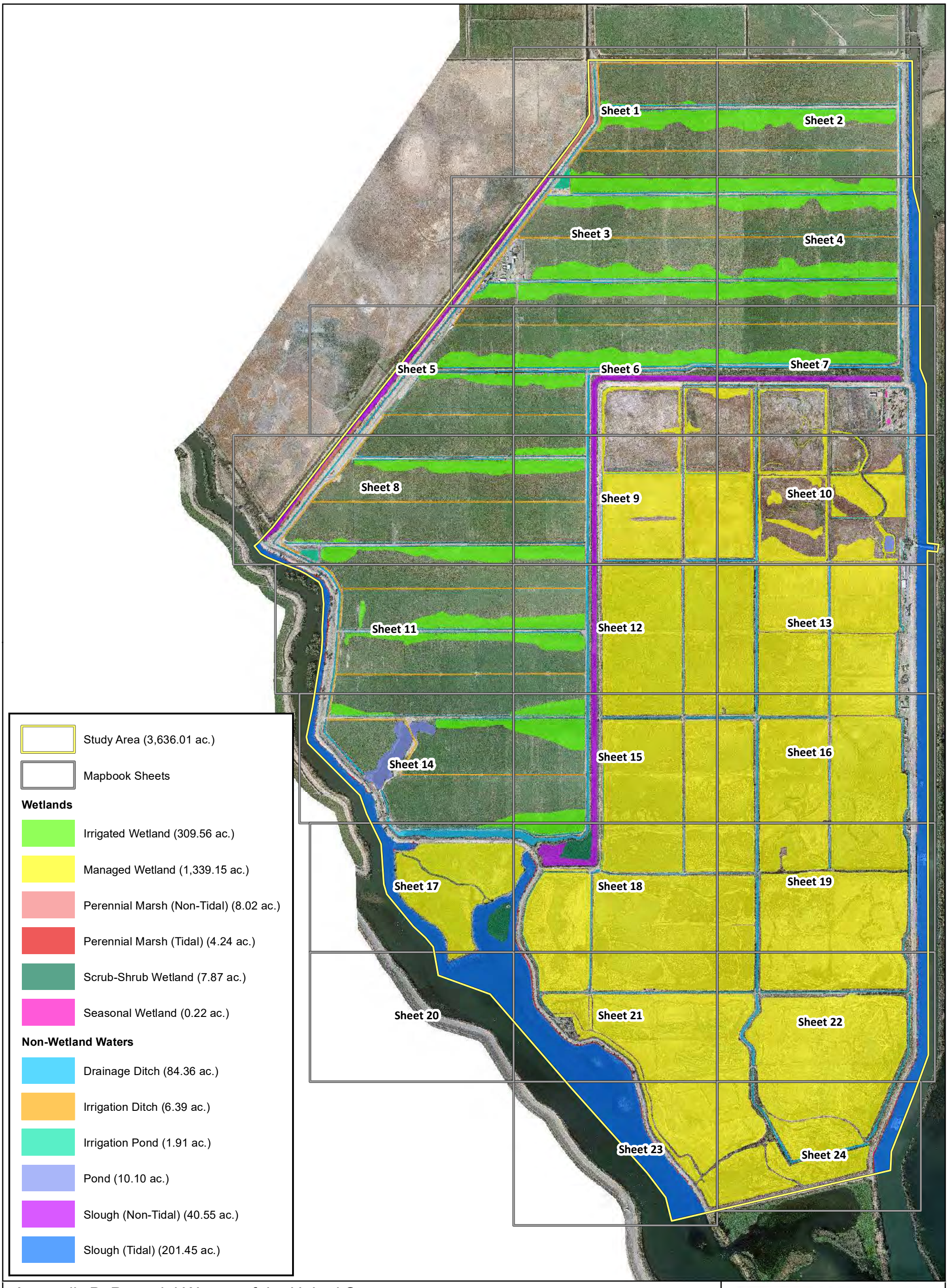
Please refer to identification number SPK-2017-00805 in any correspondence concerning this project. If you have any questions, please contact Mr. Zachary Simmons at our Sacramento Regulatory Division, 1325 J Street, Room 1350, Sacramento, California 95814-2922, by email at *Zachary.M.Simmons@usace.army.mil*, or telephone at (916) 557-6746. For program information or to complete our Customer Survey, visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

Paul Maniccia
Chief, Enforcement/Special Projects Branch
Regulatory Division

Enclosures

cc: (w/encls)
Ms. Bonnie Irving, CA Department of Water Resources, Bonnie.Irving@water.ca.gov
Ms. Stephanie Freed, WRA Inc., Freed@wra-ca.com
Ms. Heather Swinney, U.S. Fish and Wildlife Service, *Heather_Swinney@fws.gov*
Mr. Doug Hampton, National Marine Fisheries Service, *Douglas.Hampton@noaa.gov*
Ms. Tina Bartlett, Ca Department of Fish and Wildlife, *Tina.Bartlett@wildlife.ca.gov*



Appendix B. Potential Waters of the United States
Overview Sheet 1

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Miles

Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Base Source: Wood Rogers
Base Date: 10/24/17
Data Source(s): WRA

wra ENVIRONMENTAL CONSULTANTS

Path: L:\Acad 2000 Files\26000\26293\GIS\ArcMap\2018 Permitting\Delin\20181210\Appendix X Overview Sheet 1.mxd

Non-wetland waters mapped within the Study Area for the Lookout Slough Delta Smelt Habitat Restoration Project

Type	ID	Section 404 Acres	Section 404/10 Acres	Linear Feet	Cowardin Code
Drainage Ditch	DD-001	2.05	-	2403	R5UBFx
Drainage Ditch	DD-002	1.24	-	1327	R5UBFx
Drainage Ditch	DD-003	1.52	-	2493	R5UBFx
Drainage Ditch	DD-004	1.25	-	2703	R5UBFx
Drainage Ditch	DD-005	1.58	-	3427	R5UBFx
Drainage Ditch	DD-006	0.02	-	45	R5UBFx
Drainage Ditch	DD-007	1.78	-	1913	R5UBFx
Drainage Ditch	DD-008	0.90	-	1934	R5UBFx
Drainage Ditch	DD-009	0.02	-	36	R5UBFx
Drainage Ditch	DD-010	1.25	-	4225	R5UBFx
Drainage Ditch	DD-011	0.84	-	2587	R5UBFx
Drainage Ditch	DD-012	0.13	-	170	R5UBFx
Drainage Ditch	DD-013	0.65	-	1748	R5UBFx
Drainage Ditch	DD-014	0.41	-	1092	R5UBFx
Drainage Ditch	DD-015	0.10	-	737	R5UBFx
Drainage Ditch	DD-016	0.04	-	198	R5UBFx
Drainage Ditch	DD-017	0.20	-	735	R5UBFx
Drainage Ditch	DD-018	0.23	-	310	R5UBFx
Drainage Ditch	DD-019	1.17	-	2800	R5UBFx
Drainage Ditch	DD-020	0.30	-	1653	R5UBFx
Drainage Ditch	DD-021	0.03	-	122	R5UBFx
Drainage Ditch	DD-022	1.75	-	2528	R5UBFx
Drainage Ditch	DD-023	0.31	-	9290	R5UBFx
Drainage Ditch	DD-024	0.73	-	2516	R5UBFx
Drainage Ditch	DD-025	0.44	-	1605	R5UBFx
Drainage Ditch	DD-026	0.25	-	1800	R5UBFx
Drainage Ditch	DD-027	0.20	-	869	R5UBFx
Drainage Ditch	DD-028	0.02	-	44	R5UBFx
Drainage Ditch	DD-029	0.60	-	1317	R5UBFx
Drainage Ditch	DD-030	0.35	-	869	R5UBFx
Drainage Ditch	DD-031	0.79	-	1151	R5UBFx
Drainage Ditch	DD-032	0.51	-	1123	R5UBFx
Drainage Ditch	DD-033	0.28	-	1223	R5UBFx
Drainage Ditch	DD-034	0.48	-	1751	R5UBFx
Drainage Ditch	DD-035	0.04	-	51	R5UBFx
Drainage Ditch	DD-036	0.34	-	1232	R5UBFx
Drainage Ditch	DD-037	0.75	-	1358	R5UBFx
Drainage Ditch	DD-038	0.79	-	1417	R5UBFx
Drainage Ditch	DD-039	0.02	-	54	R5UBFx
Drainage Ditch	DD-040	0.76	-	2770	R5UBFx
Drainage Ditch	DD-041	0.02	-	73	R5UBFx
Drainage Ditch	DD-042	0.34	-	1228	R5UBFx
Drainage Ditch	DD-043	0.06	-	222	R5UBFx
Drainage Ditch	DD-044	0.50	-	1802	R5UBFx
Drainage Ditch	DD-045	0.63	-	1964	R5UBFx
Drainage Ditch	DD-046	0.06	-	93	R5UBFx
Drainage Ditch	DD-047	0.67	-	1210	R5UBFx
Drainage Ditch	DD-048	1.73	-	2504	R5UBFx
Drainage Ditch	DD-049	0.30	-	2577	R5UBFx
Drainage Ditch	DD-050	0.59	-	2571	R5UBFx
Drainage Ditch	DD-051	0.94	-	2579	R5UBFx
Drainage Ditch	DD-052	0.40	-	1092	R5UBFx
Drainage Ditch	DD-053	0.59	-	1270	R5UBFx
Drainage Ditch	DD-054	0.79	-	1135	R5UBFx
Drainage Ditch	DD-055	0.14	-	260	R5UBFx
Drainage Ditch	DD-056	0.49	-	1769	R5UBFx
Drainage Ditch	DD-057	0.84	-	2607	R5UBFx
Drainage Ditch	DD-058	0.25	-	469	R5UBFx
Drainage Ditch	DD-059	0.18	-	550	R5UBFx
Drainage Ditch	DD-060	0.72	-	2609	R5UBFx
Drainage Ditch	DD-061	0.50	-	1824	R5UBFx
Drainage Ditch	DD-062	0.12	-	236	R5UBFx
Drainage Ditch	DD-063	0.04	-	612	R5UBFx
Drainage Ditch	DD-064	0.16	-	711	R5UBFx
Drainage Ditch	DD-065	0.97	-	1427	R5UBFx
Drainage Ditch	DD-066	0.04	-	464	R5UBFx
Drainage Ditch	DD-067	0.12	-	1271	R5UBFx
Drainage Ditch	DD-068	0.11	-	1161	R5UBFx
Drainage Ditch	DD-069	0.19	-	691	R5UBFx
Drainage Ditch	DD-070	0.11	-	1152	R5UBFx
Drainage Ditch	DD-071	0.83	-	2574	R5UBFx
Drainage Ditch	DD-072	0.30	-	1312	R5UBFx
Drainage Ditch	DD-073	0.37	-	1328	R5UBFx
Drainage Ditch	DD-074	0.82	-	2550	R5UBFx
Drainage Ditch	DD-075	0.14	-	1518	R5UBFx
Drainage Ditch	DD-076	0.40	-	1949	R5UBFx
Drainage Ditch	DD-077	0.08	-	832	R5UBFx
Drainage Ditch	DD-078	0.10	-	1043	R5UBFx
Drainage Ditch	DD-079	0.68	-	1475	R5UBFx
Drainage Ditch	DD-080	0.16	-	1148	R5UBFx
Drainage Ditch	DD-081	0.19	-	823	R5UBFx
Drainage Ditch	DD-082	0.48	-	1312	R5UBFx
Drainage Ditch	DD-083	0.01	-	32	R5UBFx
Drainage Ditch	DD-084	0.16	-	1142	R5UBFx
Drainage Ditch	DD-085	0.48	-	4217	R5UBFx
Drainage Ditch	DD-086	0.29	-	1196	R5UBFx
Drainage Ditch	DD-087	0.69	-	4150	R5UBFx
Drainage Ditch	DD-088	0.21	-	776	R5UBFx
Drainage Ditch	DD-089	1.58	-	3422	R5UBFx
Drainage Ditch	DD-090	0.92	-	1326	R5UBFx
Drainage Ditch	DD-091	0.95	-	1439	R5UBFx
Drainage Ditch	DD-092	0.51	-	1234	R5UBFx
Drainage Ditch	DD-093	1.25	-	2480	R5UBFx
Drainage Ditch	DD-094	0.52	-	1260	R5UBFx
Drainage Ditch	DD-095	1.17	-	2548	R5UBFx
Drainage Ditch	DD-096	0.05	-	136	R5UBFx
Drainage Ditch	DD-097	0.24	-	582	R5UBFx
Drainage Ditch	DD-098	0.91	-	2479	R5UBFx
Drainage Ditch	DD-099	0.35	-	1255	R5UBFx
Drainage Ditch	DD-100	0.83	-	2595	R5UBFx
Drainage Ditch	DD-101	0.03	-	115	R5UBFx
Drainage Ditch	DD-102	0.11	-	410	R5UBFx
Drainage Ditch	DD-103	0.15	-	560	R5UBFx
Drainage Ditch	DD-104	0.70	-	2533	R5UBFx
Drainage Ditch	DD-105	0.83	-	2579	R5UBFx
Drainage Ditch	DD-106	0.89	-	1931	R5UBFx
Drainage Ditch	DD-107	0.20	-	712	R5UBFx
Drainage Ditch	DD-108	0.69	-	2511	R5UBFx
Drainage Ditch	DD-109	0.72	-	2614	R5UBFx
Drainage Ditch	DD-110	0.72	-	2621	R5UBFx
Drainage Ditch	DD-111	1.04	-	2826	R5UBFx
Drainage Ditch	DD-112	0.91	-	1953	R5UBFx
Drainage Ditch	DD-113	0.07	-	156	R5UBFx
Drainage Ditch	DD-114	0.64	-	2333	R5UBFx
Drainage Ditch	DD-115	0.72	-	2613	R5UBFx
Drainage Ditch	DD-116	0.89	-	2351	R5UBFx
Drainage Ditch	DD-117	0.71	-	2596	R5UBFx
Drainage Ditch	DD-118	0.91	-	1976	R5UBFx
Drainage Ditch	DD-119	20.05	-	16656	R5UBFx
Irrigation Ditch	ID-01	0.36	-	3100	R5UBAx
Irrigation Ditch	ID-02	0.06	-	605	R5UBAx
Irrigation Ditch	ID-03	0.14	-	1720	R5UBAx
Irrigation Ditch	ID-04	0.65	-	4204	R5UBAx
Irrigation Ditch	ID-05	0.62	-	4123	R5UBAx
Irrigation Ditch	ID-06	0.04	-	342	R5UBAx
Irrigation Ditch	ID-07	0.69	-	4629	R5UBAx
Irrigation Ditch	ID-08	0.04	-	389	R5UBAx
Irrigation Ditch	ID-09	0.49	-	4278	R5UBAx
Irrigation Ditch	ID-10	0.73	-	6398	R5UBAx
Irrigation Ditch	ID-11	0.23	-	1007	R5UBAx
Irrigation Ditch	ID-12	0.07	-	614	R5UBAx
Irrigation Ditch	ID-13	0.86	-	6458	R5UBAx
Irrigation Ditch	ID-14	0.01	-	68	R5UBAx
Irrigation Ditch	ID-15	0.74	-	3221	R5UBAx
Irrigation Ditch	ID-16	0.66	-	5761	R5UBAx
Irrigation Pond	IP-1	0.84	-	-	PUBKh
Irrigation Pond	IP-2	1.07	-	-	PUBKh
Pond	P-1	0.95	-	-	PUBHx
Pond	P-2	9.14	-	1552	PUBHx
Slough (Non-Tidal)	SNT-1	31.54	-	14220	R2UBHx
Slough (Non-Tidal)	SNT-2	9.01	-	7958	R2UBHx
Slough (Tidal)	ST-1	2.14	124.82	15040	R1UBV/R1UBVx
Slough (Tidal)	ST-2	1.22	73.27	18985	R1UBV/R1UBVx

Wetlands mapped within the Study Area for the Lookout Slough Delta Smelt Habitat

Type	ID	Section 404 Acres	Section 404/10 Acres	Cowardin Code
Irrigated Wetland	IW-01	11.04	-	PEM2Kf
Irrigated Wetland	IW-02	14.22	-	PEM2Kf
Irrigated Wetland	IW-03	2.41	-	PEM2Kf
Irrigated Wetland	IW-04	5.48	-	PEM2Kf
Irrigated Wetland	IW-05	13.95	-	PEM2Kf
Irrigated Wetland	IW-06	14.50	-	PEM2Kf
Irrigated Wetland	IW-07	0.69	-	PEM2Kf
Irrigated Wetland	IW-08	19.67	-	PEM2Kf
Irrigated Wetland	IW-09	0.41	-	PEM2Kf
Irrigated Wetland	IW-10	0.35	-	PEM2Kf
Irrigated Wetland	IW-11	16.83	-	PEM2Kf
Irrigated Wetland	IW-12	3.07	-	PEM2Kf
Irrigated Wetland	IW-13	9.97	-	PEM2Kf
Irrigated Wetland	IW-14	38.83	-	PEM2Kf
Irrigated Wetland	IW-15	3.38	-	PEM2Kf
Irrigated Wetland	IW-16	34.19	-	PEM2Kf
Irrigated Wetland	IW-17	28.91	-	PEM2Kf
Irrigated Wetland	IW-18	27.59	-	PEM2Kf
Irrigated Wetland	IW-19	31.76	-	PEM2Kf
Irrigated Wetland	IW-20	31.36	-	PEM2Kf
Irrigated Wetland	IW-21	0.27	-	PEM2Kf
Irrigated Wetland	IW-22	0.44	-	PEM2Kf
Irrigated Wetland	IW-23	0.23	-	PEM2Kf
Managed Wetlands	MW-01	21.25	-	PEM1/2Kf
Managed Wetlands	MW-02	14.68	-	PEM1/2Kf
Managed Wetlands	MW-03	17.24	-	PEM1/2Kf
Managed Wetlands	MW-04	6.98	-	PEM1/2Kf
Managed Wetlands	MW-05	0.46	-	PEM1/2Kf
Managed Wetlands	MW-06	6.24	-	PEM1/2Kf
Managed Wetlands	MW-07	124.72	-	PEM1/2Kf
Managed Wetlands	MW-08	112.85	-	PEM1/2Kf
Managed Wetlands	MW-09	121.59	-	PEM1/2Kf
Managed Wetlands	MW-10	45.31	-	PEM1/2Kf
Managed Wetlands	MW-11	111.00	-	PEM1/2Kf
Managed Wetlands	MW-12	0.53	-	PEM1/2Kf
Managed Wetlands	MW-13	28.49	-	PEM1/2Kf
Managed Wetlands	MW-14	27.55	-	PEM1/2Kf
Managed Wetlands	MW-15	67.88	-	PEM1/2Kf
Managed Wetlands	MW-16	79.00	-	PEM1/2Kf
Managed Wetlands	MW-17	66.92	-	PEM1/2Kf
Managed Wetlands	MW-18	72.60	-	PEM1/2Kf
Managed Wetlands	MW-19	33.74	-	PEM1/2Kf
Managed Wetlands	MW-20	37.07	-	PEM1/2Kf
Managed Wetlands	MW-21	67.50	-	PEM1/2Kf
Managed Wetlands	MW-22	78.12	-	PEM1/2Kf
Managed Wetlands	MW-23	30.75	-	PEM1/2Kf
Managed Wetlands	MW-24	30.60	-	PEM1/2Kf
Managed Wetlands	MW-25	6.27	-	PEM1/2Kf
Managed Wetlands	MW-26	2.40	-	PEM1/2Kf
Managed Wetlands	MW-27	0.00	-	PEM1/2Kf
Managed Wetlands	MW-28	0.96	-	PEM1/2Kf
Managed Wetlands	MW-29	8.88	-	PEM1/2Kf
Managed Wetlands	MW-30	9.40	-	PEM1/2Kf
Managed Wetlands	MW-31	7.48	-	PEM1/2Kf
Managed Wetlands	MW-32	0.07	-	PEM1/2Kf
Managed Wetlands	MW-33	0.55	-	PEM1/2Kf
Managed Wetlands	MW-34	1.65	-	PEM1/2Kf
Managed Wetlands	MW-35	4.87	-	PEM1/2Kf
Managed Wetlands	MW-36	43.37	-	PEM1/2Kf
Managed Wetlands	MW-37	48.36	-	PEM1/2Kf
Managed Wetlands	MW-38	0.14	-	PEM1/2Kf
Managed Wetlands	MW-39	0.28	-	PEM1/2Kf
Managed Wetlands	MW-40	0.02	-	PEM1/2Kf
Managed Wetlands	MW-41	0.75	-	PEM1/2Kf
Managed Wetlands	MW-42	0.52	-	PEM1/2Kf
Managed Wetlands	MW-43	0.12	-	PEM1/2Kf
Perennial Marsh (Non-Tidal)	PMNT-1	2.72	-	PEM1Fx
Perennial Marsh (Non-Tidal)	PMNT-2	2.77	-	PEM1Fx
Perennial Marsh (Non-Tidal)	PMNT-3	2.53	-	PEM1Fx
Perennial Marsh (Tidal)	PMT-01	0.04	-	PEM1T
Perennial Marsh (Tidal)	PMT-02	0.06	-	PEM1T
Perennial Marsh (Tidal)	PMT-03	0.09	-	PEM1T
Perennial Marsh (Tidal)	PMT-04	0.07	-	PEM1T
Perennial Marsh (Tidal)	PMT-05	0.75	-	PEM1T
Perennial Marsh (Tidal)	PMT-06	0.23	-	PEM1T
Perennial Marsh (Tidal)	PMT-07	0.22	-	PEM1T
Perennial Marsh (Tidal)	PMT-08	1.44	-	PEM1T
Perennial Marsh (Tidal)	PMT-09	0.10	-	PEM1T
Perennial Marsh (Tidal)	PMT-10	0.14	-	PEM1T
Perennial Marsh (Tidal)	PMT-11	0.10	-	PEM1T
Perennial Marsh (Tidal)	PMT-12	0.11	-	PEM1T
Perennial Marsh (Tidal)	PMT-13	0.21	-	PEM1T
Perennial Marsh (Tidal)	PMT-14	0.05	-	PEM1T
Perennial Marsh (Tidal)	PMT-15	0.65	-	PEM1T
Scrub-Shrub Wetland	SSW-1	-	4.29	PSSR
Scrub-Shrub Wetland	SSW-2	3.58	-	PSSR
Seasonal Wetland	SW-1	0.11	-	PEM2A/C
Seasonal Wetland	SW-2	0.03	-	PEM2A/C
Seasonal Wetland	SW-3	0.07	-	PEM2A/C

Overview of aquatic resources mapped within the Study Area for the Lookout Slough Delta Smelt Habitat Restoration Project

Type	Section 404 Acres	Section 404/10 Acres	Linear Feet
Wetlands			
Irrigated Wetland	309.56	-	-
Managed Wetlands	1339.15	-	-
Perennial Marsh (Non-Tidal)	8.02	-	-
Perennial Marsh (Tidal)	4.24	-	-
Scrub-Shrub Wetland	3.58	4.29	-
Seasonal Wetland	0.22	-	-
Subtotal	**1664.77**	**4.29**	
Non-Wetland Waters			
Drainage Ditch	84.36	-	203938
Irrigation Ditch	6.39	-	46917
Irrigation Pond	1.91	-	-
Pond	10.10	-	-
Slough (Non-Tidal)	40.55	-	22178
Slough (Tidal)	3.36	198.09	34025
Subtotal	**146.67**	**198.09**	**307058**
Totals	**1811.43**	**202.38**	**307058**

Appendix B. Potential Waters of the United States
Overview Sheet 2

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Miles

Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Data Source(s): WRA

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Appendix B.
Potential Waters of the U.S.
Map Sheet 1

Lookout Slough Restoration Project

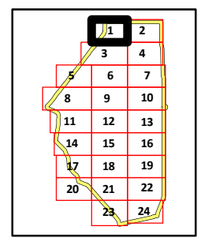
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



N
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0 200 400
Feet

Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Base Source: Wood Rogers
Base Date: 10/24/17
Data Source(s): WRA

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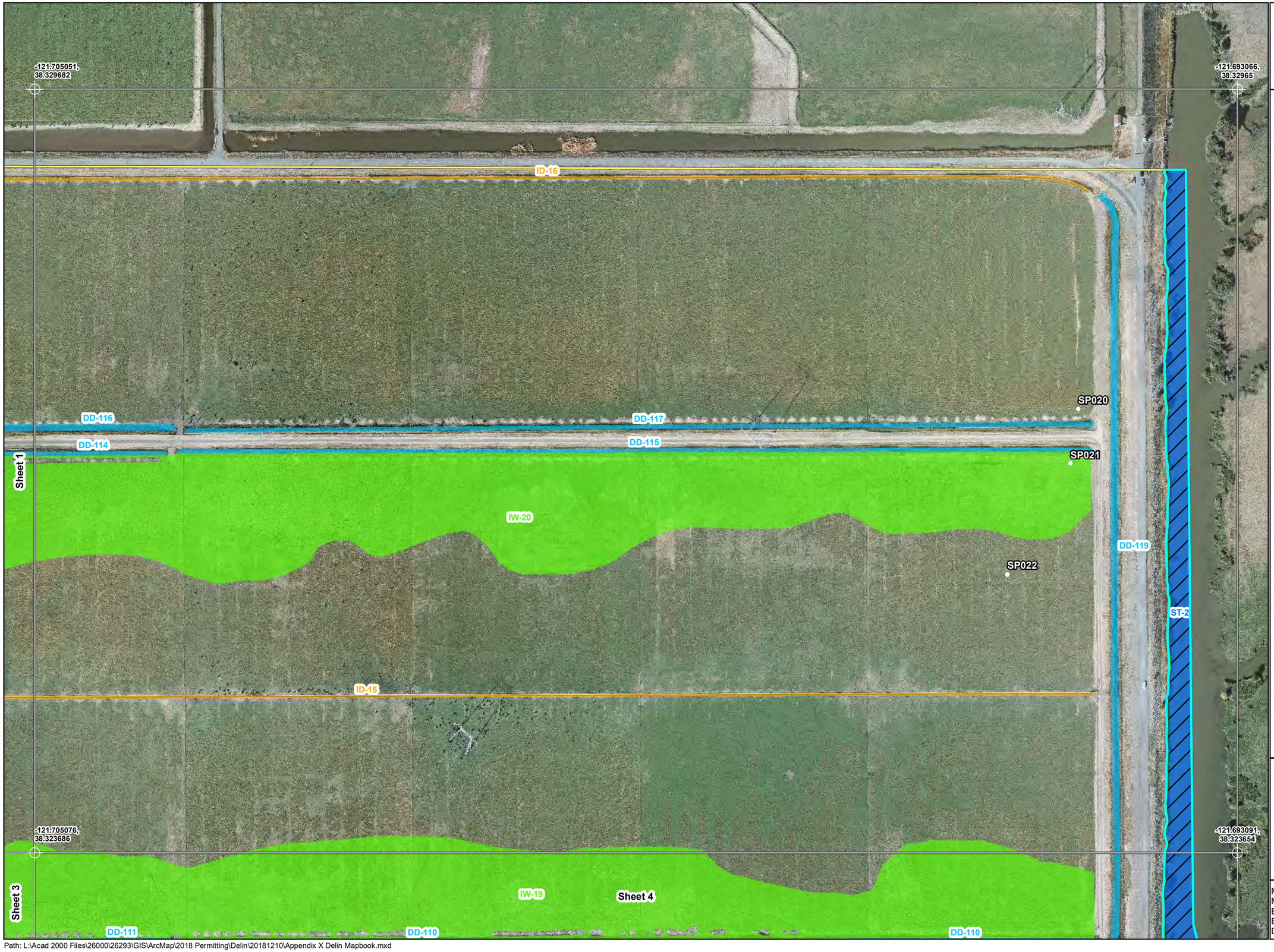


ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 2

Lookout Slough Restoration Project

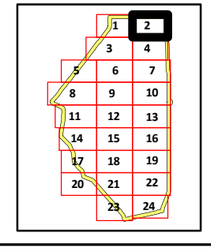
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Map Prepared By: pkobylarz
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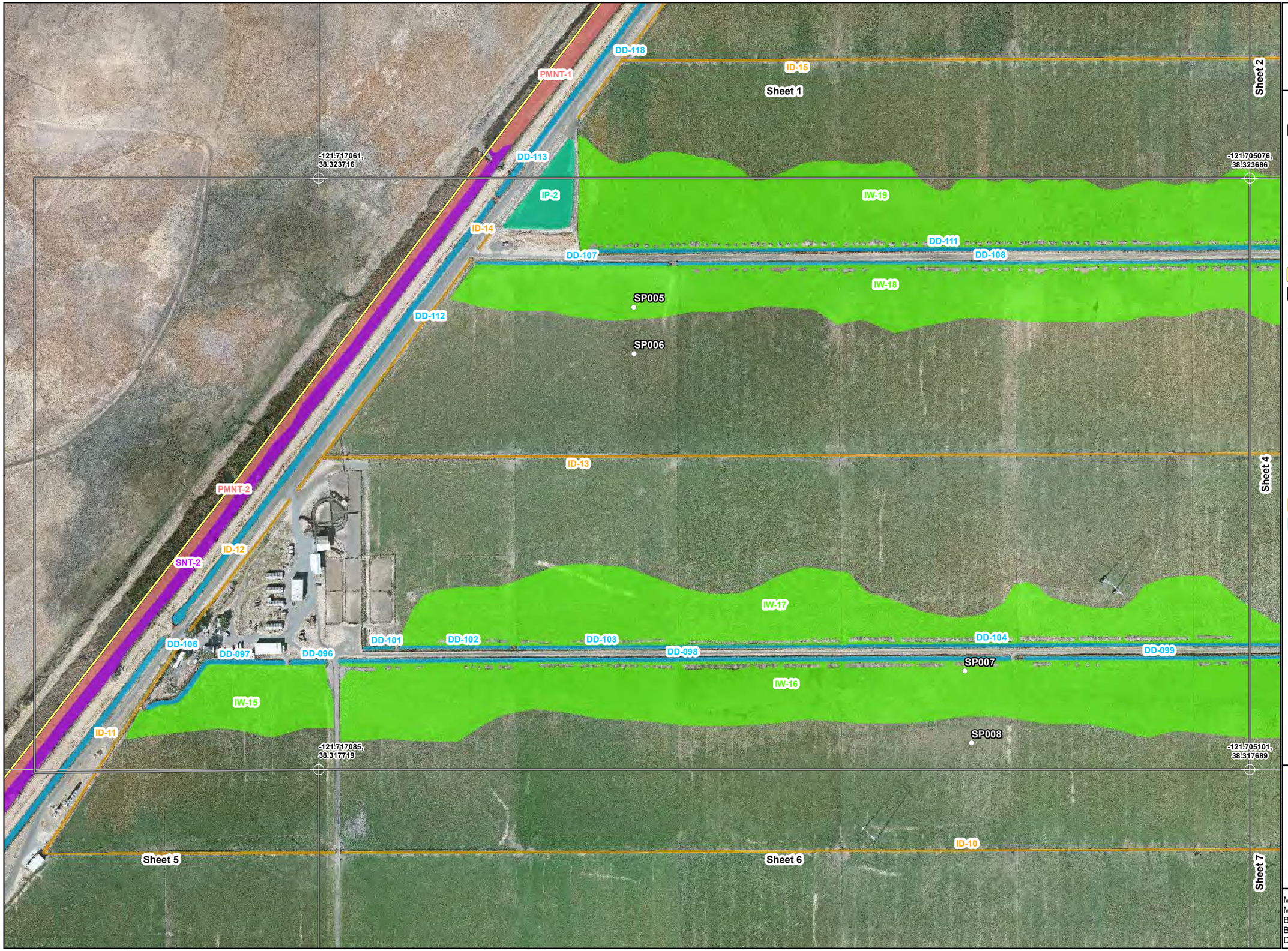

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 3

Lookout Slough Restoration Project

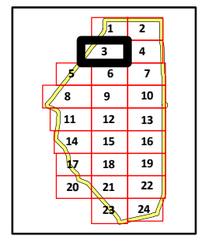
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

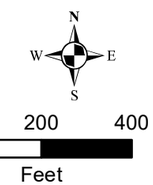
Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)





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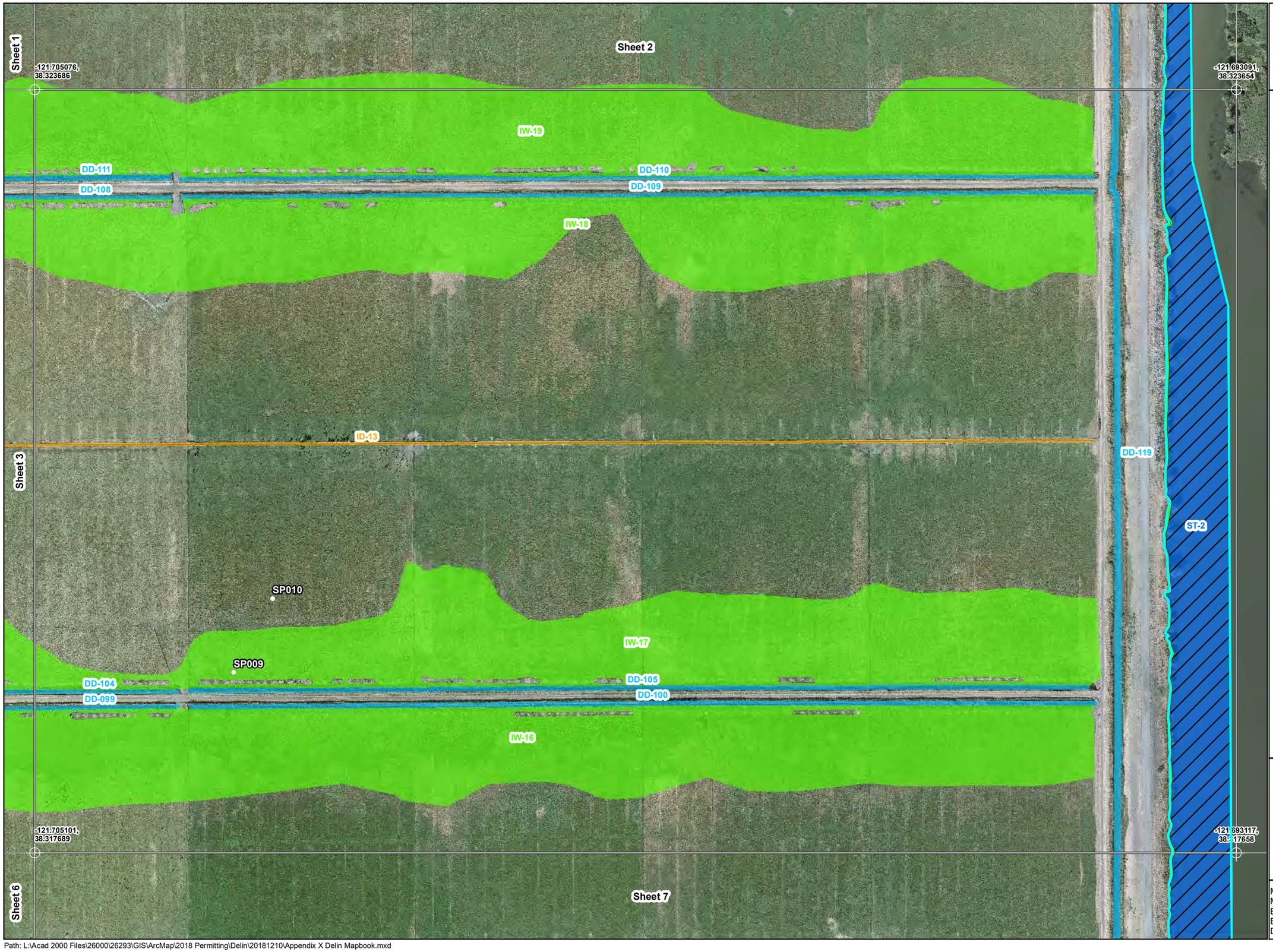

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 4

Lookout Slough Restoration Project

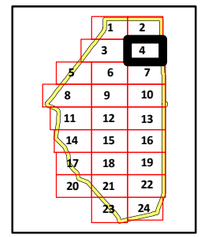
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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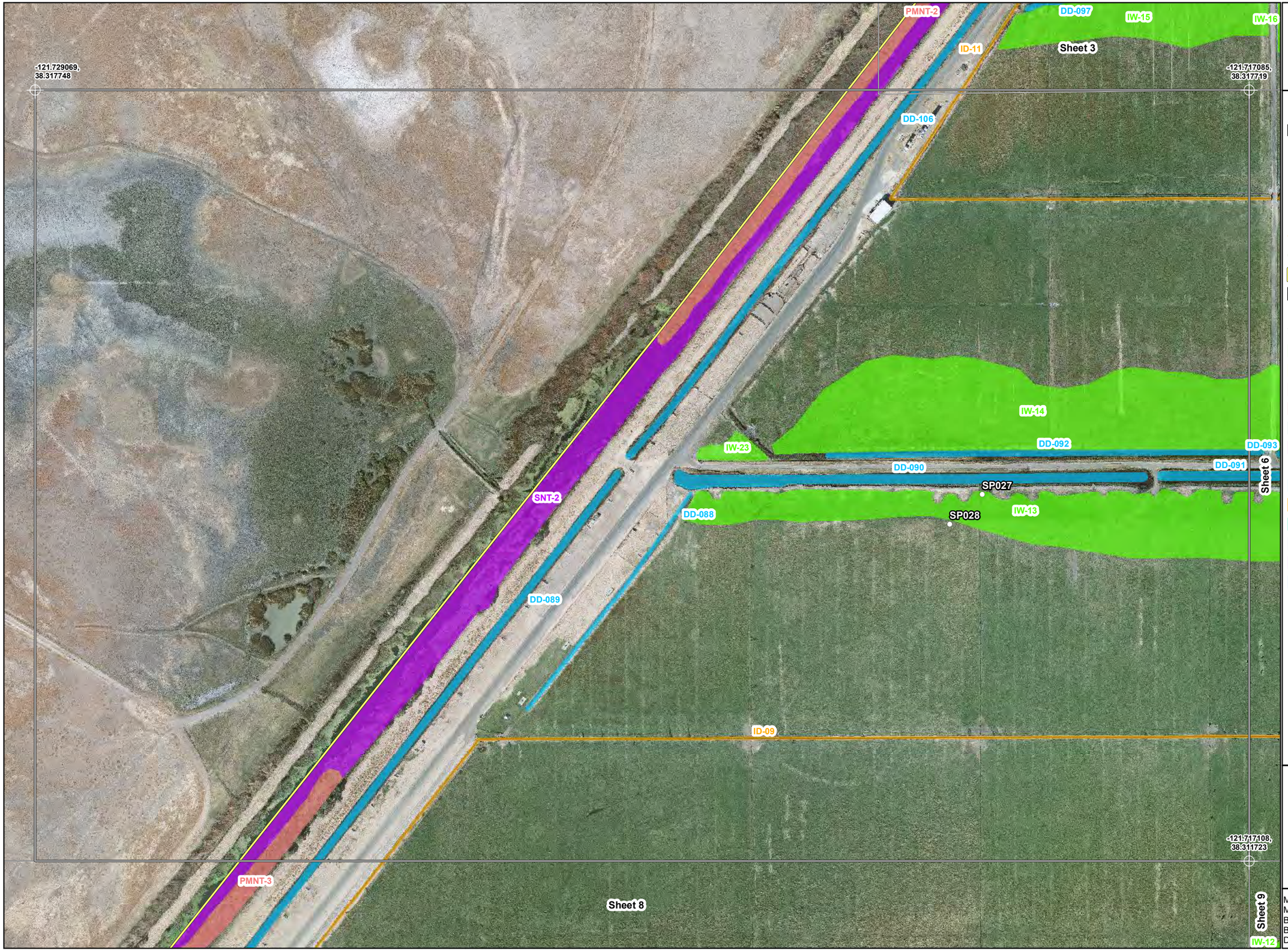


ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 5

Lookout Slough Restoration Project

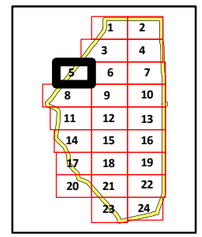
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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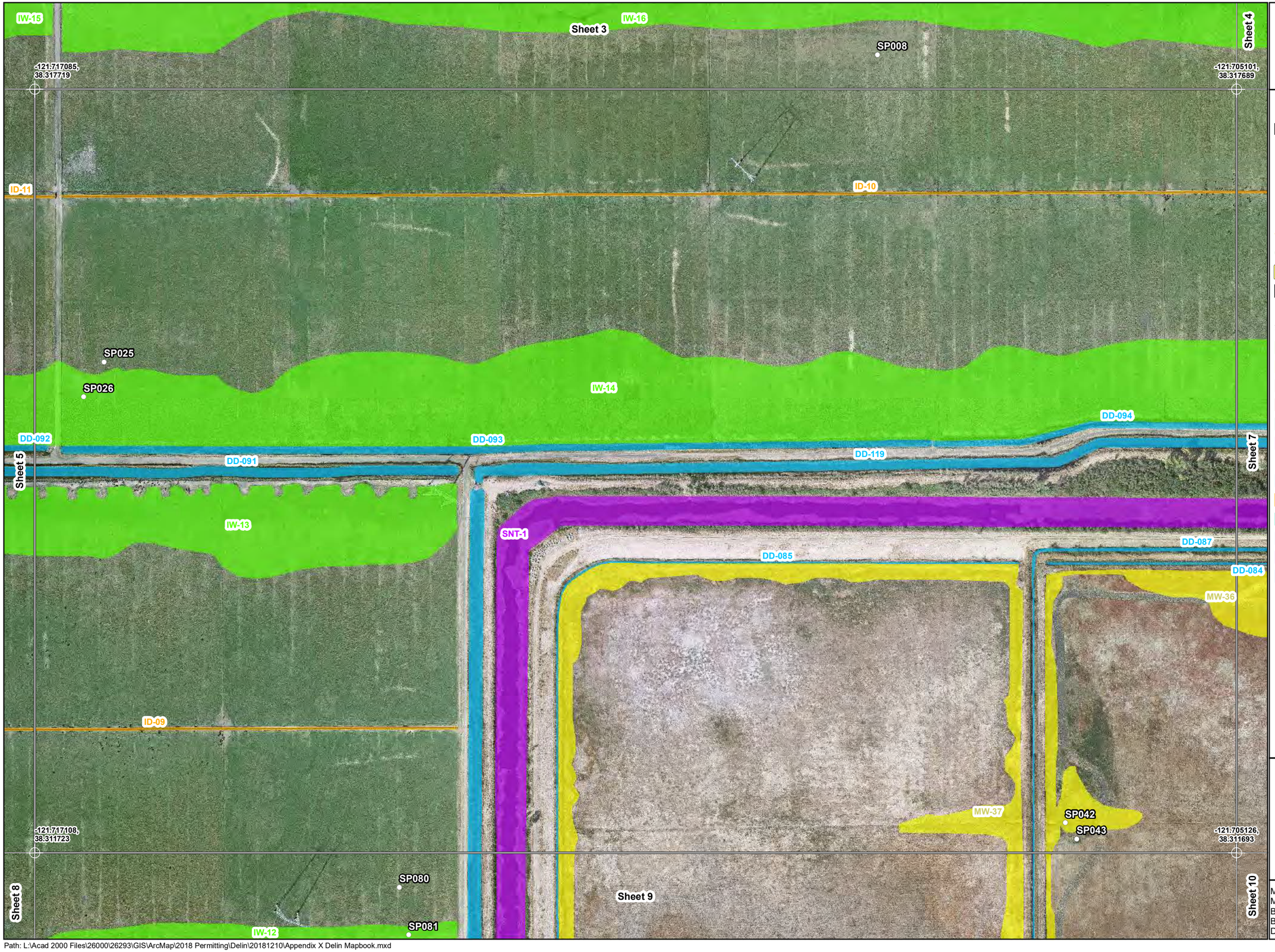

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Appendix B.
Potential Waters of the U.S.
Map Sheet 6

Lookout Slough Restoration Project

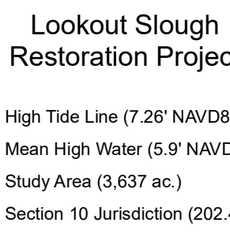
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 7

Lookout Slough Restoration Project

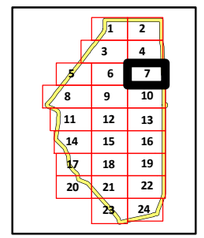
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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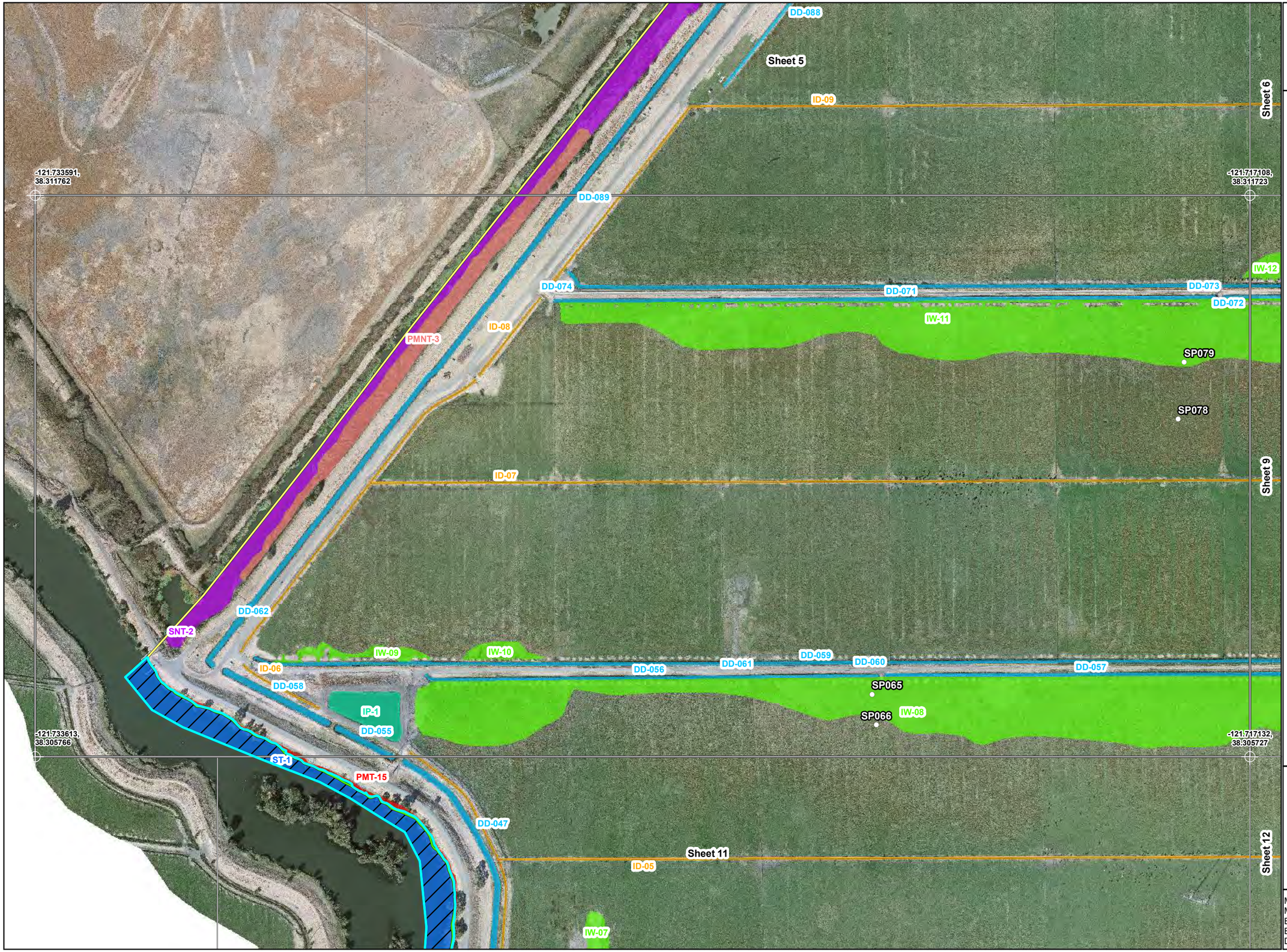

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Appendix B.
Potential Waters of the U.S.
Map Sheet 8

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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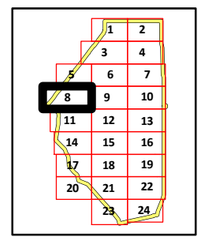
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 9

Lookout Slough Restoration Project

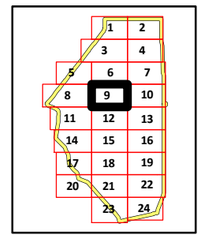
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 10

Lookout Slough Restoration Project

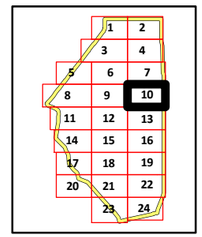
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B. Potential Waters of the U.S. Map Sheet 11

Lookout Slough Restoration Project

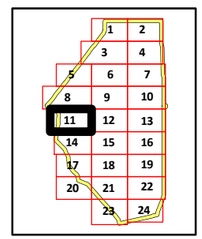
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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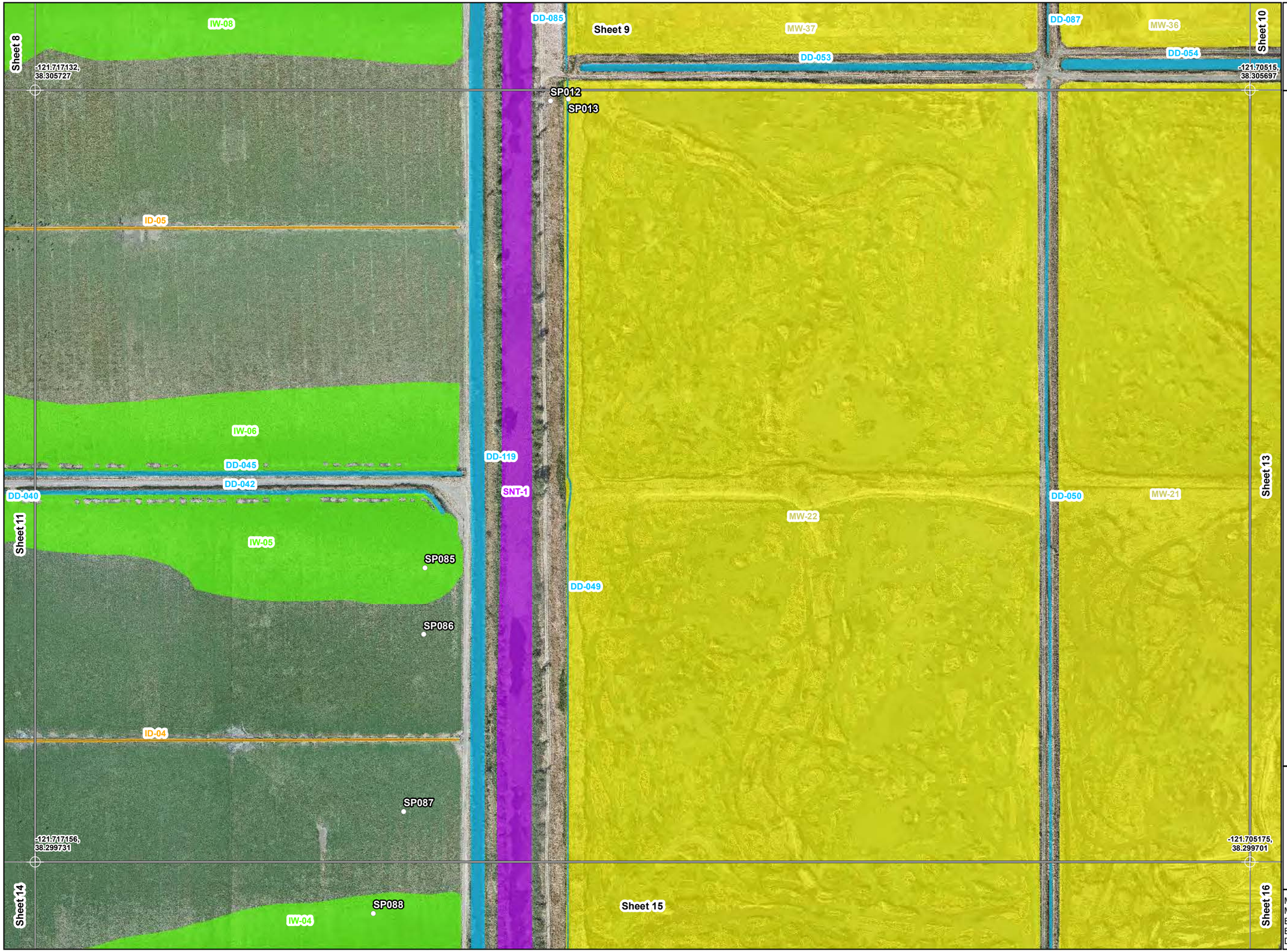


Appendix B.
Potential Waters of the U.S.
Map Sheet 12

Lookout Slough Restoration Project

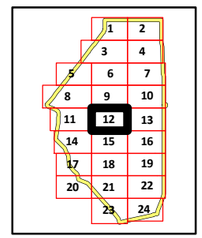
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 13

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
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Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
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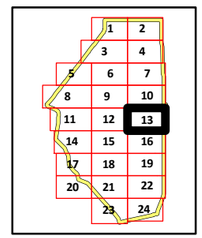

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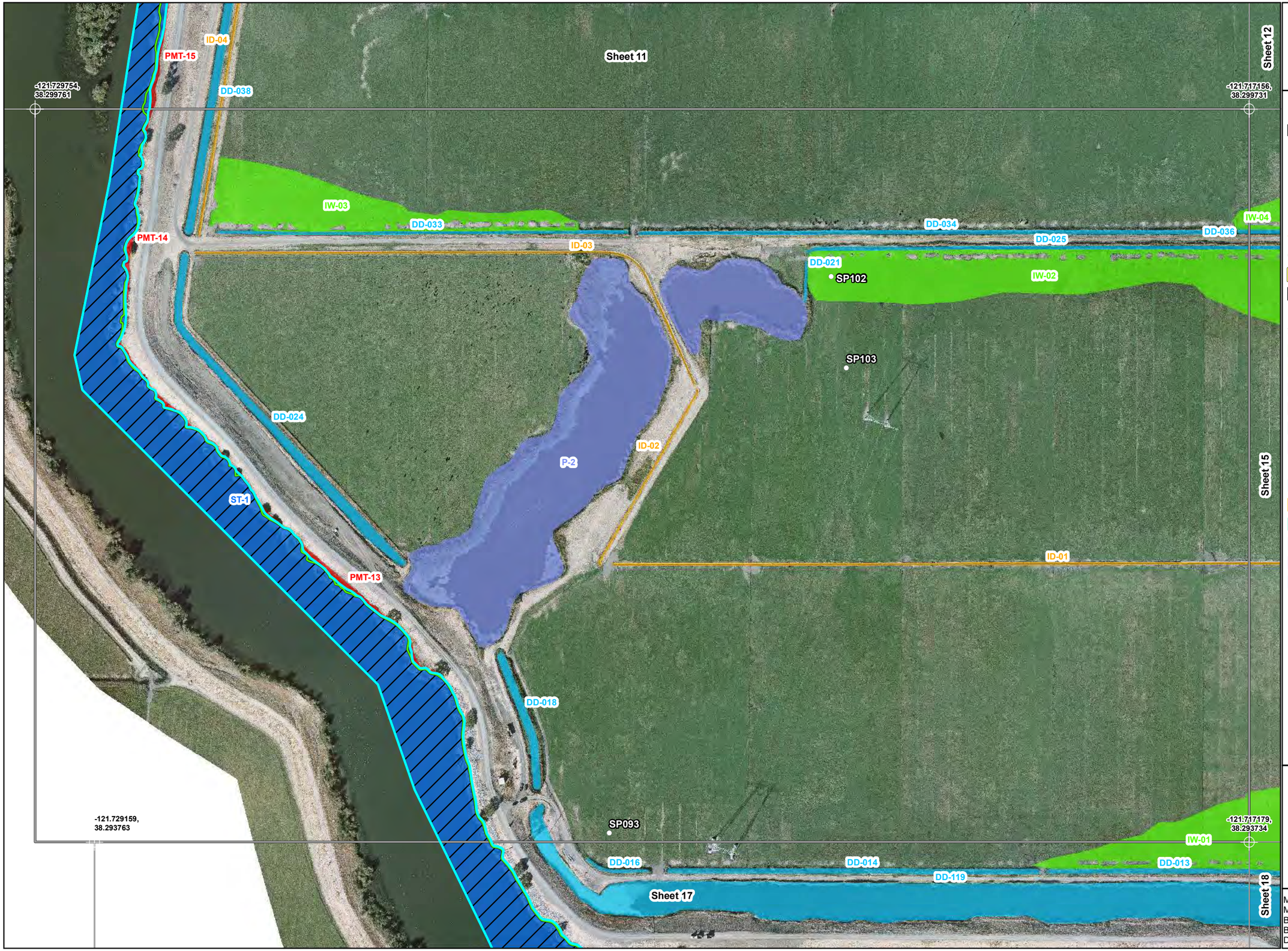


Appendix B.
Potential Waters of the U.S.
Map Sheet 14

Lookout Slough Restoration Project

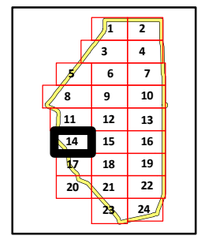
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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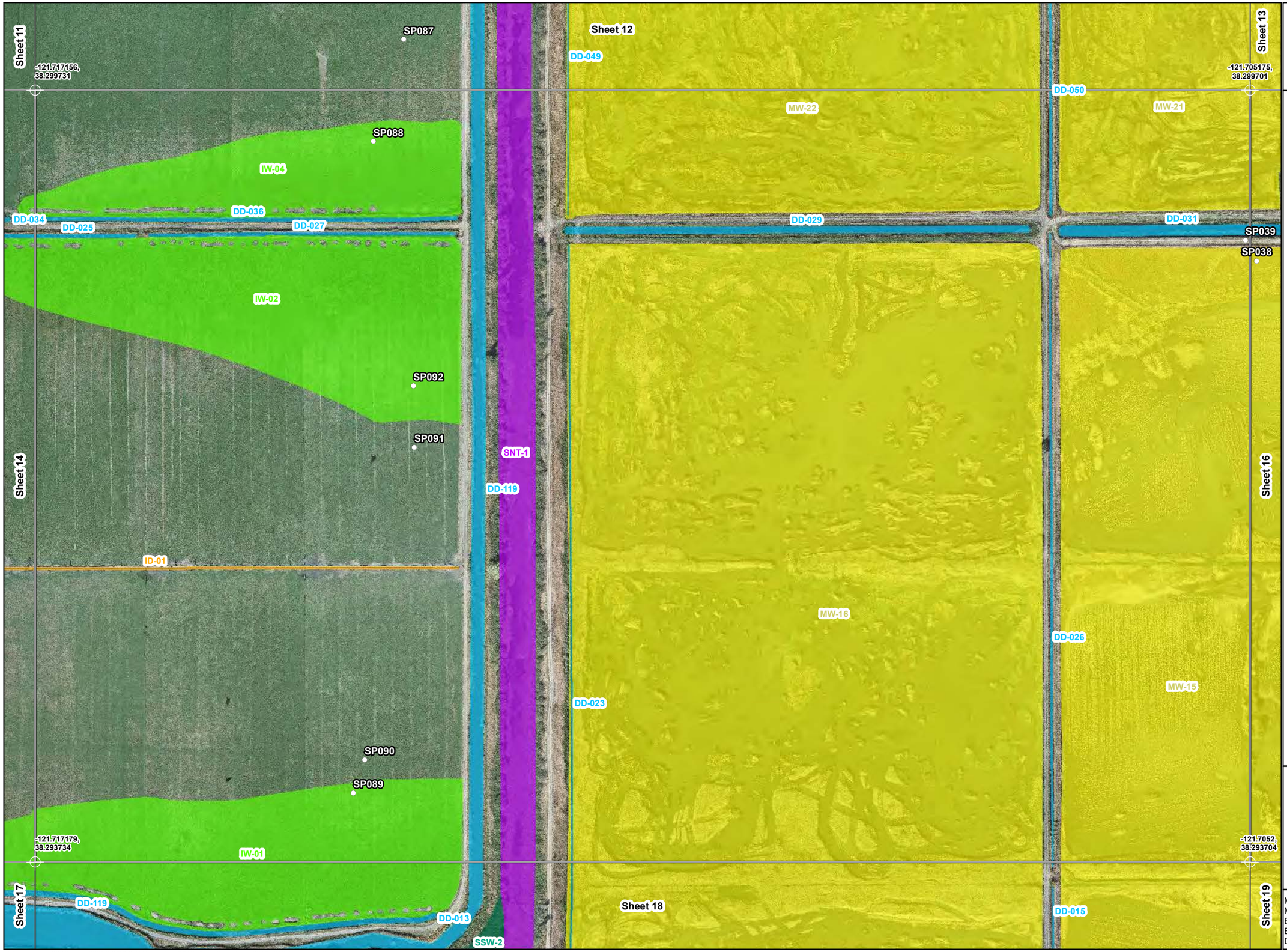

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Appendix B.
Potential Waters of the U.S.
Map Sheet 15

Lookout Slough Restoration Project

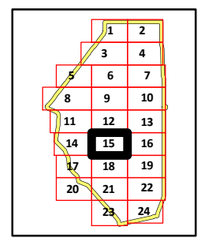
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Map Prepared By: pkobylarz
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Data Source(s): WRA

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 16

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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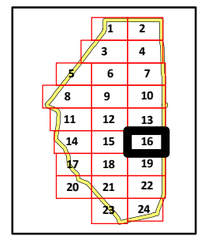
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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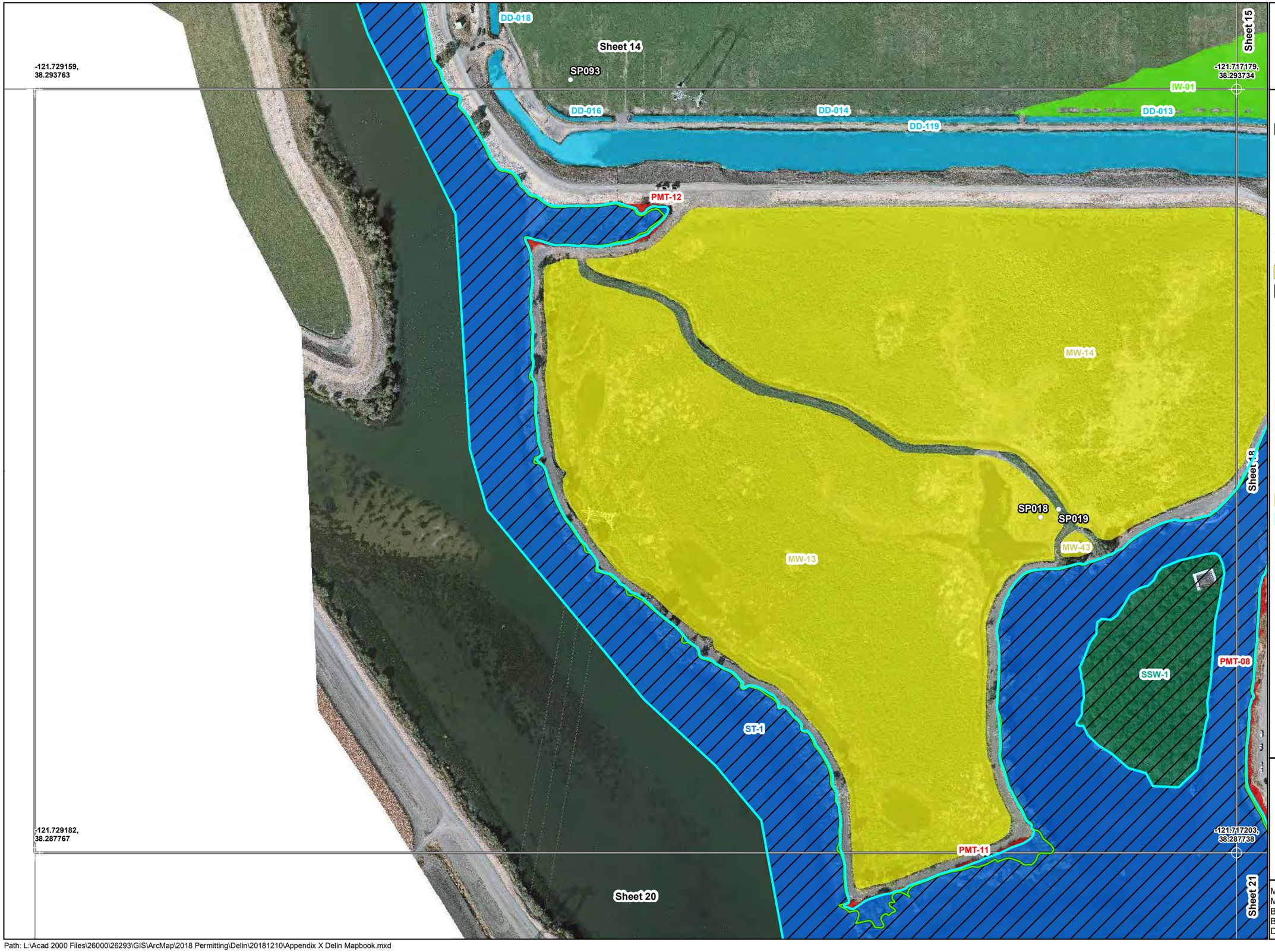

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 17

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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Non-Wetland Waters

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- Irrigation Pond (1.91 ac.)
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- Slough (Non-Tidal) (40.55 ac.)
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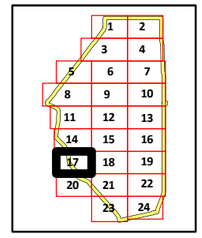

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 18

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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Non-Wetland Waters

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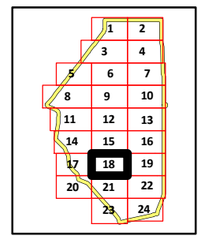

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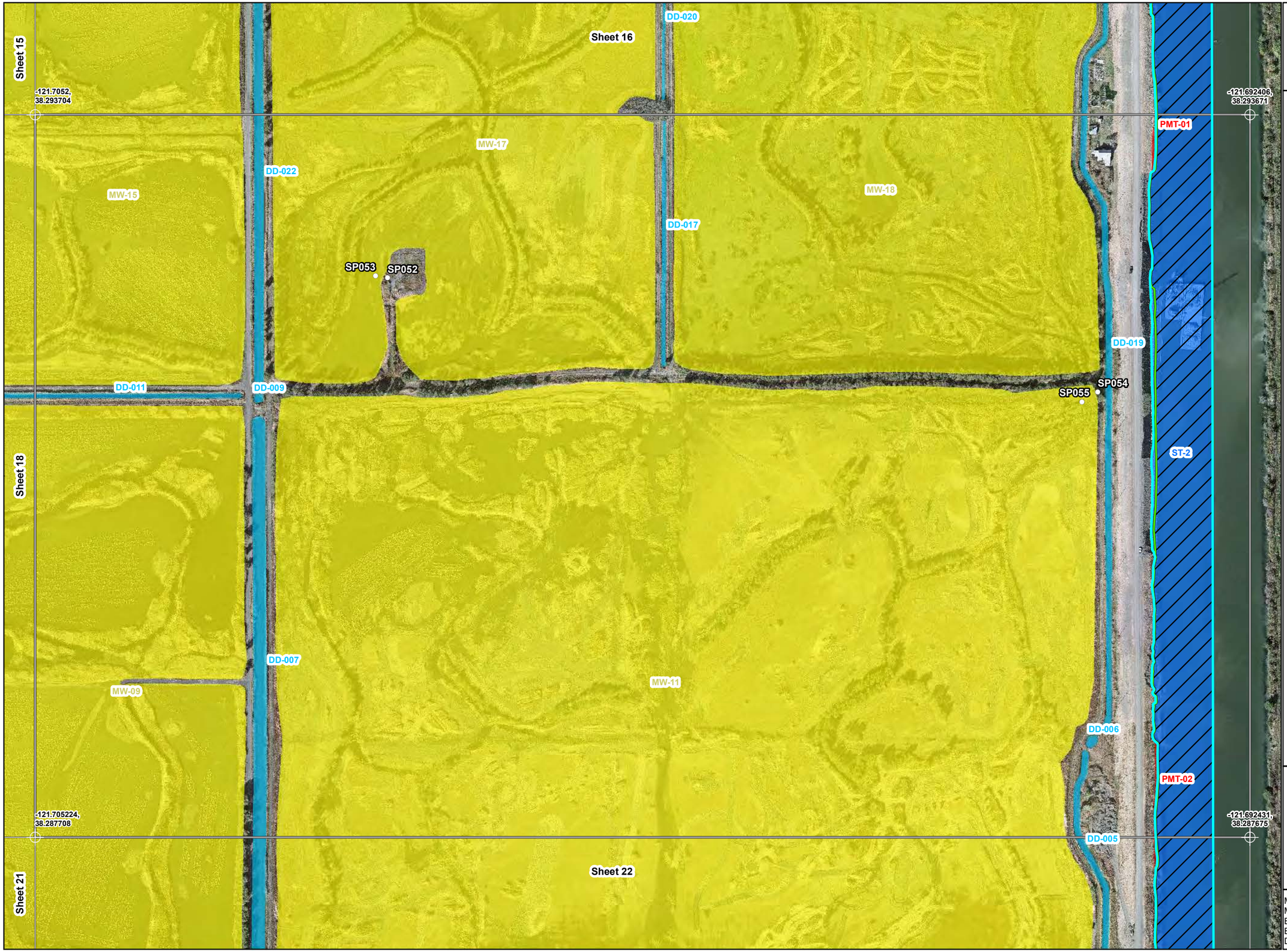

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 19

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

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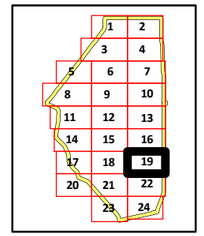

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 20

Lookout Slough
Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
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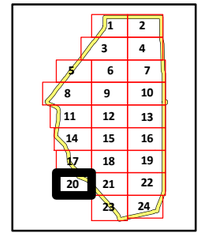

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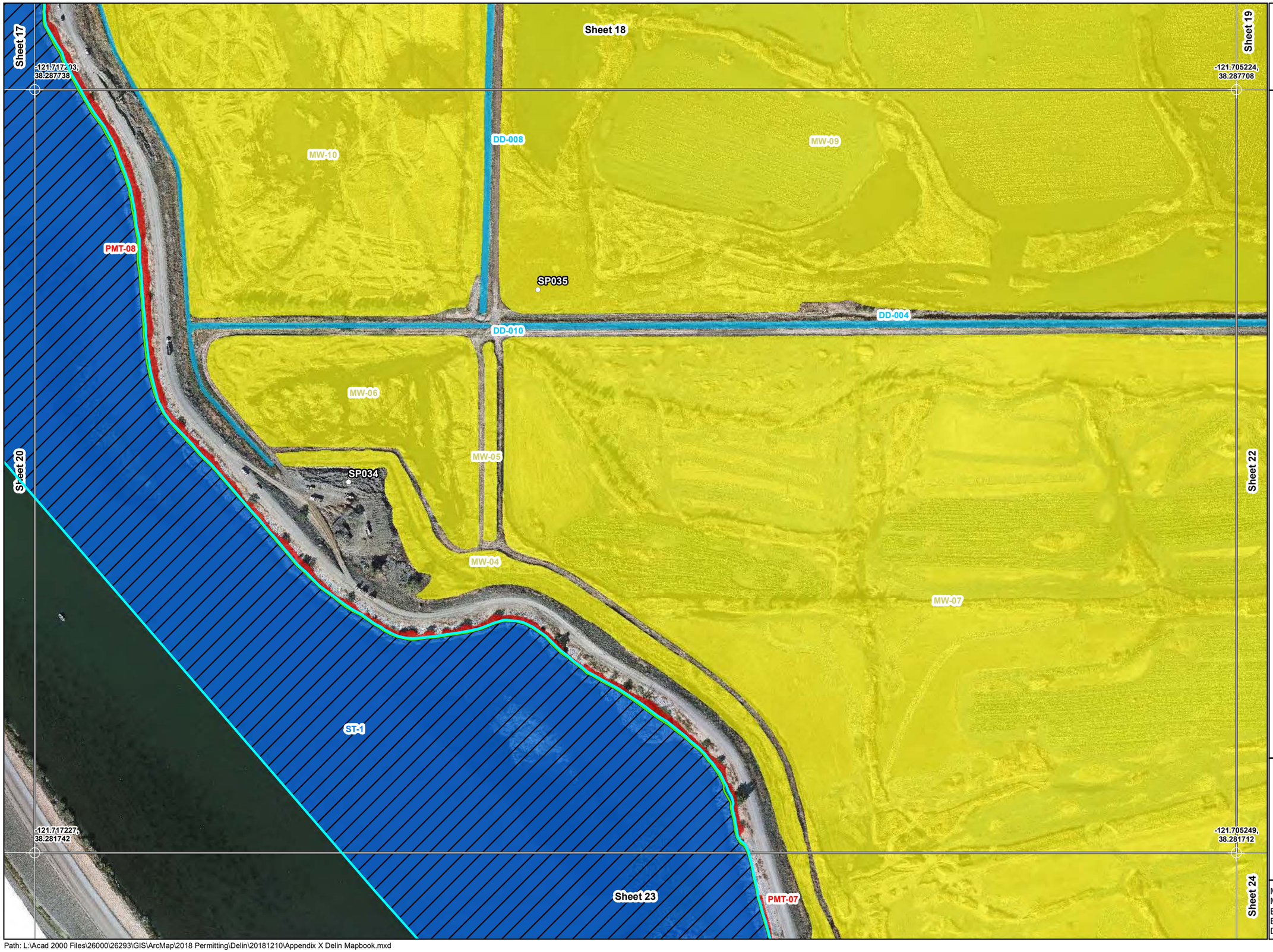

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 21

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

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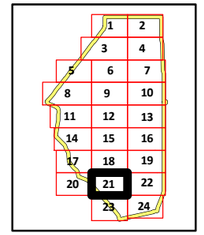

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 22

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

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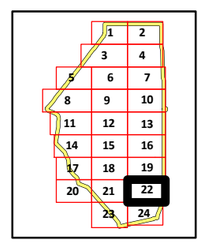

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 23

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
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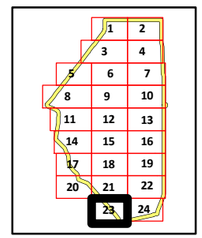

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 24

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

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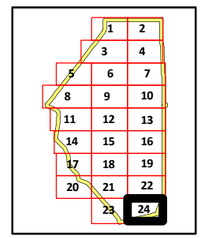

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PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: November 14, 2018

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Ecosystem Investment Partners, Attn: Mr. David Urban

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Lookout Slough Tidal Habitat Restoration, SPK-2017-00805

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: CA County/parish/borough: Solano County City: N/A

Center coordinates of site (lat/long in degree decimal format):

Lat.: 38.302416 Long.: -121.712691

Universal Transverse Mercator: 612558.80, 4240153.38

Name of nearest waterbody: Cache Slough and Shag Slough

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☒ Field Determination. Date(s): November 28, 2018

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

See the attached ORM Aquatic Resources Upload Sheet.

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

☐ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: Appendix B. Potential Waters of the U.S.

☐ Data sheets prepared/submitted by or on behalf of the PJD requestor.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report. Rationale: .

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Liberty Island.

☐ Natural Resources Conservation Service Soil Survey. Citation: .

☐ National wetlands inventory map(s). Cite name: .

☐ State/local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: . (National Geodetic Vertical Datum of 1929)

☐ Photographs: ☐ Aerial (Name & Date):

Or ☐ Other (Name & Date):

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

12/14/2018

Signature and date of
Regulatory staff member
completing PJD

Signature and date of
person requesting PJD
(REQUIRED, unless obtaining
the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH “MAY BE” SUBJECT TO REGULATORY JURISDICTION

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
DD-001	California	R5UB		Area	2.047954	ACRE	DELINPJD	38.278814	-121.701496	
DD-002	California	R5UB		Area	1.241793	ACRE	DELINPJD	38.28361	-121.703577	
DD-003	California	R5UB		Area	1.515329	ACRE	DELINPJD	38.282234	-121.694496	
DD-004	California	R5UB		Area	1.248335	ACRE	DELINPJD	38.285873	-121.707834	
DD-005	California	R5UB		Area	1.580495	ACRE	DELINPJD	38.285869	-121.696125	
DD-006	California	R5UB		Area	0.023474	ACRE	DELINPJD	38.288479	-121.694099	
DD-007	California	R5UB		Area	1.779831	ACRE	DELINPJD	38.288523	-121.70286	
DD-008	California	R5UB		Area	0.895192	ACRE	DELINPJD	38.288645	-121.71266	
DD-009	California	R5UB		Area	0.017421	ACRE	DELINPJD	38.291349	-121.702854	
DD-010	California	R5UB		Area	1.25334	ACRE	DELINPJD	38.285879	-121.714686	
DD-011	California	R5UB		Area	0.835022	ACRE	DELINPJD	38.291366	-121.707541	
DD-012	California	R5UB		Area	0.126841	ACRE	DELINPJD	38.291539	-121.712245	
DD-013	California	R5UB		Area	0.646778	ACRE	DELINPJD	38.293317	-121.716252	
DD-014	California	R5UB		Area	0.405757	ACRE	DELINPJD	38.293509	-121.721283	
DD-015	California	R5UB		Area	0.102132	ACRE	DELINPJD	38.292496	-121.707152	
DD-016	California	R5UB		Area	0.044881	ACRE	DELINPJD	38.293513	-121.723734	
DD-017	California	R5UB		Area	0.204067	ACRE	DELINPJD	38.292617	-121.698584	
DD-018	California	R5UB		Area	0.230619	ACRE	DELINPJD	38.29489	-121.72475	
DD-019	California	R5UB		Area	1.165512	ACRE	DELINPJD	38.293037	-121.694037	
DD-020	California	R5UB		Area	0.302962	ACRE	DELINPJD	38.296077	-121.698573	
DD-021	California	R5UB		Area	0.027334	ACRE	DELINPJD	38.298332	-121.721765	
DD-022	California	R5UB		Area	1.750554	ACRE	DELINPJD	38.294956	-121.702842	
DD-023	California	R5UB		Area	0.305816	ACRE	DELINPJD	38.291729	-121.712062	
DD-024	California	R5UB		Area	0.734886	ACRE	DELINPJD	38.296986	-121.727118	
DD-025	California	R5UB		Area	0.44208	ACRE	DELINPJD	38.298603	-121.71896	
DD-026	California	R5UB		Area	0.247263	ACRE	DELINPJD	38.295831	-121.707155	
DD-027	California	R5UB		Area	0.199092	ACRE	DELINPJD	38.298612	-121.714528	
DD-028	California	R5UB		Area	0.024956	ACRE	DELINPJD	38.298545	-121.698546	
DD-029	California	R5UB		Area	0.603457	ACRE	DELINPJD	38.298631	-121.709646	
DD-030	California	R5UB		Area	0.352111	ACRE	DELINPJD	38.298604	-121.694323	
DD-031	California	R5UB		Area	0.788653	ACRE	DELINPJD	38.29862	-121.70506	
DD-032	California	R5UB		Area	0.513586	ACRE	DELINPJD	38.29863	-121.700706	
DD-033	California	R5UB		Area	0.280414	ACRE	DELINPJD	38.298743	-121.725736	
DD-034	California	R5UB		Area	0.482126	ACRE	DELINPJD	38.298732	-121.72044	
DD-035	California	R5UB		Area	0.037195	ACRE	DELINPJD	38.298639	-121.702829	
DD-036	California	R5UB		Area	0.339241	ACRE	DELINPJD	38.298724	-121.715137	
DD-037	California	R5UB		Area	0.75305	ACRE	DELINPJD	38.300565	-121.694576	
DD-038	California	R5UB		Area	0.785655	ACRE	DELINPJD	38.300161	-121.727842	
DD-039	California	R5UB		Area	0.016509	ACRE	DELINPJD	38.30253	-121.69448	
DD-040	California	R5UB		Area	0.763044	ACRE	DELINPJD	38.302602	-121.722258	
DD-041	California	R5UB		Area	0.022526	ACRE	DELINPJD	38.302539	-121.694152	
DD-042	California	R5UB		Area	0.338162	ACRE	DELINPJD	38.302594	-121.715151	
DD-043	California	R5UB		Area	0.060467	ACRE	DELINPJD	38.302758	-121.726819	
DD-044	California	R5UB		Area	0.496498	ACRE	DELINPJD	38.302751	-121.723051	
DD-045	California	R5UB		Area	0.631547	ACRE	DELINPJD	38.302748	-121.716356	
DD-046	California	R5UB		Area	0.059296	ACRE	DELINPJD	38.302728	-121.694258	
DD-047	California	R5UB		Area	0.6717	ACRE	DELINPJD	38.304923	-121.727635	
DD-048	California	R5UB		Area	1.73367	ACRE	DELINPJD	38.302273	-121.702846	
DD-049	California	R5UB		Area	0.29512	ACRE	DELINPJD	38.30227	-121.711894	
DD-050	California	R5UB		Area	0.589697	ACRE	DELINPJD	38.302258	-121.707154	
DD-051	California	R5UB		Area	0.935523	ACRE	DELINPJD	38.302392	-121.698549	
DD-052	California	R5UB		Area	0.402289	ACRE	DELINPJD	38.304316	-121.694392	
DD-053	California	R5UB		Area	0.58592	ACRE	DELINPJD	38.30589	-121.709526	
DD-054	California	R5UB		Area	0.791024	ACRE	DELINPJD	38.3059	-121.705	
DD-055	California	R5UB		Area	0.140899	ACRE	DELINPJD	38.305907	-121.729137	
DD-056	California	R5UB		Area	0.487145	ACRE	DELINPJD	38.306595	-121.725254	
DD-057	California	R5UB		Area	0.838066	ACRE	DELINPJD	38.30661	-121.717543	
DD-058	California	R5UB		Area	0.251667	ACRE	DELINPJD	38.306394	-121.73033	
DD-059	California	R5UB		Area	0.175958	ACRE	DELINPJD	38.306744	-121.723129	
DD-060	California	R5UB		Area	0.718466	ACRE	DELINPJD	38.306751	-121.717503	
DD-061	California	R5UB		Area	0.502335	ACRE	DELINPJD	38.306748	-121.727477	
DD-062	California	R5UB		Area	0.120943	ACRE	DELINPJD	38.307022	-121.731025	
DD-063	California	R5UB		Area	0.04232	ACRE	DELINPJD	38.306417	-121.698438	
DD-064	California	R5UB		Area	0.164196	ACRE	DELINPJD	38.307868	-121.697182	
DD-065	California	R5UB		Area	0.971525	ACRE	DELINPJD	38.30781	-121.702832	
DD-066	California	R5UB		Area	0.042017	ACRE	DELINPJD	38.309908	-121.697598	
DD-067	California	R5UB		Area	0.116124	ACRE	DELINPJD	38.309941	-121.70957	
DD-068	California	R5UB		Area	0.105948	ACRE	DELINPJD	38.309928	-121.704967	
DD-069	California	R5UB		Area	0.190275	ACRE	DELINPJD	38.309904	-121.695284	
DD-070	California	R5UB		Area	0.105128	ACRE	DELINPJD	38.309922	-121.700704	
DD-071	California	R5UB		Area	0.827594	ACRE	DELINPJD	38.310632	-121.722069	

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH “MAY BE” SUBJECT TO REGULATORY JURISDICTION

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
DD-072	California	R5UB		Area	0.300647	ACRE	DELINPJD	38.310651	-121.715212	
DD-073	California	R5UB		Area	0.365737	ACRE	DELINPJD	38.310762	-121.715183	
DD-074	California	R5UB		Area	0.819945	ACRE	DELINPJD	38.310769	-121.722022	
DD-075	California	R5UB		Area	0.138792	ACRE	DELINPJD	38.30893	-121.693874	
DD-076	California	R5UB		Area	0.397385	ACRE	DELINPJD	38.306786	-121.694023	
DD-077	California	R5UB		Area	0.075795	ACRE	DELINPJD	38.311865	-121.695109	
DD-078	California	R5UB		Area	0.104985	ACRE	DELINPJD	38.31347	-121.696363	
DD-079	California	R5UB		Area	0.679778	ACRE	DELINPJD	38.311918	-121.702818	
DD-080	California	R5UB		Area	0.157402	ACRE	DELINPJD	38.313943	-121.700646	
DD-081	California	R5UB		Area	0.188328	ACRE	DELINPJD	38.313934	-121.696935	
DD-082	California	R5UB		Area	0.481678	ACRE	DELINPJD	38.313905	-121.694138	
DD-083	California	R5UB		Area	0.012119	ACRE	DELINPJD	38.313917	-121.695153	
DD-084	California	R5UB		Area	0.156506	ACRE	DELINPJD	38.313967	-121.705027	
DD-085	California	R5UB		Area	0.483422	ACRE	DELINPJD	38.31399	-121.710746	
DD-086	California	R5UB		Area	0.286172	ACRE	DELINPJD	38.314043	-121.700544	
DD-087	California	R5UB		Area	0.691426	ACRE	DELINPJD	38.314081	-121.706104	
DD-088	California	R5UB		Area	0.213711	ACRE	DELINPJD	38.313717	-121.723423	
DD-089	California	R5UB		Area	1.58175	ACRE	DELINPJD	38.311034	-121.727015	
DD-090	California	R5UB		Area	0.924894	ACRE	DELINPJD	38.314704	-121.720572	
DD-091	California	R5UB		Area	0.946183	ACRE	DELINPJD	38.314714	-121.715437	
DD-092	California	R5UB		Area	0.51194	ACRE	DELINPJD	38.314901	-121.719118	
DD-093	California	R5UB		Area	1.252171	ACRE	DELINPJD	38.314881	-121.712494	
DD-094	California	R5UB		Area	0.522329	ACRE	DELINPJD	38.315055	-121.705941	
DD-095	California	R5UB		Area	1.172485	ACRE	DELINPJD	38.31502	-121.699234	
DD-096	California	R5UB		Area	0.054638	ACRE	DELINPJD	38.31881	-121.71721	
DD-097	California	R5UB		Area	0.242344	ACRE	DELINPJD	38.318815	-121.7184	
DD-098	California	R5UB		Area	0.911571	ACRE	DELINPJD	38.318824	-121.712506	
DD-099	California	R5UB		Area	0.345445	ACRE	DELINPJD	38.318821	-121.705833	
DD-100	California	R5UB		Area	0.834186	ACRE	DELINPJD	38.318849	-121.699026	
DD-101	California	R5UB		Area	0.030951	ACRE	DELINPJD	38.318951	-121.716315	
DD-102	California	R5UB		Area	0.112755	ACRE	DELINPJD	38.318958	-121.71532	
DD-103	California	R5UB		Area	0.154113	ACRE	DELINPJD	38.318954	-121.713542	
DD-104	California	R5UB		Area	0.697539	ACRE	DELINPJD	38.318957	-121.708063	
DD-105	California	R5UB		Area	0.829052	ACRE	DELINPJD	38.318973	-121.699073	
DD-106	California	R5UB		Area	0.889053	ACRE	DELINPJD	38.316957	-121.72114	
DD-107	California	R5UB		Area	0.195851	ACRE	DELINPJD	38.322845	-121.713805	
DD-108	California	R5UB		Area	0.691634	ACRE	DELINPJD	38.322841	-121.708086	
DD-109	California	R5UB		Area	0.719843	ACRE	DELINPJD	38.322843	-121.699066	
DD-110	California	R5UB		Area	0.721896	ACRE	DELINPJD	38.322976	-121.699073	
DD-111	California	R5UB		Area	1.038992	ACRE	DELINPJD	38.322981	-121.708641	
DD-112	California	R5UB		Area	0.913228	ACRE	DELINPJD	38.321308	-121.716912	
DD-113	California	R5UB		Area	0.069668	ACRE	DELINPJD	38.323707	-121.714601	
DD-114	California	R5UB		Area	0.63763	ACRE	DELINPJD	38.326821	-121.707784	
DD-115	California	R5UB		Area	0.719709	ACRE	DELINPJD	38.326833	-121.69908	
DD-116	California	R5UB		Area	0.889236	ACRE	DELINPJD	38.327021	-121.707595	
DD-117	California	R5UB		Area	0.714903	ACRE	DELINPJD	38.327015	-121.699028	
DD-118	California	R5UB		Area	0.906955	ACRE	DELINPJD	38.325683	-121.712701	
DD-119	California	R5UB		Area	20.046476	ACRE	DELINPJD	38.29325	-121.718672	
ID-01	California	R5UB		Area	0.355118	ACRE	DELINPJD	38.296019	-121.718384	
ID-02	California	R5UB		Area	0.05538	ACRE	DELINPJD	38.296732	-121.723409	
ID-03	California	R5UB		Area	0.13811	ACRE	DELINPJD	38.29858	-121.725504	
ID-04	California	R5UB		Area	0.645995	ACRE	DELINPJD	38.300676	-121.720515	
ID-05	California	R5UB		Area	0.617025	ACRE	DELINPJD	38.304656	-121.720745	
ID-06	California	R5UB		Area	0.039172	ACRE	DELINPJD	38.306483	-121.730264	
ID-07	California	R5UB		Area	0.693071	ACRE	DELINPJD	38.308682	-121.721867	
ID-08	California	R5UB		Area	0.044544	ACRE	DELINPJD	38.310244	-121.727156	
ID-09	California	R5UB		Area	0.490906	ACRE	DELINPJD	38.312693	-121.719757	
ID-10	California	R5UB		Area	0.734251	ACRE	DELINPJD	38.316884	-121.705666	
ID-11	California	R5UB		Area	0.231107	ACRE	DELINPJD	38.316877	-121.718761	
ID-12	California	R5UB		Area	0.070405	ACRE	DELINPJD	38.319796	-121.718093	
ID-13	California	R5UB		Area	0.862844	ACRE	DELINPJD	38.320896	-121.705938	
ID-14	California	R5UB		Area	0.007697	ACRE	DELINPJD	38.323074	-121.714933	
ID-15	California	R5UB		Area	0.738501	ACRE	DELINPJD	38.324906	-121.704125	
ID-16	California	R5UB		Area	0.661102	ACRE	DELINPJD	38.328975	-121.703324	
IP-1	California	PUB		Area	0.839223	ACRE	DELINPJD	38.306249	-121.729056	
IP-2	California	PUB		Area	1.067776	ACRE	DELINPJD	38.323534	-121.714101	
IW-01	California	PEM		Area	11.037777	ACRE	DELINPJD	38.293776	-121.715374	
IW-02	California	PEM		Area	14.224856	ACRE	DELINPJD	38.2981	-121.715156	
IW-03	California	PEM		Area	2.410626	ACRE	DELINPJD	38.298992	-121.726996	
IW-04	California	PEM		Area	5.479435	ACRE	DELINPJD	38.299044	-121.714718	
IW-05	California	PEM		Area	13.94662	ACRE	DELINPJD	38.302405	-121.720021	

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH “MAY BE” SUBJECT TO REGULATORY JURISDICTION

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
IW-06	California	PEM		Area	14.498977	ACRE	DELINPJD	38.303002	-121.718434	
IW-07	California	PEM		Area	0.688116	ACRE	DELINPJD	38.303535	-121.726053	
IW-08	California	PEM		Area	19.673192	ACRE	DELINPJD	38.306284	-121.719804	
IW-09	California	PEM		Area	0.414982	ACRE	DELINPJD	38.306885	-121.729861	
IW-10	California	PEM		Area	0.350562	ACRE	DELINPJD	38.306884	-121.72726	
IW-11	California	PEM		Area	16.834433	ACRE	DELINPJD	38.310331	-121.718974	
IW-12	California	PEM		Area	3.069046	ACRE	DELINPJD	38.31099	-121.714967	
IW-13	California	PEM		Area	9.974648	ACRE	DELINPJD	38.314334	-121.717788	
IW-14	California	PEM		Area	38.826175	ACRE	DELINPJD	38.315288	-121.708625	
IW-15	California	PEM		Area	3.381206	ACRE	DELINPJD	38.318407	-121.718015	
IW-16	California	PEM		Area	34.190806	ACRE	DELINPJD	38.318401	-121.705662	
IW-17	California	PEM		Area	28.911969	ACRE	DELINPJD	38.319252	-121.699855	
IW-18	California	PEM		Area	27.586632	ACRE	DELINPJD	38.322531	-121.704466	
IW-19	California	PEM		Area	31.762372	ACRE	DELINPJD	38.323368	-121.704739	
IW-20	California	PEM		Area	31.36225	ACRE	DELINPJD	38.326322	-121.703365	
IW-21	California	PEM		Area	0.267456	ACRE	DELINPJD	38.327144	-121.706792	
IW-22	California	PEM		Area	0.443747	ACRE	DELINPJD	38.327061	-121.710708	
IW-23	California	PEM		Area	0.228338	ACRE	DELINPJD	38.314928	-121.722195	
MW-01	California	PEM		Area	21.251005	ACRE	DELINPJD	38.277219	-121.703813	
MW-02	California	PEM		Area	14.67953	ACRE	DELINPJD	38.277621	-121.699345	
MW-03	California	PEM		Area	17.23969	ACRE	DELINPJD	38.279202	-121.699479	
MW-04	California	PEM		Area	6.975611	ACRE	DELINPJD	38.283001	-121.710516	
MW-05	California	PEM		Area	0.461477	ACRE	DELINPJD	38.284942	-121.712672	
MW-06	California	PEM		Area	6.23677	ACRE	DELINPJD	38.285363	-121.714139	
MW-07	California	PEM		Area	124.724264	ACRE	DELINPJD	38.282428	-121.706878	
MW-08	California	PEM		Area	112.854488	ACRE	DELINPJD	38.282932	-121.698693	
MW-09	California	PEM		Area	121.585053	ACRE	DELINPJD	38.288639	-121.707789	
MW-10	California	PEM		Area	45.31454	ACRE	DELINPJD	38.28877	-121.714443	
MW-11	California	PEM		Area	111.004381	ACRE	DELINPJD	38.288707	-121.698407	
MW-12	California	PEM		Area	0.530353	ACRE	DELINPJD	38.291573	-121.714054	
MW-13	California	PEM		Area	28.494862	ACRE	DELINPJD	38.290056	-121.721525	
MW-14	California	PEM		Area	27.554038	ACRE	DELINPJD	38.291838	-121.719484	
MW-15	California	PEM		Area	67.878902	ACRE	DELINPJD	38.294962	-121.705048	
MW-16	California	PEM		Area	79.004294	ACRE	DELINPJD	38.294989	-121.70958	
MW-17	California	PEM		Area	66.916439	ACRE	DELINPJD	38.295066	-121.700691	
MW-18	California	PEM		Area	72.600266	ACRE	DELINPJD	38.295028	-121.696331	
MW-19	California	PEM		Area	33.73686	ACRE	DELINPJD	38.300596	-121.696581	
MW-20	California	PEM		Area	37.070005	ACRE	DELINPJD	38.300634	-121.700699	
MW-21	California	PEM		Area	67.495923	ACRE	DELINPJD	38.302276	-121.705038	
MW-22	California	PEM		Area	78.121475	ACRE	DELINPJD	38.302267	-121.709579	
MW-23	California	PEM		Area	30.745014	ACRE	DELINPJD	38.304189	-121.700664	
MW-24	California	PEM		Area	30.60099	ACRE	DELINPJD	38.304156	-121.69647	
MW-25	California	PEM		Area	6.267536	ACRE	DELINPJD	38.306343	-121.696478	
MW-26	California	PEM		Area	2.398577	ACRE	DELINPJD	38.307468	-121.700621	
MW-27	California	PEM		Area	0.002432	ACRE	DELINPJD	38.307932	-121.698754	
MW-28	California	PEM		Area	0.96249	ACRE	DELINPJD	38.308798	-121.701767	
MW-29	California	PEM		Area	8.87996	ACRE	DELINPJD	38.309135	-121.696882	
MW-30	California	PEM		Area	9.397173	ACRE	DELINPJD	38.306421	-121.701703	
MW-31	California	PEM		Area	7.479521	ACRE	DELINPJD	38.309039	-121.694921	
MW-32	California	PEM		Area	0.068071	ACRE	DELINPJD	38.309893	-121.697572	
MW-33	California	PEM		Area	0.552412	ACRE	DELINPJD	38.309959	-121.697543	
MW-34	California	PEM		Area	1.645736	ACRE	DELINPJD	38.310306	-121.694669	
MW-35	California	PEM		Area	4.870152	ACRE	DELINPJD	38.309904	-121.700691	
MW-36	California	PEM		Area	43.365225	ACRE	DELINPJD	38.308596	-121.705006	
MW-37	California	PEM		Area	48.356996	ACRE	DELINPJD	38.306882	-121.709578	
MW-38	California	PEM		Area	0.141483	ACRE	DELINPJD	38.307149	-121.69678	
MW-39	California	PEM		Area	0.277189	ACRE	DELINPJD	38.308186	-121.700625	
MW-40	California	PEM		Area	0.021998	ACRE	DELINPJD	38.307855	-121.695894	
MW-41	California	PEM		Area	0.745026	ACRE	DELINPJD	38.311499	-121.696819	
MW-42	California	PEM		Area	0.517818	ACRE	DELINPJD	38.311503	-121.699637	
MW-43	California	PEM		Area	0.118693	ACRE	DELINPJD	38.290159	-121.718801	
P-1	California	PUB		Area	0.954864	ACRE	DELINPJD	38.306641	-121.695021	
P-2	California	PUB		Area	9.142273	ACRE	DELINPJD	38.296857	-121.724379	
PMNT-1	California	PEM		Area	2.715942	ACRE	DELINPJD	38.325861	-121.712977	
PMNT-2	California	PEM		Area	2.769671	ACRE	DELINPJD	38.319789	-121.718917	
PMNT-3	California	PEM		Area	2.532833	ACRE	DELINPJD	38.310232	-121.728316	
PMT-01	California	PEM		Area	0.03536	ACRE	DELINPJD	38.293394	-121.693425	
PMT-02	California	PEM		Area	0.057646	ACRE	DELINPJD	38.287986	-121.693425	
PMT-03	California	PEM		Area	0.088649	ACRE	DELINPJD	38.285912	-121.693447	
PMT-04	California	PEM		Area	0.06659	ACRE	DELINPJD	38.284196	-121.693461	
PMT-05	California	PEM		Area	0.747502	ACRE	DELINPJD	38.279411	-121.695433	

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH “MAY BE” SUBJECT TO REGULATORY JURISDICTION

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
PMT-06	California	PEM		Area	0.231423	ACRE	DELINPJD	38.277587	-121.707577	
PMT-07	California	PEM		Area	0.222997	ACRE	DELINPJD	38.280371	-121.709698	
PMT-08	California	PEM		Area	1.444278	ACRE	DELINPJD	38.283468	-121.71364	
PMT-09	California	PEM		Area	0.095798	ACRE	DELINPJD	38.2911	-121.716207	
PMT-10	California	PEM		Area	0.138515	ACRE	DELINPJD	38.292336	-121.716249	
PMT-11	California	PEM		Area	0.100668	ACRE	DELINPJD	38.28766	-121.719909	
PMT-12	California	PEM		Area	0.113711	ACRE	DELINPJD	38.29263	-121.723014	
PMT-13	California	PEM		Area	0.207216	ACRE	DELINPJD	38.295791	-121.726425	
PMT-14	California	PEM		Area	0.04653	ACRE	DELINPJD	38.298489	-121.728794	
PMT-15	California	PEM		Area	0.646435	ACRE	DELINPJD	38.305206	-121.728648	
SNT-1	California	R2UB		Area	31.540938	ACRE	DELINPJD	38.314394	-121.710314	
SNT-2	California	R2UB		Area	9.010746	ACRE	DELINPJD	38.315006	-121.723612	
SSW-1	California	PSS		Area	4.290698	ACRE	DELINPJD	38.289156	-121.718002	
SSW-2	California	PSS		Area	3.579142	ACRE	DELINPJD	38.292543	-121.713362	
ST-1	California	R1UB		Area	126.96205	ACRE	DELINPJD	38.281929	-121.712557	
ST-2	California	R1UB		Area	74.48832	ACRE	DELINPJD	38.280925	-121.694193	
SW-1	California	PEM		Area	0.112386	ACRE	DELINPJD	38.312319	-121.695028	
SW-2	California	PEM		Area	0.031216	ACRE	DELINPJD	38.313046	-121.695188	
SW-3	California	PEM		Area	0.07364	ACRE	DELINPJD	38.313599	-121.695156	

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ecosystem Investment Partners, Attn: Mr. David Urban	File No.: SPK-2017-00805	Date: December 14, 2018
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
→	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Zachary Simmons
Senior Project Manager
Enforcement/Special Projects Branch
U.S. Army Corps of Engineers
1325 J Street, Room 1350
Sacramento, California 95814-2922
Phone: (916) 557-6746, FAX 916-557-7803
Email: Zachary.M.Simmons@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX 415-503-6646)
Email: Thomas.J.Cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Aquatic Resources Delineation Report

Lookout Slough Tidal Habitat Restoration and Flood Improvement Project

Prepared For:

EIP III Credit Co., LLC
1505 Bridgeway, Suite 107
Sausalito, CA 94965

Contact: Adam Davis
adam@ecosystempartners.com

Prepared By:

WRA, Inc.
2169-G East Francisco Boulevard
San Rafael, California 94901

Contact: Phil Greer
Greer@wra-ca.com

Date: December 11, 2018

WRA Project: 26293

Updated: October 2019

Ecosystem Investment Partners

wra
ENVIRONMENTAL CONSULTANTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF PREPARERS

Tim DeGraff, PWS	Principal
Nathan Bello	Project Director
Stephanie Freed, PWS	Project Manager
Tanner Harris, PWS	Senior Biologist, Lead Author
Ra'am Akika-Hajim	Biologist
Russell Andrews	Biologist
Aaron Arthur	Biologist
Scott Batiuk	Biologist
Susie Bennett	Biologist
Nathaniel Clark	Biologist
Rhiannon Korhummel	Biologist
Rei Scampavia	Biologist
Mikia Weidenbach	Biologist
Scott Yarger	Biologist
Sundaran Gillespie, GISP	GIS Analyst
Peter Kobylarz, GISP	GIS Analyst
Scott Mortensen	GIS Analyst

LIST OF ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CSRL	California Soil Resource Lab
CWA	Clean Water Act
DEM	Digital Elevation Model
DWR	Department of Water Resources
EPA	Federal Environmental Protection Agency
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
HTL	High Tide Line
MHW	Mean High Water
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OBL	Obligate Wetland Plant
OHWM	Ordinary High Water Mark
RHA	Rivers and Harbors Act
UPL	Upland Plant
USGS	U.S. Geological Survey
WRA	WRA, Inc.

1.0 INTRODUCTION

This report describes the methods and results of a delineation of aquatic resources within the boundaries of the proposed Lookout Slough Delta Smelt Habitat Restoration Project located in unincorporated Solano County, California (Study Area; Figure 1). The Study Area consists of approximately 3,637 acres of land within the Sacramento River delta and is primarily composed of three properties: Bowlsbey Ranch, Liberty Farms, and Vogel Island (Figure 2). The Project proposes to create, restore, and maintain habitat conditions for Delta smelt (*Hypomesus transpacificus)*, as well as other imperiled species, by reconfiguring the levee system and returning the site to tidal marsh habitat.

On multiple dates in 2018, WRA conducted a routine delineation within the Study Area to identify wetlands and non-wetland waters (also referred to as "other waters") potentially subject to jurisdiction by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA) and/or Section 10 of the Rivers and Harbors Act (RHA). The following sections describe the regulatory background and methods used to guide the delineation and provide a summary of potentially jurisdictional wetlands and non-wetland waters within the Study Area.

This report was updated in October 2019. The report was updated to change the project title and contact information, correct typographical errors and correct spelling and identification of certain plant species. The aforementioned edits did not result in any changes in wetland determination for any sample points, or the extent of potential Waters of the United States and therefore have no effect on the Preliminary Jurisdictional Determination which was issued by the Corps on December 20, 2018.

2.0 REGULATORY BACKGROUND

2.1 Section 404 of the Clean Water Act

Section 404 of the Clean Water Act gives the Environmental Protection Agency (EPA) and the Corps regulatory and permitting authority regarding discharge of dredged or fill material into "navigable waters of the United States." Section 502(7) of the CWA defines "navigable waters" as "waters of the United States, including territorial seas." Section 328 of Chapter 33 in the Code of Federal Regulations (CFR) defines the term "waters of the United States" as it applies to the jurisdictional limits of the authority of the Corps under the CWA. A summary of the definition of "waters of the United States" in 33 CFR 328.3 (a) includes (1) waters used for commerce; (2) interstate waters and wetlands; (3) territorial seas; (4) impoundments of waters listed here; (5) tributaries to the above waters; (6) waters and wetlands adjacent to the above waters; and (7) prairie potholes, Carolina and Delmarva bays, Pocosins, western vernal pools, and Texas coastal prairie wetlands, provided these features have a significant nexus to the above listed waters[1]; (8) all waters located within the 100-year floodplain of waters listed above in items 1-3 or within 4,000 feet of the high tide line (HTL) or ordinary high water mark (OHWM) of a water listed above in items 1-5, provided those waters are determined to have a significant nexus to waters identified in items 1-3 above. For purposes of the determining Corps jurisdiction under the CWA, "navigable waters" as defined in the CWA are the same as "waters of the U.S." defined in 33 CFR 328.3.

[1] Wetlands and non-wetland waters in this category are similarly situated and are 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 33 CFR 328.3.

Areas not considered to be “waters of the United States” as defined in 33 CFR 328.3 (b), are summarized as follows: (1) waste treatment systems; (2) prior converted cropland; (3) specific classes of ditches, including (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, and (iii) ditches that do not flow, either directly or through another water, into a water identified in 33 CFR 328.3 paragraphs (a) (1) through (3);

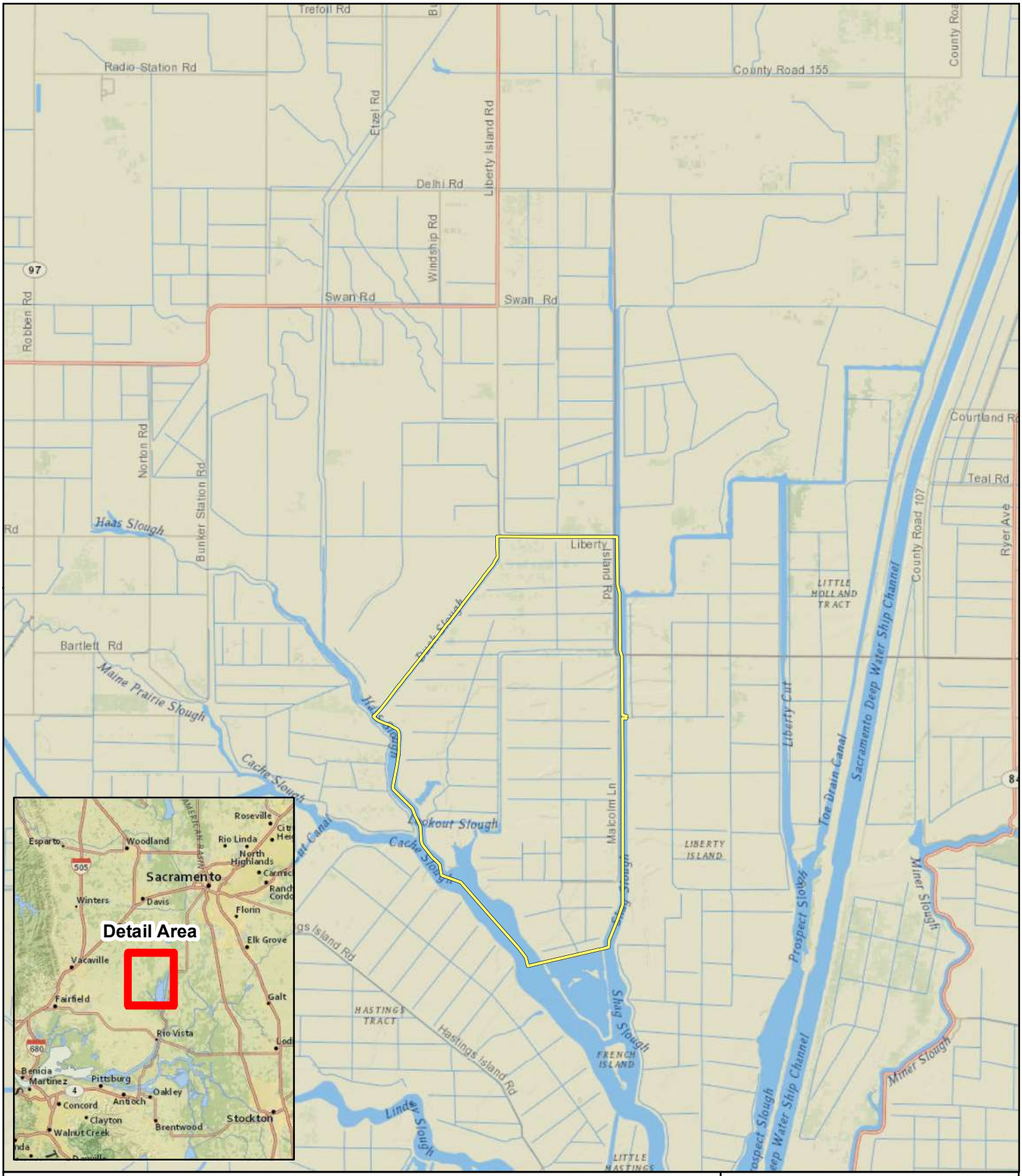

Figure 1. Study Area Location Map

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Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

wra ENVIRONMENTAL CONSULTANTS

Map Prepared Date: 12/10/2018
Map Prepared By: pkobylarz
Base Source: Esri - Nat. Geo.
Data Source(s):

Path: L:\Acad 2000 Files\26000\26293\GIS\ArcMap\2018 Permitting\Delin\20181210\Figure 1 Location Map.mxd

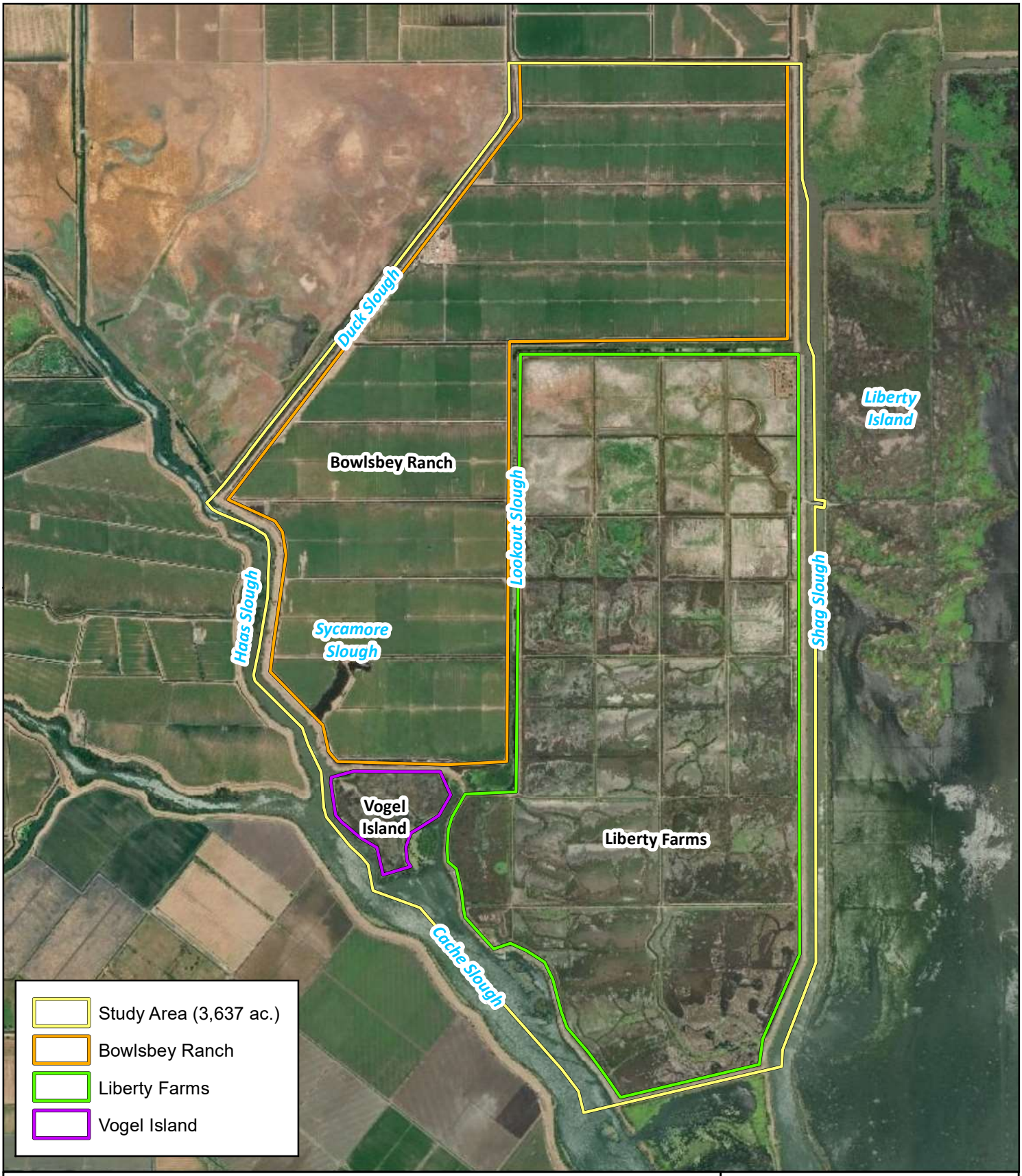

Figure 2. Study Area Overview

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Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/10/2018
Map Prepared By: pkobylarz
Base Source: Esri - Dig. Globe
Data Source(s):

wra ENVIRONMENTAL CONSULTANTS

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(4) artificially irrigated areas that would otherwise revert to dry land and manmade aquatic features in otherwise dry land such as stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, cooling ponds, reflecting pools, swimming pools, small ornamental waters, depressions incidental to mining and construction activity, erosional features, and puddles; (5) groundwater; (6) stormwater control features; (7) wastewater recycling structures, groundwater recharge basins, percolation ponds for wastewater recycling, and distribution networks for wastewater recycling.

2.1.1 Wetlands

Wetlands are defined in 33 CFR 328.3 (c) as:

> *…those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The basis for determining whether a given area is a wetland for the purposes of Section 404 of the CWA is outlined in the Corps *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers* Delineation Manual for the respective region. As defined in 33 CFR 328.4 (c), the extent of federal jurisdiction within wetlands is defined as extending to the limit of the wetland as determined using the methods outlined in the manuals.

2.1.2 Non-Wetland Waters

The limit of federal jurisdiction in tidal non-wetland waters extends to the HTL which is defined in 33 CFR 328.4 (a) as:

> *...the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.*

The limit of federal jurisdiction in non-tidal non-wetland waters extends to the OHWM which is defined in 33 CFR 328.3 (e) as:

> *...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

2.2 Section 10 of the Rivers and Harbors Act

The Corps also has jurisdiction over "navigable waters" under Section 10 of the Rivers and Harbors Act of 1899. Section 10 of this Act applies to tidal areas below mean high water (MHW) and includes tidal areas currently subject to tidal influence, as well as historic tidal areas behind levees that both historically and presently reside at or below MHW. "Navigable waters of the U.S.", as defined in 33 CFR 329.4, are "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce."

The act prohibits any unauthorized action that obstructs navigable capacity. These actions can include building of structures; excavation, fill; and alterations and modifications to navigable waters (33 USC 403). A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity. The upper limit of navigable water is at the point along its length where the character of the river changes from navigable to non-navigable, such as at a major fall or rapids. Since the upper limit of navigability of waterways under Section 10 is sometimes difficult to discern, determinations of navigability under Section 10 are often made by the Corps and kept on file, independent of submitted permit applications or delineations.

3.0 STUDY AREA DESCRIPTION

3.1 Land Use

The approximately 3,637-acre Study Area (Figure 2) represents a portion of the San Joaquin-Sacramento River delta that was historically diked and drained for agricultural production. The Study Area is located in the Cache Slough complex at the southern end of the Yolo Bypass between a series of sloughs including Shag Slough to the east, Cache and Haas sloughs to the south west, and Duck Slough to the west. The Study Area is bisected by Lookout Slough, a non-tidal slough. The Study Area is primarily composed of three properties: Bowlsbey Ranch, Liberty Farms, and Vogel Island, and also includes lands immediately adjacent to and between the three properties.

The Study Area is surrounded by Corps flood control levees along the eastern and southwestern boundaries, excluding Vogel Island. The levees along the eastern and southwestern boundaries of the Study Area crest at elevation +21 feet NAVD88, which excludes all tidal and flood waters. The levee surrounding Vogel Island is maintained by the Department of Water Resources (DWR) and crests at crest at approximately +8 feet NAVD88, which keeps out regular tidal waters, but overtops during elevated water flows. Along its western boundary, the Study Area abuts Duck Slough. To the north, the Study Area is bordered by Liberty Island Road, which also runs along a portion of the levee bordering the eastern edge of the site. Both Duck Slough and Lookout Slough are separated from full tidal activity by the Corps levees surrounding the site; however, water levels can be regulated through screw gates installed in the levees along Haas and Cache sloughs. When the screw gates are open, these sloughs may receive muted tidal activity.

Currently the properties within the Study Area are managed for agricultural commodity production and winter waterfowl, activities that may be connected to interstate commerce. These activities have resulted in significant manipulation of the land, including the development of a large water delivery and distribution system (Figure 3), the use of which has resulted in the development of wetland conditions in portions these historically diked and drained properties. In some cases,

such as on Bowlsbey Ranch, wetlands have developed incidental to agricultural irrigation. In other cases, such as on Liberty Farms, wetlands have been intentionally created to support winter waterfowl. In the case of Vogel Island, wetland conditions have developed primarily in response to a levee breech in 2017.

Bowlsbey Ranch

The approximately 1,489-acre Bowlsbey Ranch is managed as irrigated pasture for agricultural commodity production, including beef, sheep, and hay. Water is pumped from Duck Slough into two elevated, earthen-berm irrigation ponds located on the western edge of the property. From these ponds, water is pumped into a network of concrete-lined canals that cross the property, dividing pastures. The canals are regulated by a series of flap gates such that water can be regulated and directed to specific portions of the site. Pastures are gently sloped away from each canal, allowing them to be irrigated on a rotating basis throughout the year by siphoning water from the concrete-lined canals onto each pasture and allowing the water to drain toward earthen drainage ditches lining the opposite side of each pasture. The earthen ditches are connected by a series of larger ditches lining the eastern, southwestern, and western sides of the property which allow the irrigation water to be collected and pumped from two locations along the southwestern boundary of the property into Haas Slough. The concrete-lined channels and earthen drainage ditches are shallow and regularly maintained to remove sediment and vegetation. Water levels, velocity, and duration within these features are manipulated based on the irrigation needs of the producer.

Liberty Farms

The approximately 1,630-acre Liberty Farms portion of the Study Area is a private duck club that is managed to support winter waterfowl for recreational hunting. The property is managed as part of the National Resources Conservation Service (NRCS) Wetlands Reserve Program. The property is broken into a checkerboard of fields bisected by a network of earthen ditches used to flood and drain fields at various times of year. During fall, water is pumped from Lookout Slough into the earthen ditches where it is directed across the property and used to flood fields to support waterfowl. Fields are flooded throughout the winter and are drained in spring by pumping water from the site into Shag Slough at one of three drain pumps located along the eastern boundary of the property. Due to site elevations (Figure 4), flooding occurs unevenly throughout the site, with the lower, southern portion of the site being flooded deeper and for longer periods of time. The recurring flooding in the southern portion of the site supports the development of freshwater marsh dominated by tules (*Schoenoplectus acutus*; OBL) and cattails (*Typha* spp.; OBL). After the fields are drained in the spring, a selection of fields are disced and planted in crops such as corn or millet which provide forage for winter waterfowl. In other fields, tules and cattails are selectively disced to create a network of open water habitat for waterfowl to utilize when the fields are re-flooded the following winter. Fields in the northern portion of the property do not receive as much flood water and consequently have not developed strong wetland conditions. In these areas, a network of earthen ditches created to bring water into the fields has resulted in patchy wetland conditions, with wetlands developing within and along the ditches and within low-lying areas within each field where water can collect.

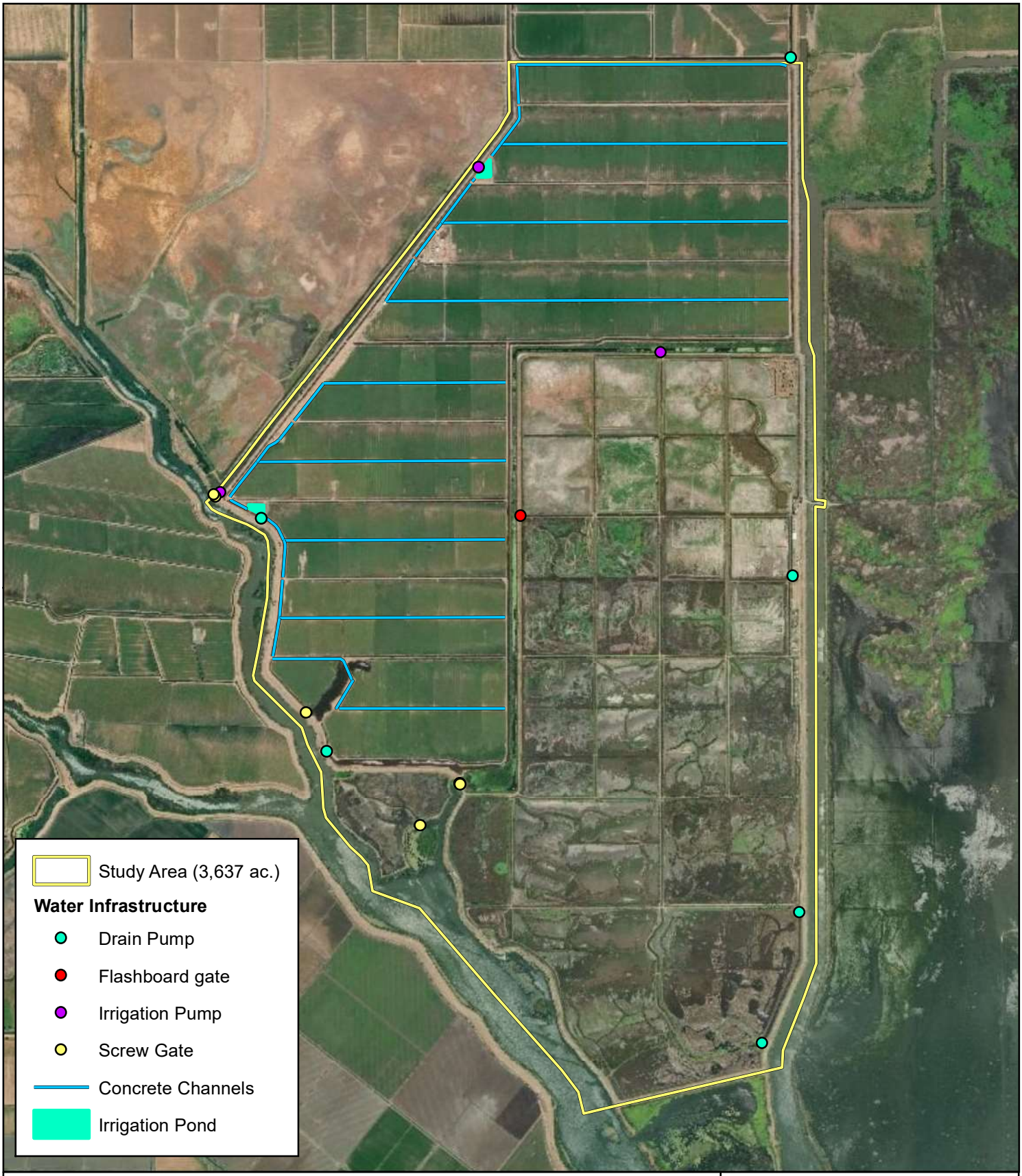

Figure 3. Water System within the Study Area

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Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/10/2018
Map Prepared By: pkobylarz
Base Source: Esri - Dig. Globe
Data Source(s):

wra ENVIRONMENTAL CONSULTANTS

Path: L:\Acad 2000 Files\26000\26293\GIS\ArcMap\2018 Permitting\Delin\20181210\Figure 3 Water Infrastructure System.mxd

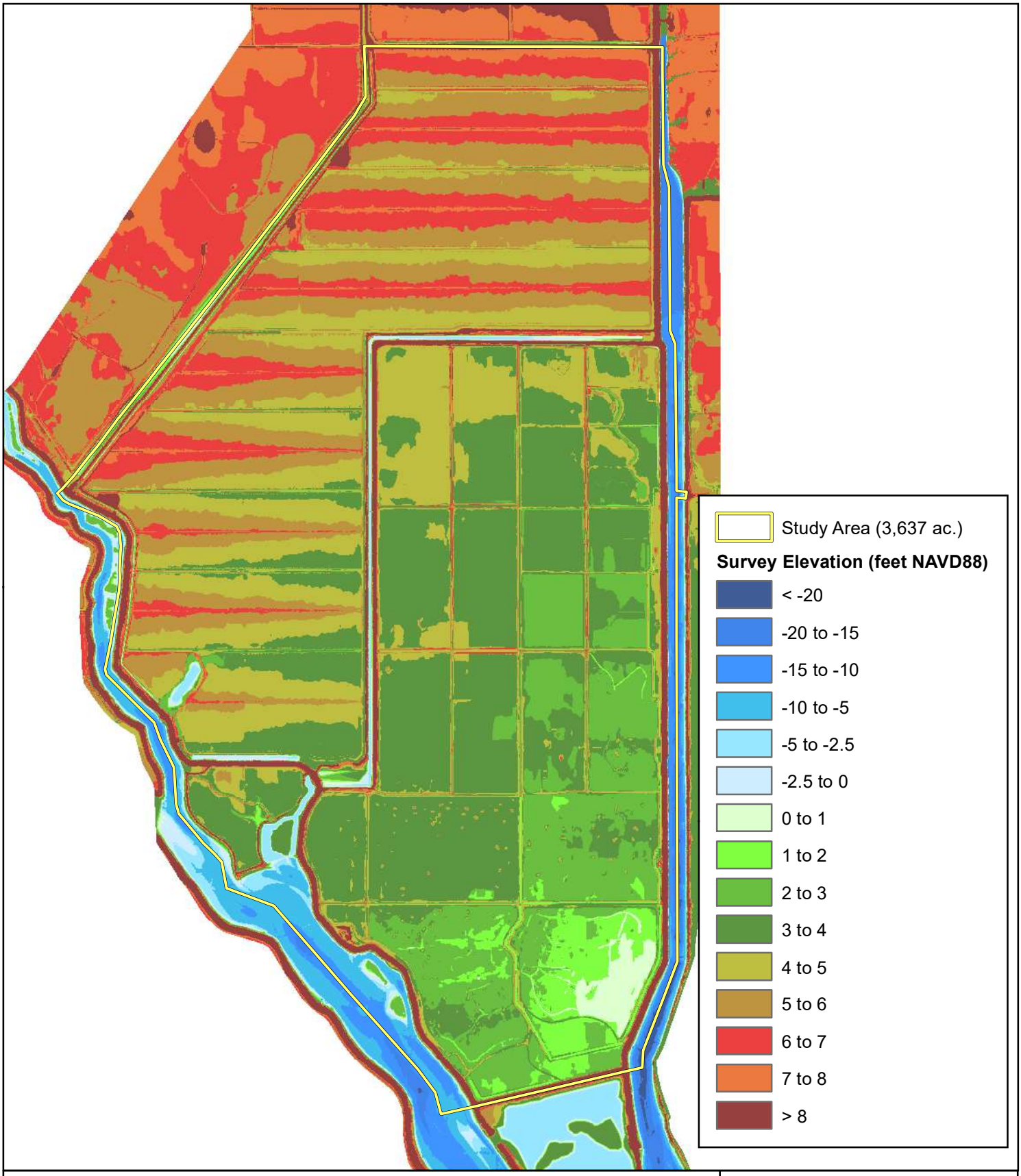

Figure 4. Existing Elevations within the Study Area

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Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/10/2018
Map Prepared By: pkobylarz
Base Source: Wood Rogers
Base Date: 10/24/2017
Data Source(s):

wra ENVIRONMENTAL CONSULTANTS

Path: L:\Acad 2000 Files\26000\26293\GIS\ArcMap\2018 Permitting\Delin\20181210\Figure 4 Existing Elevation.mxd

Vogel Island

The approximately 61-acre Vogel Island portion of the Study Area is used for livestock grazing. Vogel Island is composed of two flood-irrigated fields divided by a raised access road which divides the property from northwest to southeast. The property is flood irrigated from a small pond connected to Cache Slough via a flood gate at the southeastern edge of the site. The levee surrounding this portion of the Study Area keeps out regular tidal waters, but occasionally overtops during elevated water flows. The levee breached in 2017, flooding the fields and resulting in the development of lingering wetland conditions observed in 2018.

3.2 Vegetation

Past and present land use practices within the Study Area have substantially altered the vegetation from its natural state and have resulted in a highly managed landscape dominated by non-native and invasive species, with limited areas of native, but nonetheless managed, vegetation. The structure and composition of vegetation varies substantially across the Study Area based on land use practices.

Vegetation in upland areas along levees and interior roads throughout the Study Area was relatively homogenous, dominated by non-native annual grasses such as wild oats (*Avena* spp.; UPL), ripgut brome (*Bromus diandrus*; UPL), soft chess (*Bromus hordeaceus;* UPL), foxtail barley (*Hordeum murinum*; FACU) and Harding grass (*Phalaris aquatica*; FACU), as well as non-native and invasive herbs such as black mustard (*Brassica nigra*; UPL), yellow star thistle (*Centaurea solstitialis*; UPL), fennel (*Foeniculum vulgare*; UPL), and California bur clover (*Medicago polymorpha*; FACU).

Vegetation within earthen drainage ditches was also relatively homogenous across the Study Area, dominated by emergent wetland species such tule (OBL), California bulrush (*Schoenoplectus californicus*; OBL) and cattails (OBL) along the margins and floating wetland species such as water primrose (*Ludwigia* spp.; OBL) and water hyacinth (*Eichhornia crassipes*; OBL) in the deeper portions of larger ditches. Vegetation within other wetland areas and adjacent upland areas that were not roads or levees varies by property based on the respective land management regimes as described below.

Bowlsbey Ranch

Pastures within the Bowlsbey Ranch are managed for livestock grazing and hay production and are managed as a perennial, no-till system. The pastures are dominated by a mix of seeded and introduced grasses and herbs that have separated into distinctive bands associated with the depth and duration of soil saturation along the elevational gradient in each pasture. Within each pasture, an upland zone occurs along the higher end, nearest to the concrete-lined canals where water remains for the shortest time during flood irrigation. These areas are dominated by facultative upland species such as reed fescue (*Festuca arundinacea*; FACU), smut grass (*Sporobolus indicus*; FACU), and white clover (*Trifolium repens*; FACU). A broad upland-wetland transition zone spans the upper and lower portions of each pasture, dominated by a matrix of facultative upland, facultative, and facultative wetland species such as Pacific bentgrass (*Agrostis avenacea*; FACW), salt grass (*Distichlis spicata*; FAC), reed fescue (FACU), Italian rye grass (*Festuca perennis*; FAC), meadow barley (*Hordeum brachyantherum*; FACW), bird's foot trefoil (*Lotus corniculatus*; FAC), ribwort (*Plantago lanceolata*; FAC), smut grass (FACU), and white clover (FACU). A strong wetland zone occurs along the lowest portion of each pasture, abutting and draining into the earthen ditches that line each pasture; these areas were dominated by facultative

wetland and obligate wetland species adapted to prolonged inundation such as brass buttons (*Cotula coronopifolia*; OBL), swamp grass (*Crypsis schoenoides*; FACW), iris leaved rush (*Juncus xiphioides*; OBL), and knot grass (*Paspalum distichum*; FACW).

Liberty Farms

Vegetation within the Liberty Farms portion of the Study Area varies greatly from north to south. Due to the greater depth and duration of flooding achieved in the southern half of the site, wetlands within those areas are dominated by a mix of California bulrush (OBL) and cattails (OBL), with other emergent wetland species along the upper margins of each wetland cell. In a limited number of areas, wetland edges have been planted with windrows of Gooding's willow (*Salix gooddingii*; FACW) and cottonwood (*Populus fremontii*; FAC) or have been invaded by Himalayan blackberry (*Rubus armeniacus*; FAC) or tamarisk (*Tamarix* spp.; FAC). In the northern portion of the site where flooding is minimal, vegetation is dominated by a mix of non-native annual grasses and herbs common to ruderal farm fields with clay soils such as black mustard (UPL), soft chess (FACU), Italian rye grass (FAC), bristly ox-tongue (*Helminthotheca echioides*; FAC), foxtail barley (FACU), perennial pepperweed (*Lepidium latifolium*; FAC), and spring vetch (*Vicia sativa*; FACU), with a higher concentration of facultative and facultative wetland species such as Italian rye grass (FAC), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*; FAC), or curly dock (*Rumex crispus*; FAC) found in areas identified to be wetlands.

Vogel Island

Vegetation within Vogel Island is not actively managed as it is on the Bowlsbey or Liberty Farms portions of the Study Area. Vegetation within Vogel Island is passively managed through regular grazing by livestock. Typically, the vegetation within Vogel Island is dominated by a mix of facultative upland, facultative, and facultative wetland plants typical of ruderal farm fields with clay soils such as soft chess (FACU), Italian rye grass (FAC), barley (FAC), and other species. When the levee is overtopped by large storm events and the island is flooded, the vegetation can respond rapidly, converting California bulrush (OBL)-dominated habitat in relatively short time, as occurred following a levee breech in 2017. During the site assessment in 2018, vegetation within the inner portions of Vogel Island was dominated a mix of non-native annual grasses and California bulrush (OBL).

3.3 Soils

The Soil Survey of Solano County (USDA 1977) indicates that the Study Area contains five soil types: Clear Lake clay, 0 to 2 percent slopes, Sacramento clay 0 to 2 percent slopes, Capay clay, Egbert silty clay loam, and San Ysidro sandy loam, 0 to 2 percent slopes, with Sacramento clay and Clear Lake clay dominating the Study Area. Descriptions of each soil series are provided below. The distribution of these soil types within the Study Area are depicted in Figure 5.

> **Clear Lake Series:** Soils in the Clear Lake series consist of very deep, poorly drained clay formed in alluvium derived from sandstone and shale on basins and swales of drainage ways. These soils occur under grasslands, crop fields and rangeland, have negligible to high runoff with slow to very slow permeability with an intermittent perched water table very near the surface during the wet winter months. Clear Lake series is considered a hydric soil where it occurs in Solano County.

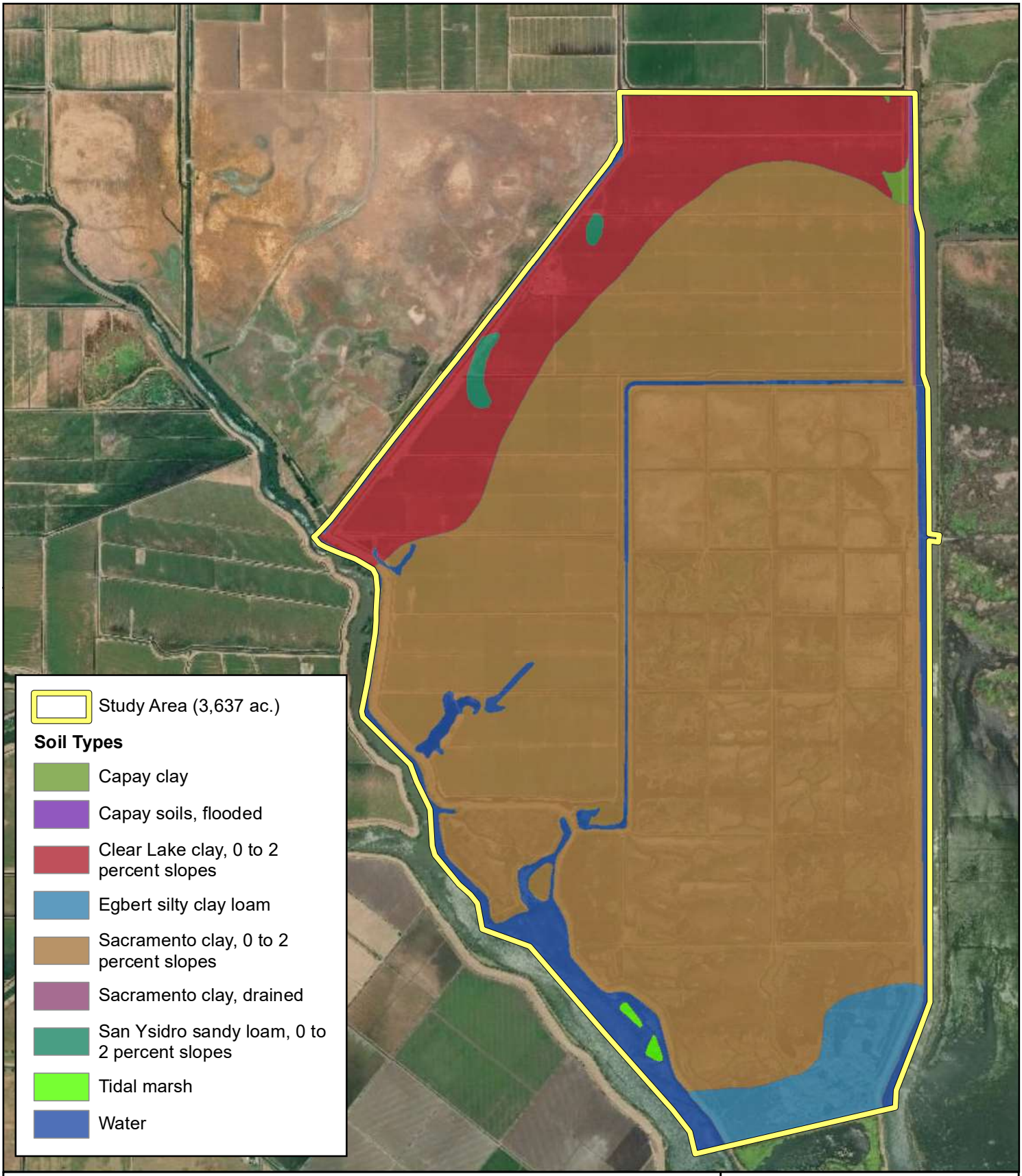

Figure 5. Soils within the Study Area

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Miles

Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/10/2018
Map Prepared By: pkobylarz
Base Source: Esri - Dig. Globe
Data Source(s):

wra
ENVIRONMENTAL CONSULTANTS

Path: L:\Acad 2000 Files\26000\26293\GIS\ArcMap\2018 Permitting\Delin\20181210\Figure 5 Soils.mxd

Clear Lake soils have a very dark gray (N 3/0) clay surface horizon with few fine faint redoximorphic concentrations from 0 to 13 inches below the soil surface, underlain by a very dark gray (10YR 3/0) clay subsurface horizon with no redoximorphic features from 13 to 19 inches below the soil surface.

Sacramento Series: Soils in the Sacramento series consists of clay soils. These soils are highly cultivated under a variety of row crops. In locations not cultivated, vegetation consists of tules, marsh grass, and other hydrophytic vegetation. These soils have very slow to slow runoff with slow permeability with poor to very poor drainage. Sacramento series is considered a hydric soil where is occurs in Sacramento County.

Sacramento soils have a very dark gray (5Y 3/1) clay surface horizon with common fine prominent strong brown (7.5YR 5.6) non-redoximorphic mottles to a depth well below 24 inches.

Capay Series: Soils in the Capay series consist of very deep, moderately well drained clay formed in alluvium derived from sandstone and shale in alluvial fans, alluvial flats, interfan basins, and basin rims. These soils occur under irrigated crops, pasture, and annual grasses. Soils of the Capay series have negligible to high runoff with slow to very slow permeability. Capay soils are considered a hydric soil where it occurs in Solano County.

Capay soils have a very dark grayish brown (10YR 3/2) silty clay surface horizon from 0 to 5 inches below the soil surface, underlain by a very dark grayish brown (10YR 3.2) silty clay subsurface layer with few fine prominent strong brown (7YR 5.6) masses of oxidized iron from 5 to 21 inches below the soil surface, with additional layers below.

Egbert Series: Soils in the Egbert Series consists of very deep poorly drained soils formed in mixed alluvium that forms in basins of river deltas. Vegetation consists of emergent marsh species and irrigated crops. Egbert series is considered a hydric soil where it occurs in Sacramento County.

Egbert soils have a very dark gray (10YR 3/1) silty clay loam plow layer on the soil surface from 0 to 6 inches, with few fine distinct yellowish brown (10YR 3/4) redoximorphic concentrations turning very dark grey (10YR 3/1) when moist. The surface horizon is underlain by a very dark gray (10YR 3/1) silty clay layer with no reported redoximorphic features.

San Ysidro Series: Soils in the San Ysidro series consist of deep, moderately well drained sandy loam that formed in alluvium from sedimentary rocks on old, low terraces. These soils occur under dryland grain and pasture and annual grasslands in a natural setting. San Ysidro soils have slow to medium runoff with very slow permeability and are considered hydric soils where they occur in Solano County.

San Ysidro soils have a light brownish gray (10YR 6/2) fine sandy loam surface horizon with few fine distinct non-redoximorphic mottles of brownish yellow (10YR 6/6) from 0 to 14 inches below the soil surface. The surface horizon is underlain

by a brown (7.5YR 4/4) clay layer with a thin ¼-inch light brownish gray (10YR 6/2) bleached layer on the ped surfaces from 14 to 28 inches below the soil surface.

3.4 Hydrology

The natural hydrology of the Study Area has been highly modified and is actively manipulated as part of the management of the three properties as described in Section 3.1. The Study Area is located in Cache Slough Complex in the San Joaquin-Sacramento River Delta. Located at the base of the Yolo Bypass, the sloughs surrounding the site receive artificially high flows during the winter and spring months as a result of the floodwaters draining through the bypass. With the exception of Vogel Island, the Study Area is protected from these high flows by a Corps levee with a crest at +21 feet NAVD88. Vogel Island is surrounded by a DWR levee with a crest at +8 feet NAVD88 which allows high flows to breech the levee and flood the inner portions of the site.

Hydrologic sources within the Study Area include direct precipitation, high groundwater tables, and water that is actively pumped onto the Study Area from the adjacent sloughs. Vogel Island also receives occasional flooding from extreme high flows. Water from the Study Area drains to the Sacramento River, a traditional navigable water of the U.S., via Cache Slough.

4.0 METHODS

WRA biologists performed a delineation of aquatic resources within the Study Area on April 4 and 5, May 9, and July 20, 2018. Prior to conducting the evaluation, WRA reviewed a range of background materials including the *Soil Survey of Solano County* (USDA 1977), the California Soil Resource Lab's (CSRL) online soil viewer (CSRL 2018), the National Wetland Inventory (NWI; USFWS 2018), and the U.S. Geological Survey (USGS) Liberty Island 7.5-minute quadrangle map (USGS 1916, 2015). WRA also reviewed historic aerial imagery from Google Earth (1993-2018).

During the on-site evaluation, WRA followed the methods outlined in *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Supplement; Corps 2008), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* ("OHWM Guide"; Lichvar and McColley 2008). The jurisdictional wetlands were identified and their boundaries mapped using the Routine Method described in the Corps Manual. The jurisdictional limits of non-wetland waters under Section 404 of the CWA were mapped based on a combination of field indicators described in the OHWM Guide and Regulatory Guidance Letter 05-05 (Corps 2005) and the use of tidal elevation data from nearby tide stations. The jurisdictional limits of non-wetland waters under Section 10 of the Rivers and Harbors Act were based on maps hosted on the Sacramento District's website[2], with modifications based on current site conditions.

[2] http://www.spk.usace.army.mil/Missions/Regulatory/Jurisdiction/Navigable-Waters-of-the-US/

4.1 Section 404 of the Clean Water Act

4.1.1 Wetlands

Routine Method

WRA followed the Routine Method to evaluate the Study Area for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and Arid West Supplement (Corps 2008). Data on vegetation, hydrology, and soils were collected at sample points within potential wetland communities and adjacent upland areas. Sample points that contained positive indicators for hydrophytic vegetation, hydric soils, and wetland hydrology were considered to be wetland. Except in cases of atypical or problematic wetland situations (i.e., difficult wetland situations, as described below), sample points that lacked one or more indicators were considered to be upland. Sample point data were reported on Arid West Supplement data forms. Sample point locations were recorded using a handheld GPS unit with sub-meter accuracy.

Wetland boundaries were identified using a combination of indicators observed on the ground, most often minor shifts in topography and changes in dominant vegetation, in addition to other indicators. Where wetland boundaries were broad and difficult to determine in the field (e.g. the irrigated pastures on Bowlsbey Ranch, wetland signatures visible in recent and historical aerial imagery from Google Earth (March 2011, June 2013, April 2014, July 2016) was used to determine boundaries. Based on a WETS hydrological analysis (see summary below and full analysis in Appendix A), WRA determined that the photos represent periods with normal to slightly below normal precipitation levels. Using imagery from normal periods allowed WRA to identify the normal extent of wetland conditions across the site. Using imagery from drier than normal periods allowed WRA to more easily visualize trends in vegetation and soil conditions due to the stronger juxtaposition of wet and dry areas. This was particularly important on Bowlsbey Ranch where regular irrigation maintains green vegetation throughout the year, making it difficult to distinguish between wetland and upland vegetation on aerial imagery from periods of normal rainfall.

WRA also utilized high resolution aerial image of the Study Area acquired by Wood Rogers on October 24, 2017 and topographic survey data also from Wood Rogers acquired on December 12, 2017. The survey data was processed into an elevation Digital Elevation Model (DEM) raster with a horizontal resolution of 1 ft. x 1 ft. using ArcGIS software. The high resolution aerial imagery and elevation data were utilized during heads-up digitizing to refine wetland boundaries.

Difficult Wetland Situations

The Arid West Supplement (Corps 2008) includes recommended procedures for completing wetland delineations in areas of “difficult wetland situations” in which wetlands may lack one or more indicators due to natural or anthropogenic factors. Although the Corps Manual and Arid West Supplement were utilized in the wetland determination, they do not provide exhaustive lists of the difficult situations and problem areas that can arise during delineations in the Arid West. In these situations, the Corps Manual and Regional Supplements stress the importance of using best professional judgment and knowledge of the ecology of the wetlands in the region during the collection and interpretation of data in difficult sites.

The Study Area is located in a diked and drained portion of the former Yolo Basin, a floodplain of the Sacramento River that formerly experienced both seasonal and storm-related flooding and

daily flooding from tidal activity. Historically, these areas were tidally influenced wetlands bisected by a network of tidal sloughs (USGS 1916), but were isolated from tidal influence by levees built to reclaim these areas for use in agriculture and other purposes. The majority of the soils found on the site are on the County's list of hydric soils, and where areas of diked former baylands have retained native soils, they can retain many wetland indicators that formed when these areas were tidal marsh. Soils in diked former baylands are often indistinguishable from soils in extant tidal marsh, regardless of the current hydrological regime of the area. In areas where redoximorphic features were observed in both suspected wetlands and suspected uplands, the wetland determination and mapping of wetland boundaries were based on the presence and extent of positive indicators for hydrophytic vegetation and wetland hydrology. When soils did not contain redoximorphic features or meet other indicators of hydric soils, they were treated as upland soils, regardless of their status on the County list.

WETS Analysis

A hydrologic analysis (i.e., WETS analysis; USDA 1997; Sprecher and Warne 2000) was conducted to determine whether precipitation levels during the three months prior to each aerial image used by WRA and prior to each site visit were above, below, or within the 30-year average for the region. Long-term precipitation data (i.e., the WETS table) were obtained from the weather station in nearby Fairfield, located approximately 18 miles west of the Study Area, part of the National Weather Service Cooperative Network. Daily precipitation data for the three months preceding the date of each aerial image used by WRA, as well as for the date of each site visit by WRA, were obtained from the DWR Hastings Tract East weather station located approximately 2 miles southwest of the Study Area. A summary of the results of the WETS analysis is provided below in Table 1; the full analyses are provided as Appendix A.

Table 1. Summary of WETS Precipitation Analysis

Date	Description	Relative Precipitation Levels
March 2011	Google Earth Aerial Image	Normal
June 2013	Google Earth Aerial Image	Normal
April 2014	Google Earth Aerial Image	Normal
July 2016	Google Earth Aerial Image	Drier than Normal
October 24, 2017	Wood Rogers Aerial Image	Drier than Normal
April 4-5, 2018	Delineation Site Visit	Normal
May 9, 2018	Delineation Site Visit	Normal
July 20, 2018	Delineation Site Visit	Drier than Normal

4.1.2 Non-Wetland Waters

This study also evaluated the presence of non-wetland waters potentially subject to Corps jurisdiction under Section 404 of the CWA. Non-wetland waters subject to Corps jurisdiction include lakes, rivers, and streams (including intermittent streams) in addition to all areas below the HTL in areas subject to tidal influence or to all areas below the OHW in non-tidal areas.

High Tide Line

A small portion of the Study Area occurs on the outboard side of the levees surrounding the site and is subject to the ebb and flow of the tides. In these areas, the HTL was used to identify the extent of Corps jurisdiction under Section 404 of the CWA. Because the Study Area is located at the bottom of the Yolo Bypass, it receives artificially high water levels during flood months when water is directed from the Sacramento River into the Bypass. These artificially high water levels were filtered out when determining the HTL by excluding data from flood months (i.e., by using data only from non-flood months). The Fremont Weir is considered the start of the Yolo Bypass (DWR 2010) and is opened when the Sacramento River is in flood stage. Non-flood months correspond to months when the Fremont Weir was opened in less than 15% of the years to release flood waters into the Yolo Bypass. For example, the Fremont Weir was only opened in April seven times between 1971 and 2010 (14% of the possible years), so is considered a non-flood month. The elevation of the HTL in tidally influenced portions of the Study Area (i.e., outboard of the perimeter levees) was determined by averaging the highest observed water level for every non-flood month between 2010 and 2017 at the DWR Yolo Bypass Liberty Island (LIY) tide gauge (Table 2), which resulted in an elevation of 7.26 feet NAVD88.

Table 2. Highest Observed Water Levels (feet NAVD88) at DWR Yolo Bypass Liberty Island (LIY) Tide Gauge (2008-2017)

Month	Year								Average
	2010	2011	2012	2013	2014	2015	2016	2017	
Jan*	7.89	7.58	7.33	7.12	6.82	6.98	7.73	15.37	8.35
Feb*	7.48	7.36	6.72	6.7	7.07	7.11	7.41	17.2	8.38
Mar*	7.18	11	6.91	7.01	6.74	6.44	7.79	12.76	8.23
Apr	7.11	8.13	7.12	6.82	6.67	6.97	6.99	8.15	7.25
May	6.97	7.85	7.01	6.93	6.82	6.85	6.8	7.94	7.15
Jun	7.1	7.7	9.33	7.68	7.53	6.9	7.43	7.73	7.68
Jul	7.48	7.56	9.21	7.51	7.58	7.39	7.48	7.44	7.71
Aug	7.22	7.1	9.08	7.16	7.14	7.3	7.33	7.46	7.47
Sep	6.72	7.2	6.58	7.15	7.25	7	6.89	7.38	7.02
Oct	6.94	6.91	6.79	6.71	6.96	7.14	6.81	6.71	6.87
Nov	6.98	7.01	7.46	6.46	6.83	7.16	6.82	6.66	6.92
Dec*	8.29	6.71	7.87	6.96	7.8	7.56	7.98	6.73	7.49
Average of all non-flood observations:									**7.26**

* Typical flood months when the Fremont Weir is opened.

Ordinary High Water Mark

The inboard portions of the Study Area are not subject to the ebb and flow of the tides, and in these areas, the OHWM was used to identify the extent of Corps jurisdiction under Section 404 of the CWA. The location of the OHWM was determined based on a combination of indicators observed on the ground (e.g., water stains or scour marks). The width between the OHWM on either side of each feature was visually estimated in the field and, when possible, the segments of the centerline or edges were mapped using handheld GPS units with sub-meter accuracy. However, due to dense Himalayan blackberry (FAC) along the upland edge of some channels and dense, head-high emergent vegetation along the wetted edge of some channels, it was not possible to accurately estimate channel widths or obtain GPS data. In those areas, channels were hand-digitizing in ArcGIS using high-resolution aerial imagery and corresponding elevations in the high-resolution Lidar data.

4.2 Section 10 of the Rivers and Harbors Act

The inland jurisdictional limits of non-wetland waters under Section 10 of the Rivers and Harbors Act were determined based on an online mapping tool hosted on the Corps Sacramento District's website[3]. Within these areas, the horizontal limit of Corps jurisdiction under Section 10 was located at MHW, or 5.9 feet NAVD88 as determined from the Yolo Bypass Liberty Island (LIY) tide gauge operated by the DWR.

5.0 RESULTS

As described in Section 3.0, the Study Area is primarily composed of three distinct properties each with different land uses that have resulted in marked differences in vegetation and the development of wetland conditions. All three properties have systems for passively or actively bringing water from the adjacent sloughs inboard of the levee system. Although the three systems vary in operation, they each serve to flood irrigate areas that were historically diked and drained. In the case of the Bowlsbey Ranch, regular flood irrigation combined with heavy clay soils and poor drainage has resulted in the development of wetland conditions within the lower portions of most pastures (see Irrigated Wetlands). In the case of Liberty Farms, the property is managed as an NRCS Wetland Reserve and is intentionally flooded to promote the development of marsh habitat to support waterfowl. In the case of Vogel Island, regular flood irrigation combined with periodic overtopping of the levee have resulted in a fluctuating mix of non-native annual grassland and marsh habitat, with marsh habitat limited to the deepest portions of the site during non-flood years and expanding the majority of the site during and immediately following flood years.

Both the Bowlsbey Ranch and Liberty Farms have an extensive network of ponds and ditches used to store and distribute water used to flood irrigate pastures and for flood management of wetland habitat. Some of these features are earthen-lined, relatively permanent waters and may be considered jurisdictional. Other features are concrete-lined and contain water only during active irrigation and may not be considered jurisdictional.

Water from all three portions of the Study Area drains to the Sacramento River, a traditional navigable water of the United States, via Cache Slough. In addition, aquatic resources on all

[3] http://www.spk.usace.army.mil/Missions/Regulatory/Jurisdiction/Navigable-Waters-of-the-US/

three properties may be connected to interstate commerce through sales of agricultural products and/or waterfowl hunts.

Descriptions of the aquatic resources identified within the Study Area that are potentially subject to federal jurisdiction under Section 404 of the CWA and/or Section 10 of the RHA are provided in the following sections. An overview of aquatic resources mapped within the Study Area is provided in Figure 6, and a summary of aquatic resource acreages is provided in Table 3. Maps showing the location and extent of aquatic resources mapped within the Study Area are provided as Appendix B. Wetland Determination Data Forms are provided as Appendix C. Photographs of the Study Area are provided as Appendix D. A list of all plant species observed during the delineation site visits is included as Appendix E.

Table 3. Summary of Potentially Jurisdictional Features Mapped within the Study Area

Habitat Type	Classification*	Acres	Linear Feet	Potential Waters of the U.S.	
				Section 10/404	Section 404
Wetlands					
Irrigated Wetland	PEM2Kf	309.56	-	-	309.56
Managed Wetland	PEM1/2Kf	1,339.15	-	-	1,339.15
Perennial Marsh (Non-Tidal)	PEM1Fx	8.02	-	-	8.02
Perennial Marsh (Tidal)	PEM1T	4.24	-	-	4.24
Scrub-Shrub Wetland	PSSR	7.87	-	4.29	3.58
Seasonal Wetland	PEM2A/C	0.22	-	-	0.22
	Total:	**1,669.06**	**-**	**4.29**	**1,664.77**
Non-Wetland Waters					
Drainage Ditch	R5UBFx	84.36	203,938	-	84.36
Irrigation Ditch	R5UBAx	6.39	46,917	-	6.39
Irrigation Pond	PUBKh	1.91	-	-	1.91
Pond	PUBHx	10.10	-	-	10.10
Slough (Non-Tidal)	R2UBHx	40.55	22,178	-	40.55
Slough (Tidal)	R1UBV/x	201.45	34,025	198.09	3.36
	Total:	**344.76**	**307,058**	**198.09**	**146.67**

*See Federal Geographic Data Committee 2013

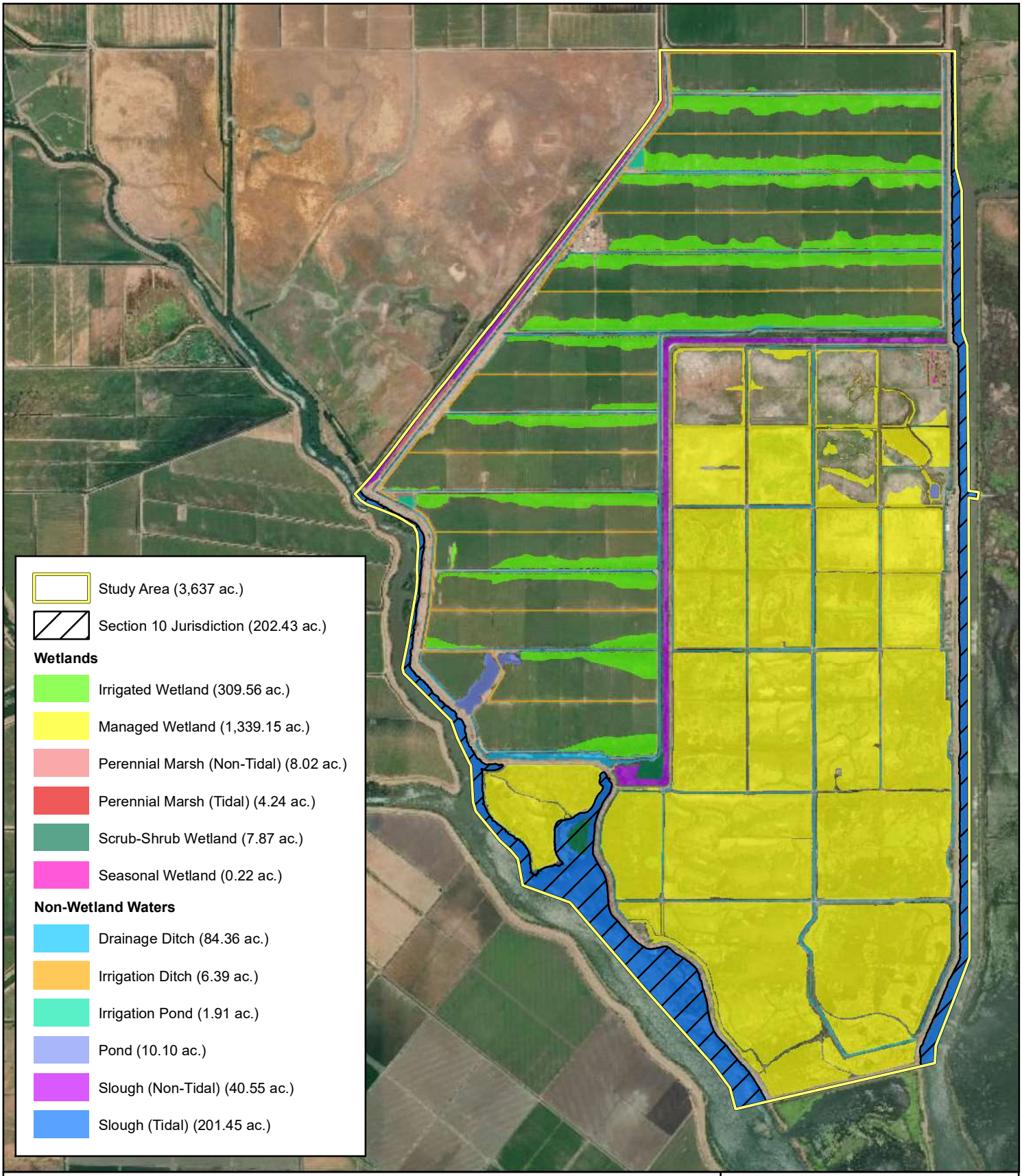

Figure 6. Overview of Aquatic Resources within the Study Area

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Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by: wra ENVIRONMENTAL CONSULTANTS

Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Base Source: Esri - Dig. Globe
Data Source(s): WRA

Path: L:\Acad 2000 Files\26000\26293\GIS\ArcMap\2018 Permitting\Delin\20181210\Figure 6 Wetland Overview.mxd

5.1 Section 404 of the Clean Water Act

5.1.1 Wetlands

Irrigated Wetlands

Features in the Irrigated Wetland category were mapped primarily in the pastures on the Bowlsbey Ranch. These wetlands occur in the lowest portion of most fields, on the opposite of the field from the concrete-lined irrigation ditches from which the fields are flood irrigated. The fields are actively flood irrigated on a rotating basis by siphoning water from the concrete-lined irrigation ditches onto each field where it drains into earthen-lined drainage ditches on the opposite side of the field. In some fields, water drains quickly and no wetland conditions have formed. However, in many fields drainage is slow and water backs-up in the lower portions of the fields, resulting in wetland conditions. At the lowest portion of the fields, wetland conditions are strong, with the vegetation dominated by obligate and facultative wetland plants, soils containing clear redoximorphic features, and areas of inundated or saturated soils. Moving higher in elevation toward the center of the fields, wetland conditions are less strong, with vegetation dominated by a mix of facultative and facultative upland species, soils containing marginal or no redoximorphic features, and indicators of wetland hydrology primarily limited to indirect observations such as biotic crusts. Moving to the upper end of the fields, nearest to the concrete-lined irrigation ditches, upland conditions prevail, with vegetation dominated by a mix of facultative, facultative upland, and upland plants, soils containing no redoximorphic features, and no evidence of wetland hydrology.

Vegetation within areas designated as irrigated wetlands was dominated by species such as brass buttons (OBL), swamp grass (FACW), iris leaved rush (OBL), knot grass (FACW), salt grass (FAC), reed fescue (FACU), Italian rye grass (FAC), meadow barley (FACW), bird's foot trefoil (FAC), ribwort (FAC), smutgrass (FACU), and white clover (FACU) in the transition zones. Soils were generally clays or loamy clays with a matrix color of very dark grey (2.5Y 3/1) to black (7.5YR 2.5/1) and redoximorphic features consisting of strong brown (7.5YR 4/6) to yellowish red (5YR 4/6) concentrations at 5 to 20 percent cover along root channels and pore linings and as soft masses in the matrix. Soils most often met the Redox Dark Surface (F6) indicator. Indicators of wetland hydrology consisted of primary indicators including Surface Water (A1; in recently irrigated fields), Biotic Crust (B12), and Oxidized Rhizospheres along Living Roots (C3); most wetland areas also met the FAC-Neutral Test (D5).

Due to the very gradual nature of the slope in the pastures on the Bowlsbey Ranch, wetlands that have developed in these fields have broad transition zones marked by a mosaic of areas dominated by a mix of facultative and facultative upland plants, with and without clear redoximorphic features, and only patchy, indirect indicators of wetland hydrology. Given the complexity of these areas and their fluctuation from field to field, it was not possible to rely on indicators visible in the field such as a clear shift in vegetation, sharp changes in topography, or the outer extent of redoximorphic features or indicators of wetland hydrology. This was further complicated by the presence of soils such as Clear Lake clay and Sacramento clay, which are on the County’s hydric soils list and may be considered hydric regardless of the presence of clear redoximorphic features, potentially rendering soils across the entire site as hydric, despite their current hydrologic regime. Further, irrigation occurs on a rotating basis, which left some fields with standing water during the assessment and other fields dry, making it difficult to rely on hydrology to determine wetland boundaries.

Because it was not possible to rely on features on the ground, aerial imagery from multiple years was used to identify portions of the fields with regular, long-term saturation. During the site assessments, ground truthing was conducted to correlate aerial signatures with conditions on the ground and it was determined that the aerial signatures were largely correlated with a shift in vegetation associated with a transition from bird's foot trefoil (FAC), Italian rye grass (FAC), and squirreltail barley (FAC) to reed fescue (FACU) or smutgrass (FACU), with the lighter colors associated with areas of squirreltail barley (FAC) (among other species) and darker colors associated with reed fescue (FACU) (among other species) and these transitions were determined to be demonstrative of the wetland boundary. To be conservative, the wetland boundary was placed on the outer edge of the lighter signatures (i.e., on the outer edge of the transition zone), associated with the outer edge of areas of squirreltail barley (FAC).

These wetlands were classified as PEM2Kf: Palustrine (P), emergent (EM), non-persistent (2), artificially flooded (K), and farmed (f).

Managed Wetlands

Features in the managed wetland category correspond to the wetlands on Liberty Farms that are managed for winter waterfowl and the wetlands on Vogel Island that are managed for grazing. These features are passively flooded using screw gates in the levees that allow tidal water to passively enter the site.

On Liberty Farms, water passively enters the site from a flashboard gate installed in Lookout Slough at the western side of the site and is also pumped from Lookout Slough at a single location at the northern portion of the site (Figure 3). Water is passively moved around the site and into wetland checks by a series of earthen-lined ditches connected with flood gates and other mechanisms for controlling where water is delivered across the site. Although there is some control over where the water moves, water is not pumped once it is inboard of the levee system and relies on gravity to move across the site. As such, the lower, southern and middle portions of the site receive more water than the higher, northern portions of the site. This is reflected in a sharp change in dominant vegetation from cattails (OBL) and tules (OBL) in the southern and middle portions of the site to non-native annual grasses and other annual herbs in the northern portions of the site. A corresponding trend is seen in wetlands on Liberty Farms, with the southern portions of the site dominated by dense cattail (OBL) and tule (OBL) vegetation and with standing water for a substantial portion of the year and the northern portions of the site containing a mosaic of wetland and upland areas and a substantially shorter hydroperiod.

On Liberty Farms, vegetation within areas designated as managed wetlands was dominated by a mix of perennial marsh species such as tule (OBL), California bulrush (OBL), and cattails (OBL) in the southern wetland cells which receive greater inundation and seasonal wetland species such as Italian rye grass (FAC) and barley (FAC) in the northern wetland cells which receive lesser levels of irrigation water. Soils were generally clays or loamy clays with a matrix color of very dark greyish brown (10YR3/2) to black (10YR 2/1) and redoximorphic features consisting of dark reddish brown (5YR 3/4), yellowish red (5YR 4/6), and brown (7.5YR 4/4) concentrations along pore linings and root channels and as soft masses in the matrix at 2 to 15 percent. Soils most often met the Redox Dark Surface (F6) indicator. In the lower, southern portions of Liberty Farms, many sample points were inundated under deep water during the time of sampling and soils were not directly assessed, but were rather assumed to be hydric based on regular, long-term inundation, vegetation dominated by obligate, perennial wetland plants, and standing water during the time of the assessment. Based on these conditions and an understanding of the management regime, it was assumed that soils are frequently ponded and/or flooded for long (7 to 30 days) to

very long (>30 days) duration during the growing season, thereby meeting Hydric Soil Criteria 3 and/or 4 described in Hydric Soils Technical Note 13 from the National Technical Committee for Hydric Soils. In the drier northern portions of Liberty Farms, wetland hydrology indicators generally included biotic crusts (B12) and oxidized rhizospheres along living roots (C3). In the wetter, southern portions of Liberty Farms, wetland hydrology indicators generally included surface water (A1), high water tables (A2), saturation (A3), and biotic crusts (B12).

On Vogel Island, water passively enters the site from a screw gate on the eastern side of the island where it is directed onto either side of the site which is bisected by a low berm. During most years, water is controlled such that wetland conditions are limited to the lowest portions of the site. However, the levee surrounding Vogel Island crests at an elevation of +8 feet NAVD88 and breached in 2017, flooding the island and resulting in a shift in vegetation from largely non-native annual grasses and other herbs to dense tules (OBL). When the site was assessed on April 5, 2018, the vegetation contained a mix of tules and non-native grasses and other herbs and appeared to be reverting to non-native grassland.

On Vogel Island, vegetation within areas designated as managed wetlands was dominated by a mix of species including obligate wetland species such as tules and facultative species such as Italian rye grass. Analysis of historic aerial imagery shows this area dominated by non-native grasses in most years, and the current mix of vegetation is due to a levee breach in 2017 due to failure of the screw gate that allows water to enter or drain from the site. The levee breach flooded the site and resulted in a rapid transition from non-native grassland to tules (OBL) and cattails (OBL) which are transitioning back to non-native grassland as the site equilibrates to its historic water regime. Soils were clay with a matrix color of very dark grey (10YR 3/1) in the upper layer and black (5Y 2.5/1) in layers below, with redoximorphic features consisting of yellowish brown (10YR 5/8) concentrations along pore linings and root channels at 10 to 15 percent. Soils met the Redox Dark Surface (F6) indicator. Indicators of wetland hydrology included the primary indicator of Oxidized Rhizospheres Along Living Roots (C3) and secondary indicators of Saturation Visible on Aerial Imagery (C9) and the FAC-Neutral Test (D5).

Wetland boundaries were located at the base of the perimeter levee on in its inboard side and at the base of a berm that runs down the middle of the island. Boundaries were determined based on a combination of a shift in vegetation from Italian rye grass (FAC) and tules (OBL) to upland-rated non-native annual grasses and herbs and a change in topography.

Managed wetlands were classified as PEM1Kf/2Kf: Palustrine (P), emergent (EM), persistent (1)/non-persistent (2), artificially flooded (K), and farmed (f).

<u>Perennial Marsh (Non-Tidal)</u>

Features in the non-tidal perennial marsh category correspond to areas of cattail (OBL) and bulrush (OBL) marsh in Duck Slough. Duck Slough is an excavated, non-tidal slough that passively fills via a screw gate in the levee at its southern end, at Haas Slough. In contrast to cattail (OBL) and bulrush (OBL) vegetation in drainage ditches across the Study Area which are regularly removed during normal maintenance of agricultural drainage ditches, areas mapped as non-tidal perennial marsh appear in the same locations over numerous years of aerial imagery suggesting they are a relatively permanent part of Duck Slough.

Vegetation within areas mapped as non-tidal perennial marsh was dominated by cattails and California bulrush, both obligate wetland species, and satisfied the dominance test. Due to deep standing waters, soils in these features were not directly assessed, but rather were assumed to

be hydric based on the permanent inundation of Duck Slough, thereby meeting Hydric Soil Criteria 3 and/or 4 described in Hydric Soils Technical Note 13 from the National Technical Committee for Hydric Soils. These areas met the primary wetland hydrology indicators for surface water (A1), water marks (B1), drift deposits (B3), and aquatic invertebrates (B13). These features, which are dominated by obligate wetland plants, also satisfy the FAC-neutral test, a secondary wetland hydrology indicator. Boundaries of non-tidal perennial marsh within Duck Slough were delineated based on the extent of emergent vegetation visible in multiple years of aerial imagery.

Non-tidal perennial marsh was classified as PEM1Fx: Palustrine (P), emergent (EM), persistent (1), semi-permanently flooded (F), and excavated (x).

Perennial Marsh (Tidal)

Features in the tidal perennial marsh category correspond to areas of cattail (OBL), tule (OBL), and California bulrush (OBL) above the HTL (7.26 feet NAVD88) within tidal sloughs outboard of the Corps and DWR levees along Haas, Cache, and Shag sloughs (areas below the HTL were classified as tidal slough, see description below). These wetlands have the same vegetation as non-tidal perennial marsh, were similarly assumed to have hydric soils based on regular tidal inundation, and share many of the same primary and secondary wetland hydrology indicators. Boundaries of tidal perennial marsh were delineated based on the extent of emergent vegetation above 7.26 feet NAVD88 visible in aerial imagery.

Tidal perennial marsh was classified as PEM1T: Palustrine (P), emergent (EM), persistent (1), and semi-permanently flooded-tidal (T).

Scrub-Shrub Wetlands

Features in the scrub-shrub category correspond to a stand of arroyo willow *(Salix lasiolepis*; FACW) at the southern end of Lookout Slough and a small stand that occupies an island in Cache Slough to the east of Vogel Island. Unlike other stands of willows (*Salix* spp.; FACW) that occur along the upper margins of Lookout Slough, removed from wetland hydrology, these stands occur at lower elevations and are assumed to experience periodic to regular flooding and/or high water tables based on their elevations. Due to the deep water surrounding these stands, it was not possible to investigate these areas directly. Instead, vegetation was observed remotely using binoculars, hydrology was assumed based on elevations derived from the Lidar data, and the presence of hydric soils was assumed based on dominance by FACW species and geomorphic position within the landscape. Boundaries of scrub shrub wetlands were delineated based on a combination of the extent of willows (FACW) visible in aerial imagery and topographic data.

Scrub-shrub wetlands were classified as PSSR: Palustrine (P), scrub-shrub (SS), seasonally flooded (R).

Seasonal Wetlands

Features in the seasonal wetland category correspond to several depressional features in the northern portion of the Liberty Farms that collect precipitation and runoff from surrounding areas, but are not supported by artificial hydrology. These features resembled classic seasonal wetlands, with non-native herbaceous vegetation and a relatively short hydroperiod compared to managed wetlands elsewhere on the site.

Vegetation within seasonal wetlands on Liberty Farms was dominated by Italian rye grass (FAC) and bird's foot trefoil (FAC). Soils were very dark grey to a depth of eight inches, with dark yellowish brown (10YR 4/4) redoximorphic concentrations along pore linings and root channels at five percent cover. Below eight inches, soils contained a mottled matrix of very dark grey and light olive brown (2.5Y 5/4). Soils met the Redox Dark Surface (F6) indicator. Indicators of wetland hydrology were limited to Oxidized Rhizospheres Along Living Roots (C3). Wetland boundaries were determined based on a combination of shifts in vegetation from facultative to facultative upland and upland plants and the topography of the depressions in question.

Seasonal wetlands were classified as PEM2A/C: palustrine (P), emergent (EM), non-persistent (2), temporarily flooded (A) to seasonally flooded (C).

5.1.2 Non-Wetland Waters

Drainage Ditches

Features in the drainage ditch category correspond to earthen-lined ditches used to drain agricultural fields on Bowlsbey Ranch and managed wetlands on Liberty Farms. These ditches vary in size from approximately 5 feet in width to over 20 feet in width and have varying water regimes, with some ditches being permanently inundated and others carrying water for only a portion of the year. All ditches are manmade, excavated features connected through a complex network of culverts and slide gates. On Bowlsbey Ranch, drainage ditches serve only to drain fields. The ditches on Bowlsbey drain to the southwestern portion of the property where the water is pumped into Haas Slough at two locations (Figure 3). On Liberty Farms, the ditches serve a dual role of draining fields and also delivering irrigation water for flood management. The ditches on Liberty Farms drain to the southern portion of the site and water can be actively pumped into Shag Slough at three locations along the eastern side of the site (Figure 3).

Although many of the ditches are lined with cattails (OBL) and tules (OBL), they were mapped as open waters due to the small amount of vegetation relative to the overall size of the features and because vegetation within the ditches is regularly removed through a combination of burning and dredging during normal site maintenance. The jurisdictional limits of drainage ditches were based on the location of the OHWM which was determined based indicators such as scour, drift deposits, and water marks. The approximate width between the OHWM on either side of the ditches was visually estimated in the field and refined in the office using high-resolution topographic data.

Drainage ditches were classified as R5UBFx: riverine (R), unknown perennial (5), unconsolidated bottom (UB), semi-permanently flooded (F), excavated (x).

Irrigation Ditches

Features in the irrigation ditch category correspond to concrete-lined ditches on Bowlsbey Ranch that are used to transport water from two earthen-lined irrigation ponds on the western side of the site to the pastures. The approximately 4-foot-wide ditches are connected through a network of culverts and slide gates that allow water to be diverted to different parts of the site. The ditches carry water only when actively being used for irrigation and are dry the majority of the time. Water is siphoned from the concrete-lined ditches onto individual pastures using siphon tubes and allowed to passively flow to the opposite side of the pasture where it is intercepted by earthen-lined drainage ditches. No vegetation or sediment accumulation is present in the ditches. The location and extent of these features across Study Area was digitized from aerial imagery.

Because these features are concrete-lined ditches associated with delivery irrigation water, they may not be considered jurisdictional by the Corps.

Irrigation ditches were classified as R5UBAx: riverine (R), unknown perennial (5), unconsolidated bottom (UB), temporarily flooded (A), excavated (x).

Irrigation Ponds

Features in the irrigation pond category correspond to two raised, earthen-lined irrigation ponds located on the western side of Bowlsbey Ranch. The ponds are supported by earthen berms with a crest elevation of 14 feet NAVD88. Water is pumped into these ponds via two pumps, one located in Duck Slough and one located in Haas Slough (Figure 3). From the ponds, water is gravity fed into a network of concrete-lined irrigation ditches where it is diverted to individual pastures for flood irrigation. The ponds are regularly maintained and do not contain vegetation. The extent of these features was digitized from high water levels observed in aerial imagery. Because these features are manmade, elevated agricultural ponds, they may not be considered jurisdictional by the Corps.

Irrigation ponds were classified as PUBKh: palustrine (P), unconsolidated bottom (UB), artificially flooded (K), diked/impounded (h).

Ponds

Features in the pond category correspond to Sycamore Slough on Bowlsbey Ranch and an unnamed pond excavated on the eastern side of Liberty Farms. Sycamore Slough does not appear on the 1906 USGS 7.5-minute quadrangle map for Liberty Island and is listed as an excavated feature by the National Wetland Inventory. Sycamore Slough is connected to Cache Slough via a screw gate and is also likely supported by groundwater and irrigation runoff. Sycamore Slough contains patches of emergent vegetation growing below the OHWM, which was indicated by scour and shelving along the pond edge. The extent of Sycamore Slough was digitized based on the extent of the OHWM visible in aerial imagery.

The pond located on Liberty Farms was created in the summer of 2007, as can be seen in historic aerial imagery available from Google Earth. The pond appears to have been excavated as part of the wetland management system and is connected to the rest of the system by several excavated channels. Water levels in the pond appear to be maintained by a combination of groundwater and water from an adjacent ditch. The pond contains dense emergent vegetation around most of its length and a small dock located at its eastern edge.

Both ponds were classified as PUBHx: palustrine (P), unconsolidated bottom (UB), permanently flooded (H), excavated (x).

Slough (Non-Tidal)

Features in the non-tidal slough category correspond to Duck Slough and Lookout Slough, both of which are manmade, excavated sloughs that are disconnected from tidal activity by the Corps levee surrounding the site. Both sloughs are connected to the adjacent, tidal sloughs via screw gates in the levee, with Duck Slough connected to Haas Slough and Lookout Slough connected to Cache Slough (Figure 3). These sloughs may have muted tidal activity when the screw gates are open, but are otherwise non-tidal. Both sloughs contain emergent vegetation [cattails (OBL) and tules (OBL)] along their margins, with Duck Slough also containing substantial stands of

emergent vegetation within portions of the slough channel that were mapped separately as non-tidal perennial marsh. Due to their small area, the narrow bands of emergent vegetation along the margins of the sloughs were lumped into the extent of the sloughs as opposed to being mapped as separate wetland features. The extent of non-tidal sloughs within the Study Area was based on the OHWM which was identified based on indicators such as sour and shelving along the edges of the sloughs and was digitized using a combination of aerial signatures and elevation data from the lidar.

Non-tidal sloughs were classified as R2UBHx: riverine (R), lower perennial (2), unconsolidated bottom (UB), permanently flooded (H), excavated (x).

Slough (Tidal)

Features in the tidal slough category correspond to the portions of Haas, Cache, and Shag sloughs that occur within the Study Area. These sloughs are a combination of natural and manmade features that are directly connected to the Sacramento River and receive the full range of tidal activity experienced in this area of the delta. As described in Section 4.0, the extent of Corps jurisdiction in tidal sloughs was based on the HTL. Because the Study Area is located at the southern end of the Yolo Bypass, it receives artificially high water levels during flood events when flood waters from the Sacramento River are released into the bypass. To filter out these artificial high water events, the HTL was estimated by averaging the highest observed water level for every non-flood month between 2010 and 2017 at the DWR Yolo Bypass Liberty Island (LIY) tide gauge (Table 2). Based on this assessment, the HTL was approximated to be 7.26 feet NAVD88, and all areas below this elevation on the outboard side of the levees were mapped as tidal slough. Tidal sloughs were lined with concrete riprap and contained only limited patches of emergent vegetation consisting of cattails or tules and other herbaceous species. Some areas contain trees along the bank, consisting primarily of arroyo willow or valley oak.

Tidal sloughs were classified as R1UBV/R1UBVx: riverine (R), tidal (1), unconsolidated bottom (UB), permanently flooded-tidal (V), and excavated (x; Shag Slough only).

5.2 Section 10 of the Rivers and Harbors Act

The lateral limit of Corps jurisdiction under Section 10 of the RHA is set at MHW which was determined to be 5.9 feet NAVD88 based on data from the Yolo Bypass Liberty Island (LIY) tide gauge operated by the DWR. The inland extent of Section 10 jurisdiction was determined from an online mapping tool hosted on the Corps Sacramento District's website[4]. However, the Corps website shows Section 10 jurisdiction extending beyond the levee at the southern end of the Study Area and partway into Lookout Slough. Because Lookout Slough is separated from the rest of the navigable waterway by the Corps levee, it was determined to be non-navigable and was not included in the limits of Section 10 jurisdiction shown in Appendix B.

[4] http://www.spk.usace.army.mil/Missions/Regulatory/Jurisdiction/Navigable-Waters-of-the-US/

6.0 CONCLUSION

The results of this delineation of aquatic resources was based on conditions observed during the time of the assessment and information provided to WRA by the property owner and project proponent. It should be noted that the Corps makes all final decisions regarding regulatory jurisdiction, and WRA recommends securing a Jurisdictional Determination from the Corps before embarking on any project activities that could result in the loss of Waters of the United States.

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APPENDIX A

WETS ANALYSES

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: Google Earth March 2011

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	Feburary	2.28	5.06	6.17	3.03	normal	2	3	6
2nd month prior	January	2.28	4.83	5.9	1.63	dry	1	2	2
3rd month prior	December	2.52	4.98	6	4.47	normal	2	1	2
								SUM=	**10**

Note: If sum is

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: Google Earth June 2013

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	May	0.19	0.74	0.71	0.45	normal	2	3	6
2nd month prior	April	0.47	1.42	1.7	0.72	normal	2	2	4
3rd month prior	March	1.43	3.56	4.32	0.13	dry	1	1	1
								SUM=	**11**

Note: If sum is

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: Google Earth April 2014

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	March	1.35	3.39	4.12	2.12	normal	2	3	6
2nd month prior	Feburary	1.91	4.74	5.75	5.76	wet	3	2	6
3rd month prior	Janurary	1.72	4.24	5.15	0	dry	1	1	1
								SUM=	**13**

Note: If sum is

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: Google Earth July 2016

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	June	0	0.18	0.11	0	dry	1	3	3
2nd month prior	May	0.18	0.72	0.69	0.32	normal	2	2	4
3rd month prior	April	0.46	1.29	1.55	0.51	normal	2	1	2
								SUM=	**9**

Note: If sum is

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: Wood Rogers Aerial October 2017

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	September	0	0.16	0.08	0	dry	1	3	3
2nd month prior	August	0	0.03	0	0	normal	2	2	4
3rd month prior	July	0	0	0	0	normal	2	1	2
								SUM=	**9**

Note: If sum is

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: 4/4/2018

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	March	1.2	3.12	3.77	3.92	wet	3	3	9
2nd month prior	Feburary	1.85	4.74	5.75	0.32	dry	1	2	2
3rd month prior	Janurary	1.49	4.63	5.52	4.81	normal	2	1	2
								SUM=	**13**

Note: If sum is:

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: 5/9/2018

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	April	0.52	1.39	1.68	1.63	normal	2	3	6
2nd month prior	March	1.2	3.12	3.77	3.92	wet	3	2	6
3rd month prior	Feburary	1.85	4.74	5.75	0.32	dry	1	1	1
								SUM=	**13**

Note: If sum is

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

WETS historic data from climate station: Fairfield
Observed rainfall data from climate station: Hastings Tract East
Date of site visit: 7/20/2018

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	June	0	0.19	0.14	0	dry	1	3	3
2nd month prior	May	0.2	0.73	0.69	0	dry	1	2	2
3rd month prior	April	0.52	1.39	1.68	1.63	normal	2	1	2
								SUM=	**7**

Note: If sum is

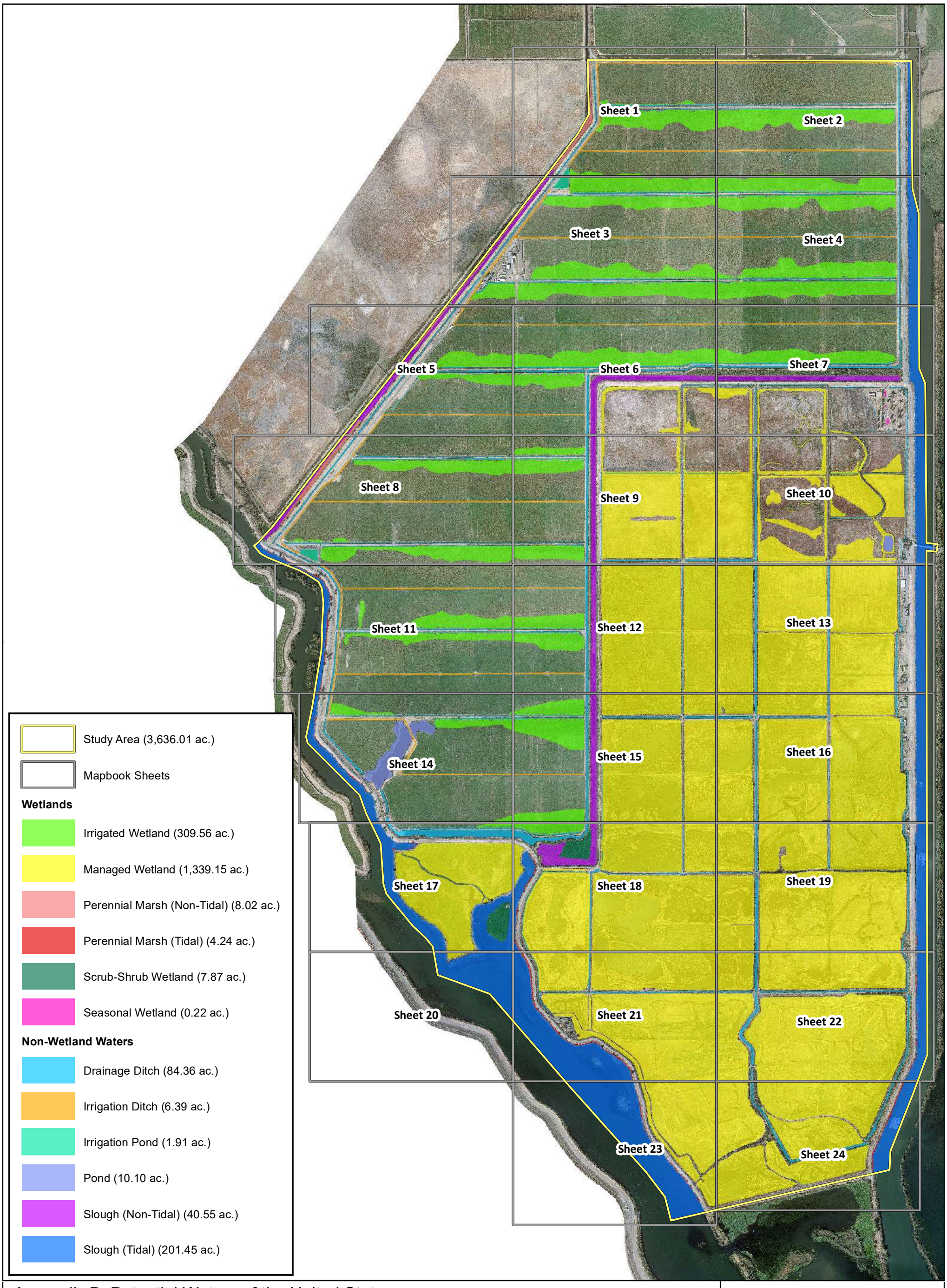
6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values:

Dry=1
Normal=2
Wet=3

APPENDIX B

POTENTIAL WATERS OF THE UNITED STATES



Appendix B. Potential Waters of the United States
Overview Sheet 1

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Miles

Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Base Source: Wood Rogers
Base Date: 10/24/17
Data Source(s): WRA

wra
ENVIRONMENTAL CONSULTANTS

Path: L:\Acad 2000 Files\26000\26293\GIS\ArcMap\2018 Permitting\Delin\20181210\Appendix X Overview Sheet 1.mxd

Non-wetland waters mapped within the Study Area for the Lookout Slough Delta Smelt Habitat Restoration Project

Type	ID	Section 404 Acres	Section 404/10 Acres	Linear Feet	Cowardin Code	Type	ID	Section 404 Acres	Section 404/10 Acres	Linear Feet	Cowardin Code
Drainage Ditch	DD-001	2.05	-	2403	R5UBFx	Drainage Ditch	DD-073	0.37	-	1328	R5UBFx
Drainage Ditch	DD-002	1.24	-	1327	R5UBFx	Drainage Ditch	DD-074	0.82	-	2550	R5UBFx
Drainage Ditch	DD-003	1.52	-	2493	R5UBFx	Drainage Ditch	DD-075	0.14	-	1518	R5UBFx
Drainage Ditch	DD-004	1.25	-	2703	R5UBFx	Drainage Ditch	DD-076	0.40	-	1949	R5UBFx
Drainage Ditch	DD-005	1.58	-	3427	R5UBFx	Drainage Ditch	DD-077	0.08	-	832	R5UBFx
Drainage Ditch	DD-006	0.02	-	45	R5UBFx	Drainage Ditch	DD-078	0.10	-	1043	R5UBFx
Drainage Ditch	DD-007	1.78	-	1913	R5UBFx	Drainage Ditch	DD-079	0.68	-	1475	R5UBFx
Drainage Ditch	DD-008	0.90	-	1934	R5UBFx	Drainage Ditch	DD-080	0.16	-	1148	R5UBFx
Drainage Ditch	DD-009	0.02	-	36	R5UBFx	Drainage Ditch	DD-081	0.19	-	823	R5UBFx
Drainage Ditch	DD-010	1.25	-	4225	R5UBFx	Drainage Ditch	DD-082	0.48	-	1312	R5UBFx
Drainage Ditch	DD-011	0.84	-	2587	R5UBFx	Drainage Ditch	DD-083	0.01	-	32	R5UBFx
Drainage Ditch	DD-012	0.13	-	170	R5UBFx	Drainage Ditch	DD-084	0.16	-	1142	R5UBFx
Drainage Ditch	DD-013	0.65	-	1748	R5UBFx	Drainage Ditch	DD-085	0.48	-	4217	R5UBFx
Drainage Ditch	DD-014	0.41	-	1092	R5UBFx	Drainage Ditch	DD-086	0.29	-	1196	R5UBFx
Drainage Ditch	DD-015	0.10	-	737	R5UBFx	Drainage Ditch	DD-087	0.69	-	4150	R5UBFx
Drainage Ditch	DD-016	0.04	-	198	R5UBFx	Drainage Ditch	DD-088	0.21	-	776	R5UBFx
Drainage Ditch	DD-017	0.20	-	735	R5UBFx	Drainage Ditch	DD-089	1.58	-	3422	R5UBFx
Drainage Ditch	DD-018	0.23	-	310	R5UBFx	Drainage Ditch	DD-090	0.92	-	1326	R5UBFx
Drainage Ditch	DD-019	1.17	-	2800	R5UBFx	Drainage Ditch	DD-091	0.95	-	1439	R5UBFx
Drainage Ditch	DD-020	0.30	-	1653	R5UBFx	Drainage Ditch	DD-092	0.51	-	1234	R5UBFx
Drainage Ditch	DD-021	0.03	-	122	R5UBFx	Drainage Ditch	DD-093	1.25	-	2480	R5UBFx
Drainage Ditch	DD-022	1.75	-	2528	R5UBFx	Drainage Ditch	DD-094	0.52	-	1260	R5UBFx
Drainage Ditch	DD-023	0.31	-	9290	R5UBFx	Drainage Ditch	DD-095	1.17	-	2548	R5UBFx
Drainage Ditch	DD-024	0.73	-	2516	R5UBFx	Drainage Ditch	DD-096	0.05	-	136	R5UBFx
Drainage Ditch	DD-025	0.44	-	1605	R5UBFx	Drainage Ditch	DD-097	0.24	-	582	R5UBFx
Drainage Ditch	DD-026	0.25	-	1800	R5UBFx	Drainage Ditch	DD-098	0.91	-	2479	R5UBFx
Drainage Ditch	DD-027	0.20	-	869	R5UBFx	Drainage Ditch	DD-099	0.35	-	1255	R5UBFx
Drainage Ditch	DD-028	0.02	-	44	R5UBFx	Drainage Ditch	DD-100	0.83	-	2595	R5UBFx
Drainage Ditch	DD-029	0.60	-	1317	R5UBFx	Drainage Ditch	DD-101	0.03	-	115	R5UBFx
Drainage Ditch	DD-030	0.35	-	869	R5UBFx	Drainage Ditch	DD-102	0.11	-	410	R5UBFx
Drainage Ditch	DD-031	0.79	-	1151	R5UBFx	Drainage Ditch	DD-103	0.15	-	560	R5UBFx
Drainage Ditch	DD-032	0.51	-	1123	R5UBFx	Drainage Ditch	DD-104	0.70	-	2533	R5UBFx
Drainage Ditch	DD-033	0.28	-	1223	R5UBFx	Drainage Ditch	DD-105	0.83	-	2579	R5UBFx
Drainage Ditch	DD-034	0.48	-	1751	R5UBFx	Drainage Ditch	DD-106	0.89	-	1931	R5UBFx
Drainage Ditch	DD-035	0.04	-	51	R5UBFx	Drainage Ditch	DD-107	0.20	-	712	R5UBFx
Drainage Ditch	DD-036	0.34	-	1232	R5UBFx	Drainage Ditch	DD-108	0.69	-	2511	R5UBFx
Drainage Ditch	DD-037	0.75	-	1358	R5UBFx	Drainage Ditch	DD-109	0.72	-	2614	R5UBFx
Drainage Ditch	DD-038	0.79	-	1417	R5UBFx	Drainage Ditch	DD-110	0.72	-	2621	R5UBFx
Drainage Ditch	DD-039	0.02	-	54	R5UBFx	Drainage Ditch	DD-111	1.04	-	2826	R5UBFx
Drainage Ditch	DD-040	0.76	-	2770	R5UBFx	Drainage Ditch	DD-112	0.91	-	1953	R5UBFx
Drainage Ditch	DD-041	0.02	-	73	R5UBFx	Drainage Ditch	DD-113	0.07	-	156	R5UBFx
Drainage Ditch	DD-042	0.34	-	1228	R5UBFx	Drainage Ditch	DD-114	0.64	-	2333	R5UBFx
Drainage Ditch	DD-043	0.06	-	222	R5UBFx	Drainage Ditch	DD-115	0.72	-	2613	R5UBFx
Drainage Ditch	DD-044	0.50	-	1802	R5UBFx	Drainage Ditch	DD-116	0.89	-	2351	R5UBFx
Drainage Ditch	DD-045	0.63	-	1964	R5UBFx	Drainage Ditch	DD-117	0.71	-	2596	R5UBFx
Drainage Ditch	DD-046	0.06	-	93	R5UBFx	Drainage Ditch	DD-118	0.91	-	1976	R5UBFx
Drainage Ditch	DD-047	0.67	-	1210	R5UBFx	Drainage Ditch	DD-119	20.05	-	16656	R5UBFx
Drainage Ditch	DD-048	1.73	-	2504	R5UBFx	Irrigation Ditch	ID-01	0.36	-	3100	R5UBAx
Drainage Ditch	DD-049	0.30	-	2577	R5UBFx	Irrigation Ditch	ID-02	0.06	-	605	R5UBAx
Drainage Ditch	DD-050	0.59	-	2571	R5UBFx	Irrigation Ditch	ID-03	0.14	-	1720	R5UBAx
Drainage Ditch	DD-051	0.94	-	2579	R5UBFx	Irrigation Ditch	ID-04	0.65	-	4204	R5UBAx
Drainage Ditch	DD-052	0.40	-	1092	R5UBFx	Irrigation Ditch	ID-05	0.62	-	4123	R5UBAx
Drainage Ditch	DD-053	0.59	-	1270	R5UBFx	Irrigation Ditch	ID-06	0.04	-	342	R5UBAx
Drainage Ditch	DD-054	0.79	-	1135	R5UBFx	Irrigation Ditch	ID-07	0.69	-	4629	R5UBAx
Drainage Ditch	DD-055	0.14	-	260	R5UBFx	Irrigation Ditch	ID-08	0.04	-	389	R5UBAx
Drainage Ditch	DD-056	0.49	-	1769	R5UBFx	Irrigation Ditch	ID-09	0.49	-	4278	R5UBAx
Drainage Ditch	DD-057	0.84	-	2607	R5UBFx	Irrigation Ditch	ID-10	0.73	-	6398	R5UBAx
Drainage Ditch	DD-058	0.25	-	469	R5UBFx	Irrigation Ditch	ID-11	0.23	-	1007	R5UBAx
Drainage Ditch	DD-059	0.18	-	550	R5UBFx	Irrigation Ditch	ID-12	0.07	-	614	R5UBAx
Drainage Ditch	DD-060	0.72	-	2609	R5UBFx	Irrigation Ditch	ID-13	0.86	-	6458	R5UBAx
Drainage Ditch	DD-061	0.50	-	1824	R5UBFx	Irrigation Ditch	ID-14	0.01	-	68	R5UBAx
Drainage Ditch	DD-062	0.12	-	236	R5UBFx	Irrigation Ditch	ID-15	0.74	-	3221	R5UBAx
Drainage Ditch	DD-063	0.04	-	612	R5UBFx	Irrigation Ditch	ID-16	0.66	-	5761	R5UBAx
Drainage Ditch	DD-064	0.16	-	711	R5UBFx	Irrigation Pond	IP-1	0.84	-	-	PUBKh
Drainage Ditch	DD-065	0.97	-	1427	R5UBFx	Irrigation Pond	IP-2	1.07	-	-	PUBKh
Drainage Ditch	DD-066	0.04	-	464	R5UBFx	Pond	P-1	0.95	-	-	PUBHx
Drainage Ditch	DD-067	0.12	-	1271	R5UBFx	Pond	P-2	9.14	-	1552	PUBHx
Drainage Ditch	DD-068	0.11	-	1161	R5UBFx	Slough (Non-Tidal)	SNT-1	31.54	-	14220	R2UBHx
Drainage Ditch	DD-069	0.19	-	691	R5UBFx	Slough (Non-Tidal)	SNT-2	9.01	-	7958	R2UBHx
Drainage Ditch	DD-070	0.11	-	1152	R5UBFx	Slough (Tidal)	ST-1	2.14	124.82	15040	R1UBV/R1UBVx
Drainage Ditch	DD-071	0.83	-	2574	R5UBFx	Slough (Tidal)	ST-2	1.22	73.27	18985	R1UBV/R1UBVx
Drainage Ditch	DD-072	0.30	-	1312	R5UBFx						

Wetlands mapped within the Study Area for the Lookout Slough Delta Smelt Habitat

Type	ID	Section 404 Acres	Section 404/10 Acres	Cowardin Code
Irrigated Wetland	IW-01	11.04	-	PEM2Kf
Irrigated Wetland	IW-02	14.22	-	PEM2Kf
Irrigated Wetland	IW-03	2.41	-	PEM2Kf
Irrigated Wetland	IW-04	5.48	-	PEM2Kf
Irrigated Wetland	IW-05	13.95	-	PEM2Kf
Irrigated Wetland	IW-06	14.50	-	PEM2Kf
Irrigated Wetland	IW-07	0.69	-	PEM2Kf
Irrigated Wetland	IW-08	19.67	-	PEM2Kf
Irrigated Wetland	IW-09	0.41	-	PEM2Kf
Irrigated Wetland	IW-10	0.35	-	PEM2Kf
Irrigated Wetland	IW-11	16.83	-	PEM2Kf
Irrigated Wetland	IW-12	3.07	-	PEM2Kf
Irrigated Wetland	IW-13	9.97	-	PEM2Kf
Irrigated Wetland	IW-14	38.83	-	PEM2Kf
Irrigated Wetland	IW-15	3.38	-	PEM2Kf
Irrigated Wetland	IW-16	34.19	-	PEM2Kf
Irrigated Wetland	IW-17	28.91	-	PEM2Kf
Irrigated Wetland	IW-18	27.59	-	PEM2Kf
Irrigated Wetland	IW-19	31.76	-	PEM2Kf
Irrigated Wetland	IW-20	31.36	-	PEM2Kf
Irrigated Wetland	IW-21	0.27	-	PEM2Kf
Irrigated Wetland	IW-22	0.44	-	PEM2Kf
Irrigated Wetland	IW-23	0.23	-	PEM2Kf
Managed Wetlands	MW-01	21.25	-	PEM1/2Kf
Managed Wetlands	MW-02	14.68	-	PEM1/2Kf
Managed Wetlands	MW-03	17.24	-	PEM1/2Kf
Managed Wetlands	MW-04	6.98	-	PEM1/2Kf
Managed Wetlands	MW-05	0.46	-	PEM1/2Kf
Managed Wetlands	MW-06	6.24	-	PEM1/2Kf
Managed Wetlands	MW-07	124.72	-	PEM1/2Kf
Managed Wetlands	MW-08	112.85	-	PEM1/2Kf
Managed Wetlands	MW-09	121.59	-	PEM1/2Kf
Managed Wetlands	MW-10	45.31	-	PEM1/2Kf
Managed Wetlands	MW-11	111.00	-	PEM1/2Kf
Managed Wetlands	MW-12	0.53	-	PEM1/2Kf
Managed Wetlands	MW-13	28.49	-	PEM1/2Kf
Managed Wetlands	MW-14	27.55	-	PEM1/2Kf
Managed Wetlands	MW-15	67.88	-	PEM1/2Kf
Managed Wetlands	MW-16	79.00	-	PEM1/2Kf
Managed Wetlands	MW-17	66.92	-	PEM1/2Kf
Managed Wetlands	MW-18	72.60	-	PEM1/2Kf
Managed Wetlands	MW-19	33.74	-	PEM1/2Kf
Managed Wetlands	MW-20	37.07	-	PEM1/2Kf
Managed Wetlands	MW-21	67.50	-	PEM1/2Kf
Managed Wetlands	MW-22	78.12	-	PEM1/2Kf
Managed Wetlands	MW-23	30.75	-	PEM1/2Kf
Managed Wetlands	MW-24	30.60	-	PEM1/2Kf
Managed Wetlands	MW-25	6.27	-	PEM1/2Kf
Managed Wetlands	MW-26	2.40	-	PEM1/2Kf
Managed Wetlands	MW-27	0.00	-	PEM1/2Kf
Managed Wetlands	MW-28	0.96	-	PEM1/2Kf
Managed Wetlands	MW-29	8.88	-	PEM1/2Kf
Managed Wetlands	MW-30	9.40	-	PEM1/2Kf
Managed Wetlands	MW-31	7.48	-	PEM1/2Kf
Managed Wetlands	MW-32	0.07	-	PEM1/2Kf
Managed Wetlands	MW-33	0.55	-	PEM1/2Kf
Managed Wetlands	MW-34	1.65	-	PEM1/2Kf
Managed Wetlands	MW-35	4.87	-	PEM1/2Kf
Managed Wetlands	MW-36	43.37	-	PEM1/2Kf
Managed Wetlands	MW-37	48.36	-	PEM1/2Kf
Managed Wetlands	MW-38	0.14	-	PEM1/2Kf
Managed Wetlands	MW-39	0.28	-	PEM1/2Kf
Managed Wetlands	MW-40	0.02	-	PEM1/2Kf
Managed Wetlands	MW-41	0.75	-	PEM1/2Kf
Managed Wetlands	MW-42	0.52	-	PEM1/2Kf
Managed Wetlands	MW-43	0.12	-	PEM1/2Kf
Perennial Marsh (Non-Tidal)	PMNT-1	2.72	-	PEM1Fx
Perennial Marsh (Non-Tidal)	PMNT-2	2.77	-	PEM1Fx
Perennial Marsh (Non-Tidal)	PMNT-3	2.53	-	PEM1Fx
Perennial Marsh (Tidal)	PMT-01	0.04	-	PEM1T
Perennial Marsh (Tidal)	PMT-02	0.06	-	PEM1T
Perennial Marsh (Tidal)	PMT-03	0.09	-	PEM1T
Perennial Marsh (Tidal)	PMT-04	0.07	-	PEM1T
Perennial Marsh (Tidal)	PMT-05	0.75	-	PEM1T
Perennial Marsh (Tidal)	PMT-06	0.23	-	PEM1T
Perennial Marsh (Tidal)	PMT-07	0.22	-	PEM1T
Perennial Marsh (Tidal)	PMT-08	1.44	-	PEM1T
Perennial Marsh (Tidal)	PMT-09	0.10	-	PEM1T
Perennial Marsh (Tidal)	PMT-10	0.14	-	PEM1T
Perennial Marsh (Tidal)	PMT-11	0.10	-	PEM1T
Perennial Marsh (Tidal)	PMT-12	0.11	-	PEM1T
Perennial Marsh (Tidal)	PMT-13	0.21	-	PEM1T
Perennial Marsh (Tidal)	PMT-14	0.05	-	PEM1T
Perennial Marsh (Tidal)	PMT-15	0.65	-	PEM1T
Scrub-Shrub Wetland	SSW-1	-	4.29	PSSR
Scrub-Shrub Wetland	SSW-2	3.58	-	PSSR
Seasonal Wetland	SW-1	0.11	-	PEM2A/C
Seasonal Wetland	SW-2	0.03	-	PEM2A/C
Seasonal Wetland	SW-3	0.07	-	PEM2A/C

Overview of aquatic resources mapped within the Study Area for the Lookout Slough Delta Smelt Habitat Restoration Project

Type	Section 404 Acres	Section 404/10 Acres	Linear Feet
Wetlands			
Irrigated Wetland	309.56	-	-
Managed Wetlands	1339.15	-	-
Perennial Marsh (Non-Tidal)	8.02	-	-
Perennial Marsh (Tidal)	4.24	-	-
Scrub-Shrub Wetland	3.58	4.29	-
Seasonal Wetland	0.22	-	-
Subtotal	**1664.77**	**4.29**	
Non-Wetland Waters			
Drainage Ditch	84.36	-	203938
Irrigation Ditch	6.39	-	46917
Irrigation Pond	1.91	-	-
Pond	10.10	-	-
Slough (Non-Tidal)	40.55	-	22178
Slough (Tidal)	3.36	198.09	34025
Subtotal	**146.67**	**198.09**	**307058**
Totals	**1811.43**	**202.38**	**307058**

Appendix B. Potential Waters of the United States
Overview Sheet 2

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Miles

Lookout Slough Restoration Project

Ecosystem Investment Partners

Prepared by:

Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Data Source(s): WRA

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ENVIRONMENTAL CONSULTANTS

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Appendix B.
Potential Waters of the U.S.
Map Sheet 1

Lookout Slough Restoration Project

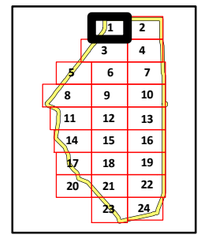
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Base Source: Wood Rogers
Base Date: 10/24/17
Data Source(s): WRA

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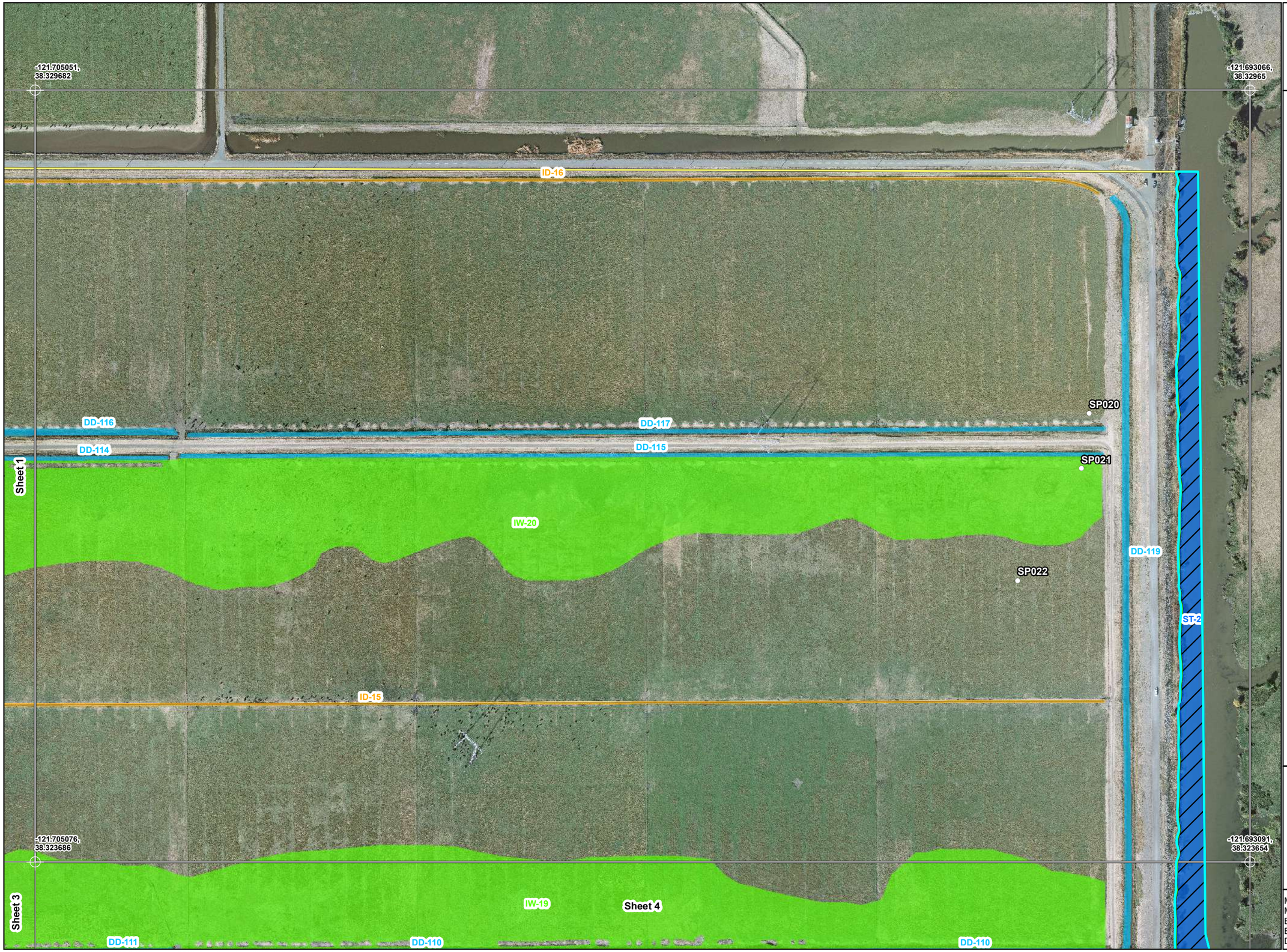

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Appendix B.
Potential Waters of the U.S.
Map Sheet 2

Lookout Slough Restoration Project

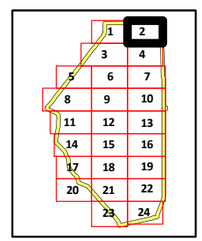
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Base Source: Wood Rogers
Base Date: 10/24/17
Data Source(s): WRA

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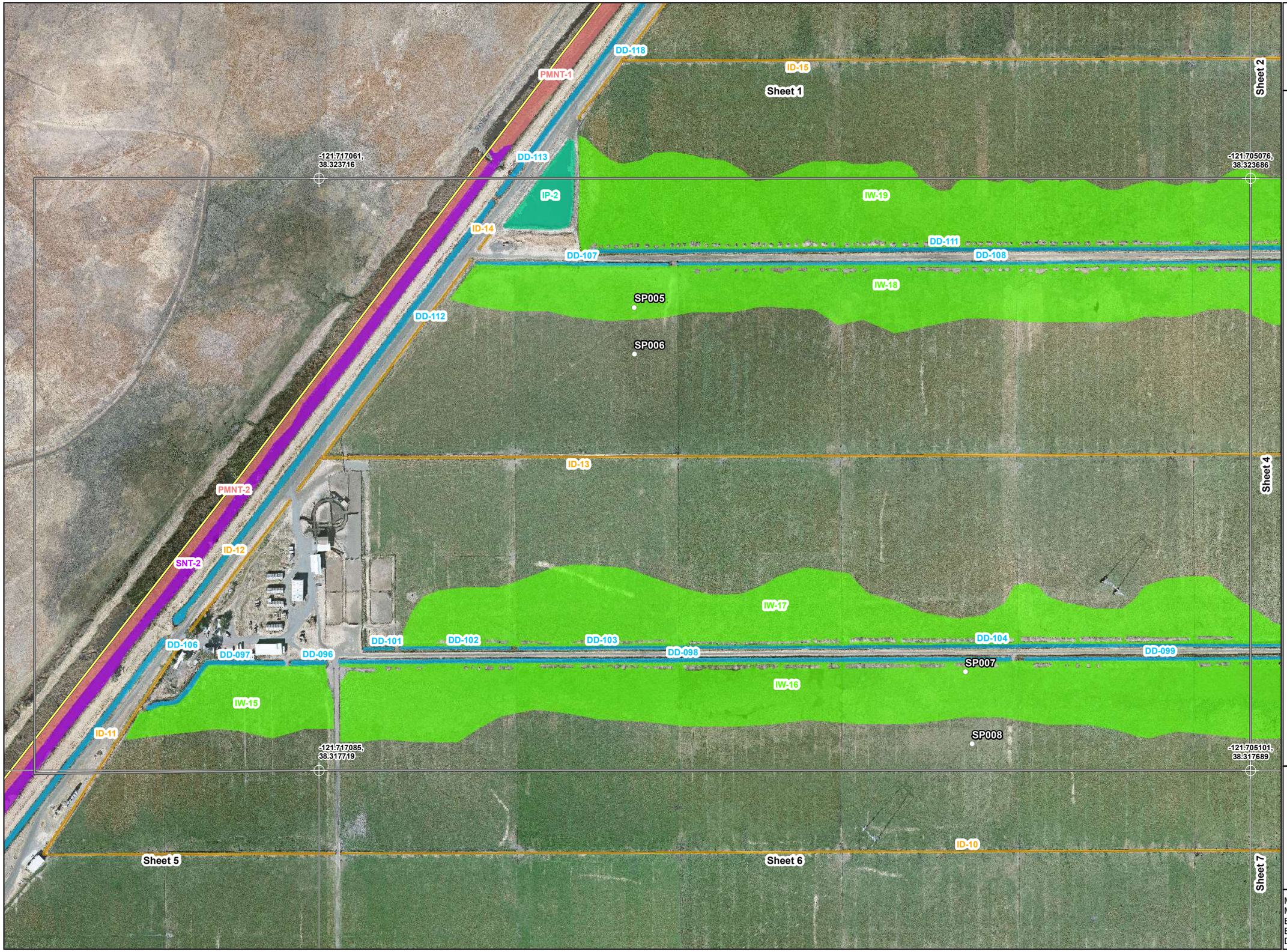

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Appendix B.
Potential Waters of the U.S.
Map Sheet 3

Lookout Slough Restoration Project

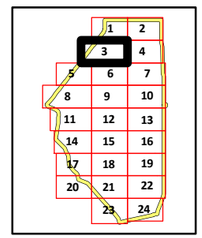
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Map Prepared Date: 12/11/2018
Map Prepared By: pkobylarz
Base Source: Wood Rogers
Base Date: 10/24/17
Data Source(s): WRA

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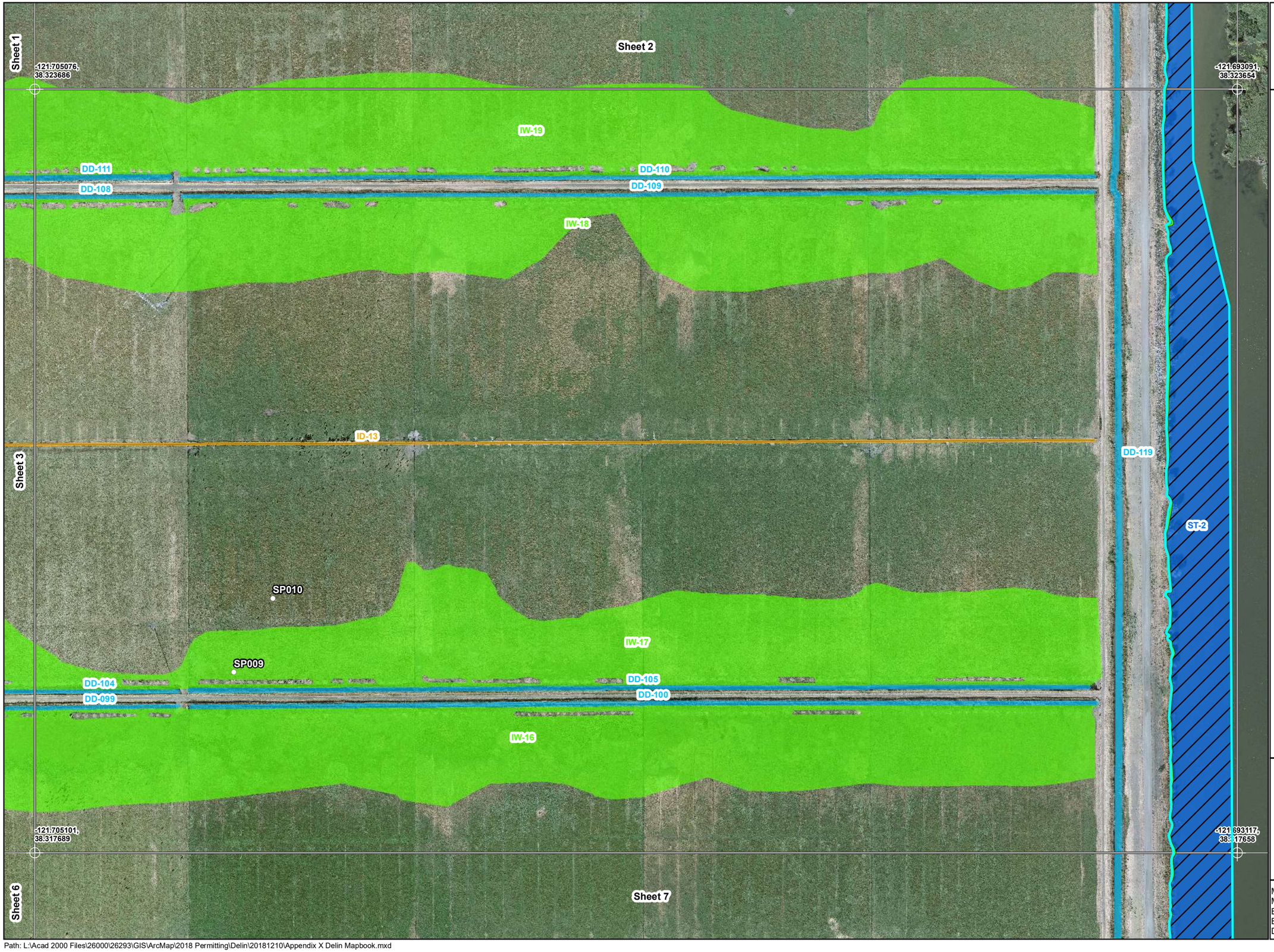

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 4

Lookout Slough Restoration Project

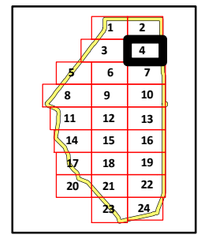
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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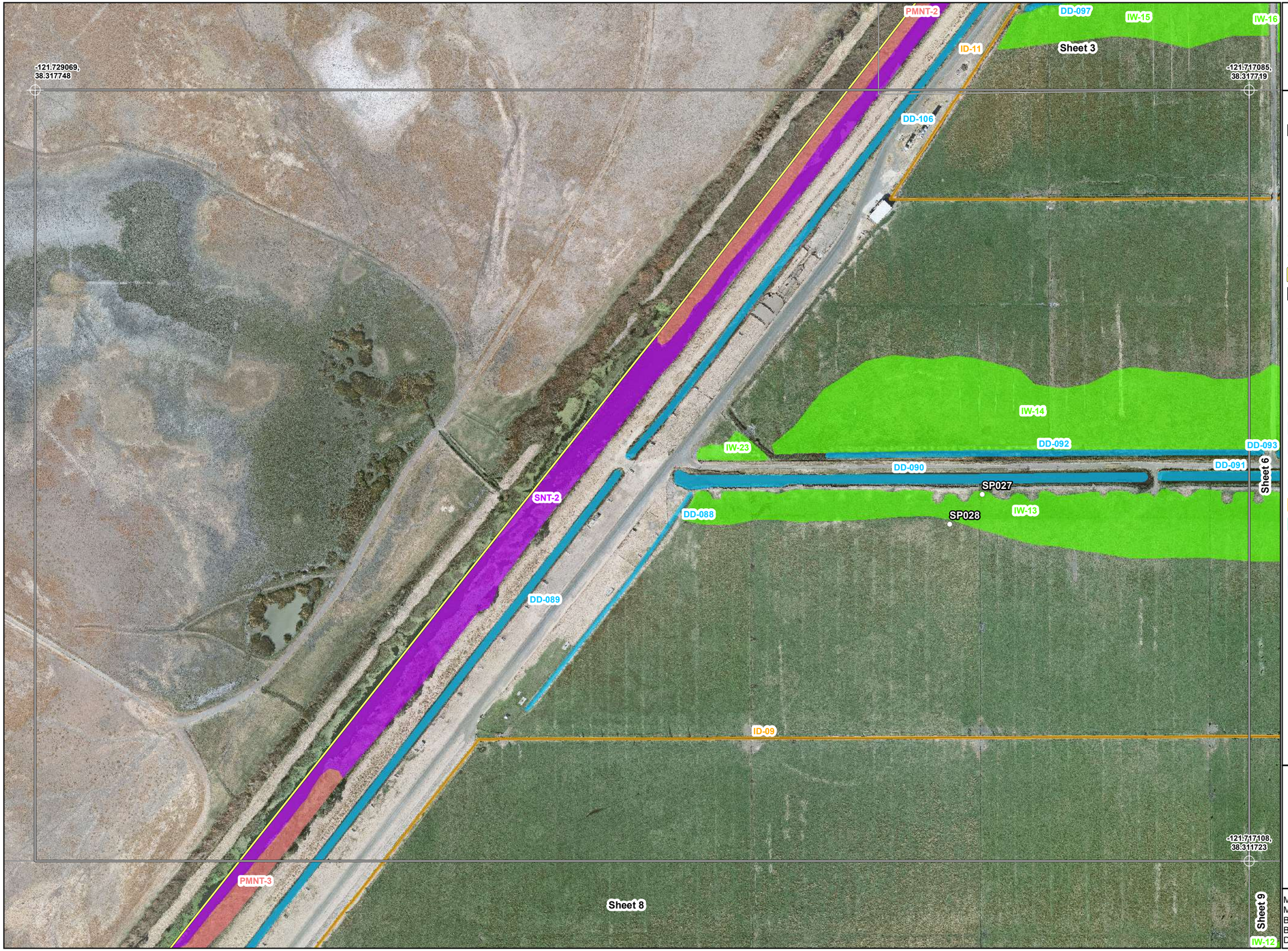


ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 5

Lookout Slough Restoration Project

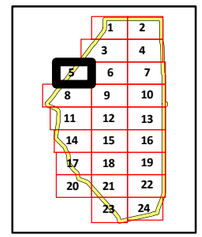
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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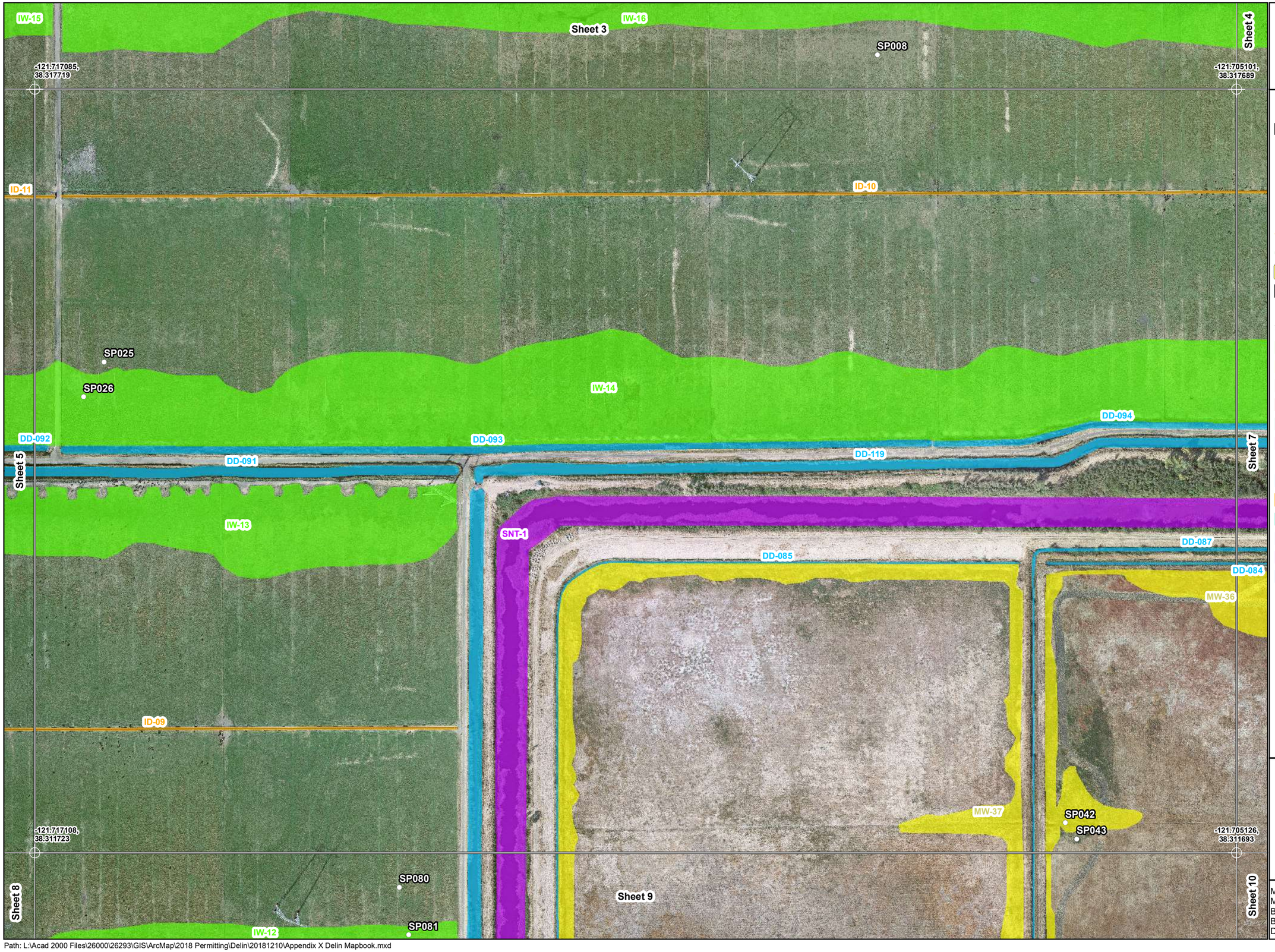

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Appendix B.
Potential Waters of the U.S.
Map Sheet 6

Lookout Slough Restoration Project

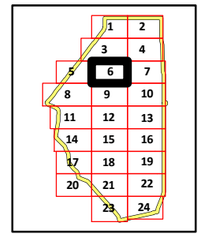
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

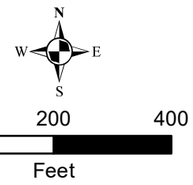
Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)





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Appendix B.
Potential Waters of the U.S.
Map Sheet 7

Lookout Slough Restoration Project

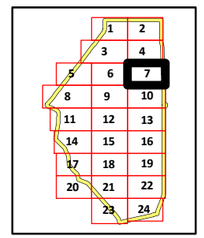
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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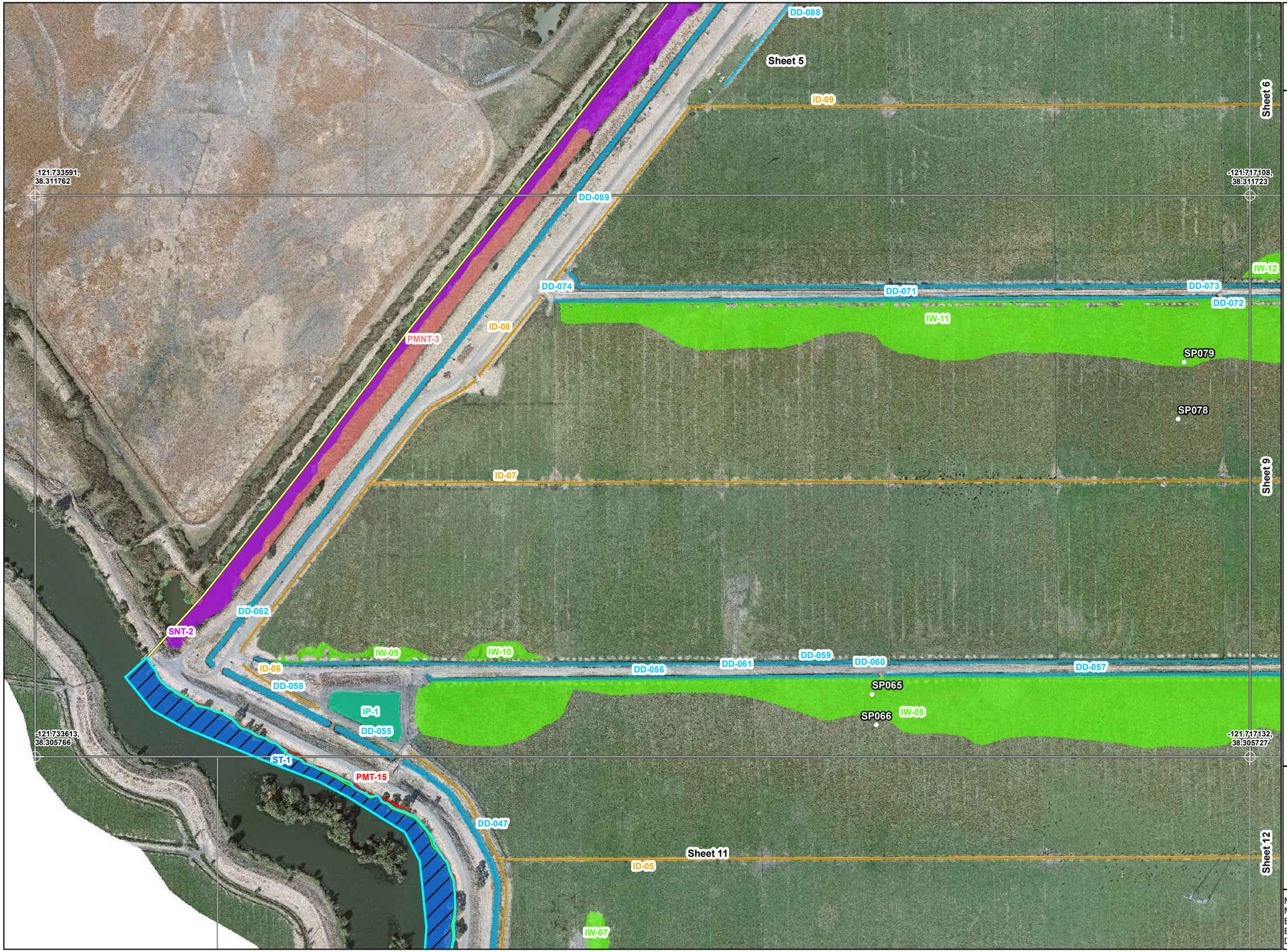

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Appendix B.
Potential Waters of the U.S.
Map Sheet 8

Lookout Slough Restoration Project

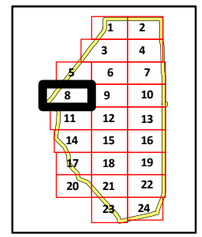
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 9

Lookout Slough Restoration Project

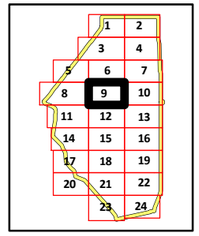
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 10

Lookout Slough Restoration Project

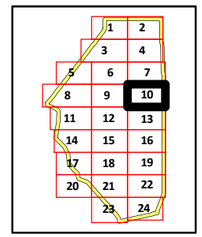
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 11

Lookout Slough Restoration Project

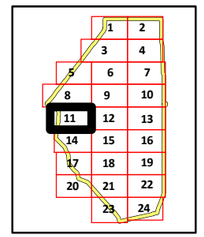
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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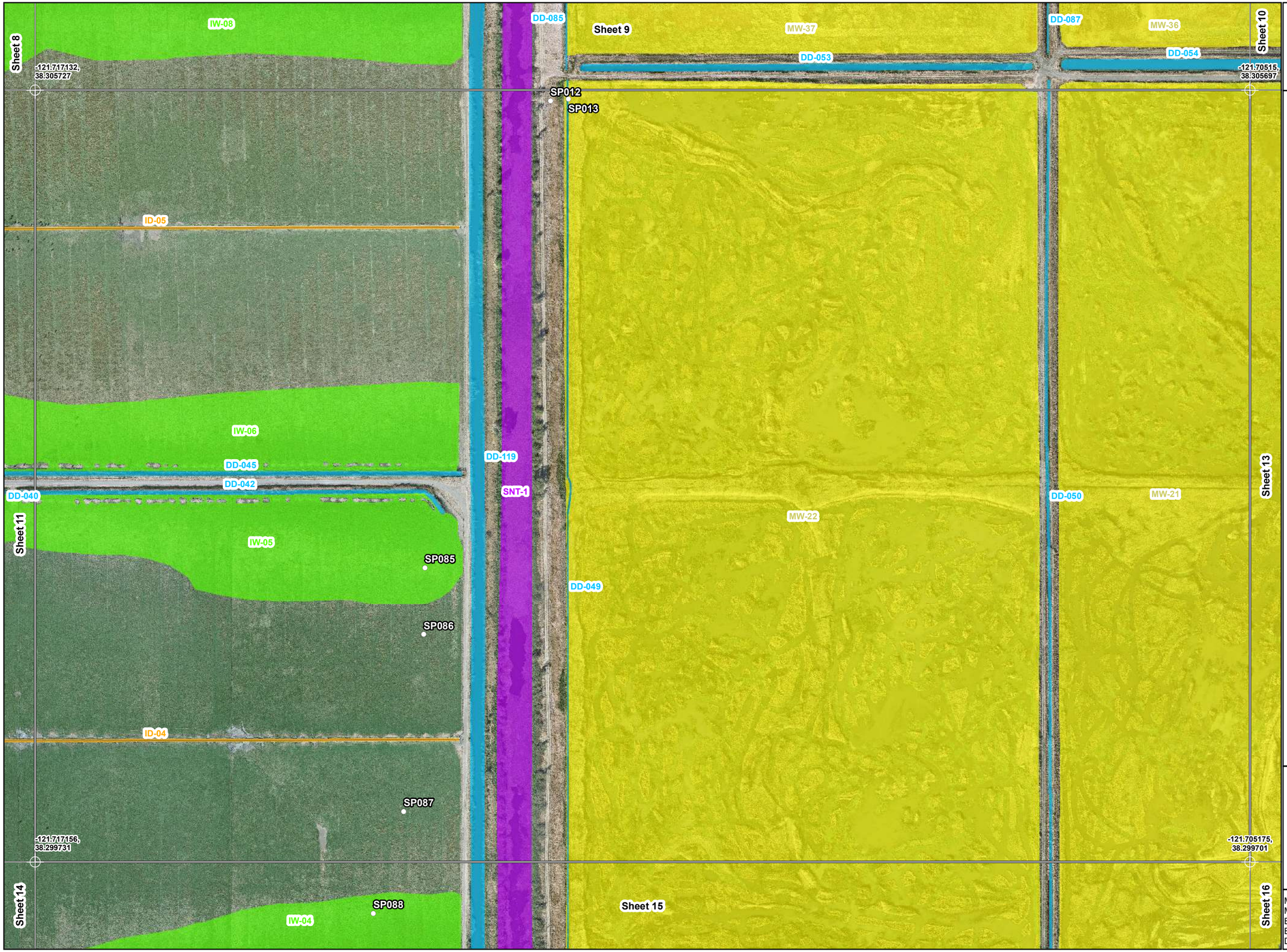


Appendix B.
Potential Waters of the U.S.
Map Sheet 12

Lookout Slough Restoration Project

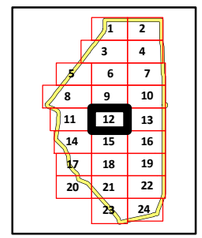
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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Appendix B.
Potential Waters of the U.S.
Map Sheet 13

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
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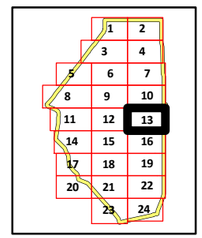

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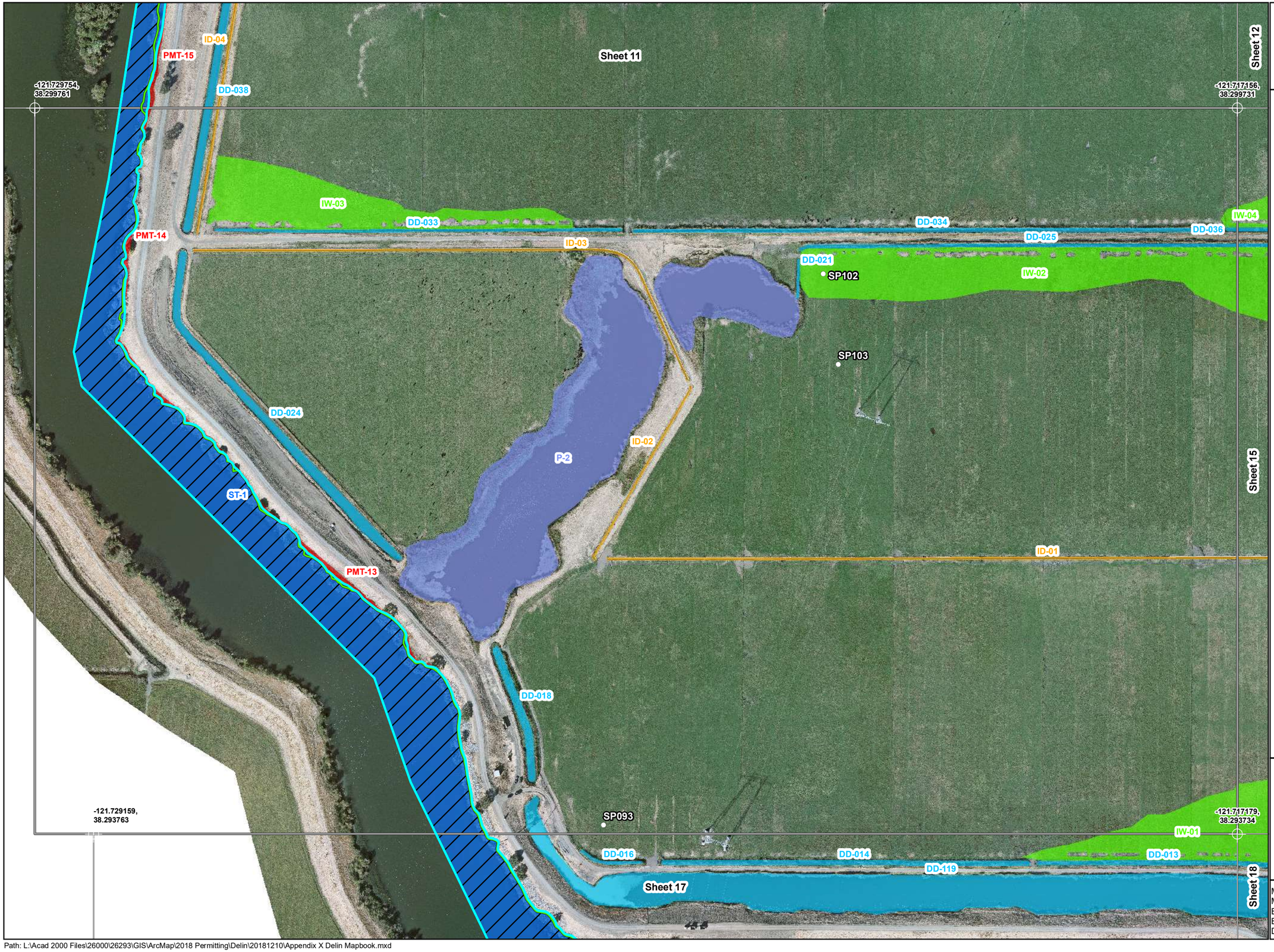

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Appendix B.
Potential Waters of the U.S.
Map Sheet 14

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

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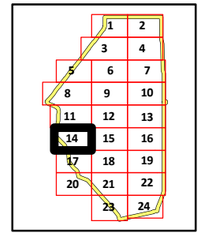
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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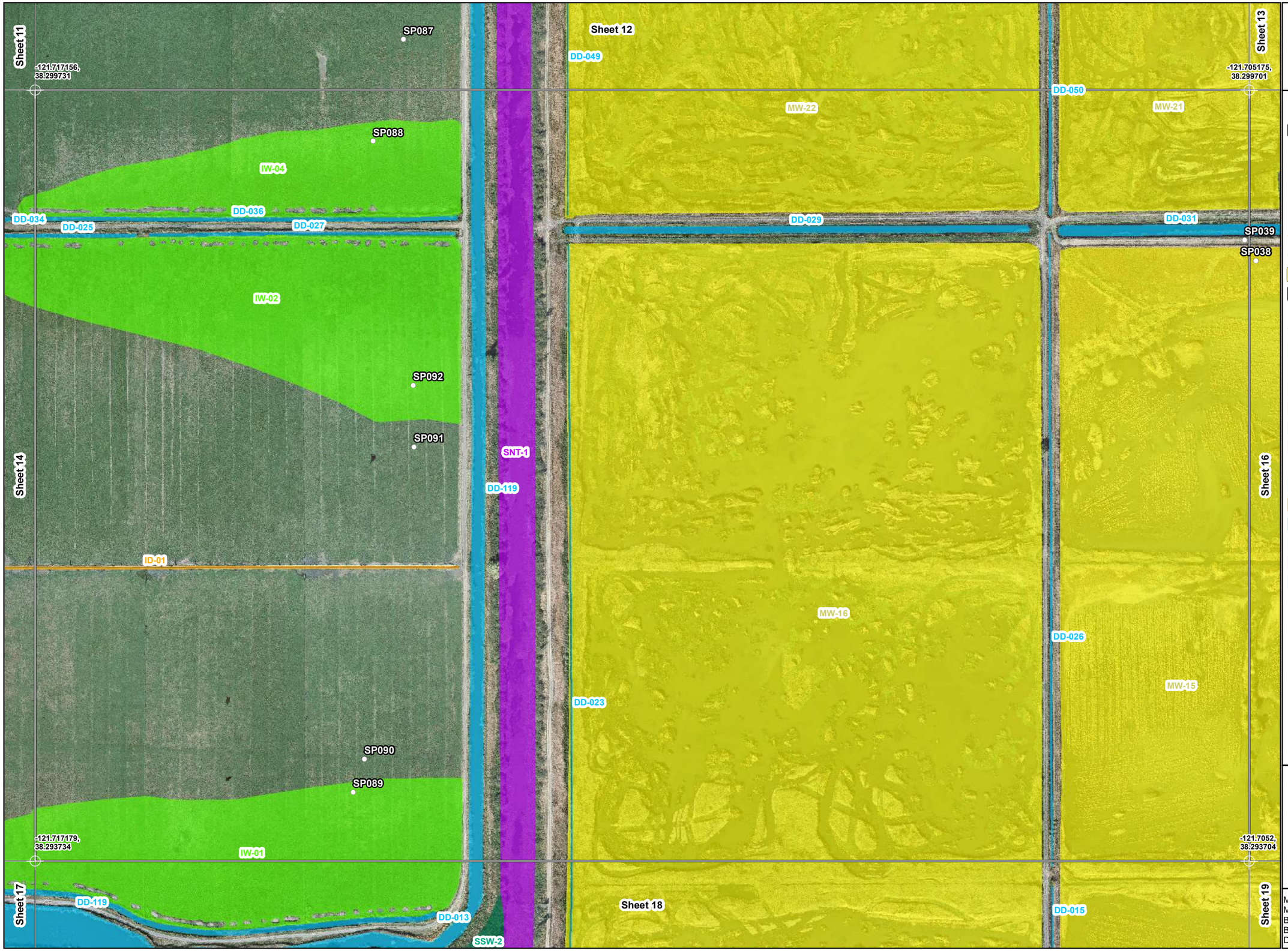

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Appendix B.
Potential Waters of the U.S.
Map Sheet 15

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
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- Perennial Marsh (Non-Tidal) (8.02 ac.)
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- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
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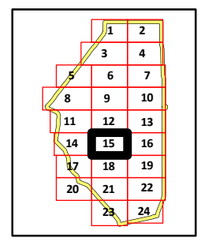

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Appendix B.
Potential Waters of the U.S.
Map Sheet 16

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
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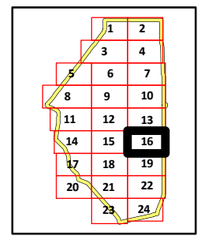

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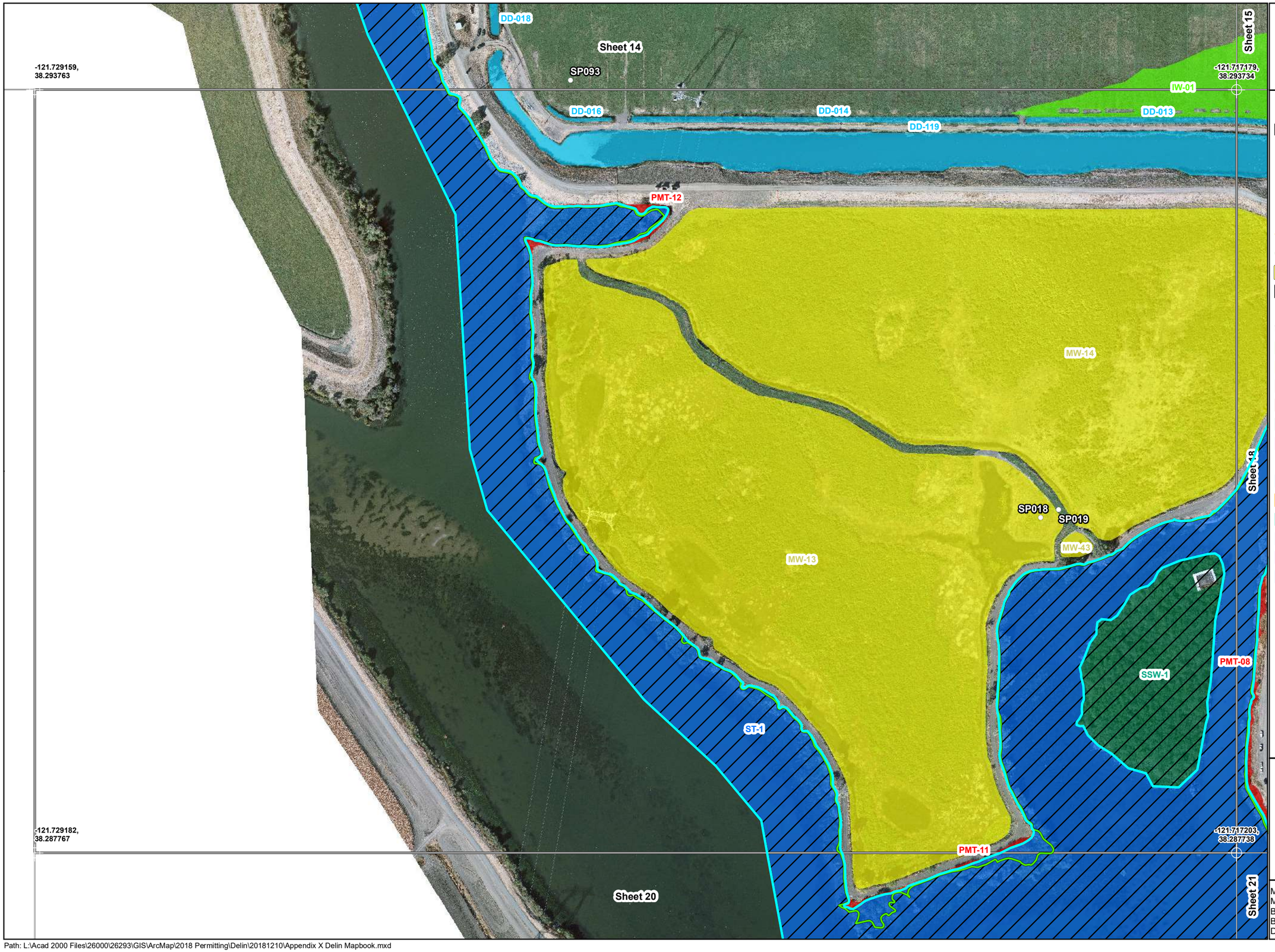

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Appendix B.
Potential Waters of the U.S.
Map Sheet 17

Lookout Slough Restoration Project

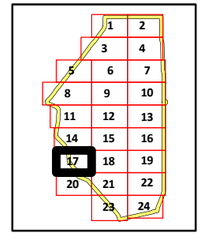
- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 18

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
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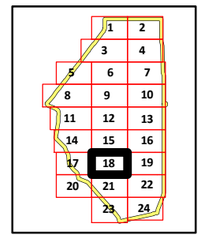
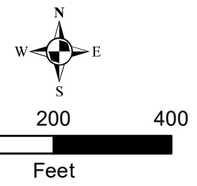
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)





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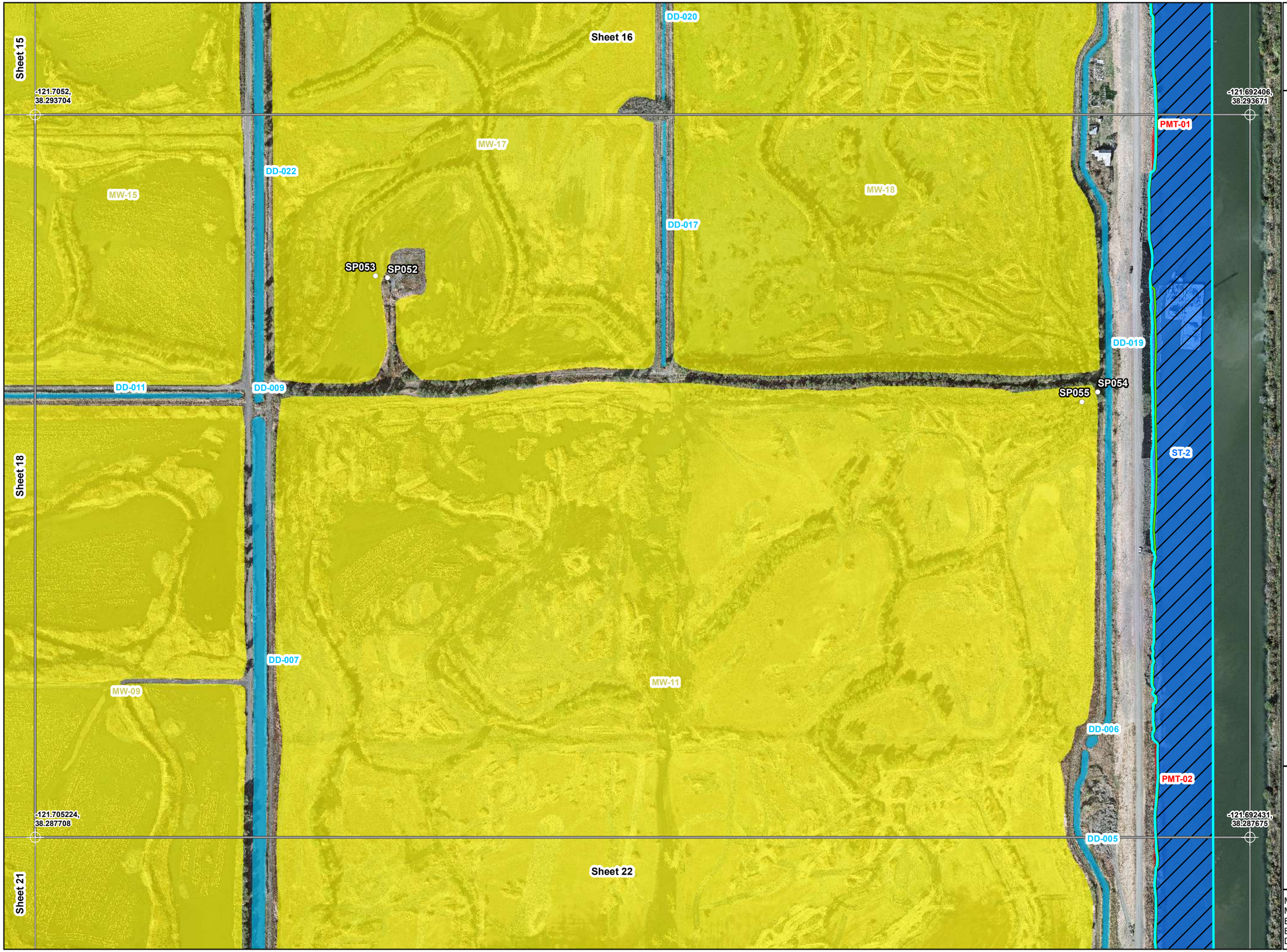

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 19

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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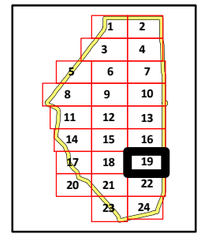
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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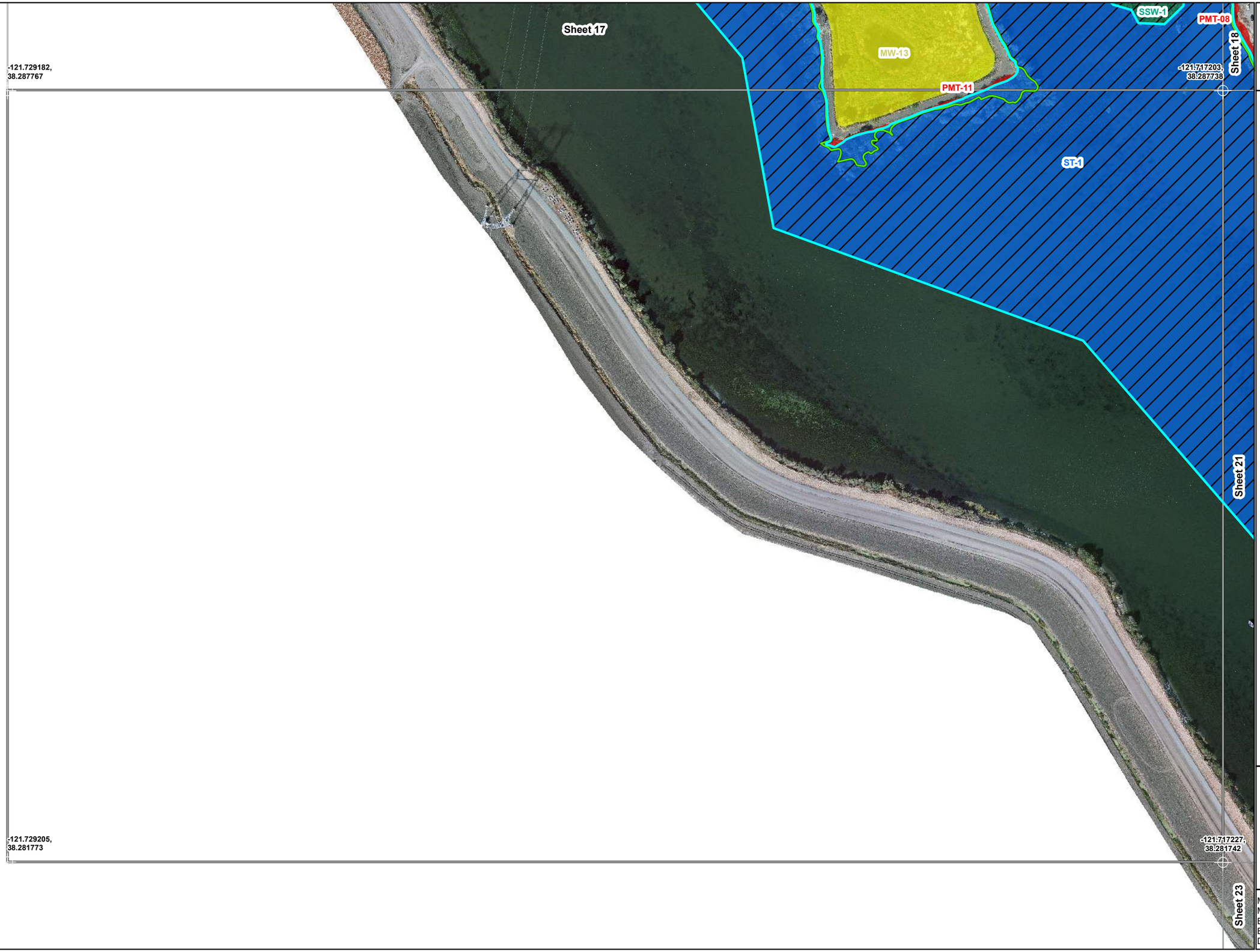

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 20

Lookout Slough
Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
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- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

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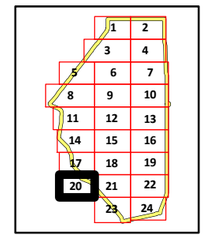
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
- Pond (10.10 ac.)
- Slough (Non-Tidal) (40.55 ac.)
- Slough (Tidal) (201.45 ac.)



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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 21

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
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- Slough (Non-Tidal) (40.55 ac.)
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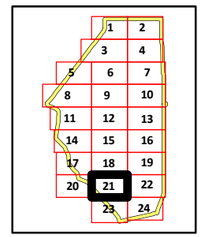

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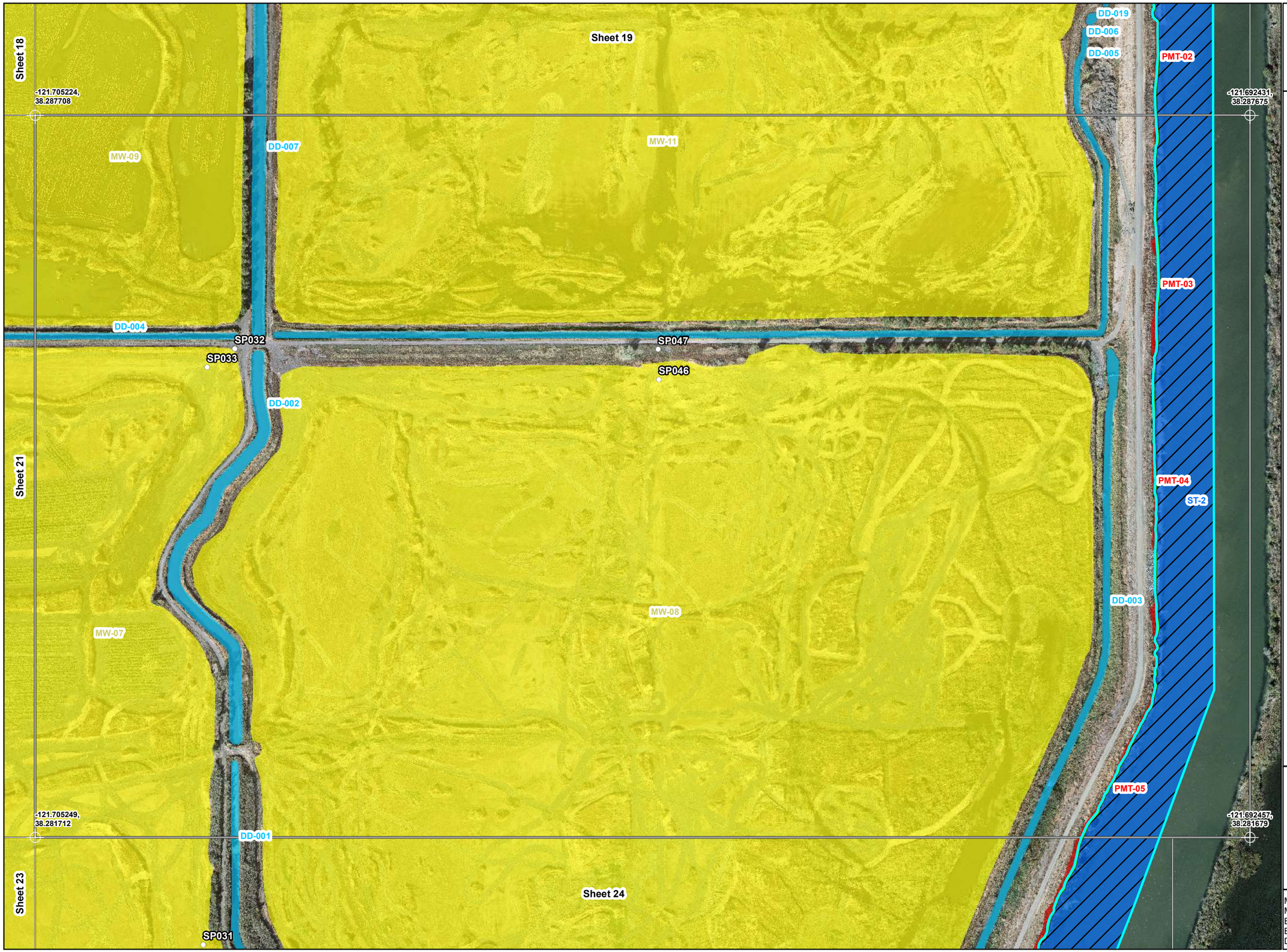

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 22

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

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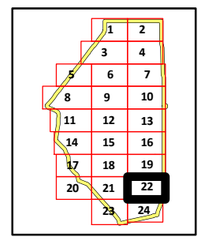

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 23

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

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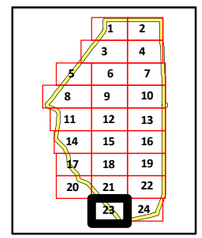

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ENVIRONMENTAL CONSULTANTS

Appendix B.
Potential Waters of the U.S.
Map Sheet 24

Lookout Slough Restoration Project

- High Tide Line (7.26' NAVD88)
- Mean High Water (5.9' NAVD88)
- Study Area (3,637 ac.)
- Section 10 Jurisdiction (202.43 ac.)
- Sample Point

Wetlands

- Irrigated Wetland (309.56 ac.)
- Managed Wetland (1,339.14 ac.)
- Perennial Marsh (Non-Tidal) (8.02 ac.)
- Perennial Marsh (Tidal) (4.24 ac.)
- Scrub-Shrub Wetland (7.87 ac.)
- Seasonal Wetland (0.22 ac.)

Non-Wetland Waters

- Drainage Ditch (84.36 ac.)
- Irrigation Ditch (6.39 ac.)
- Irrigation Pond (1.91 ac.)
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- Slough (Non-Tidal) (40.55 ac.)
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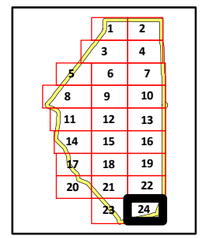

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APPENDIX C

WETLAND DETERMINATION DATA FORMS

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP001**

Investigator(s) S.Batiuk, T. Harris WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplains Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30546325 Long: -121.6979853 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP002. Sample point taken adjacent to access road adjacent to field. Sample point contains hydrophytic vegetation and meets criteria for hydric soils and wetland hydrology. Boundary based on shift in vegetation and topography.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Rumex crispus*	10	Yes	FAC
2. *Crypsis schoenoides*	10	Yes	FACW
3. *Atriplex prostrata*	5	Yes	FACW
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	25		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 25 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 50% (dense thatch of Crypsis schoenoides, OBL). Sample point dominated by FAC and FACW, meets dominance test.

SOIL

Sampling Point SP001

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[1]	Texture	Remarks
0-2	10YR 2/1	100					Muck	
2-7	5Y 3/1	100					Clay	
7-14	5Y 3/1	95	N 4/0	3	D	M	Clay	
7-14	5Y 3/1	95	10YR 4/4	2	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☒ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 4
Saturation Present? (includes capillary fringe)	☒ Yes	☐ No	Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets high water table (A2), saturation (A3), saturation visible on aerial imagery (C9), and FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP002**

Investigator(s) S.Batiuk, T. Harris WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) Slightly convex Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30578526 Long: -121.6983749 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP001. Sample point taken in central eastern portion of study area adjacent to the NW corner of a flooded field. Sample point contains hydrophytic vegetation, but does not meet indicators for hydric soils or wetland hydrology. Boundary based on extent of indicators of wetland hydrology and hydric soils.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Geranium dissectum*	15	No	UPL
2. *Lepidium latifolium*	10	No	FAC
3. *Festuca perennis*	50	Yes	FAC
4. *Bromus diandrus*	5	No	UPL
5. *Helminthotheca echioides*	5	No	FAC
6. *Elymus triticoides*	1	No	FAC
7.			
8.			
Herb Stratum Total Cover:	86		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 14 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP002

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12+	5Y 3/1	100					Loamy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point does not meet indicators for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP003**

Investigator(s) S.Batiuk, T. Harris WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplains Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30416499 Long: -121.6988944 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP004. Sample point taken at edge of wetland field. Sample point dominated by hydrophytic vegetation and contains indicators of hydric soils and wetland hydrology. Boundary based on shift in vegetation and topography.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca arundinacea**	20	Yes	FAC
2. *Atriplex prostrata*	10	No	FACW
3. *Crypsis schoenoides*	3	No	FACW
4. *Rumex crispus*	10	No	FAC
5. *Helminthotheca echioides*	30	Yes	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	73		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 15 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species	0	x1	0
FACW species	13	x2	26
FAC species	40	x3	120
FACU species	20	x4	80
UPL species	0	x5	0
Column Totals	73 (A)		226 (B)

Prevalence Index = B/A = 3.09

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☒ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 12% (old Crypsis schoenoides, OBL). *Festuca is hummocky and behaving as a hydrophyte, and treated as FAC. Sample point meets dominance test when treating Festuca arundinacea as FAC.

SOIL

Sampling Point SP003

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[1]	Texture	Remarks
0-7	5Y 3/1	100					Loamy Clay	
7-14+	2.5Y 3/1	85	N 4/0	15	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets depleted dark surface (F7).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 4

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets criteria for high water table (A2), saturation (A3), saturation visible on aerial imagery (C9), and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP004**

Investigator(s) S.Batiuk, T. Harris WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 2-3

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30410433 Long: -121.6986561 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP003. Sample taken on slight slope between road and periodically flooded field in central eastern portion of study area. Sample point contains hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology. Bounday based on extent of hydric soil indictors and wetland hydrology and change in slope.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Conium maculatum*	40	Yes	FACW
2. *Elymus triticoides*	10	No	FAC
3. *Helminthotheca echioides*	25	Yes	FAC
4. *Festuca perennis*	5	No	FAC
5. *Malva pseudolavatera*	1	No	UPL
6.			
7.			
8.			
Herb Stratum Total Cover:	81		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 19 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACW plants, meets dominance test.

SOIL

Sampling Point SP004

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[1]	Texture	Remarks
0-8	5Y 3/1	100					Clay Loam	
8-12+	5Y 3/1	95	N4/0	5	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP005**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.32240101 Long: -121.7130098 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP006. Sample point taken at lower edge of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Hordeum jubatum*	15	Yes	FAC
2. *Festuca perennis*	25	Yes	FAC
3. *Agrostis avenacea*	3	No	FACW
4. *Juncus bufonius*	2	No	FACW
5. *Cotula coronopifolia*	1	No	OBL
6. *Lotus corniculatus*	2	No	FAC
7. *Atriplex prostrata*	2	No	FACW
8.			
Herb Stratum Total Cover:	50		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 50 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Grasses tussocky

SOIL

Sampling Point SP005

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[1]	Texture	Remarks
0-1	10YR 3/2	98	7.5YR 3/4	2	C	M,PL	Clay	
1-5	10YR 4/1	95	7.5YR 3/4	5	C	M,PL,RC	Clay	Depleted matrix with redox
5+	10YR 4/1	70	2.5Y 4/3	30	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☒ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface soil cracks (B6), oxidized rhizospheres (C3), and meets the FAC-Neutral test (D5). Sample point also contains abundant, deep hoof prints (other).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP006**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplains Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.32192844 Long: -121.7130085 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP006. Sample point taken in middle of irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca arundinacea*	30	Yes	FACU
2. *Sporobolus indicus*	20	Yes	FACU
3. *Trifolium repens*	10	No	FACU
4. *Lotus corniculatus*	20	Yes	FAC
5. *Festuca sp.*	10	No	
6. *Plantago lanceolota*	t	No	FAC
7.			
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 10 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 33 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, does not meet criteria hydrophytic vegetation.

SOIL

Sampling Point SP006

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[1]	Texture	Remarks
0-1	10YR 3/2	99	7.5YR 3/4	1	C	PL	Clay Loam	
1-9	2.5Y 4/1	99+	7.5YR 3.4	+	C	PL	Clay	
9-12	10YR 4/3	60	7.5YR 3/4	+			Clay	
9-12	10YR 4/1	40					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point contains redoximorphic features at low concentrations, but does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP007**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplains Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31869838 Long: -121.708764 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP008. Sample point taken at lower end of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Distichlis spicata*	50	Yes	FAC
2. *Agrostis avenacea*	50	Yes	FACW
3. *Lotus corniculatus*	t	No	FAC
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC and FACW plants, meets dominance test.

SOIL

Sampling Point SP007

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[1]	Texture	Remarks
0-3	N 4/0	100					Clay	
3-10	N 4/0	93	7.5YR 3/4	7	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains water-stained leaves (grass blades; B9) and algal crust (biotic crust; B12).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP008**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31796941 Long: -121.7086832 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP007. Sample point taken in middle of irrigated pasture. Sample point meets criteria for hydric soils, but does not meet criteria for hydrophytic vegetation and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca arundinacea*	70	Yes	FACU
2. *Lotus corniculatus*	5	No	FAC
3. *Sporobolus indicus*	10	No	FACU
4. *Trifolium sp.*	5	No	?
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Thatch 10%. Sample point dominated by FACU species, does not meet criteria for hydrophytic vegetation.

SOIL

Sampling Point SP008

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[1]	Texture	Remarks
0-2	2.5Y 3/2	99	7.5YR 4/4	1	C	PL,M	Clay	
2-12	2.5Y 3/1	90	7.5YR 3/4	10	C	PL,M	CLay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP009**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31910318 Long: -121.703111 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP010. Sample taken at lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Juncus mexicanus*	30	Yes	FACW
2. *Hordeum jubatum*	5	No	FAC
3. *Rumex crispus*	1	No	FAC
4. *Lotus corniculatus*	4	No	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	40		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 60%. Sample point dominated by FACW species, meets dominance test.

SOIL

Sampling Point SP009

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[1]	Texture	Remarks
0-3	10YR 2/1	100					Loamy Clay	
3-12	N 4/0	93	7.5YR 4/4	7	C	M,PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains water-stained leaves (B9) and meets FAC-Neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP010**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Irrigated pasture Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31968067 Long: -121.702718 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP009. Sample point taken in irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca arundinacea*	30	Yes	FACU
2. *Trifolium repens*	30	Yes	FACU
3. *Sporobolus indicus*	10	No	FACU
4. *Lotus corniculatus*	5	No	FACU
5. *Agrostis avenacea*	5	No	FACW
6. *Festuca perennis*	20	Yes	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 33 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP010

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[1]	Texture	Remarks
0-3	10YR 3/1	100					Clay	
3-12	5Y 3/1	99	7.5YR 4/4	1	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point contains redoximorphic concentrations at low levels, but does not meet criteria for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP011**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Irrigated pasture Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31515683 Long: -121.6953379 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP104. Sample point taken at lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Hordeum jubatum*	20	Yes	FAC
2. *Agrostis avenacea*	20	Yes	FACW
3. *Trifolium repens*	20	Yes	FACU
4. *Lotus corniculatus*	10	No	FACU
5. *Festuca arundinacea*	3	No	FACU
6. *Poa sp.*	2	No	?
7.			
8.			
Herb Stratum Total Cover:			
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 25 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 2 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC, FACW, and FACU, meets dominance test.

SOIL

Sampling Point SP011

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-3	10YR 3/1	100	7.5YR 4/4	+	C		Clay	
3-10	N 4/0	80	7.5YR 4/4	20	C	M	Clay	
10-12	N 4/0	75	7.5YR 4/4	20	C	M, PL, RC	Clay	
10-12	N 2.5/0	5						non-redox mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets loamy gleyed matrix (F2) and depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☒ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains oxidized rhizospheres along living roots (C3) and crayfish burrows (C8).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/5/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP012**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): Convex | Slope(%): 5

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.30563169 | Long: -121.7120483 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP013. Sample point taken on side slope of berm. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Bromus diandrus*	70	Yes	UPL
2. *Geranium dissectum*	10	No	UPL
3. *Elymus glaucus*	t	No	FACU
4. *Vicia sativa*	5	No	FACU
5. *Conium maculatum*	3	No	FACW
6. *Medicago polymorpha*	2	No	FACU
7.			
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 | % 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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:
OBL species	x1
FACW species	x2
FAC species	x3
FACU species	x4
UPL species	x5
Column Totals (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Thatch 10%

SOIL

Sampling Point SP012

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 2/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators present

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP013**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30564556 Long: -121.7118719 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP012. Sample point taken in swale/ditch at edge of field. Sample point meets criteria for hydrphytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Schoenoplectus acutus*	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover: 10			
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Thatch 90%, comprised of flattned Schoenoplectus acutus. Sample point meets dominace test.

SOIL

Sampling Point SP013

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[1]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Hydric soils assumed due to observation of surface water and dominance of obligate, perennial wetland vegetation; area assumed to be inundated for long to very long period during the growing season.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 2

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface water (A1), high water table (A2), and saturation (A3).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/5/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP014**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): None | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.30620367 | Long: -121.706566 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP015. Sample point taken in depressional area at edge of field. Sample point meets criteria for hydrophytic vegetation and wetland hydrology; hydric soils were assumed. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Atriplex prostrata*	60	Yes	FACW
2. *Festuca perennis*	15	No	FAC
3. *Rumex crispus*	5	No	FAC
4. *Elymus triticoides*	20	Yes	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: | % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Thatch 10%. Sample point dominated by FAC and FACW vegetation, meets dominance test.

SOIL

Sampling Point SP014

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 2/1	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils assumed to be hydric based on dominance of perennial wetland species and wetland hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Saturation observed throughout, but no water table observed below. Sample point meets saturation visible on aerial imagery (C9) and FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP015**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 5

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30604645 Long: -121.7070376 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP014. Sample point taken on berm adjacent to field. Sample point does not contain hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Medicago polymorpha*	65	Yes	FACU
2. *Geranium dissectum*	15	No	UPL
3. *Brassica nigra*	3	No	UPL
4. *Bromus diandrus*	10	No	UPL
5. *Festuca perennis*	5	No	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU plants, does not meet criteria for hydrophytic vegetation.

SOIL

Sampling Point SP015

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 3/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not contain indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/5/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP016**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): convex | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.30786002 | Long: -121.7087513 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP017. Sample point taken on slight berm in middle of field. Sample point does not meet criteria for hydrophytic vegetation or hydric soils, but does meet criteria for wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Vicia sativa*	60	Yes	FACU
2. *Festuca perennis*	40	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 | % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Dead Lactuca serroila (FACU) is prevelant throughout and defines the feature. Sample point dominated by a mix of FAC and FACU species, does not meet criteria for hydrophytic vegetation.

SOIL

Sampling Point SP016

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[1]	Texture	Remarks
0-3	10YR 3/1	95	5YR 4/6	5	C	PL	Clay	Redox goes to 3 inches no deeper
3-12	10YR 3/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Does not meet F6 due to insufficient redox depth.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains biotic crust (B12) and oxidized rhizospheres along living roots (C3).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP017**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30761051 Long: -121.7086982 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP016. Sample point taken in middle of field, adjacent to slight berm. Sample point meets critiera for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca perennis*	60	Yes	FAC
2. *Vicia sativa*	10	No	FACU
3. *Helminthotheca echioides*	10	No	FAC
4. *Rumex crispus*	5	No	FAC
5. *Lotus corniculatus*	3	No	FAC
6. *Medicago polymorpha*	2	No	FACU
7. *Lactuca serriola*	t	No	FACU
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines 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? 1 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 10%; Lactuca serriola standing thatch is obvious but less robust and dense then at corresponding upland point. Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP017

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[1]	Texture	Remarks
0-5	10YR 3/2	83	5YR 4/6	17	C	PL	Clay	
5-12	10YR 3/2	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 10

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Saturation present but not underlain by water table. Biotic crust observed (B12).

Wetland Determination Data Form - Arid West Region

Project/Site Vogel Island City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP018**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplains Local Relief (concave, convex, none) None Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.29037725 Long: -121.7191472 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PEMFh

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☐ Yes ☒ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP019. Sample point taken in field adjacent to berm crossing the island. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Festuca perennis*	60	Yes	FAC
2. *Medicago polymorpha*	15	No	FACU
3. *Erodium cicutarium*	t	No	UPL
4. *Schoenoplectus acutus*	5	No	OBL
5. *Typha sp.*	5	No	OBL
6. *Cyperus eragrostis*	5	No	FACW
7.			
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 10 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP018

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[1]	Texture	Remarks
0-5	10YR 3/1	85	10YR 5/8	15	C	PL,RC	Clay Loam	
5-13+	5Y 2.5/1	90	10YR 5/8	10	C	PL,RC	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets criteria for redox dark surface (F6) and redox depressions (F8).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets criteria for inundation visible on aerial imagery (B7) and oxidized rhizospheres along living roots (C3).

Wetland Determination Data Form - Arid West Region

Project/Site Vogel Island City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP019**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.29043983 Long: -121.718966 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PEMFh

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP018. Sample point taken on berm crossing middle of island. Sample point meets criteria for hydric soils, but does not contain hydrophytic vegetation or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Medicago polymorpha*	30	Yes	FACU
2. *Trifolium repens*	30	Yes	FACU
3. *Heliotropium curassavicum*	15	No	FACU
4. *Festuca perennis*	5	No	FAC
5. *Hordeum murinum*	t	No	FACU
6. *Lotus corniculatus*	15	No	FAC
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 5 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU species, does not meet criteria for hydrophytic vegetation.

SOIL

Sampling Point SP019

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[1]	Texture	Remarks
0-5	10YR 3/1	96	10YR 4/6	4	C	PL	Clay	
5-12	2.5Y 2.5/1	96	10YR 4/6	4	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP020**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.3271437 Long: -121.6946625 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Unpaired upland sample point located at edge of irrigated pasture. Sample point does not contain hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Sporobolus indicus*	55	Yes	FACU
2. *Plantago lanceolata*	10	No	FAC
3. *Lotus corniculatus*	10	No	FAC
4. *Carex sp.*	2	No	?
5. *Festuca perennis*	10	No	FAC
6. *Paspalum dilatatum*	3	No	FAC
7.			
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 10 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU species, does not meet criteria for hydrophytic vegetation.

SOIL

Sampling Point SP020

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12+	10YR 3/2	65					Loamy Clay	
0-12+	2.5Y 4/4	35					Loamy Clay	non-redox mottling

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet criteria for hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP021**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.32671519 Long: -121.6947416 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP022. Sample point taken in lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Elymus triticoides*	20	Yes	FAC
2. *Ranunculus muricatus*	5	No	FACW
3. *Distichlis spicata*	20	Yes	FAC
4. *Carex c.f. barbarae*	20	Yes	FAC
5. *Lotus corniculatus*	5	No	FAC
6. *Rumex crispus*	t	No	FAC
7.			
8.			
Herb Stratum Total Cover:	70		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 10 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 20%. Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP021

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-5	5Y 3/1	100					Clay	
5-12+	5Y 3/2	70	10YR 5/6	30	C	M,PL,RC	Clay	Redox along root channels

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains biotic crust (B12) and oxidized rhizospheres along living roots (C3). Sample point also meets FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP022**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.32584861 Long: -121.6953752 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired SP021. Sample point taken in middle of irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Sporobolus indicus*	40	Yes	FACU
2. *Lotus corniculatus*	30	Yes	FAC
3. *Festuca perennis*	10	No	FAC
4. *Poa annua*	5	No	FAC
5. *Carex sp.*	5	No	?
6.			
7.			
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 5 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Thatch 5%. Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP022

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
2-0	10YR 2/2	100					Organic	
0-12+	2.5Y 3/2	70					Clay	non-redox mottles
0-12+	2.5Y 4/2	30					Clay	non-redox mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point contains non-redoximorphic mottling as described for Sacramento series soils. Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP023**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) concave Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.32723716 Long: -121.7115931 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP024. Sample point taken in depressional area at lower end of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Juncus mexicanus*	20	Yes	FACW
2. *Juncus bufonius*	5	No	FACW
3. *Trifolium repens*	15	Yes	FACU
4. *Lotus corniculatus*	18	Yes	FAC
5. *Cotula cornopifolia*	2	No	OBL
6. *Ranunculus muricatus*	5	No	FACW
7. *Poa annua*	5	No	FAC
8.			
Herb Stratum Total Cover:	70		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 30 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 2 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC, FACW, and FACU species, meets dominance test.

SOIL

Sampling Point SP023

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-2	2.5Y 3/2	100					Clay	
2-12+	10Y 4/1	96						gleyed matrix
2-12+	N 2.5/0	4						organic streaks along roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets loamy gleyed matrix (F2).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☒ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Soils moist throught, not saturated. Sample point contains surface soil cracks (B6), biotic crust (B12), and crayfish burrows (C8), and meets FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP024**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.32735994 Long: -121.7113507 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP023. Sample point taken near edge of depressional area. Sample point meets criteria for hydrophytic vegetation (dominated by FAC and FACU species), but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 10' radius			
1. *Sporobolus indicus*	30	Yes	FACU
2. *Festuca perennis*	20	Yes	FAC
3. *Hordeum brachyantherum*	5	No	FACW
4. *Lotus corniculatus*	10	No	FAC
5. *Trifolium repens*	5	No	FACU
6. *Poa annua*	2	No	FAC
7. *Distichlis spicata*	20	Yes	FAC
8. *Plantago lanceolata*	3	No	FAC
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum _____ % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 2 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, meets dominance test.

SOIL

Sampling Point SP024

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
1-0	2.5Y 2.5/1	100					Organic	
0-12	2.5Y 3/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP025**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31557561 Long: -121.716402 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP026. Sample point taken near lower end of irrigated pasture. Sample point meets criteria for hydrophytic vegetation (dominated by FAC species), but does not contain indicators of hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 10' radius			
1. *Lotus corniculatus*	50	Yes	FAC
2. *Sporobolus indicus*	15	No	FACU
3. *Festuca arundinacea*	15	No	FACU
4. *Hordeum brachyantherum*	15	No	FACW
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 5 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP025

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
1-0	10YR 3/2	100					Organic	
0-12+	N 3/0	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP026**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) field Local Relief (concave, convex, none) none Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31530252 Long: -121.7166047 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP025. Sample point taken in lower end of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on loss of hydric soil and wetland hydrology indicators, as well as relative differences in hoof punch, with deeper hoof prints in wetland vs. upland areas.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Poa pratensis*	35	Yes	FAC
2. *Spergularia sp.*	1	No	?
3. *Hordeum brachyantherum*	1	No	FACW
4. *Cotula cornopifolia*	1	No	OBL
5. *Lepidium latifolium*	1	No	FAC
6. *Atriplex prostrata*	1	No	FACW
7.			
8.			
Herb Stratum Total Cover:	40		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 60 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP026

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[1]	Texture	Remarks
0-12	N 3/0	90	7.5YR 4/6	10	C	PL, RC	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface soil cracks (B6), biotic crust (B12), and oxidized rhizospheres along living roots (C3). Sample point also meets FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP027**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31458121 Long: -121.7197325 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP028. Sample point taken at lower end of field, near drainage ditch. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 10' radius			
1. *Festuca perennis*	20	Yes	FAC
2. *Crypsis schoenoides*	15	Yes	FACW
3. *Paspalum dilatatum*	5	No	FAC
4. *Ranunculus muricatus*	2	No	FACW
5. *Trifolium repens*	15	Yes	FACU
6. *Poa annua*	5	No	FACW
7. *Cyperus eragrostis*	5	No	FAC
8. *unknown grass*	3	No	unknown
Herb Stratum Total Cover:	70		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 30 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 2 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Trifolium repens growing on hummocks elevated above soil surface, could be considered morphological adaptation. Sample point dominated by FAC, FACW, and FACU species, meets dominance test.

SOIL

Sampling Point SP027

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[1]	Texture	Remarks
0-12+	N 3/0	90	2.5Y 5/6	10	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Soil moist throughout, not saturated. Sample point contains sediment deposits (B2) and surface soil cracks (B6). Sample point also meets FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP028**

Investigator(s) T. Harris, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31434962 Long: -121.7200551 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP027. Sample point taken near lower end of irrigated pasture. Sample point does not meet criteria for hydrophytic plants, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' radius			
1. *Trifolium repens*	50	Yes	FACU
2. *Sporobolus indicus*	20	Yes	FACU
3. *Plantago lanceolata*	5	No	FAC
4. *Rumex sp.*	t	No	?
5. *Festuca perennis*	20	Yes	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 5 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 33 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP028

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
1-0	10YR 2/2	100					Organic	
0-12	N 3/0	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP029**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.27722942 Long: -121.7012483 Datum: WGS 84

Soil Map Unit Name Egbert silty clay loam NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP030. Sample point taken in flooded wetland check at southern end of site. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent bermed roadway).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Typha latifolia*	40	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:			
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: 50% open water and 10% thatch. Sample point dominated by OBL species, meets dominance test.

SOIL

Sampling Point SP029

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[1]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils not assessed due to deep standing water. Soils assumed hydric based on long to very long inundation and dominance of perennial, obligate wetland vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 36

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point inundated at time of sampling and has long to very long inundation based on management regime and evidence in aerial imagery. Sample point meets multiple primary and secondary indicators. High water table assumed based on deep, long-duration inundation.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP030**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 2

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.27884658 | Long: -121.7025166 | Datum: WGS 84

Soil Map Unit Name: Egbert silty clay loam | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP029. Sample point taken on shoulder of bermed access road. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Bromus diandrus*	5	No	UPL
2. *Bromus hordeaceus*	40	Yes	FACU
3. *Helminthotheca echioides*	25	Yes	FAC
4. *Conium maculatum*	t	No	FACW
5. *Brassica nigra*	t	No	UPL
6.			
7.			
8.			
Herb Stratum Total Cover:	70		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: 10 | % cover of biotic crust: 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Thatch 20%. Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP030

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 3/2	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP031**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) convex Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.28081845 Long: -121.7034812 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Unpaired wetland sample point taken in area of emergent vegetation surrounded by open water in southern portion of site. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent bermed roadway).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Typha latifolia*	60	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	60		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 30 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 10% of old Typha stems. Sample point dominated by OBL species, meets dominance test.

SOIL

Sampling Point SP031

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[1]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils not assessed due to deep standing water. Soils assumed hydric based on inundation over long to very long periods and dominance of perennial, obligate wetland plants.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 36

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point inundated at time of sampling and has long to very long inundation based on management regime and evidence in aerial imagery. Sample point meets multiple primary and secondary indicators. High water table assumed based on deep, long-duration inundation.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP032**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 2

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.28576455 | Long: -121.7031309 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP033. Sample point taken on edge of bermed roadway adjacent to flooded field. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Rumex crispus*	20	Yes	FAC
2. *Medicago polymorpha*	70	Yes	FACU
3. *Helminthotheca echioides*	5	No	FAC
4. *Malva nicaeensis*	5	No	UPL
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: 0 | % cover of biotic crust: 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:
OBL species	x1
FACW species	x2
FAC species	x3
FACU species	x4
UPL species	x5
Column Totals (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP032

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet hyrdic soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP033**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.28579014 Long: -121.7034915 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP032. Sample point taken near edge of managed wetland. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at the edge of the berm).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Schoenoplectus acutus*	80	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	80		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 20% of old Schoenoplectus. Sample point dominated by OBL species, meets dominance test.

SOIL

Sampling Point SP033

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[1]	Texture	Remarks
0-12	10YR 3/2	88	5YR 4/6	12	C	PL,M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 10

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 2

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point with high water table (A2) and saturation (A3) to within 2 inches of soil surface. Sample point also shows inundation on aerial imagery (B7) and meets FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP034**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.28476129 | Long: -121.7140182 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Unpaired upland sample point taken in elevated area adjacent to inundated marsh at southern end of site. Sample point meets criteria for hydric soils, but does not meet criteria for hydrophytic vegetation or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Bromus diandrus*	30	Yes	UPL
2. *Hordeum murinum*	10	No	FACU
3. *Erodium moschatum*	5	No	UPL
4. *Silybum marianum*	t	No	UPL
5. *Brassica nigra*	5	No	UPL
6. *Festuca perennis*	30	Yes	FAC
7.			
8.			
Herb Stratum Total Cover:	80		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 20 | % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and UPL species, does not meet dominance test.

SOIL

Sampling Point SP034

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[1]	Texture	Remarks
0-12	10YR 3/1	86	10YR 5/4	14	C	PL,M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils appear to be dredged material placed on upland. Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP035**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.28615497 | Long: -121.7121927 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Unpaired wetland sample point taken at edge of managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent road berm).

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	15	Yes	FAC
2. *Atriplex prostrata*	30	Yes	FAC
3. *Rumex crispus*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	50		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 30 | % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Thatch 20%. Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP035

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 2/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soil assumed hydric due to long to very long inundation visible in aerial imagery, as well as topographic position and meeting other two criteria of hydrology/hydrophytic vegetation. Dark organic material may be masking redox features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 14

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 10

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets saturation (A3) indicator and contains biotic crust (B12). Sample point also meets saturation visible in aerial imagery (C9) and FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP036**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.29163128 | Long: -121.7120907 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP037. Sample point taken on shoulder of road berm. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Geranium dissectum*	70	Yes	UPL
2. *Bromus diandrus*	10	No	UPL
3. *Hordeum murinum*	10	No	FACU
4. *Medicago polymorpha*	5	No	FACU
5. *Malva nicaeensis*	5	No	UPL
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 | % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:
OBL species	x1
FACW species	x2
FAC species	x3
FACU species	x4
UPL species	x5
Column Totals (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Sample point dominated by UPL species, does not meet dominance test.

SOIL

Sampling Point SP036

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 3/1	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP037**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.29158088 Long: -121.711753 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP036. Sample point taken at edge of managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent road berm).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Lythrum hyssopifolia*	20	Yes	OBL
2. *Polypogon australis*	18	Yes	FACW
3. *Cyperus eragrostis*	2	No	FACW
4. *Ludwigia sp.*	1	No	OBL
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	40		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 60 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Advantageous roots on Polypogon. Sample point dominated by OBL and FACW species, meets dominance test.

SOIL

Sampling Point SP037

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-12	10YR 3/1	88	5YR 4/6	12	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 5

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point has high water table (A2) and saturation (A3) to the soil surface. Inundation is visible in aerial imagery (B7) and hydrogen sulfide oder (C1) was encountered during pit excavation. Sample point also meets FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP038**

Investigator(s) R. Korhummel, R. Akiba-Hajim, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.29837392 Long: -121.7051162 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP039. Sample point taken at edge of managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent road berm).

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Polypogon australis*	40	Yes	FACW
2. *Xanthium strumarium*	5	No	FAC
3. *Rumex crispus*	3	No	FAC
4. *Lepidium latifolium*	10	No	FAC
5. *Helminthotheca echioides*	2	No	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	60		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 30 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Thatch 10%. Sample point dominated by FACW species, meets dominance test.

SOIL

Sampling Point SP038

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[1]	Texture	Remarks
0-12	10YR 3/2	92	10YR 5/6	8	C	M,PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 10

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 8

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point has high water table (A2) and saturation (A3) to 8 inches below the soil surface. Sample point also meets saturation visible on aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP039**

Investigator(s): R. Korhummel, R. Akiba-Hajim, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.29853463 | Long: -121.7052258 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP038. Sample point taken on shoulder of road berm. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Medicago polymorpha*	55	Yes	FACU
2. *Helminthotheca echioides*	10	No	FAC
3. *Brassica nigra*	t	No	UPL
4. *Bromus diandrus*	5	No	UPL
5. *Vicia sativa*	t	No	FACU
6.			
7.			
8.			
Herb Stratum Total Cover:	70		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 25 | % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Thatch 5%. Sample point dominated by FACU species, does not meet domiance test.

SOIL

Sampling Point SP039

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrological indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners (EIP) | State: CA | Sampling Point: **SP040**

Investigator(s): A. Arthur; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): Slightly concave | Slope(%): 0-2%

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.313716 | Long: -121.702644 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP041. Sample point taken in swale-like feature in northern portion of Libery Farms. Sample point meets criteria for hydrophytic plants, hydric soils, and wetland hydrology. Wetland boundary based on shift in vegetation and slight change in elevation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' x 10'			
1. *Lotus corniculatus*	50	Y	FAC
2. *Festuca perennis*	30	Y	FAC
3. *Helminthotheca echioides*	10	N	FAC
4. *Lactuca serriola*	5	N	FACU
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP040

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[1]	Texture	Remarks
0-8	2.5 Y 3/1	95	7.5YR 3/4	5	C	M	Clayey Loam	
8-12	2.5 Y 3/1	98	7.5YR 3/4	2	C	M	Clayey Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 8

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets high water table (A2) and saturation (A3) indicators.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners (EIP) State CA Sampling Point **SP041**

Investigator(s) A. Arthur; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Dike floodplain Local Relief (concave, convex, none) None Slope(%) 2%

Subregion(LRR) LRR C (Medit. CA) Lat: 38.313841 Long: -121.702689 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP040. Sample point taken adjacent to swale-like feature. Sample point meets criteria for hydric soils, but does not meet requirements for hydrophitic vegetation or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' x 10'			
1. *Bromus diandrus*	30	Y	NL
2. *Geranium dissectum*	30	Y	UPL
3. *Hordeum murinum*	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	80		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 20 % 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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU and UPL species, does not meet criteria for hydrophytic vegetation.

SOIL

Sampling Point SP041

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[1]	Texture	Remarks
0-12	2.5 Y 2/1	85	2.5Y 4/3	10	C	M	Clayey Loam	
			10YR 5/6	5	C	M	Clayey Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils meet redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrolgy observed.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners (EIP) | State: CA | Sampling Point: **SP042**

Investigator(s): A. Arthur; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): Concave | Slope(%): 1-3%

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.311933 | Long: -121.706833 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP043. Sample point taken in swale-like feature ending at a water-filled depression. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and minor change in topography.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' x 10'			
1. *Elymus triticoides*	95	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP042

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-10	10YR 3/1	70	2.5Y 4/1	30	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets depleted dark surface (F7).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Algal mats (biotic crust, B12) and sautration (C9) visible in aerial imagery.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners (EIP) | State: CA | Sampling Point: **SP043**

Investigator(s): A. Arthur; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 0-2%

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.311805 | Long: -121.706721 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP042. Sample point taken in field adjacent to swale-like feature. Sample point does not meet criteria for hydrophytic vegetaiton, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 10' x 10'			
1. *Vlcia sativa*	30	Y	FACU
2. *Lotus corniculatus*	30	Y	FAC
3. *Hordeum marinum ssp. gussoneanum*	10	N	FAC
4. *Medicago polymorpha*	5	N	FACU
5. *Helminthotheca echioides*	5	N	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	80		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: 20 | % 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? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Sample point dominated by FAC and FACU plants, does not meet critieria for hydrophytic vegetation.

SOIL

Sampling Point SP043

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-12	10YR 3/2	100					Loamey Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hyrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP046**

Investigator(s): S.Batiuk, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): none | Slope(%): 0-1

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.28570343 | Long: -121.6986785 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired SP047. Sample point taken at edge of managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent road berm).

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Xanthium strumarium*	10	No	FAC
2. *Persicaria amphibia*	15	No	OBL
3. *Helminthotheca echioides*	60	Yes	FAC
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	85		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 5 | % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Litter 10%. Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP046

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-8	10YR 2/1	100					Loamy Clay	
8-12	10YR 2/1	95	7.5YR 5/6	5	C	M,PL	Loamy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 9

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains high water table (A2) and saturation to soil surface (A3). Sample point also meets inundation visible on aerial imagery (B7) and FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP047**

Investigator(s) S.Batiuk, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) undulating Slope(%) 0-3

Subregion(LRR) LRR C (Medit. CA) Lat: 38.28574749 Long: -121.6986705 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP046. Sample point located on shoulder of road berm. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Malva pseudolavatera*	1	No	UPL
2. *Conium maculatum*	30	Yes	FACW
3. *Malva nicaeensis*	3	No	UPL
4. *Helminthotheca echioides*	40	Yes	FAC
5. *Hirschfeldia incana*	1	No	UPL
6.			
7.			
8.			
Herb Stratum Total Cover:	75		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 15 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Litter 10%. Sample point dominated by FACW species, meets dominance test.

SOIL

Sampling Point SP047

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-14	10YR 2/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 5

Wetland Hydrology Present ? ☐ **Yes** ☒ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Saturation along ped face and some ped interior but not all ped interiors and no water table below. No indicators of wetland hydrology of observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners (EIP) State CA Sampling Point **SP048**

Investigator(s) T.Harris; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-2%

Subregion(LRR) LRR C (Medit. CA) Lat: 38.285747 Long: -121.69867 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP049. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 10' x 10'			
1. *Festuca perennis*	40	Y	FAC
2. *Lotus corniculatus*	40	Y	FAC
3. *Helminthotheca echiodes*	10	N	FAC
4. *Lepidium latifolium*	7	N	FAC
5. *Rumex crispus*	3	N	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets the dominance test.

SOIL

Sampling Point SP048

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-12+	10YR 3/1	100	-	-	-	-	Clayey Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners (EIP) State CA Sampling Point **SP049**

Investigator(s) T.Harris; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-2%

Subregion(LRR) LRR C (Medit. CA) Lat: 38.285747 Long: -121.69867 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP048. Sample point taken in swale/ditch feature. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and change in topography.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 2' x 10'			
1. *Festuca perennis*	10	Y	FAC
2. *Lotus corniculatus*	10	Y	FAC
3. *Salix gooddingii* (saplings)	10	Y	FACW
4. *Helminthotheca echioides*	7	N	FAC
5. *Lepidium latifolium*	3	N	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	40		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 60 % cover of biotic crust _____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACW species, meets dominance test.

SOIL

Sampling Point SP049

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-6	10YR 3/1	100	-	-	-	-	Clayey Loam	
6-12	10YR 4/1	85	2.5Y 4/4	5	C	M	Clayey Loam	
			5Y 3/1	10	D	M	Clayey Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample pointmeets depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 6

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Hydrology based on presence of water staining on grass blades (B9).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners (EIP) | State: CA | Sampling Point: **SP050**

Investigator(s): T.Harris; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): None | Slope(%): 0-2%

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.312024 | Long: -121.698748 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP051. Sample point taken near edge of swale/ditch. Sample point meets criteria for hydrophytic vegetaion, hydric soils, and wetland hydrology. Wetland boundary based on sharp transition in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' x 5'			
1. *Elymus triticoides*	50	Y	FAC
2. *Cyperus eragrostis*	35	Y	FACW
3. *Festuca arundinacea*	10	N	FACU
4. *Paspalum dilatatum*	3	N	FAC
5. *Rumex crispus*	1	N	FAC
6. *Helminthotheca echiodes*	1	N	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: 0 | % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACW species, meets dominance test.

SOIL

Sampling Point SP050

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[1]	Texture	Remarks
0-7	2.5Y 3/1	100	-	-	-	-	Loamy Clay	
7-12+	2.5Y 3/1	93	10YR 4/3	5	C	M	Loamy Clay	
			10Y 3/1	2	D	M	Loamy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Soils endosaturated to 8 inches below the soil surface, but no water table observed below. Sample point contains water-stained grass blades (B9).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners (EIP) State CA Sampling Point **SP051**

Investigator(s) T.Harris; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0-2%

Subregion(LRR) LRR C (Medit. CA) Lat: 38.312081 Long: -121.698901 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP050. Sample point taken in field adjacent to ditches created for wetland management. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' x 5'			
1. *Elymus triticoides*	85	Y	FAC
2. *Festuca arundinacea*	5	N	FACU
3. *Helminthotheca echioides*	5	N	FAC
4. *Geranium dissectum*	5	N	UPL
5. *Lepidium latifolium*	t	N	FAC
6. *Bromus hordeaceus*	t	N	FACU
7.			
8.			
Herb Stratum Total Cover: 100			
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sampl epoint dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP051

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 3/1	100	-	-	-	-	Loamy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP052**

Investigator(s) S.Batiuk, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.29234 Long: -121.701494 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP053. Sample point located on elevated area inset in managed wetland check. Sample point contains hydric soils, but does not meet criteria for hydrophytic vegetation or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Melilotus indicus*	70	Yes	FACU
2. *Melilotus albus*	5	No	FACU
3. *Medicago polymorpha*	2	No	FACU
4. *Atriplex prostrata*	1	No	FACW
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	78		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 22 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Sample point dominated by FACU species, does not meet dominance test.

SOIL

Sampling Point SP052

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[1]	Texture	Remarks
0-7	10YR 2/1	98	7.5YR 3/4	2	C	PL	Clay	
7-10	10YR 2/1	10					Sandy Clay	
7-10	2.5Y 4/2	90					Sandy Clay	non-redox mottles
10+	10YR 4/3	100					Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP053**

Investigator(s) S.Batiuk, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.292358 Long: -121.701621 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP052. Sample point taken in managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Schoenoplectus acutus*	45	Yes	OBL
2. *Typha latifolia*	45	Yes	OBL
3. *Salix gooddingii* (saplings)	3	No	FACW
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	93		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Surface water 7%. Sample point dominated by OBL species, meets dominance test.

SOIL

Sampling Point SP053

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[1]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils not assessed due to deep standing water. Hydric soils assumed based on long to very long inundation visible in aerial imagery and dominance of perennial OBL vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 10

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface water (A1) and inundation visible in aerial imagery (B7). High water table assumed (A2). Sample point also meets FAC-neutral test.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP054**

Investigator(s) S.Batiuk, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.291375 Long: -121.694021 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired SP055. Sample point taken on shoulder of road berm. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Elymus triticoides*	95	Yes	FAC
2. *Malva nicaeensis*	1	No	UPL
3. *Conium maculatum*	1	No	FACW
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	97		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 3 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP054

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-14	10YR 2.1	100					Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP055**

Investigator(s) S.Batiuk, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) concave Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.291295 Long: -121.694187 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP054. Sample point taken at edge of managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent road berm).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Schoenplectus californicus*	20	Yes	OBL
2. *Persicaria punctata*	2	No	OBL
3. *Typha latifolia*	2	No	OBL
4. *Elymus triticoides*	1	No	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	25		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Surface water 75%. Sample point dominated by OBL species, meets dominance test.

SOIL

Sampling Point SP055

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[1]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils not assessed due to deep standing water. Hydric soils assumed based on long to very long inundation visible in aerial imagery and dominance of perennial OBL vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 12

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface water (A1). High water table (A2) assumed based on extensive inundation in area. Sample point also meets saturation visible in aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 4/4/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP056**

Investigator(s): S.Batiuk, WRA INC. | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): convex | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.298692 | Long: -121.697415 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP057 and SP058. Sample point taken on shoulder of bermed access road. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Melilotus indicus*	40	Yes	FACU
2. *Medicago polymorpha*	20	Yes	FACU
3. *Helminthotheca echoides*	20	Yes	FAC
4. *Festuca perennis*	10	No	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	90		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 5 | % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 33 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Litter 5%. Sample point dominated by FACU and FAC species, does not meet dominance test.

SOIL

Sampling Point SP056

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[1]	Texture	Remarks
0-14	10YR 2/1	100	7.5YR 3/4	+	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP057**

Investigator(s) S.Batiuk, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) concave Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.298692 Long: -121.697388 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP056. Sample point taken at edge of managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent road berm).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Bolboshoenus maritimus*	30	Yes	OBL
2. *Ludwigia* sp.	3	No	FACW
3. *Typha latifolia*	10	Yes	OBL
4. *Elymus triticoides*	5	No	FAC
5. *Persicaria amphibia*	3	No	OBL
6.			
7.			
8.			
Herb Stratum Total Cover:	51		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum _____ % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Surface water and bare ground 49%. Sample point dominated by OBL species, meets dominance test.

SOIL

Sampling Point SP057

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[1]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils not assessed due to standing water. Hydric soils assumed based on long to very long inundation visible in aerial imagery and dominance of perennial OBL vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 3

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface water (A1). High water table (A2) assumed based on extensive inundation in area. Sample point also meets saturation visible in aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 4/4/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP058**

Investigator(s) S.Batiuk, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) concave Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.298827 Long: -121.697278 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP056. Sample point taken at edge of managed wetland check. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography (i.e., at edge of adjacent road berm).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Typha latifolia*	95	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum _____ % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Surface water 5%. Sample point dominated by OBL species, meets dominance test.

SOIL

Sampling Point SP058

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[1]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils not assessed due to standing water. Hydric soils assumed based on long to very long inundation visible in aerial imagery and dominance of perennial OBL vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 6

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface water (A1). High water table (A2) assumed based on extensive inundation in area. Sample point also meets saturation visible in aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP059**

Investigator(s): S. Batiuk, R. Akiba-Hajim; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): None | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.31347318 | Long: -121.7032153 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP060. Sample point taken in field adjacent to swale/ditch. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	40	Y	FAC
2. *Melilotus albus*	20	Y	NL
3. *Lotus corniculatus*	20	Y	FAC
4. *Hordeum marinum*	7	N	FAC
5. *Hordeum jubatum*	5	N	FAC
6. *Lepidium latifolium*	2	N	FAC
7. *Hordeum brachyantherum*	t	N	FACW
8.			
Herb Stratum Total Cover:	94		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 6 | % 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? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and UPL (NL) species, meets dominance test.

SOIL

Sampling Point SP059

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-12	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP060**

Investigator(s): S. Batiuk, R. Akiba-Hajim; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): Concave | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.31346896 | Long: -121.7031082 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP059. Sample point is located in a broad, long, shallow, manmade swale/ditch at the east end of the check in the northern portion of Liberty Farms. Sample point meets wetland criteria for hydrophytic vegetation, hydric soils, and hydrology. Boundary based on shift in topography (i.e., edge of swale/ditch).

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Rumex crispus*	40	Y	FAC
2. *Atriplex prostrata*	25	Y	FACW
3. *Crypsis schoenoides*	15	N	FACW
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	80		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 | % cover of biotic crust 20

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACW species, meets dominance test.

SOIL

Sampling Point SP060

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[1]	Texture	Remarks
0-1	7.5YR 2.5/1	-	-	-	-	-	Clay	Abundant roots
1-12	10YR 3/1	90	7.5YR 4/4	10	C	M, PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Contains biotic crust (B12) and also meets saturation visible in aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP061**

Investigator(s) S. Batiuk, R. Akiba-Hajim; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30892192 Long: -121.7013691 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP062. Sample point is located in a flat field adjacent to a shallow depression in the northern portion of Liberty Farms. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	35	Y	FAC
2. *Melilotus albus*	25	Y	NL
3. *Rumex crispus*	10	N	FAC
4. *Hordeum marinum*	10	N	FAC
5. *Lotus corniculatus*	5	N	FAC
6. *Lepidium latifolium*	3	N	FAC
7. *Crypsis schoenoides*	2	N	FACW
8. *Polypogon monspeliensis*	t	N	FACW
Herb Stratum Total Cover:			
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 10 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and UPL (NL) species, does not meet dominance test.

SOIL

Sampling Point SP061

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-13	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP062**

Investigator(s) S. Batiuk, R. Akiba-Hajim; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) Concave Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30894617 Long: -121.7014247 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP061. SP062 is located in a shallow depression in a flat field near the northern end of Liberty Farms. SP062 meets wetland criteria for hydrophytic vegetation, hydric soils, and hydrology. Boundary based on a shift in vegetation and topography.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Polypogon monspeliensis*	30	Y	FACW
2. *Hordeum brachyantherum*	15	Y	FACW
3. *Festuca perennis*	15	Y	FAC
4. *Rumex crispus*	7	N	FAC
5. *Crypsis schoenoides*	5	N	FACW
6. *Helminthotheca echioides*	2	N	FAC
7.			
8.			
Herb Stratum Total Cover:	74		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 5 % cover of biotic crust 5

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Litter: 16%. Sample point dominated by FACW and FAC species, meets dominance test.

SOIL

Sampling Point SP062

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[1]	Texture	Remarks
0-13	10YR 3/1	95	10YR 4/4	5	C	M, PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains biotic crust (B12) and also meets saturation visible on aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP063**

Investigator(s) S. Batiuk, R. Akiba-Hajim; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30628618 Long: -121.6959156 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP064. Sample point taken on slight rise adjacent to manmade pond at eastern edge of Liberty Farms. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	65	Y	FAC
2. *Lepidium latifolium*	15	N	FAC
3. *Phalaris aquatica*	15	N	FACU
4. *Melilotus sp*	5	N	
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP063

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[1]	Texture	Remarks
0-14	2.5Y 2.5/1	100	7.5YR 4/4	+	C	M, PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP064**

Investigator(s) S. Batiuk, R. Akiba-Hajim; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) flat Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30628903 Long: -121.695967 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP063. Sample point taken in managed weltand check, adjacent to slight rise around manmade pond. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on change in vegetation associated with rise in topography and loss of hydric soil and wetland hydrology indicators.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Crypsis schoenoides*	30	Y	FACW
2. *Rumex crispus*	25	Y	FAC
3. *Lepidium latifolium*	15	Y	FAC
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	70		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 10 % cover of biotic crust 20

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACW species, meets dominance test.

SOIL

Sampling Point SP064

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[1]	Texture	Remarks
0-10	2.5Y 3/1	95	7.5YR 4/4	5	C	M, PL	Clay	
10-12	2.5Y 3/1	65	7.5YR 4/4	5	C	M, PL	Clay	
	10Y 2.5/1	30						non-redox mottles
12-16	2.5Y 3/1	80	7.5YR 4/4	5			Clay	
	5Y 4/2	15						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains biotic crust (B12) and also meets saturation visible on aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP065**

Investigator(s) S. Batiuk, R. Akiba-Hajim; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) slightly concave Slope(%) 0-2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30640799 Long: -121.7222564 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP066. Sample point taken at lower elevation of irrigated pasture. Sample point meets wetland criteria for hydrophytic vegetation, hydric soils, and hydrology. Boundary based on signatures in aerial imagery corresponding to shifts in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Juncus mexicanus*	60	Y	FACW
2. *Lotus corniculatus*	20	Y	FAC
3. *Hordeum jubatum*	10	N	FAC
4. *Poa annua*	10	N	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACW plants, meets dominance test.

SOIL

Sampling Point SP065

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[1]	Texture	Remarks
0-3	2.5Y 2.5/1	85	7.5YR 4/4	15	C	PL, M, RC	Clay	Abundant roots
3-9	2.5Y 2.5/1	75	7.5YR 4/4	25	C	PL,RC	Clay	
9-13	2.5Y 2.5/1	70	5Y 5/2	30	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets both depleted dark surface (F7) and redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 13

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains oxidized rhizospheres along living roots (C3) and meets the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP066**

Investigator(s) S. Batiuk, R. Akiba-Hajim; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.3060804 Long: -121.7222002 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP065. Sample point taken near lower portion of irrigated pasture. Sample point meets criteria for hydric soils, but does not meet criteria for hydrophytic vegetation or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca arundinacea*	75	Y	FACU
2. *Lotus corniculatus*	15	N	FAC
3. *Trifolium repens*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU species, does not meet dominance test.

SOIL

Sampling Point SP066

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-2	2.5Y 2.5/1	85	7.5YR 4/4	15	C	PL, M	Clay	Abundant roots
2-10	2.5Y 2.5/1	95	7.5YR 4/4	5	C	PL, M	Clay	
10-14	2.5Y 2.5/1	86	7.5YR 4/4	7	C	PL, M	Clay	
			5Y 5/2	7	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 0-14

Wetland Hydrology Present ? ☐ **Yes** ☒ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point saturated throughout soil profile, but no water table present below, thereby not meeting all requirements of A3. Sample point determined to lack wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP067**

Investigator(s): T. Harris, N. Clark; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): None | Slope(%): 0

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.31327974 | Long: -121.7018612 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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: Unpaired upland sample point taken in area with dark signature (saturation) on aerial imagery. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	25	Y	FAC
2. *Hordeum marinum*	20	Y	FAC
3. *Trifolium repens*	10	N	FACU
4. *Polypogon monspeliensis*	10	N	FACW
5. *Polygonum aviculare*	10	N	UPL
6. *Lotus corniculatus*	10	N	FAC
7. *Rumex crispus*	10	N	FAC
8. *Lactuca serriola*	3	N	FACU
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 | % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Melilotus indicus and Lepidium latifolium are also present in the sample area with an absolute cover of 1% each. Sample point domianted by FAC species, meets dominance test.

SOIL

Sampling Point SP067

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets saturation visible on aerial imagery, but no other hydrology indicators were observed. Sample point determined to lack wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP068**

Investigator(s): T. Harris, N. Clark; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): Concave | Slope(%): 0-1

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.31389032 | Long: -121.698168 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP069. Sample point taken in wetland ditch. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. The boundary was based on a shift in topography and vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca perennis*	60	Y	FAC
2. *Cyperus eragrostis*	40	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: | % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Vegetation is dead from last year or earlier this season. Sample point dominated by FAC and FACW species, meets dominance test.

SOIL

Sampling Point SP068

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[1]	Texture	Remarks
0-5	10YR 3/1	100	-	-	-	-	Clay	
5-15	10YR 3/1	90	2.5Y 4/2	10	D	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets depleted dark surface (F7).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 8

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets the high water table (A2), saturation (A3), water-stained leaves (B9), Biotic Crust (B12) and FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP069**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 38.3138743 Long: -121.6981636 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP068. Sample point taken in field adjacent to ditch. Sample point meets wetland criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	30	Y	FAC
2. *Lotus corniculatus*	30	Y	FAC
3. *Melilotus indicus*	25	Y	FACU
4. *Lactuca serriola*	5	N	FACU
5. *Rumex crispus*	5	N	FAC
6. *Hordeum murinum*	3	N	FAC
7. *Helminthotheca echioides*	2	N	FAC
8. *Sonchus asper*	t	N	FAC
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum _____ % 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? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, meets dominance test.

SOIL

Sampling Point SP069

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-14	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP070**

Investigator(s): T. Harris, N. Clark; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): None | Slope(%): 1

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.31348638 | Long: -121.6976593 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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: Unpaired upland sample point taken in area with dark signature (saturation) in aerial imagery. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Trifolium repens*	35	Y	FACU
2. *Hordeum marinum*	20	Y	FAC
3. *Lotus corniculatus*	20	Y	FAC
4. *Festuca perennis*	15	N	FAC
5. *Rumex crispus*	5	N	FAC
6. *Helminthotheca echioides*	5	N	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: | % 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? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, meets dominance test.

SOIL

Sampling Point SP070

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-4	2.5Y 3/1	100	-	-	-	-	C	
4-14	10YR 3/1	100	-	-	-	-	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains saturation visible in aerial imagery, but no other hydrology indicators. Sample point determined to lack wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP071**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31302147 Long: -121.6959156 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Unpaired upland sample point taken in area with dark signature (saturation) in aerial imagery. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Hordeum marinum*	40	Y	FAC
2. *Lotus corniculatus*	40	Y	FAC
3. *Trifolium repens*	10	N	FACU
4. *Lepidium latifolium*	5	N	FAC
5. *Festuca perennis*	3	N	FAC
6. *Helminthotheca echioides*	2	N	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum _____ % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP071

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-14	2.5Y 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains saturation visible in aerial imagery, but no other hydrology indicators. Sample point determined to lack wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP072**

Investigator(s): T. Harris, N. Clark; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): Concave | Slope(%): 2

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.31363817 | Long: -121.6951594 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired SP073. Sample point is located in a seasonal wetland swale. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation and topography.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca perennis*	45	Y	FAC
2. *Lotus corniculatus*	30	Y	FAC
3. *Rumex crispus*	15	N	FAC
4. *Hordeum marinum*	10	N	FAC
5. *Convolvulus arvensis*	t	N	NL
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum: | % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP072

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[1]	Texture	Remarks
0-4	10YR 3/1	95	10YR 4/4	5	C	PL/RC	Clay	
4-8	10YR 3/1	100	-	-	-	-	Clay	
8-10	10YR 3/1	60	-	-	-	-	Clay	
	2.5Y 5/4	40	-	-	-	-	Clay	Soil mixing
10-14+	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains oxidized rhizospheres along living roots (C3).

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP073**

Investigator(s): T. Harris, N. Clark; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): None | Slope(%): 1

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.31365952 | Long: -121.695236 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP072. Sample point taken adjacent to seasonal wetland swale. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	40	Y	FAC
2. *Convolvulus arvensis*	15	N	NL
3. *Hordeum murinum*	10	N	FAC
4. *Geranium dissectum*	5	N	UPL
5. *Vicia sativa*	5	N	FACU
6. *Medicago sativa*	5	N	UPL
7.			
8.			
Herb Stratum Total Cover:	80		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 10 | % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point doinated by FAC species, meets dominance test.

SOIL

Sampling Point SP073

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-4	2.5Y 3/1	100	-	-	-	-	Clay	
4-6	2.5Y 3/1	70	-	-	-	-	Clay	Soil mixing
	10YR 5/6	30	-	-	-	-	Clay loam	non-redox mottles
6-12	2.5Y 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP074**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31011004 Long: -121.6941661 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP075. Sample point taken at edge of field. Sample point meets criteria for hydrophytic vegetation, but does not meet criteria for hydric soils or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Melilotus indicus*	40	Y	FACU
2. *Rumex crispus*	20	Y	FAC
3. *Xanthium strumarium*	20	Y	FAC
4. *Unknown grass*	10	N	?
5. *Lactuca serriola*	5	N	FACU
6. *Rumex pulcher*	5	N	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % 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? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 67 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FACU and FAC species, meets dominance test.

SOIL

Sampling Point SP074

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-14	2.5Y 3/1	100	-	-	-	-	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP075**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30846995 Long: -121.6972823 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP074. Sample point located at edge of field. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Polypogon monspeliensis*	20	Y	FACW
2. *Crypsis schoenoides*	5	N	FACW
3. *Polygonum aviculare*	2	N	UPL
4. *Rumex crispus*	1	N	FAC
5. *Lactuca serriola*	1	N	FACU
6. *Lotus corniculatus*	1	N	FAC
7.			
8.			
Herb Stratum Total Cover:	30		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 35 % cover of biotic crust 35

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FACW species, meets dominance test.

SOIL

Sampling Point SP075

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[1]	Texture	Remarks
0-6	2.5Y 3/1	100	-	-	-	-	Clay	
6-12	2.5Y 3/1	80	10YR 5/6	10	C	PL/M	Clay	
			2.5Y 4/1	10	D	PL/M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets the redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains surface soil cracks (B6) and biotic crust (B12). Sample point also meets saturation visible on aerial imagery (C9).

Wetland Determination Data Form - Arid West Region

Project/Site Liberty Farms City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP076**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30846989 Long: -121.6972795 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP077. Sample point located in dense marsh vegetation in middld of field. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on shift in vegetation.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Typha latifolia*	30	Y	OBL
2. *Bolboschoenus maritimus*	25	Y	OBL
3. *Festuca perennis*	20	Y	FAC
4. *Atriplex prostrata*	15	N	FACW
5. *Lotus corniculatus*	10	N	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust _____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: SP077 meets the Dominance Test hydrophytic vegetation indicator.

SOIL

Sampling Point SP076

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
2-0	10YR 2/2	100	-	-	-	-	Organic	Organic layer
0-12	10YR 2/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils are assumed hydric base on near domiance of obligate wetland vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: SP077 meets the Biotic Crust hydric soil indicator and meets two secondayr indicators.

Wetland Determination Data Form - Arid West Region

Project/Site: Liberty Farms | City: | County: Solano | Sampling Date: 5/9/2018

Applicant/Owner: Ecosystem Investment Partners | State: CA | Sampling Point: **SP077**

Investigator(s): T. Harris, N. Clark; WRA Inc | Section,Township,Range:

Landform (hillslope, terrace, etc.): Diked floodplain | Local Relief (concave, convex, none): None | Slope(%): 1

Subregion(LRR): LRR C (Medit. CA) | Lat: 38.30862564 | Long: -121.6970922 | Datum: WGS 84

Soil Map Unit Name: Sacramento clay, 0 to 2 percent slopes | NWI classification: PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology | (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample 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 sample point paired with SP076. Sample point located in middle of field, adjacent to marsh vegetation. Sample point meets criteria for hydrophytic vegetation and has weak wetland hydrology (based on 2 secondary indicators), but does not meet criteria for hydric soils.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca perennis*	40	Y	FAC
2. *Atriplex prostrata*	20	Y	FACW
3. *Lotus corniculatus*	20	Y	FAC
4. *Lepidium latifolium*	10	N	FAC
5. *Rumex crispus*	8	N	FAC
6. *Xanthium strumarium*	2	N	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 | % cover of biotic crust

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACW species, meets dominance test.

SOIL

Sampling Point SP077

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[1]	Texture	Remarks
0-6	2.5Y 3/1	100	-	-	-	-	Clay	
6-12	10YR 3/2	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets saturation visible on aerial imagery (C9) and the FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP078**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30933589 Long: -121.7180939 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP079. Sample point located in middle of irrigated pasture. Sample point meets criteria for wetland hydrology (due to recent flood irrigation), but does not meet criteria for hydrophytic vegetation or hydric soils.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Sporobolus indicus*	30	Y	FACU
2. *Trifolium repens*	20	Y	FACU
3. *Plantago lanceolata*	20	Y	FAC
4. *Lotus corniculatus*	10	N	FAC
5. *Distichlis spicata*	10	N	FAC
6. *Poa sp.*	8	N	?
7. *Rumex pulcher*	2	N	FAC
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines 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)

% of dominant species that are OBL, FACW, or FAC? 33 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP078

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
2-0	10YR 3/3	100	-	-	-	-	Organic	Organic Layer
0-4	2.5Y 3/2	100	-	-	-	-	Clay	
4-12	2.5Y 2.5/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 1

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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Surface water (A1) is from the active flooding of the field by ranch management during the time of sampling.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP079**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.30994544 Long: -121.7180111 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP078. Sample oint located near lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signature corresponding to shift in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Distichlis spicata*	40	Y	FAC
2. *Lotus corniculatus*	20	Y	FAC
3. *Hordeum brachyantherum*	15	N	FACW
4. *Plantago lanceolata*	5	N	FAC
5. *Sporobolus indicus*	5	N	FACU
6. *Poa sp.*	5	N	FACU
7. *Hordeum jubatum*	3	N	FAC
8. *Hordeum marinum*	2	N	FAC
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % 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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP079

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
2-0	7.5YR 2.5/2	100	-	-	-	-	Organic	Oraganic layer
0-12	7.5YR 2.5/1	98	7.5YR 6/2	2	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 2

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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Surface water (A1) is from the active flooding of the field by ranch management during the time of sampling.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP080**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.3114422 Long: -121.7134746 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP081. Sample point located in irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Trifolium repens*	30	Y	FACU
2. *Festuca perennis*	30	Y	FAC
3. *Poa annua*	10	N	FAC
4. *Lotus corniculatus*	10	N	FAC
5. *Festuca arundinacea*	10	N	FACU
6. *Plantago lanceolata*	5	N	FAC
7. *Rumex crispus*	5	N	FAC
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU and FAC species, does not meet dominance test.

SOIL

Sampling Point SP080

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[1]	Texture	Remarks
2-0	10YR 3/2	100	-	-	-	-	Organic	Organic layer
0-8	2.5Y 2.5/1	100	-	-	-	-	Clay	
8-14	2.5Y 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 5/9/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP081**

Investigator(s) T. Harris, N. Clark; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 38.31106985 Long: -121.7133829 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP080. Sample point taken in irrigated wetland. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signature corresponding to shift in vegetation.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Distichlis spicata*	80	Y	FAC
2. *Trifolium repens*	10	N	FACU
3. *Festuca perennis*	5	N	FAC
4. *Lotus corniculatus*	5	N	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines 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? 1 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: SP081 meets the Dominance Test hydrophytic vegetation indicator.

SOIL

Sampling Point SP081

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
2-0	10YR 2/2	100	-	-	-	-	Organic	Organic layer
0-4	10YR 2/1	100	-	-	-	-	Clay	
4-12	10YR 2/1	95	10YR 4/6	5	C	M,RC	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: SP0816 meets the Redox Dark Surface hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 1

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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Surface water is from the active flooding of the field by ranch management during the time of sampling.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP082**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7268971 Long: 38.30111052 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Unpaired upland sample point located in depressional area in irrigated pasture. Sample point meets criteria for hydrophytic vegetation and hydric soils, but does not meet criteria for wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Hordeum marinum*	99	Yes	FAC
2. *Lepidium latifolium*	1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Vegetation shows signs of trampling, may be an area where cattle are fed. Sample point dominated by FAC vegetation, meets dominance test.

SOIL

Sampling Point SP082

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[1]	Texture	Remarks
0-8	2.5Y 2.5/1	100	-	-	-	-	Clay	
8-14	2.5Y 3/1	95	10YR 3/4	5	C	PL/RC	Clay	contains white fungal mycelium

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Soil feels dry despite other areas of the field showing signs of recent irrigation. No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP083**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7264635 Long: 38.30250803 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP084. Sample point located in lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signatures corresponding to shift in vegetation observed on the ground. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca perennis*	35	Yes	FAC
2. *Trifolium fragiferum*	35	Yes	FAC
3. *Hordeum jubatum*	5	No	FAC
4. *Lotus corniculatus*	10	No	FAC
5. *unknown Asteraceae*	2	No	?
6. *Sporobolus indicus*	3	No	FACU
7. *Cynodon dactylon*	5	No	FACU
8. *Poa sp.*	5	No	?
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP083

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
4-0	10YR 3/1	100	-	-	-	-	Organic	Organic Layer
0-5	2.5Y 3/1	100	-	-	-	-	Clay	
5-12	2.5Y 4/1	95	5YR 4/6	5	C	PL, M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 1

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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Surface water (A1) from active flood irrigation by rancher. Sample point also contains biotic crust (B12).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP084**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7264551 Long: 38.30240617 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP083. Sample point meets criteria for hydric soils and wetland hydrology, but does not meet criteria for hydrophytic vegetation. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca arundinacea*	90	Yes	FACU
2. *Paspalum dilatatum*	2	No	FAC
3. *Lotus corniculatus*	3	No	FAC
4. *Sporobolus indicus*	5	No	FACU
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species	0	x1	
FACW species	0	x2	
FAC species	5	x3	15
FACU species	95	x4	380
UPL species		x5	
Column Totals	100 (A)		395 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Does not meet hydrophytic vegetation indicators through dominance test or prevalence index.

SOIL

Sampling Point SP084

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-8	2.5Y 3/1	100	-	-	-	-	Clay	
8-14	2.5Y 4/1	95	5YR 3/4	5	S	C	Clay	Depleted matrix with redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 8

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point contains high water table (A2) and saturation (A3) from recently flood irrigation.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP085**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7133019 Long: 38.3020058 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP086. Sample point located in lower eleveation of irrigated pasture. Sample oint meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signatures corresponding to shift in vegetation observed on the ground. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Cynodon dactylon*	25	Yes	FACU
2. *Unknown grass 1*	15	No	?
3. *Hordeum jubatum*	30	Yes	FAC
4. *Lotus corniculatus*	25	Yes	FAC
5. *Poa sp.*	5		
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 2 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 66 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FACU and FAC species, meets dominance test.

SOIL

Sampling Point SP085

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[1]	Texture	Remarks
3-0	10YR 2/2	100	-	-	-	-	Organic	Organic Layer
0-5	2.5Y 3/1	100	-	-	-	-	Clay	
5-13	2.5Y 3/1	92	5YR 4/6	8	C	C	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 1

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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point has surface water (A1) from active flood irrigation.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP086**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7133156 Long: 38.30148908 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP085. Sample point located in irrigated pasture. Sample point meets indicators for hydric soils, but does not meet criteria for hydrophytic vegetation or wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Cynodon dactylon*	30	Yes	FACU
2. *Sporobolis indicus*	30	Yes	FACU
3. *Trifolium fragiferum*	20	Yes	FAC
4. *Lotus corniculatus*	5	No	FAC
5. *Plantago lanceolata*	10	No	FAC
6. *Paspalum dilatatum*	5	No	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 33 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU and FAC species, does not meet dominance test.

SOIL

Sampling Point SP086

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
3-0	10YR 2/2	100	-	-	-	-	Organic	Organic Layer
0-8	2.5Y 3/1	100	-	-	-	-	Clay	
8-16	2.5Y 3/1	98	7.5YR 4/6	2	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point lacks indicators of wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP087**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7135192 Long: 38.30011508 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP088. Sample point located in middle of irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Cynodon dactylon*	35	Yes	FACU
2. *Festuca perennis*	30	Yes	FAC
3. *Festuca arundinacea*	5	No	FACU
4. *Trifolium fragiferum*	15	No	FAC
5. *Sporobolus indicus*	10	No	FACU
6. *Lotus corniculatus*	5	No	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU and FAC species, does not meet dominance test.

SOIL

Sampling Point SP087

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
2-0	10YR 3/1	100	-	-	-	-	Organic	Organic Layer
0-12	2.5Y 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point does not meet indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP088**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7138205 Long: 38.29932417 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP087. Sample point located in lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signatures corresponding to shift in vegetation observed on the ground. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Hordeum jubatum*	25	Yes	FAC
2. *Poa pratensis*	60	Yes	FAC
3. *Festuca perennis*	4	No	FAC
4. *Sporobolis indicus*	2	No	FACU
5. *Trifolium fragiferum*	5	No	FAC
6. *Lotus corniculatus*	4	No	FAC
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP088

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-8	2.5Y 3/1	100	-	-	-	-	Clay	
8-14	2.5Y 3/1	90	5YR 4/6	10	C	PL/M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 0.25

Water table present? ☒ Yes ☐ No Depth (inches): 14

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 12

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks:

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP089**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7140383 Long: 38.29426352 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP090. Sample point located in lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signatures corresponding to shift in vegetation observed on the ground. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Trifolium fragiferum*	35	Yes	FAC
2. *Festuca perennis*	30	Yes	FAC
3. *Polypogon monspeliensis*	1	No	FAC
4. *Rumex crispus*	2	No	FAC
5. *Unknown Aster 1*	4	No	?
6. *Hordeum jubatum*	13	No	FAC
7. *Plantago lanceolata*	3	No	FAC
8. *Cynodon dactylon*	12	No	FACU
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP089

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
2-0	10YR 2/1	100	-	-	-	-	Organic	Organic Layer
0-4	2.5Y 2/1	100	-	-	-	-	Clay	
4-12	2.5Y 2/1	88	5YR 4/6	10	C	M	Clay	
			Black	2	C	M	Clay	manganese concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 0.5-1

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 guage, monitoring well, aerial photos, etc.) if available.

Remarks:

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP090**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7139286 Long: 38.29452087 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP089. Sample point located in irrigated pasture. Sample point meets indicators for hydric soils, but does not meet criteria for hydrophytic vegetation or wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Cynodon dactylon*	55	Yes	FACU
2. *Festuca perennis*	15	No	FAC
3. *Trifolium fragiferum*	25	Yes	FAC
4. *Papsalum dilatatum*	2	No	FAC
5. *Plantago lanceolata*	1	No	FAC
6. *Festuca arundinacea*	2	No	FACU
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU and FAC species, does not meet dominance test.

SOIL

Sampling Point SP090

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
2-0	10YR 2/2	100	-	-	-	-	Organic	Organic Layer
0-13	2.5Y 3/1	98	5 YR 4/6	2	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point lacks indicators of wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP091**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7134281 Long: 38.29694568 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP092. Sample point located in irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Sporobolis indicus*	90	Yes	FACU
2. *Festuca arundinacea*	5	No	FACU
3. *Lotus corniculatus*	3	No	FAC
4. *Plantago lanceolata*	3	No	FAC
5. *Trifolium fragiferum*	1	No	FAC
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU species, does not meet dominance test.

SOIL

Sampling Point SP091

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
2-0	10YR 2/2	100	-	-	-	-	Organic	Organic Layer
0-14	2.5Y 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point lacks indicators of wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP092**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7134356 Long: 38.2974246 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP091. Sample point located in lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signatures corresponding to shift in vegetation observed on the ground. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Hordeum jubatum*	20	Yes	FAC
2. *Polypogon monspeliensis*	25	Yes	FAC
3. *Poa pratensis*	35	Yes	FAC
4. *Trifolium fragiferum*	10	No	FAC
5. *Unknown Aster 1*	2	No	?
6. *Lotus corniculatus*	3	No	FAC
7. *Poa sp.*	5	No	?
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP092

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
2-0	10YR 3/1	100	-	-	-	-	Organic	Organic Layer
0-4	2.5Y 3/1	100	-	-	-	-	Clay	
4-12	2.5Y 3/1	85	5YR 5/6	15	C	M/PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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):	0.5
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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point has surface water (A1), high water table (A2), and saturation (A3).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP093**

Investigator(s) T. Harris, S. Bennett; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7238188 Long: 38.29382563 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Unpaired upland sample point located in irrigated pasture. Sample point meets indicators for hydric soils, but does not meet criteria for hydrophytic vegetation or wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Paspalum dilatatum*	55	Yes	FAC
2. *Sporobolus indicus*	20	Yes	FACU
3. *Trifolium fragiferum*	16	No	FAC
4. *Unknown aster 1*	3	No	?
5. *Lotus corniculatus*	3	No	FAC
6. *Juncus mexicanus*	3	No	FACW
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP093

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
2-0	10YR 2/2	100	-	-	-	-	Organic	Organic Layer
0-4	2.5Y 3/1	100	-	-	-	-	Clay	
4-12	2.5Y 3/1	95	5YR 4/6	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP096**

Investigator(s) N. Clark, R. Korhummel; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7179248 Long: 38.30290749 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP097. Sample point located in lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signatures corresponding to shift in vegetation observed on the ground. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Paspalum dilatatum*	40	Yes	FAC
2. *Trifolium fragiferum*	15	Yes	FAC
3. *Hordeum jubatum*	10	No	FAC
4. *Polypogon monspeliensis*	1	No	FACW
5. *Unknown (NC 151)*	5	No	?
6.			
7.			
8.			
Herb Stratum Total Cover:	71		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 29 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC species, meets dominance test.

SOIL

Sampling Point SP096

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[1]	Texture	Remarks
0-12	N 4/0	75	-	-	-	-	Clay	
0-12	10YR 3/2	25	-	-	-	-	Clay	non-redox mottles
			-	-	-	-		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets loamy gleyed matrix (F2).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 1

Water table present? ☒ Yes ☐ No Depth (inches): 0

Saturation Present? (includes capillary fringe) ☒ Yes ☐ No Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point has surface water (A1), high water table (A2), and saturation (A3). Sample point also meets FAC-neutral test (D5).

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/21/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP097**

Investigator(s) N. Clark, R. Korhummel; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-1

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7183954 Long: 38.30339958 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP096. Sample point located in irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca arundinacea*	60	Yes	FACU
2. *Cynodon dactylon*	20	Yes	FACU
3. *Lotus corniculatus*	10	No	FAC
4. *Agrostis sp.*	t	No	?
5. *Trifoloium fragiferum*	10	No	FAC
6. *Hordeum jubatum*	t	No	FAC
7. *Festuca perennis*	t	No	FAC
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU species, does not meet dominance test.

SOIL

Sampling Point SP097

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[1]	Texture	Remarks
0-14	10YR 3/1	99	10YR 6/2	1	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point contains redox concentrations below the threshold to satisfy any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP102**

Investigator(s) N. Clark, R. Korhummel; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-2

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7214981 Long: 38.29837065 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No
Hydric Soil Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: Wetland sample point paired with SP103. Sample point located in lower elevation of irrigated pasture. Sample point meets criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on aerial signatures corresponding to shift in vegetation observed on the ground. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Agrostis avenacea*	20	Yes	FACW
2. *Eleocharis macrostachya*	25	Yes	OBL
3. *Trifolium fragiferum*	30	Yes	FAC
4. *Paspalum dilatatum*	10	No	FAC
5. *Unknown herb*	15	No	?
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 3 (A)

Total number of dominant species across all strata? 3 (B)

% of dominant species that are OBL, FACW, or FAC? 100 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

☒ Dominance Test is >50%
☐ Prevalence Index is </= 3.0[1]
☐ Morphological adaptations (provide supporting data in remarks)
☐ 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: Sample point dominated by FAC, FACW, and OBL species, meets dominance test.

SOIL

Sampling Point SP102

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[1]	Texture	Remarks
0-2	10YR 2/2	100					loam	organic matter
2-14	10YR 3/1	98	7.5YR 4/6	5	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Sample point meets redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point has water-stained leaves (grass blades) and meets the FAC-neutral test.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlesby Ranch City _____ County Solano Sampling Date 7/20/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP103**

Investigator(s) N. Clark, R. Korhummel; WRA Inc Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) None Slope(%) 0-2

Subregion(LRR) LRR C (Medit. CA) Lat: -121.7213454 Long: 38.29762333 Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP102. Sample point located in irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology. Climatic conditions were drier than normal during site visit, but was not considered problematic because hydrology is artificial.

VEGETATION (use scientific names)

TREE STRATUM **Plot Size:** N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM **Plot Size:** N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM **Plot Size:** 5' radius			
1. *Festuca arundinacea*	50	Yes	FACU
2. *Trifolium repens*	15	Yes	FACU
3. *Trifolium fragiferum*	10	No	FAC
4. *Festuca perennis*	10	No	FAC
5. *Lotus corniculatus*	2	No	FAC
6. *Plantago lanceolata*	3	No	FAC
7. *Paspalum dilatatum*	5	No	FAC
8. *Cynodon dactylon*	10	No	FACU
Herb Stratum Total Cover:	105		
WOODY VINE STRATUM **Plot Size:** N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum 0 % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ 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: Sample point dominated by FACU species, does not meet dominance test.

SOIL

Sampling Point SP103

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[1]	Texture	Remarks
0-12	10YR 3/2	97	10YR 3/6	3	C	M	loam clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point contains redox concentrations below the threshold required for redox dark surface (F6), does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

Wetland Determination Data Form - Arid West Region

Project/Site Bowlsbey Ranch City _____ County Solano Sampling Date 4/5/2018

Applicant/Owner Ecosystem Investment Partners State CA Sampling Point **SP104**

Investigator(s) S.Batiuk, R. Korhummel, WRA INC. Section,Township,Range _____

Landform (hillslope, terrace, etc.) Diked floodplain Local Relief (concave, convex, none) none Slope(%) _____

Subregion(LRR) LRR C (Medit. CA) Lat: _____ Long: _____ Datum: WGS 84

Soil Map Unit Name Sacramento clay, 0 to 2 percent slopes NWI classification PF

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Hydric Soil Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: Upland sample point paired with SP011. Sample point taken in irrigated pasture. Sample point does not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: N/A	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:			
SAPLING/SHRUB STRATUM Plot Size: N/A			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:			
HERB STRATUM Plot Size: 5' radius			
1. *Festuca arundinacea*	25	Yes	FACU
2. *Trifolium repens*	25	Yes	FACU
3. *Lotus corniculatus*	25	Yes	FAC
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	75		
WOODY VINE STRATUM Plot Size: N/A			
1.			
2.			
Woody Vines Total Cover:			

% Bare ground in herb stratum _____ % cover of biotic crust 0

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)

% of dominant species that are OBL, FACW, or FAC? 33 (A/B)

Prevalence Index Worksheet

Total % cover of:	Multiply by:	
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ 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: Thatch 25%. Sample point dominated by FAC and FACU species, does not meet dominance test.

SOIL

Sampling Point SP104

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 %	Redox Features Type[1]	Redox Features Loc[1]	Texture	Remarks
0-1	10YR 2/2	100					Loamy Clay	
1-12	2.5Y 3/1	99	7.5YR 4/4	1	C		Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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)
- ☐ 1cm 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]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present ? ☐ Yes ☒ No

Remarks: Sample point containst redoximorphic concentrations, but does not meet thresholds required for hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 PLowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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 guage, monitoring well, aerial photos, etc.) if available.

Remarks: No indicators of wetland hydrology observed.

APPENDIX D

STUDY AREA PHOTOGRAPHS

Photo 1. Example of irrigated wetlands within the pastures at Bowlsbey Ranch. Photo shows lower elevation portion of field and adjacent drainage ditch (at left). Water drains and collects at the lower elevation of the pastures, creating strong wetland conditions marked by dominance of FACW and OBL wetland species. Photo taken on April 5, 2018.

Photo 2. Example of irrigated wetlands within the pastures at Bowlsbey Ranch. Photo shows transitional area in middle portion of field marked by dominance of FACW and FAC species. Photo taken July 20, 2018.

Photo 3. Example of upland (i.e., upper) portion of irrigated pastures at Bowlsbey Ranch. Photo shows active flood irrigation using metal tubes to siphon water from the concrete irrigation ditches running along the upper end of each pasture. Photo taken on May 9, 2018.

Photo 4. Example of upland (i.e., upper) portion of irrigated pastures at Bowlsbey Ranch dominated by reed fescue (*Festuca arundinacea*, FACU). Photo taken on July 20, 2018.

Photo 5. Example of managed wetland on Liberty Farms. Photo shows marsh vegetation from southern end of the site that remains inundated for longer period of times relative to the managed wetlands in the middle and northern portions of the site. Photo taken on April 4, 2018.

Photo 6. Example of managed wetland on Liberty Farms. Photo shows marsh vegetation integrating with typical seasonal wetland/grassland vegetation. Photo taken in middle portion of the site which remains inundated for a shorter period relative to the managed wetlands in the southern portion of the site. Photo taken on April 4, 2018.

Photo 7. Example of managed wetland on Liberty Farms. Photo shows seasonal wetland (grassland) vegetation. Photo taken in northern portion of the site which remains inundated for a shorter period relative to the managed wetlands in the middle and southern portions of the site.

Photo 8. Example of perennial marsh vegetation in Duck Slough. Photo taken on September 21, 2017.

Photo 9. Example of scrub shrub wetland in Lookout Slough. Photo taken on September 29, 2017.

Photo 10. Example of scrub-shrub wetland on island adjacent to Vogel Island. Photo taken on October 2, 2017.

Photo 11. Example of seasonal wetlands on Liberty Farms. Photo taken on May 9, 2018.

Photo 12. Example of managed wetland habitat on Vogel Island. Photo taken on September 20, 2018.

Photo 13. Example of concrete-lined irrigation ditch on Bowlsbey Ranch. Photo taken on September 21, 2017.

Photo 14. Example of concrete-lined irrigation ditch (right of center) on Bowlsbey Ranch. Photo taken on January 6, 2017.

Photo 15. Example of drainage ditches on Liberty Farms. Photo taken on April 4, 2018.

Photo 16. Example of drainage ditches on Liberty Farms. Photo taken on April 4, 2018.

Photo 17. Example of drainage ditches on Bowlsbey Ranch. Taken on September 21, 2018.

Photo 18. Example of drainage ditches on Bowlsbey Ranch. Taken on September 21, 2018.

Photo 19. Lookout Slough. Photo taken September 21, 2017.

Photo 20. Duck Slough. Photo taken on January 6, 2017.

Photo 21. Sycamore Slough. Photo taken on January 6, 2017.

Photo 22. Haas Slough. Photo taken on January 6, 2017.

Photo 23. Cache Slough. Photo taken on January 6, 2017.

Photo 24. Shag Slough. Photo taken on July 28, 2017.

Photo 25. Wetland Sample Point SP01, taken on April 5, 2018.

Photo 26. Upland Sample Point SP02, taken on April 5, 2018.

Photo 27. Wetland Sample Point SP03, taken on April 5, 2018.

Photo 28. Upland Sample Point SP04, taken on April 5, 2018.

Photo 29. Wetland Sample Point SP05, taken on April 5, 2018.

Photo 30. Upland Sample Point SP06, taken on April 5, 2018.

Photo 31. Wetland Sample Point SP07, taken on April 5, 2018.

Photo 32. Upland Sample Point SP08, taken on April 5, 2018.

Photo 33. Wetland Sample Point SP09, taken on April 5, 2018.

Photo 34. Upland Sample Point SP10, taken on April 5, 2018.

Photo 35. Wetland Sample Point SP11, taken on April 5, 2018.

Photo 36. Upland Sample Point SP12, taken on April 5, 2018.

Photo 37. Wetland Sample Point SP13, taken on April 5, 2018.

Photo 38. Upland Sample Point SP16, taken on April 5, 2018.

Photo 39. Wetland Sample Point SP17, taken on April 5, 2018.

Photo 40. Wetland Sample Point SP18, taken on April 5, 2018.

Photo 41. Upland Sample Point SP19, taken on April 5, 2018.

Photo 42. Upland Sample Point SP20, taken on April 5, 2018.

Photo 43. Wetland Sample Point SP21, taken on April 5, 2018.

Photo 44. Upland Sample Point SP22, taken on April 5, 2018.

Photo 45. Wetland Sample Point SP23, taken on April 5, 2018.

Photo 46. Upland Sample Point SP24, taken on April 5, 2018.

Photo 47. Upland Sample Point SP25, taken on April 5, 2018.

Photo 48. Wetland Sample Point SP26, taken on April 5, 2018.

Photo 49. Wetland Sample Point SP27, taken on April 5, 2018.

Photo 50. Upland Sample Point SP28, taken on April 5, 2018.

Photo 51. Wetland Sample Point SP29, taken on April 4, 2018.

Photo 52. Upland Sample Point SP30, taken on April 4, 2018.

Photo 53. Wetland Sample Point SP31, taken on April 4, 2018.

Photo 54. Upland Sample Point SP32, taken on April 4, 2018.

Photo 55. Wetland Sample Point SP33, taken on April 4, 2018.

Photo 56. Upland Sample Point SP34, taken on April 4, 2018.

Photo 57. Wetland Sample Point SP35, taken on April 4, 2018.

Photo 58. Wetland Sample Point SP36, taken on April 4, 2018.

Photo 59. Wetland Sample Point SP37, taken on April 4, 2018.

Photo 60. Wetland Sample Point SP38, taken on April 4, 2018.

Photo 61. Upland Sample Point SP39, taken on April 4, 2018.

Photo 62. Wetland Sample Point SP40, taken on April 4, 2018.

Photo 63. Upland Sample Point SP41, taken on April 4, 2018.

Photo 64. Wetland Sample Point SP42, taken on April 4, 2018.

Photo 65. Upland Sample Point SP43, taken on April 4, 2018.

Photo 66. Wetland Sample Point SP46, taken on April 4, 2018.

Photo 67. Upland Sample Point SP47, taken on April 4, 2018.

Photo 68. Upland Sample Point SP48, taken on April 4, 2018.

Photo 69. Wetland Sample Point SP49, taken on April 4, 2018

Photo 70. Wetland Sample Point 50, taken on April 4, 2018.

Photo 71. Upland Sample Point SP51, taken on April 4, 2018.

Photo 72. Upland Sample Point SP52, taken on April 4, 2018.

Photo 73. Wetland Sample Point SP53, taken on April 4, 2018.

Photo 74. Upland Sample Point SP54, taken on April 4, 2018.

Photo 75. Wetland Sample Point SP55, taken on April 4, 2018.

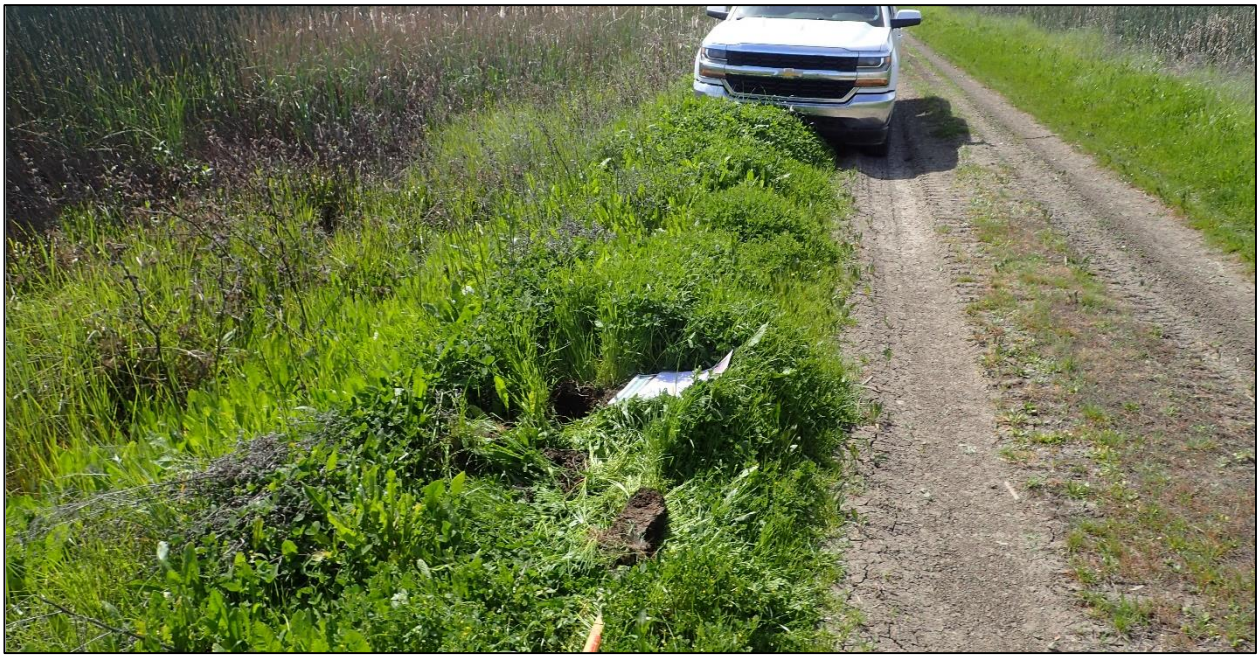

Photo 76. Upland Sample Point SP56, taken on April 4, 2018.

Photo 77. Wetland Sample Point SP57, taken on April 4, 2018.

Photo 78. Wetland Sample Point SP58, taken on April 4, 2018.

Photo 79. Upland Sample Point SP59, taken on May 9, 2018.

Photo 80. Wetland Sample Point SP60, taken on May 9, 2018.

Photo 81. Upland Sample Point SP61, taken on May 9, 2018.

Photo 82. Wetland Sample Point SP62, taken on May 9, 2018.

Photo 83. Upland Sample Point SP63, taken on May 9, 2018.

Photo 84. Wetland Sample Point SP64, taken on May 9, 2018.

Photo 85. Wetland Sample Point SP65, taken on May 9, 2018.

Photo 86. Upland Sample Point SP66, taken on May 9, 2018.

Photo 87. Upland Sample Point SP67, taken on May 9, 2018.

Photo 88. Wetland Sample Point SP68, taken on May 9, 2018.

Photo 89. Upland Sample Point SP69, taken on May 9, 2018.

Photo 90. Upland Sample Point SP70, taken on May 9, 2018.

Photo 91. Upland Sample Point SP71, taken on May 9, 2018.

Photo 92. Wetland Sample Point SP72, taken on May 9, 2018.

Photo 93. Upland Sample Point SP73, taken on May 9, 2018.

Photo 94. Upland Sample Point SP74, taken on May 9, 2018.

Photo 95. Wetland Sample Point SP75, taken on May 9, 2018.

Photo 96. Wetland Sample Point SP76, taken on May 9, 2018.

Photo 97. Upland Sample Point SP77, taken on May 9, 2018.

Photo 98. Upland Sample Point SP78, taken on May 9, 2018.

Photo 99. Wetland Sample Point SP79, taken on May 9, 2018.

Photo 100. Upland Sample Point SP80, taken on May 9, 2018.

Photo 101. Wetland Sample Point SP81, taken on May 9, 2018.

Photo 102. Upland Sample Point SP82, taken on July 20, 2018.

Photo 103. Wetland Sample Point SP83, taken on July 20, 2018.

Photo 104. Upland Sample Point SP84, taken on July 20, 2018.

Photo 105. Wetland Sample Point SP85, taken on July 20, 2018.

Photo 106. Upland Sample Point SP86, taken on July 20, 2018.

Photo 107. Upland Sample Point SP87, taken on July 20, 2018.

Photo 108. Wetland Sample Point SP88, taken on July 20, 2018.

Photo 109. Wetland Sample Point SP89, taken on July 20, 2018.

Photo 110. Upland Sample Point SP90, taken on July 20, 2018.

Photo 111. Upland Sample Point SP91, taken on July 20, 2018.

Photo 112. Wetland Sample Point SP92, taken on July 20, 2018.

Photo 113. Upland Sample Point SP93, taken on July 20, 2018.

Photo 114. Wetland Sample Point SP96, taken on April 5, 2018.

Photo 115. Upland Sample Point SP97, taken on April 5, 2018.

Photo 116. Upland Sample Point SP100, taken on April 5, 2018.

Photo 117. Upland Sample Point SP101, taken on April 5, 2018.

Photo 118. Wetland Sample Point SP102, taken on April 5, 2018.

Photo 119. Upland Sample Point SP103, taken on April 5, 2018.

Photo 120. Upland Sample Point SP104, taken on April 5, 2018.

Photo 121. Example of irrigated wetlands (transition zone) on Bowlsbey Ranch, taken on July 20, 2018.

Photo 122. Example of irrigated wetlands (wetter end, near drainage ditches) on Bowlsbey Ranch, taken on July 20, 2018.

APPENDIX E

PLANT SPECIES OBSERVED WITHIN THE STUDY AREA

Appendix E. List of Observed Plant Species within the Study Area

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Abutilon theophrasti	Velvet leaf	non-native	annual herb	-	-	UPL	-
Agrostis sp.	Bentgrass	-	-	-	-	-	-
Alnus rhombifolia	White alder	native	tree	-	-	FACW	-
Amaranthus albus	Tumbleweed	non-native	annual herb	-	-	FACU	gen
Amaranthus californicus	California amaranth	native	annual herb	-	-	FACW	-
Anthemis cotula	Dog fennel	non-native	annual herb	-	-	FACU	-
Artemisia douglasiana	California mugwort	native	perennial herb	-	-	FAC	-
Arundo donax	Giant reed	non-native (invasive)	perennial grass	-	High	FACW	-
Asclepias fascicularis	Milkweed	native	perennial herb	-	-	FAC	gen
Asparagus officinalis ssp. *officinalis*	Asparagus	non-native	perennial herb	-	-	FACU	-
Atriplex prostrata	Fat-hen	non-native	annual herb	-	-	FACW	-
Atriplex semibaccata	Australian saltbush	non-native (invasive)	perennial herb	-	Moderate	FAC	-
Avena barbata	Slim oat	non-native (invasive)	annual, perennial grass	-	Moderate	-	-
Azolla filiculoides	Mosquito fern	native	fern	-	-	OBL	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Baccharis glutinosa	Salt marsh baccharis	native	perennial herb	-	-	FACW	-
Baccharis pilularis	Coyote brush	native	shrub	-	-	-	-
Bidens frondosa	Sticktight	native	annual herb	-	-	FACW	-
Bolboschoenus maritimus ssp. *paludosus*	Saltmarsh bulrush	native	perennial grasslike herb	-	-	OBL	-
Brassica nigra	Black mustard	non-native (invasive)	annual herb	-	Moderate	-	-
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-	-
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU	gen
Callitriche sp.	-	-	-	-	-	-	-
Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	non-native (invasive)	annual herb	-	Moderate	-	-
Carex barbarae	Valley sedge	native	perennial grasslike herb	-	-	FAC	-
Centaurea calcitrapa	Purple star thistle	non-native (invasive)	annual, perennial herb	-	Moderate	-	-
Centaurea solstitialis	Yellow starthistle	non-native (invasive)	annual herb	-	High	-	gen
Centromadia parryi ssp. *rudis*	Pappose tarweed	native	annual herb	Rank 4.2	-	FACW	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Cephalanthus occidentalis	Common buttonbush	native	shrub	-	-	OBL	-
Ceratophyllum demersum	Hornwort	native	perennial herb	-	-	OBL	-
Chenopodium album	Lambs quarters	non-native	annual herb	-	-	FACU	-
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU	-
Conium maculatum	Poison hemlock	non-native (invasive)	perennial herb	-	Moderate	FACW	-
Convolvulus arvensis	Field bindweed	non-native	perennial herb, vine	-	-	-	gen
Cotula coronopifolia	Brass buttons	non-native (invasive)	perennial herb	-	Limited	OBL	gen
Cressa truxillensis	Alkali weed	native	perennial herb	-	-	FACW	vpa
Crypsis schoenoides	Swamp grass	non-native	annual grass	-	-	FACW	vpa
Crypsis vaginiflora	African prickle grass	non-native	annual grass	-	-	OBL	vpa
Cuscuta sp.	-	-	-	-	-	-	-
Cynodon dactylon	Bermuda grass	non-native (invasive)	perennial grass	-	Moderate	FACU	-
Cyperus eragrostis	Tall cyperus	native	perennial grasslike herb	-	-	FACW	gen

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Daucus carota	Carrot	non-native	perennial herb	-	-	UPL	-
Daucus pusillus	Wild carrot	native	annual herb	-	-	-	-
Digitaria sanguinalis	Crabgrass	non-native	annual grass	-	-	FACU	-
Distichlis spicata	Salt grass	native	perennial grass	-	-	FAC	vpa?
Echinochloa crus-galli	Barnyard grass	non-native	annual grass	-	-	FACW	-
Echinodorus berteroi	Burhead	native	perennial herb (aquatic)	-	-	OBL	vpa?
Egeria densa	Brazilian water weed	non-native (invasive)	perennial herb	-	High	OBL	-
Eichhornia crassipes	Water hyacinth	non-native (invasive)	perennial herb	-	High	OBL	-
Eleocharis macrostachya	Spike rush	native	perennial grasslike herb	-	-	OBL	vpi?
Elymus glaucus	Blue wildrye	native	perennial grass	-	-	FACU	gen
Elymus ponticus	Tall wheat grass	non-native	perennial grass	-	-	-	-
Elymus triticoides	Beardless wild rye	native	perennial grass	-	-	FAC	gen
Epilobium brachycarpum	Willow herb	native	annual herb	-	-	-	gen
Erigeron bonariensis	Flax-leaved horseweed	non-native	annual herb	-	-	FACU	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Erigeron canadensis	Canada horseweed	native	annual herb	-	-	FACU	gen
Erodium cicutarium	Coastal heron's bill	non-native (invasive)	annual herb	-	Limited	-	gen
Erodium moschatum	Whitestem filaree	non-native	annual herb	-	-	-	gen
Eucalyptus camaldulensis	Red gum	non-native (invasive)	tree	-	Limited	FAC	-
Eucalyptus globulus	Blue gum	non-native (invasive)	tree	-	Limited	-	-
Eucalyptus sideroxylon	Red iron bark	non-native	tree	-	-	-	-
Euthamia occidentalis	Western goldenrod	native	perennial herb	-	-	FACW	-
Festuca arundinacea	Reed fescue	non-native (invasive)	perennial grass	-	Moderate	FACU	-
Festuca perennis	Italian rye grass	non-native (invasive)	annual, perennial grass	-	Moderate	FAC	gen
Ficus carica	Common fig	non-native (invasive)	tree	-	Moderate	FACU	-
Foeniculum vulgare	Fennel	non-native (invasive)	perennial herb	-	High	-	-
Frankenia salina	Alkali heath	native	perennial herb	-	-	FACW	vpa?

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Geranium dissectum	Wild geranium	non-native (invasive)	annual herb	-	Limited	-	gen
Helenium bigelovii	Bigelow's sneezeweed	native	perennial herb	-	-	FACW	-
Helenium puberulum	Sneezeweed	native	perennial herb	-	-	FACW	-
Helianthus annuus	Hairy leaved sunflower	native	annual herb	-	-	FACU	-
Heliotropium curassavicum var. *oculatum*	Seaside heliotrope	native	perennial herb	-	-	FACU	-
Helminthotheca echioides	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	-	Limited	FAC	-
Hibiscus lasiocarpos var. *occidentalis*	Woolly rose-mallow	native	perennial herb	Rank 1B.2	-	OBL	-
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-	-
Hordeum brachyantherum	Meadow barley	native	perennial grass	-	-	FACW	gen
Hordeum jubatum ssp. *jubatum*	Foxtail barley	native	perennial grass	-	-	FAC	-
Hordeum marinum ssp. *gussoneanum*	Barley	non-native (invasive)	annual grass	-	Moderate	FAC	gen
Hordeum murinum	Foxtail barley	non-native (invasive)	annual grass	-	Moderate	FACU	-
Hydrocotyle sp.	Pennywort	native	perennial herb	-	-	OBL	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Juglans hindsii	Northern california black walnut	native	tree	Rank 1B.1*	-	FAC	-
Juncus balticus ssp. *ater*	Baltic rush	native	perennial grasslike herb	-	-	FACW	-
Juncus bufonius	Common toad rush	native	annual grasslike herb	-	-	FACW	vpa?
Juncus effusus	Common bog rush	native	perennial grasslike herb	-	-	FACW	-
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW	gen
Juncus patens	Rush	native	perennial grasslike herb	-	-	FACW	-
Juncus xiphioides	Iris leaved rush	native	perennial grasslike herb	-	-	OBL	gen
Kickxia elatine	Sharp point fluellin	non-native	perennial herb	-	-	UPL	-
Kickxia spuria	Fluellin	non-native	perennial herb	-	-	-	-
Lactuca saligna	Willow lettuce	non-native	annual herb	-	-	UPL	-
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU	-
Lasthenia californica ssp. *californica*	California goldfields	native	annual herb	-	-	FACU	-
Lathyrus jepsonii var. *californicus*	California tule pea	native	perennial herb	-	-	OBL	-
Lemna sp.	Duckweed	native	perennial herb	-	-	OBL	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Lepidium latifolium	Perennial pepperweed	non-native (invasive)	perennial herb	-	High	FAC	-
Leptochloa fusca	Sprangletop	native	annual grass	-	-	FACW	-
Lilaeopsis masonii	Mason's lilaeopsis	native	perennial herb	SR, Rank 1B.1	-	OBL	-
Limonium sp.	-	-	-	-	-	-	-
Lotus corniculatus	Bird's foot trefoil	non-native	perennial herb	-	-	FAC	gen
Ludwigia hexapetala	Six petal water primrose	non-native (invasive)	perennial herb	-	High	-	-
Ludwigia peploides ssp. *peploides*	Floating water primrose	non-native (invasive)	perennial herb	-	High	OBL	-
Lythrum californicum	Common loosestrife	native	perennial herb	-	-	OBL	-
Lythrum hyssopifolia	Hyssop loosestrife	non-native (invasive)	annual, perennial herb	-	Limited	OBL	vpa?
Maclura pomifera	Osage orange	non-native	tree, shrub	-	-	UPL	-
Malva nicaeensis	Bull mallow	non-native	annual herb	-	-	-	-
Malva pseudolavatera	Cretan mallow	non-native	shrub	-	-	-	-
Malvella leprosa	Alkali mallow	native	perennial herb	-	-	FACU	gen

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Marrubium vulgare	White horehound	non-native (invasive)	perennial herb	-	Limited	FACU	-
Medicago polymorpha	California burclover	non-native (invasive)	annual herb	-	Limited	FACU	-
Medicago sativa	Alfalfa	non-native	perennial herb	-	-	UPL	-
Melilotus albus	White sweetclover	non-native	annual, biennial herb	-	-	-	-
Melilotus indicus	Annual yellow sweetclover	non-native	annual herb	-	-	FACU	-
Mentha pulegium	Pennyroyal	non-native (invasive)	perennial herb	-	Moderate	OBL	vpa?
Morus alba	Mulberry	non-native	tree	-	-	FACU	-
Nerium oleander	Oleander	non-native	tree	-	-	-	-
Paspalum dilatatum	Dallis grass	non-native	perennial grass	-	-	FAC	-
Paspalum distichum	Knot grass	native	perennial grass	-	-	FACW	-
Persicaria amphibia	Water smartweed	native	perennial herb (aquatic)	-	-	OBL	-
Persicaria lapathifolia	Common knotweed	native	annual herb	-	-	FACW	-
Persicaria punctata	Dotted smartweed	native	perennial herb	-	-	OBL	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Phalaris aquatica	Harding grass	non-native (invasive)	perennial grass	-	Moderate	FACU	-
Phalaris lemmonii	Lemmon's canarygrass	native	annual grass	-	-	FACW	vpa?
Phalaris paradoxa	Hood canarygrass	non-native	annual grass	-	-	FAC	vpa?
Phoenix canariensis	Canary island date palm	non-native (invasive)	tree	-	Limited	-	-
Phoradendron leucarpum	American mistletoe	native	shrub (parasitic)	-	-	-	-
Phragmites australis	Common reed	native	perennial grass	-	-	FACW	-
Phyla nodiflora	Common lippia	native	perennial herb	-	-	FACW	-
Plantago lanceolata	Ribwort	non-native (invasive)	perennial herb	-	Limited	FAC	gen
Plantago major	Common plantain	non-native	perennial herb	-	-	FAC	-
Platanus racemosa	California sycamore	native	tree	-	-	FAC	-
Poa annua	Annual blue grass	non-native	annual grass	-	-	FAC	gen
Poa pratensis ssp. *pratensis*	Kentucky blue grass	non-native (invasive)	perennial grass	-	Limited	FAC	-
Polygonum aviculare	Prostrate knotweed	non-native	annual, perennial herb	-	-	FAC	gen

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Polypogon australis	Chilean beard grass	non-native	perennial grass	-	-	FACW	-
Polypogon monspeliensis	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW	vpa?
Populus alba	White poplar	non-native	tree	-	-	-	-
Populus fremontii ssp. *fremontii*	Cottonwood	native	tree	-	-	FAC	-
Puccinellia distans	European alkali grass	non-native	perennial grass	-	-	FACW	-
Quercus lobata	Valley oak	native	tree	-	-	FACU	-
Ranunculus californicus	Common buttercup	native	perennial herb	-	-	FACU	gen
Ranunculus muricatus	Buttercup	non-native	annual, perennial herb	-	-	FACW	vpa?
Raphanus sativus	Radish	non-native (invasive)	annual, biennial herb	-	Limited	-	-
Rorippa palustris	Bog yellow cress	native	annual, perennial herb	-	-	OBL	-
Rosa californica	California wild rose	native	shrub	-	-	FAC	-
Rubus armeniacus	Himalayan blackberry	non-native (invasive)	shrub	-	High	FAC	-
Rubus ursinus	California blackberry	native	vine, shrub	-	-	FAC	-
Rumex acetosella	Sheep sorrel	non-native (invasive)	perennial herb	-	Moderate	FACU	gen

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Rumex crispus	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC	gen
Rumex dentatus	Toothed dock	non-native	annual, perennial herb	-	-	FACW	vpa?
Rumex fueginus	Golden dock	native	annual, perennial herb	-	-	FACW	-
Rumex pulcher	Fiddleleaf dock	non-native	perennial herb	-	-	FAC	gen
Sagittaria latifolia	Broad leaf arrowhead	native	perennial herb (aquatic)	-	-	OBL	-
Salix exigua	Narrowleaf willow	native	tree, shrub	-	-	FACW	-
Salix gooddingii	Gooding's willow	native	tree	-	-	FACW	-
Salix laevigata	Polished willow	native	tree	-	-	FACW	-
Salix lasiolepis	Arroyo willow	native	tree, shrub	-	-	FACW	-
Sambucus nigra ssp. *caerulea*	Blue elderberry	native	shrub	-	-	FAC	-
Samolus parviflorus	Water pimpernel	native	perennial herb	-	-	OBL	-
Schoenoplectus acutus var. *occidentalis*	Tule	native	perennial grasslike herb	-	-	OBL	-
Schoenoplectus californicus	California bulrush	native	perennial grasslike herb	-	-	OBL	-
Setaria sp.	Bristle grass	non-native	annual grass	-	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Silybum marianum	Milk thistle	non-native (invasive)	annual, perennial herb	-	Limited	-	-
Solanum sp.	Nightshade	-	-	-	-	-	-
Sonchus asper ssp. *asper*	Sow thistle	non-native	annual herb	-	-	FAC	-
Sonchus oleraceus	Sow thistle	non-native	annual herb	-	-	UPL	-
Sorghum halepense	Johnsongrass	non-native	perennial grass	-	-	FACU	-
Sparganium eurycarpum	Broadfruit bur reed	native	perennial herb	-	-	OBL	-
Spergularia rubra	Purple sand spurry	non-native	annual, perennial herb	-	-	FAC	gen
Sporobolus indicus	Smutgrass	non-native	perennial grass	-	-	FACU	-
Stachys albens	Cobwebby hedge nettle	native	perennial herb	-	-	OBL	-
Symphyotrichum chilense	Pacific aster	native	perennial herb	-	-	FAC	-
Symphyotrichum lentum	Suisun marsh aster	native	perennial herb (rhizomatous)	Rank 1B.2	-	OBL	-
Symphyotrichum subulatum	Eastern annual saltmarsh aster	native	annual herb	-	-	OBL	-
Tamarix sp.	Tamarisk	non-native	tree, shrub	-	-	-	-
Toxicodendron diversilobum	Poison oak	native	vine, shrub	-	-	FACU	-

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3]	Vernal Pool Status[4]
Tragopogon porrifolius	Salsify	non-native	perennial herb	-	-	-	-
Tribulus terrestris	Puncture vine	non-native (invasive)	annual herb	-	Limited	-	-
Trifolium fragiferum	Strawberry clover	non-native	perennial herb	-	-	FAC	-
Trifolium repens	White clover	non-native	perennial herb	-	-	FACU	-
Typha angustifolia	Narrow leaf cattail	non-native	perennial herb (aquatic)	-	-	OBL	-
Typha domingensis	Cattail	native	perennial herb	-	-	OBL	-
Typha latifolia	Broadleaf cattail	native	perennial herb (aquatic)	-	-	OBL	-
Urtica dioica	Stinging nettle	native	perennial herb	-	-	FAC	-
Verbena lasiostachys	Western vervain	native	perennial herb	-	-	FAC	-
Vicia sativa	Spring vetch	non-native	annual herb, vine	-	-	FACU	-
Vitis californica	California wild grape	native	vine, shrub	-	-	FACU	-
Washingtonia robusta	Washington fan palm	non-native (invasive)	tree	-	Moderate	FACW	-
Xanthium spinosum	Spiny cocklebur	native	annual herb	-	-	FACU	-
Xanthium strumarium	Cocklebur	native	annual herb	-	-	FAC	gen
Zeltnera muehlenbergii	Muehlenberg's centaury	native	annual herb	-	-	FAC	gen

- All plant species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2019]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2019]

*Special-status only at native occurrences. The Study Area does not contain a native occurrence of this species.

[1] **California Native Plant Society. 2018. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, California. Online at: http://rareplants.cnps.org/; most recently accessed: August 2018**

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extinct in California
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 4:	Plants of limited distribution – a watch list

[2] **California Invasive Plant Council. 2018. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: http://www.cal-ipc.org/paf/; most recently accessed: August 2018**

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

[3] **Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X**

OBL:	Almost always found in wetlands
FACW:	Usually found in wetlands
FAC:	Equally found in wetlands and uplands
FACU:	Usually not found in wetlands
UPL:	Almost never found in wetlands
NL:	Not listed, assumed almost never found in wetlands
NI:	No information; not factored during wetland delineation

[4] **Keeler-Wolf, T., D.R. Elam, K. Lewis, and S.A. Flint. 1998. California Vernal Pool Assessment Preliminary Report. The Resources Agency, California Department of Fish and Game, Sacramento, CA. 161 pp. with appendices**

VPI:	Species restricted to vernal pools and not known from other habitats
VPA:	Species regularly occurring in vernal pools, but not restricted to them; also occurring in other wetland habitats
GEN:	Species that can occur in wetland or upland, or sometimes both, including vernal pools, pool margins, disturbed areas, and grasslands
VPI?:	Species that is VPI in certain region(s) only, and can be a VPA or GEN in other regions
VPA?:	Species that is VPA in certain region(s), and is GEN in other regions
VPI/VPA:	Species that is VPI in some regions and VPA in other regions, but not known to be GEN