JURISDICTIONAL WETLAND DELINEATION REPORT

Note: The U.S. Army Corps has not yet verified the jurisdictional status of any water feature discussed or described in this report.

WETLAND DELINEATION REPORT
SOUTH BAY SALT POND RESTORATION PROJECT – PHASE 2

Prepared for:

South Bay Salt Pond Restoration Project

January 14, 2014

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BCDC	Bay Conservation and Development Commission
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
HTL	high tide line
MHW	mean high water
MSL	mean sea level
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
OHWM	ordinary high water mark
RWQCB	Regional Water Quality Control Board
SBSP	South Bay Salt Pond
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditional navigable water
USACE	U.S. Army Corps of Engineers

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This report provides the results of a preliminary jurisdictional delineation of wetlands and other waters of the U.S. conducted as part of Phase 2 of the South Bay Salt Pond Restoration Project (project) located in the South San Francisco Bay (South Bay). The salt ponds within the Phase 2 Study Area discussed in this delineation are located within the Alviso Pond Complex in Alameda and Santa Clara Counties and the Ravenswood Complex in San Mateo County.

The objective of the delineation is to identify aquatic features that qualify as wetlands or other waters of the U.S. under federal jurisdiction, pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act.

This report is organized into three primary sections:

- Introduction
- Physical Setting and Methods
- Results and Discussion

Section 1 describes the project, the project purpose, and the need for a wetland delineation. Section 2 presents the jurisdictional delineation methods. Section 3 presents the results of the jurisdictional delineation, including a description of potentially jurisdictional wetlands and other waters of the U.S. present within the Study Area.

1.1 PROJECT DESCRIPTION

The South Bay Salt Pond (SBSP) Restoration Project area, Phase 2 is located in South San Francisco Bay in northern California (see Figures 1 and 2). The SBSP Restoration Study Area, Phase 2 consists of parts of two complexes of salt ponds and adjacent habitats in South San Francisco Bay that USFWS acquired from Cargill in 2003. These two salt pond complexes consist of the 8,000-acre Alviso Pond Complex and the 1,600-acre Ravenswood Pond Complex, both of which are owned and managed by U.S. Fish and Wildlife Service (USFWS) as part of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge).The areas delineated in this report are identified in Figure 2 and collectively referred to as the Study Area.

Phase 2 project actions are also being planned to take place at ponds in the Eden Landing Ecological Reserve, near Hayward, which is owned by the California Department of Fish and Wildlife (CDFW). Actions at Eden Landing Ecological Reserve are part of a parallel planning process by the South Bay Salt Pond Restoration Project stakeholders, and the delineation of wetlands there will be covered in a separate environmental document.

The Alviso Pond Complex consists of 25 ponds on the shores of the South Bay in Fremont, San Jose, Sunnyvale and Mountain View, within Santa Clara and Alameda counties. The Pond Complex is bordered on the west by the Palo Alto Baylands Park and Nature Preserve and Charleston Slough, on the south by commercial and industrial land uses as well as NASA Ames Research Center and Sunnyvale Baylands Park, and on the east by Coyote Creek in San Jose and Cushing Parkway in Fremont.

The Phase 2 project actions in the Alviso Pond Complex focus on three clusters of ponds. Ponds A19, A20, and A21 are referred to as the Island Ponds and are located between Coyote Creek and Mud Slough near the eastern end of the Alviso Pond Complex. The Island Ponds levees were

breached in 2006 as part of tidal marsh restoration actions covered by the Initial Stewardship Plan (USFWS 2006).

Ponds A1 and A2W, referred to herein as the Mountain View Ponds, are on the western edge of the Complex. The City of Mountain View lies immediately to the south, and the Charleston Slough and the Palo Alto Flood Control Basin lie to the west.

Ponds A8 and A8S are located in the southern central portion of the Alviso Pond Complex. They are west of the town of Alviso, north of Sunnyvale and State Route (SR) 237, and east of other parts of the Pond Complex. Ponds A8 and A8S were included in the Phase 1 work; they were made reversibly tidal by installing two culverts and by notching one levee and installing a control structure with a variable opening so that the degree and the duration of tidal exchange can be controlled by the Refuge managers,.

The Ravenswood Pond Complex consists of seven ponds on the bay side of the Peninsula. The ponds are located both north and south of SR 84, west of the Dumbarton Bridge, and on the bayside of the developed areas of the City of Menlo Park in San Mateo County. Bayfront Park in the City of Menlo Park is directly west of the Pond Complex, and a portion of SR 84 and the Dumbarton Rail corridor run along its southern border. The Phase 2 project actions in the Ravenswood Pond Complex are focused on the pond cluster of Ponds R3, R4, R5, and S5.

1.1.1 Objectives

The overarching Goal and six Objectives developed for the SBSP Restoration Project, adopted by the SBSP Restoration Project Stakeholder Forum on February 18, 2004, apply to Phase 2 and are described below.

1.1.1.1 Goal

The Goal of the SBSP Restoration Project is the restoration and enhancement of wetlands in South San Francisco Bay while providing for flood management and wildlife-oriented public access and recreation.

1.1.1.2 Objectives

1. Create, restore, or enhance habitats of sufficient size, function, and appropriate structure to:
   - Promote restoration of native special-status plants and animals that depend on South San Francisco Bay habitat for all or part of their life cycles.
   - Maintain current native migratory and resident bird species that utilize existing salt ponds and associated structures such as levees.
   - Support increased abundance and diversity of native species in various South San Francisco Bay aquatic and terrestrial ecosystem components, including plants, invertebrates, fish, mammals, birds, reptiles and amphibians.
2. Maintain or improve existing levels of flood protection in the South Bay Area.
3. Provide public access and recreational opportunities compatible with wildlife and habitat goals.

4. Protect or improve existing levels of water and sediment quality in the South Bay, and take into account ecological risks caused by restoration.
5. Implement design and management measures to maintain or improve current levels of vector management, control predation on special status species, and manage the spread of non-native invasive species.
6. Protect the services provided by existing infrastructure (e.g., power lines, railroads).

1.1.2 Purpose and Need for Action

The SBSP Restoration Project is needed to address the following:

- Historic losses of tidal marsh ecosystems and habitats in San Francisco Bay and concomitant declines in populations of endangered species (e.g., clapper rail, salt marsh harvest mouse);
- Increasing salinity and declining ecological value in several of the ponds within the Study Area;
- Long-term deterioration of non-certifiable levees (for the purposes of the Federal Emergency Management Agency [FEMA]) within the Study Area, which could lead to levee breaches and flooding;
- Long-term tidal flood protection; and
- Limited opportunities in South San Francisco Bay for wildlife-oriented recreation.

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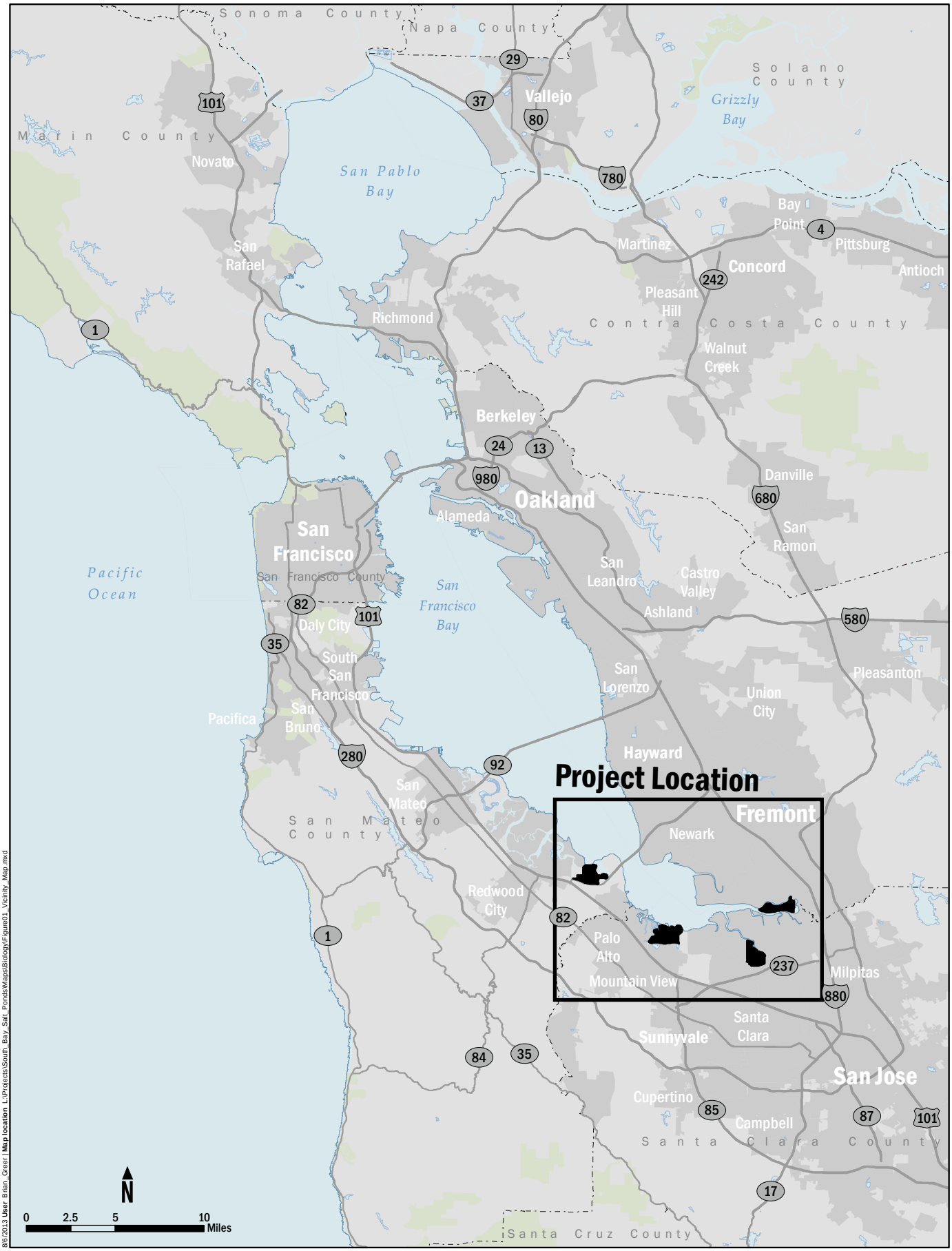

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South Bay Salt Pond Restoration Project

FIGURE 1

Vicinity Map

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South Bay Salt Pond Restoration Project

FIGURE 2

Project Area

1.2 BACKGROUND RESEARCH

Background research was conducted in order to gather supporting information related to the environmental setting of the project. The following reference materials were used to inform the findings presented in the delineation:

- Aerial imagery of the project ponds and surrounding areas
- Palo Alto, Mountain View, and Milpitas U.S. Geological Survey 7.5-minute quadrangle maps
- Natural Resource Conservation Service (NRCS) online soil survey within the immediate project area (NRCS 2013)
- Existing biological references for the SBSP Restoration Project, including:
  - South Bay Salt Pond Restoration Project. Final Environmental Impact Statement/Report. U.S. Fish and Wildlife Service. 2007.
  - South Bay Salt Pond Restoration Project Phase 1: Submittal of Application Materials for a Section 404 Individual Permit. H.T. Harvey and Associates. October 2007.
  - Habitat Evolution Mapping Project. South Bay Salt Pond Restoration Project. Final Report (2009-2011). Brian Fulfrost and Associates. 2012
- USACE Wetland Delineation Manual (Environmental Laboratory 1987)
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (USACE 2008)
- Historic Section 10 data from the Office of Coast Survey, US Coast Survey, digitized by the San Francisco Estuary Institute (USCS, US Coast Geodetic Survey 1939).

1.3 REGULATORY BACKGROUND

1.3.1 U.S. Army Corps of Engineers Statutory Jurisdiction

Under Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged and fill materials into "waters of the United States." These jurisdictional waters of the U.S. include intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any water of the U.S. (33 CFR § 328). In areas subject to tidal influence, Section 404 jurisdiction extends to the high-tide line. Certain waters of the U.S. are considered "special aquatic sites" because they are generally recognized as having particular ecological value. Such sites include sanctuaries and refuges, mudflats, wetlands, vegetated shallows, coral reefs, and riffle and pool complexes. Special aquatic sites are defined by the U.S. Environmental Protection Agency (EPA) and may be afforded additional consideration in the permit process for a project.

The USACE also regulates navigable waters under Section 10 of the Rivers and Harbors Act which include "… those waters of the United States that are subject to the ebb and flow of the

tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce" (33 CFR § 322.2).

1.3.2 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers

On January 9, 2001, the U.S. Supreme Court issued a decision in Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers. The case involved the filling of hydrologically isolated waters that had formed from remnant excavation ditches on a parcel. In the decision, the Court denied USACE jurisdiction over isolated water bodies, which USACE had previously regulated using the "Migratory Bird Rule," established in 1986. The Court defined isolated waters as any body of water that is non-navigable, intrastate, and lacking any significant nexus to navigable bodies of water (Pooley 2002).

As a result of the SWANCC decision, isolated seasonal wetlands (i.e. wetlands that are not hydrologically connected with other jurisdictional wetlands or non-wetland waters of the U.S.) are generally considered non-jurisdictional by the USACE.

1.3.3 Rapanos v. United States and Carabell v. Army Corps of Engineers

In 2006 Rapanos v. United States (No. 04 1034) and Carabell v. Army Corps of Engineers (No. 04-1384) (hereafter referred to as "Rapanos") challenged USACE interpretation of waters of the U.S. (USACE and EPA 2007). The USACE had interpreted the CWA 33 U.S.C. 1362(7) to regulate wetland areas that are separated from a tributary of a navigable water by a narrow, constructed berm, where there was evidence of an occasional hydrologic connection between the wetland and the tributary.

On June 19, 2006, the Court held 5 to 4 in favor of tightening the definition of "waters of the United States." According to the opinion, a water or wetland constitutes "navigable waters" under the CWA if it possesses a "significant nexus" to waters that are currently navigable or could feasibly be made navigable. The USACE and the EPA issued a joint memorandum on June 5, 2007 which included new guidelines for establishing whether or not wetlands or other waters of the U.S. fall within USACE jurisdiction (USACE and EPA 2007). Due to the court decision and resulting memorandum, the agencies now assert jurisdiction over traditional navigable waters (TNW), wetlands adjacent to traditional navigable waters, non-navigable tributaries to TNWs that are relatively permanent waters (RPW), and wetlands that abut RPWs. The agencies may take jurisdiction over non-navigable tributaries that are not RPWs, wetlands that are adjacent to non-RPWs, and wetlands adjacent to but not directly abutting a relatively permanent non-navigable tributary. The agencies will generally not assert jurisdiction over swales, erosional features or ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

1.4 WETLAND DELINEATION

The wetlands and other waters of the U.S. discussed in this report were delineated by consultants based on National Oceanic and Atmospheric Administration (NOAA) tidal data, LiDAR data, aerial photo interpretation, field data, and ground truthing.

Section 2 provides a description of the physical setting of the project as well as the methods used to delineate the wetlands and other waters of the U.S. in the Study Area.

2.1 PHYSICAL SETTING

The physical setting of the project is described below in terms of the climate, topography and hydrology of the South Bay Salt Ponds, and soils and vegetation communities found in the project footprint.

2.1.1 Climate, Topography, and Hydrology

The San Francisco Bay area has a temperate-marine climate with cool moist winters and warm dry summer. Mean annual temperature varies around the bay, and ranges from 55°F to 61°F, and mean monthly temperature ranging from 45°F in winter to 73°F in summer. Approximately 95% of the precipitation occurs between October and April. Average relative humidity ranges from 60% in summer to 75% in winter (Eicher 1988). Average annual precipitation for the region is 15.24 inches.

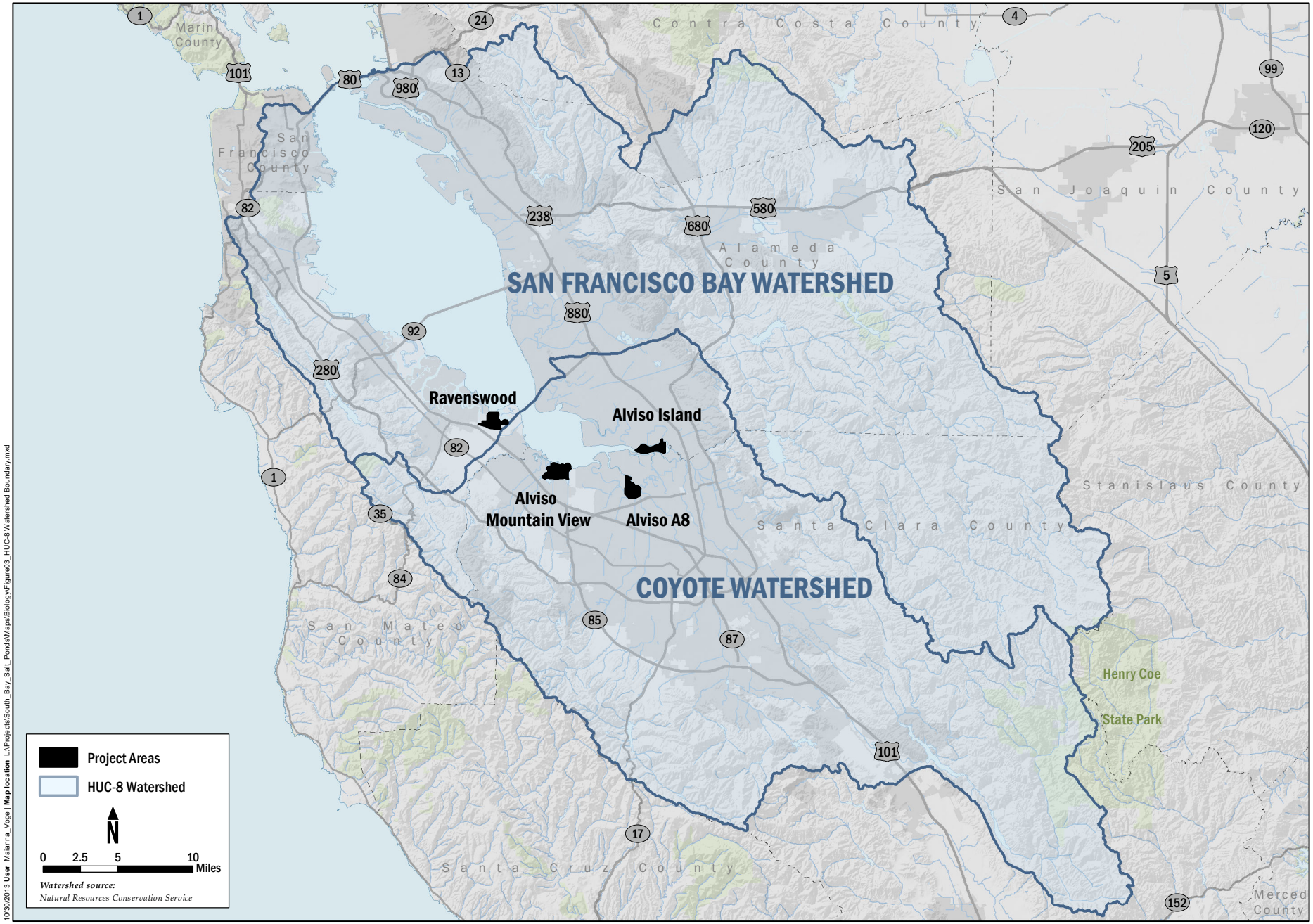
The SBSP Restoration Project sites are at the northern end of Santa Clara Valley, in a broad alluvial fan composed of material deposited from the local ranges. Topography of the site is primarily flat with elevations ranging from 1.5 feet below mean sea level (MSL) to 11 feet above MSL.

The entire Study Area is located within the San Francisco Bay hydrologic unit (Figure 3). San Francisco Bay estuary tidal marshes can be characterized as relatively flat plains which tend to increase slightly in elevation at the border of sloughs and at the shoreline. The elevation of these marsh plains is generally near the mean high tide level. Open water and subtidal habitats in the South Bay include tidal sloughs and channels, areas of standing water or flowing waters within the salt ponds and tidal marshes, and mudflats. The tidal sloughs and channels carry water through the marshes and between salt ponds and marsh remnants.

The tidal cycle in the San Francisco Bay estuary has a mixed semidiurnal pattern, characterized by two high tides of unequal magnitude and two low tides of unequal magnitude every day. Tidal exchange between the Pacific Ocean and the estuary occurs through the Golden Gate. Overall, about 24% of the bay's water is exchanged every 12.5 hours (Jones and Stokes, et. al. 1979). Circulation patterns within the bay are driven by tidal exchange and freshwater inflow. Sources of freshwater inflow to the Study Area are from Coyote Creek, Stevens Creek, Adobe Creek, and the Guadalupe River.

Each cluster of salt ponds has somewhat different internal hydrology. The Phase 2 Ravenswood Ponds are seasonal ponds that receive direct rainfall and some runoff. In addition, water is added to these ponds during the fall and winter to provide waterfowl habitat. The Alviso-Island Ponds were breached in 2006 to restore them to a tidal regime. The breaches were on their southern borders, and these ponds now receive daily tidal flows via Coyote Creek. The Alviso-A8 Ponds were converted to muted and reversible tidal flows as part of a Phase 1 project action. A notch with a variably sized opening was added on the southeastern side of A8 to expose it to muted tidal flows coming in from the Guadalupe River. Finally, the Alviso-Mountain View Ponds are deep ponds with subsided bottoms that receive bay water at an intake at Pond A1 and discharge

at Pond A2W. These two ponds are connected to one another via underground culverts. They also receive seasonal rainfall.



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South Bay Salt Pond Restoration Project

FIGURE 3

HUC-8 Watershed Boundaries

2.1.2 Soils

The NRCS (2013) has identified and mapped 11 soil types occurring within the Ravenswood Ponds, Alviso-Mountain View Ponds, Alviso-A8 Ponds, and the Alviso-Island Ponds clusters (Figure 4).

The soils that occur within the Ravenswood Ponds include the following:

- **Novato clay, 0 to 1 percent slopes, ponded**: Novato clay, 0 to 1 percent slopes, ponded is a very deep, very poorly drained soil in saltwater marshes along the San Francisco Bay. It formed in alluvium derived from various kinds of rock, and the texture is clay. Permeability and runoff are slow and the soil is not subject to water erosion. The hydric soils list identifies two hydric inclusions occurring within this soil type: Novato occurring within salt marshes and Reyes occurring within salt marshes.
- **Novato clay, 0 to 1 percent slopes:** Novato clay, 0 to 1 percent slopes, is a very deep, very poorly drained soil in saltwater marshes along the edges of San Francisco Bay. It formed in alluvium derived from various kinds of rock, and the texture is clay. Permeability and runoff are slow. The soil is not subject to water erosion, and is subject to tidal flooding. The hydric soils list identifies three hydric inclusions occurring within this soil type: Novato occurring within salt marshes, an unnamed, drained inclusion occurring within salt marshes and an unnamed, stratified organic surface occurring within salt marshes.
- **Pits and Dumps**: Pits and dumps consist of gravel pits, refuse dumps, and rock quarries. The hydric soils list does not identify any hydric inclusions within this soil type within San Mateo County.

The soils that occur within the Alviso-Mountain View Ponds include the following:

- **Aquic Xerorthents, bay mud substratum, 2 to 5 percent slopes**: Aquic Xerorthents, bay mud substratum, 2 to 5 percent slopes are poorly drained soils located in marshes, formed from human transported material in basin floors. Permeability is moderately low to moderately high, and texture is gravelly sandy loam to silty clay. The hydric soils list does not identify any hydric inclusions within this soil type within Santa Clara County.
- **Novato clay, 0 to 1 percent slopes, tidally flooded**: Novato clay, 0 to 1 percent slopes, tidally flooded is a very deep, very poorly drained soil in saltwater marshes along the edges of San Francisco Bay. It formed in alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics, and the texture is clay. Permeability and runoff are slow. The soil is not subject to water erosion, and is subject to tidal flooding. The hydric soils list does not identify any hydric inclusions within this soil type within Santa Clara County.
- **Novato clay, 0 to 1 percent slopes, protected**: Novato clay, 0 to 1 percent slopes, protected is a very deep, very poorly drained soil in salt marshes along the edges of San Francisco Bay. It formed in alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics, and the texture is clay. Permeability and runoff are slow. The soil is not subject to water erosion. The hydric soils list does not identify any hydric inclusions within this soil type within Santa Clara County.

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Soil Type

- **108_SM**, Botella-Urban land complex, 0 to 5 percent slopes
- **117_SM**, Novato clay, 0 to 1 percent slopes
- **118_SM**, Novato clay, 0 to 1 percent slopes ponded
- **121_SM**, Orthents, cut and fill, 0 to 15 percent slopes
- **125_SM**, Pits and Dumps
- **131_SM**, Urban land
- **132_SM**, Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes
- **134_SM**, Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes
- **W_SM**, Water

Soil codes are not globally unique, they are unique to each county. Each code has been appended with "_SM", "_SC," or "_AC" to indicate San Mateo, Santa Clara, and Alameda counties, respectively.

Source *USDA-NRCS, SSURGO*

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FIGURE 4

Soils, *Ravenswood*

Soil Type

- **110_SC**, Xerorthents, trash substratum, 0 to 2 percent slopes
- **112_SC**, Xerorthents, trash substratum 15 to 30 percent slopes
- **113_SC**, Xerorthents, trash substratum, 30 to 50 percent slopes
- **120_SC**, Aquic Xerorthents, bay mud subtratum, 0 to 2 percent slopes
- **121_SC**, Aquic Xerorthents, bay mud substratum, 2 to 5 percent slopes
- **145_SC**, Urbanland-Hangerone complex, 0 to 2 percent slopes, drained
- **146_SC**, Hangerone clay loam, drained, 0 to 2 percent slopes
- **150_SC**, Urbanland-Embarcadero complex, 0 to 2 percent slopes, drained
- **151_SC**, Embarcadero silty clay loam, drained, 0 to 2 percent slopes
- **155_SC**, Novato clay, 0 to 1 percent slopes, tidally flooded
- **156_SC**, Novato silty clay loam, excessive salinity, 0 to 1 percent slopes, protected
- **157_SC**, Novato clay, 0 to 1 percent slopes, protected
- **165_SC**, Urbanland-Campbell complex, 0 to 2 percent slopes, protected
- **166_SC**, Campbell silt loam, 0 to 2 percent slopes, protected
- **W_SC**, Water

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Source *USDA-NRCS, SSURGO*

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FIGURE 4

Soils, *Alviso Mt. View*

Soil Type

- **110_SC**, Xerorthents, trash substratum, 0 to 2 percent slopes
- **120_SC**, Aquic Xerorthents, bay mud subtratum, 0 to 2 percent slopes
- **121_SC**, Aquic Xerorthents, bay mud substratum, 2 to 5 percent slopes
- **123_SC**, Urban Land-Xerorthents, anthropogenic fill complex, 0 to 2 percent slopes
- **151_SC**, Embarcadero silty clay loam, drained, 0 to 2 percent slopes
- **155_SC**, Novato clay, 0 to 1 percent slopes, tidally flooded
- **156_SC**, Novato silty clay loam, excessive salinity, 0 to 1 percent slopes, protected
- **W_SC**, Water

Soil codes are not globally unique, they are unique to each county. Each code has been appended with "_SM", "_SC," or "_AC" to indicate San Mateo, Santa Clara, and Alameda counties, respectively.

Source *USDA-NRCS, SSURGO*

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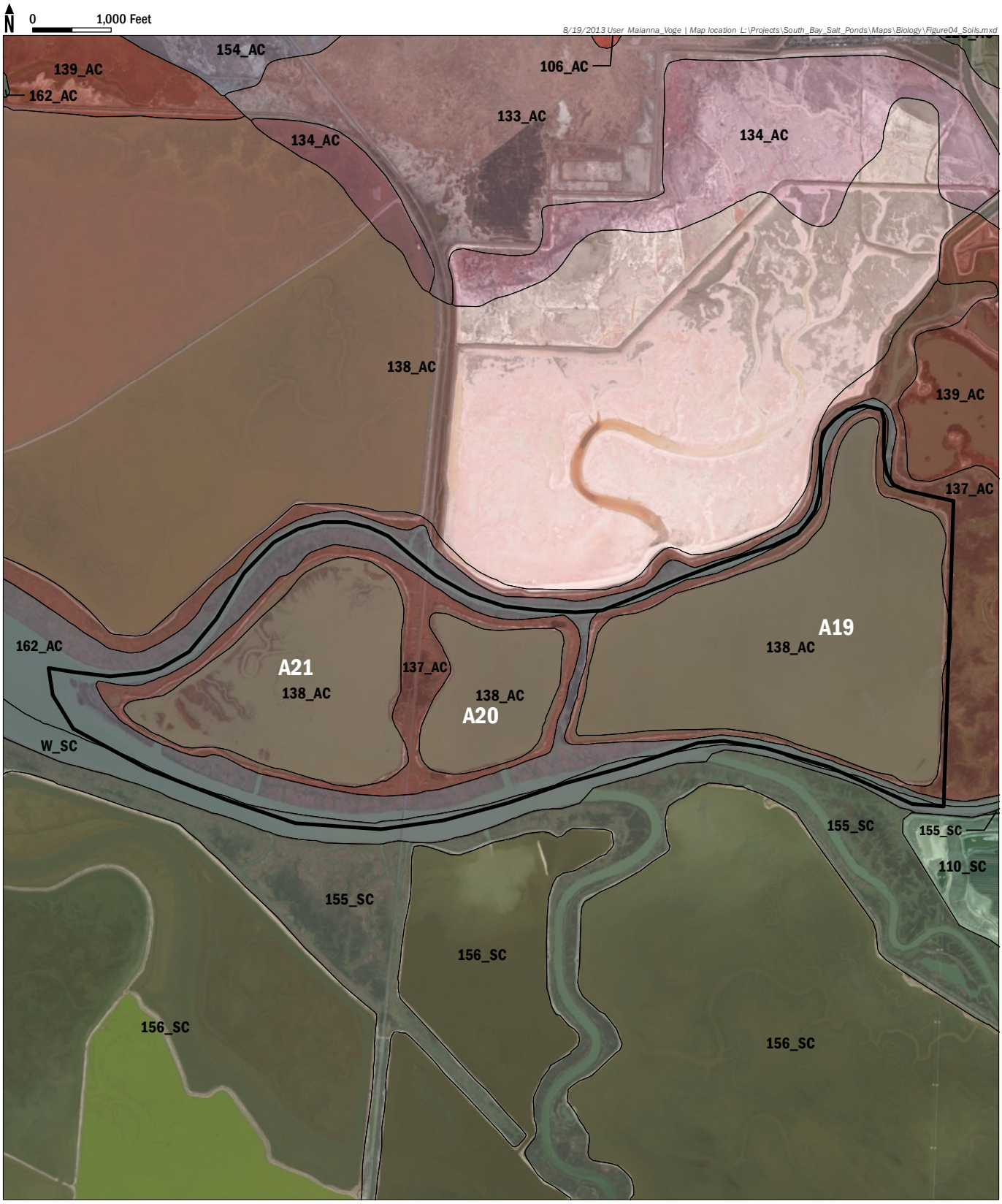
FIGURE 4

Soils, *Alviso A8*



Soil Type

- **106_AC**, Botella loam, 0 to 2 percent slopes
- **110_SC**, Xerorthents, trash substratum, 0 to 2 percent slopes
- **125_AC**, Marvin silt loam, saline-alkali
- **133_AC**, Pescadero clay, drained
- **134_AC**, Pescadero clay, ponded
- **137_AC**, Reyes clay
- **138_AC**, Reyes clay, ponded
- **139_AC**, Reyes clay, drained
- **154_AC**, Willows clay, drained
- **155_SC**, Novato clay, 0 to 1 percent slopes, tidally flooded
- **156_SC**, Novato silty clay loam, excessive salinity, 0 to 1 percent slopes, protected
- **162_AC**, Water
- **W_SC**, Water

Soil codes are not globally unique, they are unique to each county. Each code has been appended with "_SM", "_SC," or "_AC" to indicate San Mateo, Santa Clara, and Alameda counties, respectively.

Source *USDA-NRCS, SSURGO*

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FIGURE 4

Soils, *Alviso Island*

- **Novato silty clay loam, excessive salinity, 0 to 1 percent slopes, protected**: Novato silty clay loam, excessive salinity, 0 to 1 percent slopes, protected is a very deep, very poorly drained soil in managed ponds along the edges of San Francisco Bay. It formed in alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics, and the texture is silty clay loam. Permeability and runoff are slow. The soil is not subject to water erosion, and is subject to tidal flooding. The hydric soils list does not identify any hydric inclusions within this soil type within Santa Clara County.

The soils that occur within the Alviso-A8 Ponds include the following:

- **Xerorthents, trash substratum, 0 to 2 percent slopes**: Xerorthents, trash substratum, 0 to 2 percent slopes are well drained soils located in marshes, formed from human transported material in basin floors. Permeability is moderately low to moderately high, and texture is clay loam. The hydric soils list does not identify any hydric inclusions within this soil type within Santa Clara County.
- **Aquic Xerorthents, bay mud substratum, 0 to 2 percent slopes**: Aquic Xerorthents, bay mud substratum, 0 to 2 percent slopes are poorly drained soils located in marshes, formed from mixed human transported material over mixed silty and clayey fluviomarine deposits in basin floors. Permeability is moderately low to moderately high, and texture is gravely sandy loam to silty clay. This soil unit has low potential for erosion. The hydric soils list does not identify any hydric inclusions within this soil type within Santa Clara County.
- **Aquic Xerorthents, bay mud substratum, 2 to 5 percent slopes**: See description above.
- **Novato clay, 0 to 1 percent slopes, tidally flooded**: See description above.
- **Novato silty clay loam, excessive salinity, 0 to 1 percent slopes, protected**: See description above.

The soils that occur within the Alviso-Island Ponds include the following:

- **Reyes clay**: Reyes clay is a very deep, very poorly drained soil that formed in alluvium that derived from mixed sources. The soil is on tidal flats, with a slope of less than 2 percent. Texture is an alkaline clay or alkaline silty clay. Permeability is very slow, runoff is slow and most areas are subject to inundation. The soil has no hazard for erosion. The hydric soils list identifies three hydric inclusions occurring within this soil type: Reyes occurring in tidal flats, Pescadero in basin floors and unnamed, strongly saline inclusion occurring within salt marshes.
- **Reyes clay, ponded**: Reyes clay, ponded is a very deep, very poorly drained soil that formed in alluvium that derived from mixed sources. The soil is on tidal flats, with a slope of less than 2 percent. Texture is an alkaline clay or alkaline silty clay. Permeability is very slow, the soil is ponded and is protected from tidal inundation by levees. The soil is devoid of vegetation, and there is no hazard for erosion. The hydric soils list identifies three hydric inclusions occurring within this soil type: Reyes occurring in tidal flats, Pescadero in basin floors and unnamed, strongly saline inclusion occurring within marshes.

2.1.3 Natural Communities

Natural communities within the Study Area include several types of vegetation communities, mudflats, and unvegetated non-mudflats. Vegetation communities are assemblages of plant species that occur together in the same area that are defined by species composition and relative abundance. The San Francisco Bay and Coyote watersheds (Figure 3) are located in the San Francisco Bay Area subregion of the California Floristic Province (Baldwin, et.al., 2012) and support vegetation communities that are characteristic of the region. The habitats included in the South Bay region of the San Francisco Bay Area are open waters and subtidal habitats to the upper reaches of tidal action, tidal and nontidal wetlands, former salt evaporation ponds adjacent to the Bay, and the upland areas immediately adjacent to these features.

Within the project footprint, tidal salt marsh, freshwater marsh, upland/levees, mudflats, and unvegetated non-mudflats occur. These communities are presented in the South Bay Salt Pond Restoration Project Final EIS/EIR (USFWS 2007) and are described below. Photos of these vegetation communities are include in Appendix A, and a list of all observed plants is available in Appendix B,. A more comprehensive vegetation list has been produced for the Don Edwards San Francisco Bay National Wildlife Refuge Comprehensive Conservation Plan (USFWS, 2012)

The indicator statuses of all plants within the Study Area are included below in the community description. Plant indicator status categories include (Environmental Laboratory 1987):

- OBL - Plants that almost always occur in wetlands under natural conditions (estimated probability >99%), but which rarely occur in non-wetlands.
- FACW - Plants that occur usually (estimated probability >67% to 99%) in wetlands, but also occur in non-wetlands
- FAC - Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands
- FACU - Plants that occur sometimes (estimated probability 1% to <33%) in wetlands, but occur more often in non-wetlands
- UPL - Plants that occur rarely (estimated probability <1%) in wetlands, but occur almost always in non-wetlands

2.1.3.1 Tidal Salt Marsh and Brackish Marsh

Tidal salt marsh and brackish marsh vegetation consists of halophytic (salt tolerant) species which receive occasional to regular (tidal) saltwater inundation. Tidal salt marsh occurs on the outboard (San Francisco Bay) portions of salt pond levees where salinities are higher. Brackish marsh occurs along the intertidal reaches of the creeks and sloughs that drain to the Bay, where salinities are lower due to freshwater input.

In tidal salt marsh, cordgrass (*Spartina* sp. – OBL) dominates low marsh areas and pickleweed (*Salicornia* sp. – OBL) dominates middle marsh areas. Both of these communities formed relatively monotypic stands. The outboard areas from pond levees and lower reaches of sloughs surrounding R4, A1, and A2W typify tidal salt marsh in the Study Area.

Brackish marsh is found where intermediate interstitial soil salinities occur along creeks and sloughs; where freshwater channels experience periodic tidal inundation and groundwater emerges into tidal marshlands. Vegetative diversity and richness increases with greater freshwater influence. Where sediment deposits form terraced floodplains along low flow channels, short bulrushes such as seacoast bulrush (*Bolboschoenus robustus* –OBL) and saltmarsh bulrush (*Bolboschoenus maritimus* ssp. *paludosus* – OBL) dominate the brackish habitat. These terraced areas may also support dense populations of the invasive perennial pepperweed, which can quickly develop into monotypic stands with increasing levels of disturbance. Other moderately halophytic plants such as brass buttons (*Cotula coronopifolia* – OBL), and taller bulrushes including California bulrush (*Schoenoplectus californicus* –OBL) and hard stemmed tule (*Schoenoplectus acutus* var. *occidentalis* –OBL) occur in areas of lower soil salinity, for example, towards the upland edges of brackish marsh (USFWS 2007). Tidal salt marsh species including pickleweed, alkali heath, saltgrass, and spearscale may also colonize brackish habitat. The periphery of Pond A19 and the adjacent Mud Slough are exemplary of brackish marsh in the Study Area.

2.1.3.2 High Marsh

High marsh is considered an ecotone (transitional ecological community) between the tidal salt marsh and the upland communities with a distinct plant community and unique physicochemical characteristics (Traut, 2005). Many of the species present within this community occurred both above and below the high tide line, indicated by wrack material (water-transported organic and synthetic detritus). Vegetation found within the high marsh areas feature a mixture of pickleweed and other moderately halophytic species including alkali heath (*Frankenia salina* – FACW), saltgrass (*Distichlis spicata* – FAC), saltmarsh dodder (*Cuscuta salina* –NL), small flowered iceplant (*Mesembryanthemum nodiflorum* – FAC), fleshy jaumea (*Jaumea carnosa* – OBL), spearscale (*Atriplex prostrate* –FACW), perennial pepperweed (*Lepidium latifolium* – FAC), New Zealand spinach (*Tetragonia tetragonioides* – NL), and marsh gumplant (*Grindelia stricta* var. *angustifolia* – NL) (USFWS 2007). High marsh occurred in the same areas as tidal salt marsh.

2.1.3.3 Freshwater Marsh

Freshwater marsh vegetation in and around the Study Area exists along the upper reaches of sloughs and creeks and primarily consists of emergent vegetation adapted to freshwater wetland conditions. Though some freshwater marshes may experience tidal influence and periodic salt water inundation, soil salinity remains relatively low due to freshwater flowing through these areas on a regular basis. The upper reach of Ravenswood Slough (along the eastern edge of R3) demonstrates the vegetation transition that occurs as freshwater influence increases. Dense stands of California bulrush and hard stemmed tule interspersed with perennial pepperweed or curly dock (*Rumex crispus* –FAC) compose the majority of emergent vegetation in freshwater marsh habitat. Areas less frequently exposed to freshwater flow but still exposed to occasional salt water inundation may also host halophytic species such as marsh gumplant and pickleweed. The Guadalupe River side of A8 is a location where freshwater species colonize the majority of the floodplain terrace.

2.1.3.4 Upland/Levees

The primary upland habitat existing in the Ravenswood, Alviso-Mountain View, Alviso-A8, and Alviso-Island Ponds clusters exists along the tops of levees and along the landward sides of the Study Area. Levees were constructed from native tidal salt marsh soils (silty clay) in the immediate vicinity and may occasionally be reinforced with concrete debris. Due to the high salinity of these soils and their inherent disturbed nature, many levees feature areas of bare soil, or are otherwise populated by non-native halophytic species including small flowered iceplant, New Zealand spinach, sea fig (*Carpobrotus chilensis* –FACU), Russian thistle (*Salsola soda* –FACW), and Australian saltbush (*Atriplex semibaccata* –FAC) (USFWS 2007).

On levees and portions of levees where freshwater (groundwater or rain) has reduced soil salinity over time, other common ruderal species (non-native species that thrive in areas of disturbance) of forbs and grasses dominate; including black mustard (*Brassica nigra* –NL), Italian thistle (*Carduus pycnocephalus* –NL), yellow star thistle (*Centaurea solstitialis* –NL), sweet fennel (*Foeniculum vulgare* –NL), perennial pepperweed, common mallow (*Malva neglecta* -NL), bird's foot trefoil (*Lotus corniculatus* –FAC), wild oats (*Avena fatua* –NL), ripgut brome (*Bromus diandrus* –NL), crabgrass (*Digitaria sanguinalis* –FACU), Italian rye grass (*Lolium multiflorum* –NL), tall wheat grass (*Elymus ponticus* –NL), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum* –FAC). Native shrubs may colonize more substantial levees, for instance the coyote bush (*Baccharis pilularis* –NL) found on the A19 levees.

2.1.3.5 Mudflat

Naturally occurring mudflats on the outboard sides of many South Bay managed ponds, including those in the Ravenswood Complex, begin at low tidal salt marsh areas and extend into the Bay. Covered by shallow water during high tide, these mudflats are exposed during low tide (Schoellhammer 2005). These intertidal habitats are inhospitable to most vascular emergent vegetation; typically supporting 0 to 10 percent cover of cordgrass or pickleweed. Narrow stretches of mudflat occur within slough and creek channels and at the mouths of major sloughs. Mudflats also exist in the basins of former salt evaporator ponds, such as Charleston Slough, adjacent to the Alviso-Mountain View Ponds, and in portions of the Alviso-Island Ponds Complex where the levees have been breached and the pond re-exposed to Bay waters and tides.

2.1.3.6 Unvegetated Non-Mudflat

The margins and basins of some former salt evaporator ponds, such as R3 and R4 at Ravenswood Pond Complex, that are seasonally ponded but dry much of the year, consist of bare ground and salt flat (non-mudflat soils) areas. Historically these basins were subject to regular tidal inundation, but following installation of levees and their use as salt evaporator ponds, the salinity has increased beyond the tolerance of most halophytic vegetation. The only vascular plant species surviving in this environment is the non-native small flowered iceplant; which occurs sparsely along the margins of the basins and on top of the soil terrace of the salt flats (USFWS 2007).

2.2 METHODS

Prior to the commencement of field work, the approach URS biologists took to delineate wetland and water features was verified and confirmed by the USACE (J. Hicks. San Francisco District Regulatory Division Chief. San Francisco, California. June 28, 2013. Personal Communication). The mean high water (MHW) was established through desktop survey elevations using the NAVD88 datum. Aerial image interpretation was also performed to map all wetlands, uplands, ponds, and open water features prior to ground-truthing in the field. The primary source is the maps of the United States Coast Survey (USCS; later US Coast and Geodetic Survey), a federal agency renowned for the accuracy and detail of its 19th-century maps of America's shoreline. In most parts of the country, these maps provide the best historic pictures of coastal and estuarine habitats prior to substantial Euro-American modification. The MHW was used to delineate the current Section 10 Waters of the U.S. The High Tide Line (HTL) was delineated in the field.

To delineate the HTL in the field, teams collected Global Positioning System (GPS) points at the HTL around each pond at approximately every 300 to 500 feet. The HTL was identified in the field by shoreline indicators which in most cases included drift lines or wrack lines and in some cases, the uppermost limit of barnacles on rock rip rap along the Bay. This data was then combined using ArcGIS 10 with LiDAR overlay to create the HTL boundary for each pond. The HTL boundary was derived using the contour tool in the spatial analysis tools of ESRI's ArcGIS 10. Based on field collection, specific elevation contours, or isolines, representing the HTL, were derived from the LiDAR (elevation) surface. The contour tool was used to create a line representing a specific elevation across a defined area. The boundaries of the HTL were used to determine the extent of Section 404 jurisdiction of other waters

For non-tidally influenced ponds, the ordinary high water mark (OHWM) was used to determine the extent of the open water features. Paired upland and wetland data points were also collected in the field to verify the extent of all wetland and open water features. Within each pond complex the paired wetland and upland data points were taken using the methods described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008) and Wetland Determination Data Forms for the Arid West Region were completed (Appendix C). All wetland types (brackish marsh, freshwater marsh, and tidal marsh) were delineated collectively in the field and the total acreage of wetlands within each pond complex reflects all wetland feature types combined. Wetland and open water polygons were then revised based on GPS data collected in the field.

A plant list was compiled while in the field by URS biologists based on what was identifiable at the time of the field effort within the Study Area (Appendix B).

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3.1 DELINEATION RESULTS

A total of 3,027.1 acres of potentially jurisdictional wetlands and other waters of the U.S. were identified within the footprint and immediate surroundings of Phase 2 of the SBSP Restoration Project (Figure 5). Of the features identified in this report, 388.1 acres are freshwater marsh, tidal marsh, and seasonal wetland and 2,639.1 acres are other waters. A total of 477.0 acres of historic Section 10 water features were identified within the Study Area and 1345.2 acres of current Section 10 waters are present within the Study Area boundaries. This section provides brief descriptions of these features, the delineations of which were based on NOAA tidal datum, photographic interpretation and data collected in the field.

3.2 SIGNIFICANT NEXUS DETERMINATION

The San Francisco Bay is a TNW waterway under 33 CFR 328.3(a)(3)(i), based on its usage by ships for interstate commerce. It flows into the Pacific Ocean north of San Francisco underneath the Golden Gate Bridge (Figure 3). All ponds in Phase 2 of the SBSP Restoration Project have a significant nexus to San Francisco Bay, either directly by means of an existing levee breach or hydrologically connected through subterranean flow (flow of water below the levee). Therefore, all ponds within the Study Area are considered to be potentially jurisdictional under Section 404 of the Clean Water Act.

3.2.1 Section 404 Wetlands and Other Waters of the U.S.

Wetland features within the Study Area, as defined under Section 404 of the CWA, include brackish and freshwater marshes and a few seasonal wetlands. Other waters features as defined by Section 404 include open water, mudflats, natural sloughs, channels, and former salt ponds.

- **Ravenswood Pond Complex:** The Phase 2 ponds at the Ravenswood Pond Complex include R3, R4, R5, and S5 (Figure 5). These ponds are a subset of the larger Ravenswood Pond Complex. Section 404 wetlands occur on the outboard portions of Ravenswood: tidal salt marsh occurs on the northern portion of the R4 levee, and the eastern edge of R4. Wetlands near R3 are characterized by brackish marsh transitioning to freshwater marsh further upstream in Ravenswood Slough. Freshwater marsh also occurs along the southern edge of the S5 levee in two isolated patches. The interiors of these ponds are unvegetated non-mudflat, and are considered other waters of the U.S.
- **Alviso Pond Complex – A8 Ponds:** This pond cluster is in the central part of the Alviso Pond Complex, and includes Pond A8 and Pond A8S. The outboard edge of A8, which borders the Guadalupe River, is host to the only Section 404 wetlands in this cluster. These wetlands are characterized by dense, exclusive stands of freshwater marsh. The Guadalupe River itself, and the interiors of the A8 and A8S ponds, are considered other waters of the U.S.
- **Alviso Pond Complex – Island Ponds:** The ponds in this part of the Alviso Pond Complex are referred to as the Island Ponds. This pond cluster includes A19, A20, and A21. The levees of all three ponds are breached and are subject to tidal influence; at low tide the interiors of A19, A20, and A21 drain to reveal mudflats, bordered by hydric vegetation. The vegetation at these ponds is entirely brackish due to the freshwater influence of Coyote Creek

to the south and Mud Slough to the north. The brackish marshes are Section 404 wetlands, and the interiors of the ponds and the creek and slough channels constitute other waters of the U.S.

- **Alviso Pond Complex – Mountain View Ponds:** The ponds in this part of the Alviso Pond Complex are referred to as the Alviso-Mountain View Ponds. For the purposes of this delineation, this pond cluster includes A1 and A2W, plus the adjacent Charleston Slough (C1) to the west, Permanente Creek which flows into Mountain View Slough between A1 and A2W, and Stevens Creek to the east of A2W. The outboard edges of A1 and A2W are host to tidal salt marsh, which transitions into brackish marsh travelling upstream into Charleston Slough, Mountain View Slough, and Stevens Creek. The portion of the western levee of C1 at the outlet of Adobe Creek (bordering Palo Alto Baylands Park) is host to freshwater marsh. Ponds A1 and A2W contain water at all times because their levees are not breached; however, C1 is exposed to tidal action and drains at low tide to reveal mudflats. The areas within the levees of these ponds are considered other waters of the U.S., and the marsh and outboard areas constitute Section 404 wetlands.

3.2.2 Section 10 Waters

Waters of the U.S. subject to jurisdiction under Section 10 of the Rivers and Harbors Act are defined as those waters subject to the ebb and flow of the tide shoreward to the MHW mark and/or presently used, or have been used in the past, or are susceptible for use to transport interstate or foreign commerce. These waters were delineated based on the MHW (Figure 6). The MHW for each Pond Complex was determined using a dataset that integrated several sources of data describing the historical features of South Bay tidal marshes. The MHW, as interpreted through the NAVD88 datum, used for each pond cluster is listed below:

- Ravenswood – 6.7 feet
- Alviso-A8 – 7.4 feet
- Alviso-Island – 7.6 feet
- Alviso-Mountain View – 6.8 feet

Current Section 10 waters within the Study Area include the San Francisco Bay present in the Ravenswood Complex and the Alviso-Mountain View Ponds, Ravenswood Slough in the Ravenswood Complex, Charleston Slough, Mountain View Slough and Stevens Creek in the Alviso-Mountain View Ponds, Mud Slough and Coyote Creek in the Alviso-Island Ponds, and the Alviso Slough in the Alviso-A8 Ponds. All current Section 10 waters overlap with and are also designated as Section 404 other waters. The features that are now ponds within the Study Area were present as tidally influenced areas before the construction of the levees and the flooding of the ponds. Some historical Section 10 waters also overlap current Section 404 jurisdiction (Figure 5).

N 0 1,000 2,000 Feet

1/14/2014 User Malanna_Voge | Map location L:\Projects\South_Bay_Salt_Ponds\Maps\Biology\Figure05_WetlandDelineation_Section404.mxd

URS

South Bay Salt Pond Restoration Project

FIGURE 5

Section 404 Waters of the U.S.

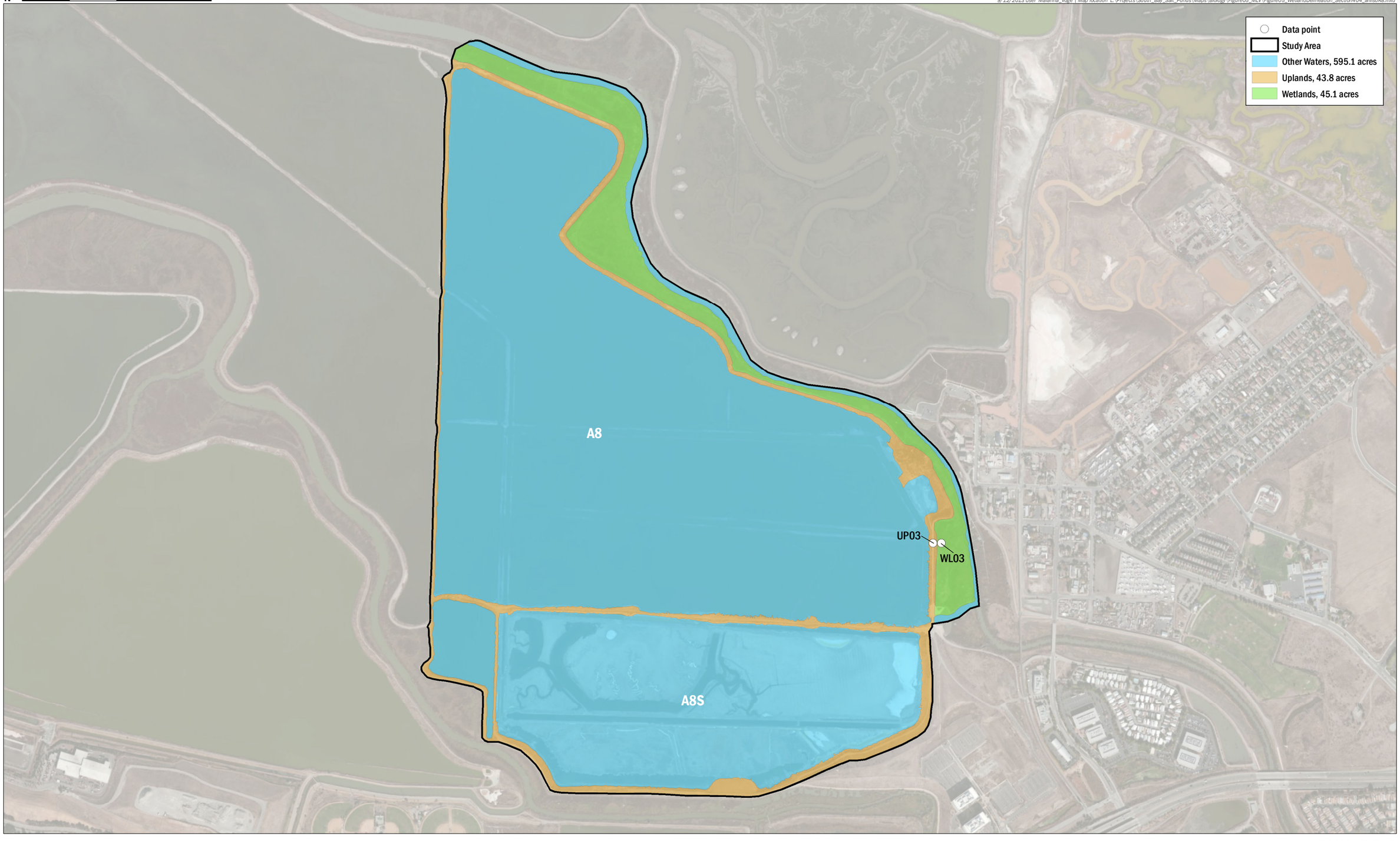
Based on July 2013 Delineation & GIS Analysis

Ravenswood

N

0 1,000 2,000 Feet

9/12/2013 User: Malanna_Voge | Map location: L:\Projects\South_Bay_Salt_Ponds\Maps\Biology\Figure05_MLV\Figure05_WetlandDelineation_Section404_alvisoA8.mxd



URS

South Bay Salt Pond Restoration Project

FIGURE 5

Section 404 Waters of the U.S.

Based on July 2013 Delineation & GIS Analysis

Alviso A8

N

0 1,000 2,000 Feet

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URS

South Bay Salt Pond Restoration Project

FIGURE 5

Section 404 Waters of the U.S.

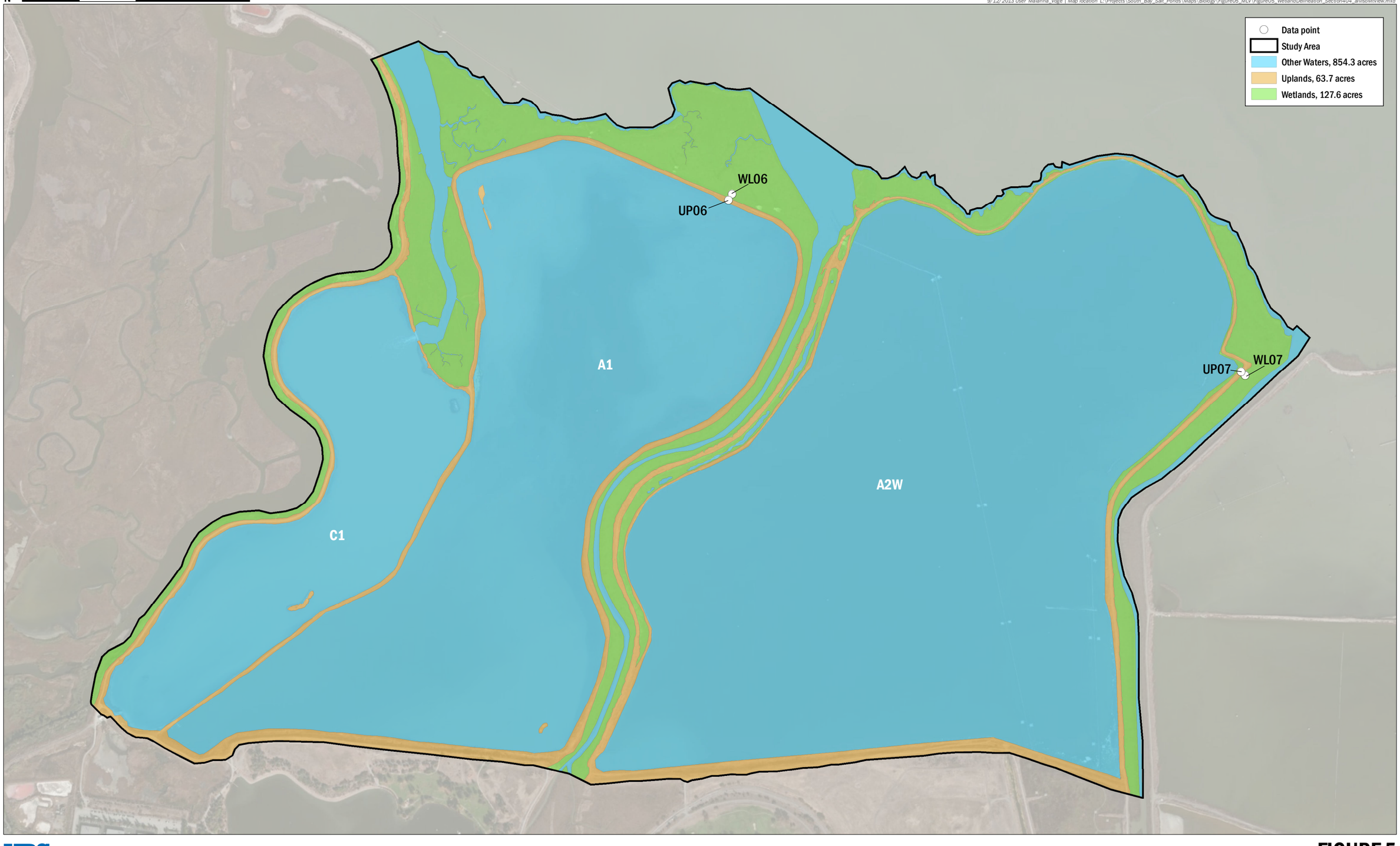
Based on July 2013 Delineation & GIS Analysis

Alviso Island

N

0 1,000 2,000 Feet

9/12/2013 User Maianna_Voge | Map location L:\Projects\South_Bay_Salt_Ponds\Maps\Biology\Figure05_MLV\Figure05_WetlandDelineation_Section404_alvisoMtView.mxd



URS

South Bay Salt Pond Restoration Project

FIGURE 5

Section 404 Waters of the U.S.

Based on July 2013 Delineation & GIS Analysis

Alviso Mt. View

N

0 1,000 2,000 Feet

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Study Area

Mean High Water

Ravenswood, *6.7'*

Current Section 10 Waters, 13.2 acres

Historic Section 10 Waters, 177.5 acres

Source: *Historic Section 10 Waters*
SFEI, United States Coast Survey
(USCS, US Coast Geodetic Survey)

R4

R5

S5

R3

URS

South Bay Salt Pond Restoration Project

FIGURE 6

Current & Historic Section 10

Based on July 2013 Delineation & Aerial Interpretation

Ravenswood

N 0 1,000 2,000 Feet

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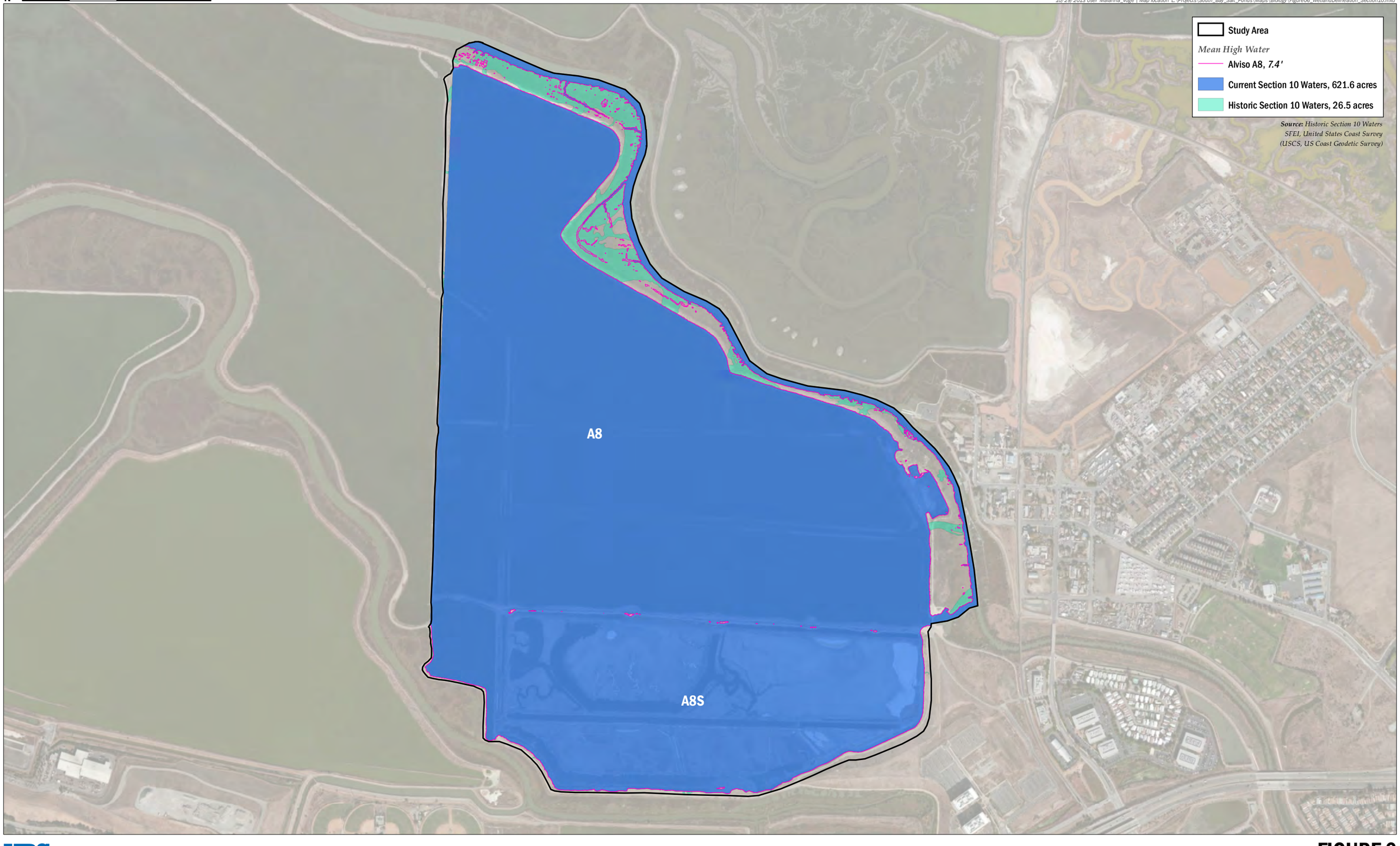

URS

South Bay Salt Pond Restoration Project

FIGURE 6

Current & Historic Section 10

Based on July 2013 Delineation & Aerial Interpretation

Alviso A8

N

0 1,000 2,000 Feet

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URS

South Bay Salt Pond Restoration Project

FIGURE 6

Current & Historic Section 10

Based on July 2013 Delineation & Aerial Interpretation

Alviso Island

N

0 1,000 2,000 Feet

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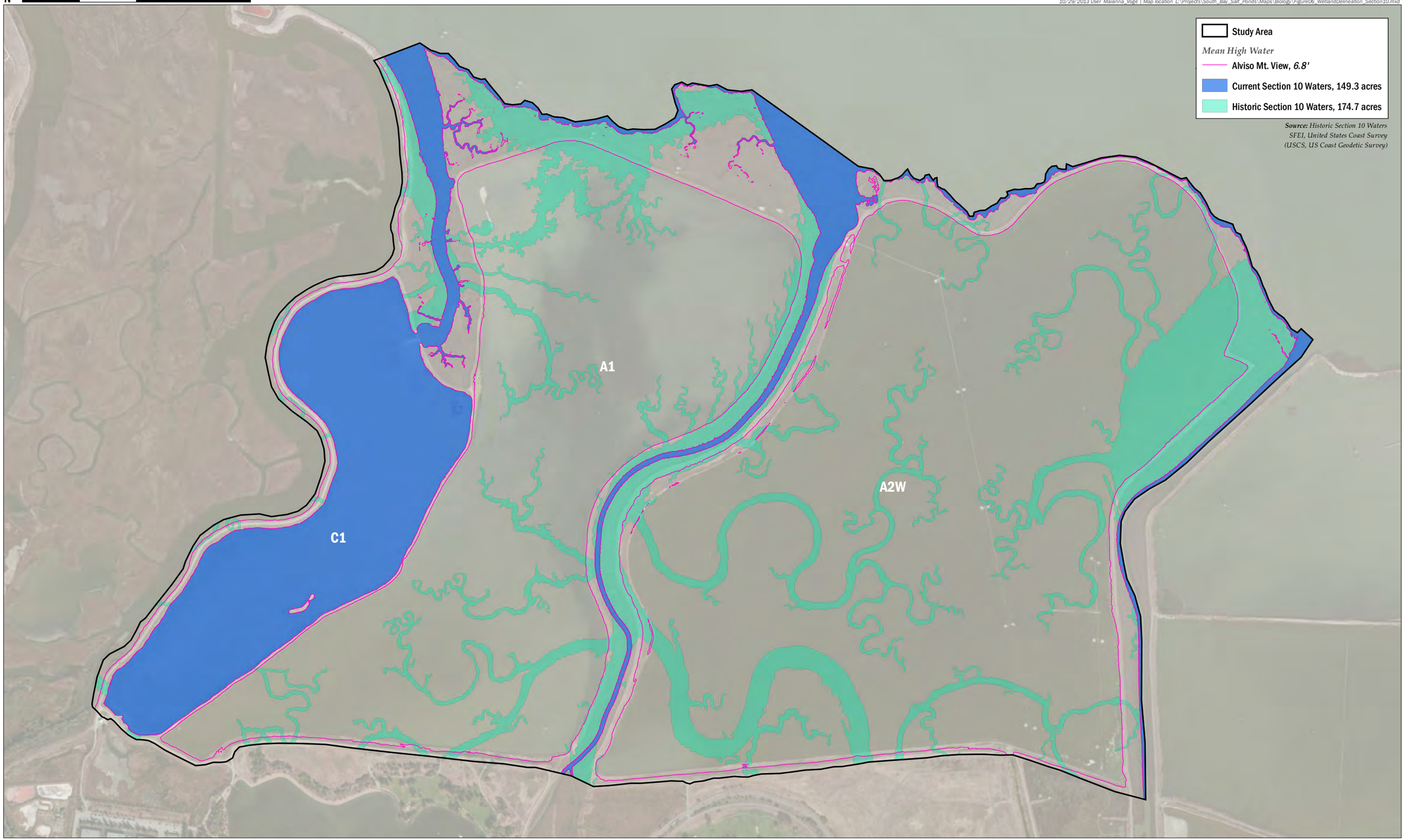

URS

South Bay Salt Pond Restoration Project

FIGURE 6

Current & Historic Section 10

Based on July 2013 Delineation & Aerial Interpretation

Alviso Mt. View

3.3 SUMMARY OF FINDINGS

A total of 388.1 acres of potentially jurisdictional wetlands and 2,639.1 acres of other waters of the U.S. were identified within the Study Area. These features are summarized in Table 3-1. In addition, 477.0 acres of historic Section 10 waters and 1,345.2 acres of current Section 10 waters were identified within the Study Area. These features are summarized in Table 3-2.

Table 3-1. Summary of Section 404 Features Identified in the Study Area

Pond Complex	Area (acres)*
Wetlands	
Ravenswood Ponds	75.0
Alviso-A8 Ponds	45.1
Alviso-Island Ponds	140.4
Alviso-Mountain View Ponds	127.6
Total acres of wetlands	***388.1***
Other Waters of the U.S.	
Ravenswood Ponds	656.0
Alviso-A8 Ponds	595.1
Alviso-Island Ponds	533.7
Alviso-Mountain View Ponds	854.3
Total acres of other waters of the U.S.	***2,639.1***
TOTAL OF POTENTIALLY JURISDICTIONAL FEATURES	**3,027.1**

*The sums of wetlands and other waters may not add up exactly due to rounding.

Table 3-2. Summary of Historic and Current Section 10 Waters Identified in the Study Area

Pond Complex	Section 10 Waters	Area (acres)*
Ravenswood	Historic	177.5
Alviso A8	Historic	26.5
Alviso Island Ponds	Historic	98.2
Alviso Mountain View	Historic	174.7
Total acres of historic waters		***477.0***
Ravenswood	Current	13.2
Alviso A8	Current	621.6
Alviso Island Ponds	Current	561.0
Alviso Mountain View	Current	149.3
Total acres of current waters		***1,345.2***

*The sums of wetlands and other waters may not add up exactly due to rounding.

Implementation of the South Bay Salt Pond Restoration Project is anticipated to have temporary and permanent impacts on the potentially jurisdictional features identified in this delineation report. To comply with federal and state regulations protecting aquatic resources, permits will be required from the U.S. Army Corps of Engineers (USACE), the San Francisco Bay Conservation and Development Commission (BCDC), and the Regional Water Quality Control Board (RWQCB).

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Appendix A

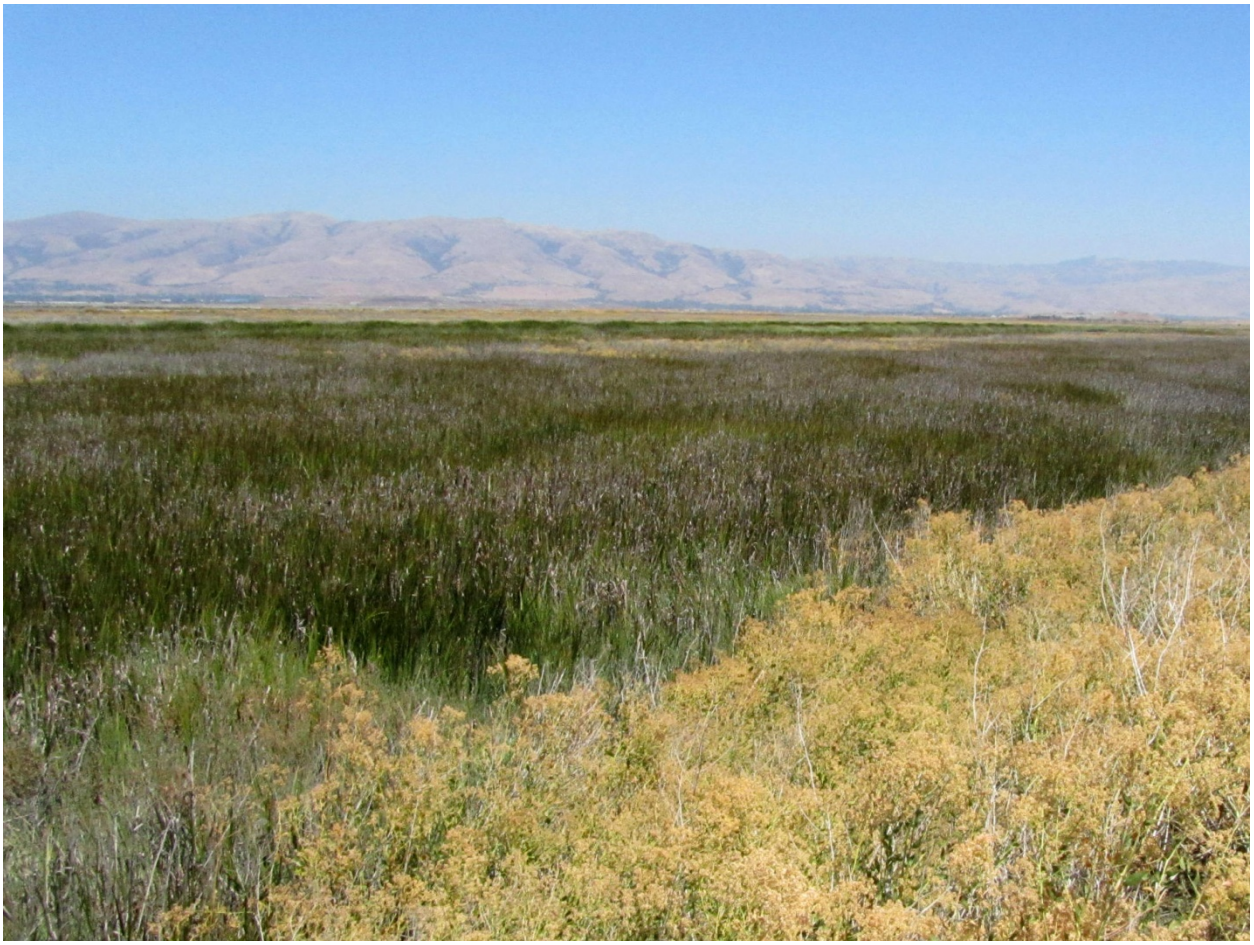
Representative Photographs of Delineated Wetlands and Waters

Tidal Salt Marsh and Brackish Marsh

Tidal salt marsh near the mouth of Mountain View Slough between ponds A1 and A2W; featuring cordgrass low marsh, pickleweed middle marsh, and gumplant and alkali heath high marsh.

Characteristic brackish marsh at A19 pond interior (top) and along Mud Slough (bottom) featuring a mixture of pickleweed, perennial pepperweed, and bulrush species.

Freshwater Marsh



Dense stands of bulrush on the terraced floodplain of the Guadalupe River, adjacent to A8.

Upland/Levees

Ruderal, upland vegetation found on levee tops (R4- left, R3-right) including ripgut brome, Italian thistle (dry), and Australian saltbush.

Mudflat

Photo 5. Pickleweed margin unvegetated mudflat of A19 pond basin.

Unvegetated Non-Mudflat

Interior basins of salt ponds R3 (top left), S5 (top right), and R4 (bottom).

Appendix B

Plant List

List of Vascular Plant Species Identified

Species Name	Common Name	Wetland Indicator	Nativity	Cal-IPC status
Atriplex prostrata	spearscale	FACW	non native	NL
Atriplex semibaccata	Australian saltbush	FAC	non native	moderate
Avena fatua	wild oats	NL	non native	moderate
Baccharis pilularis	coyote brush	NL	native	n/a
Bolboschoenus maritimus ssp. *paludosus*	saltmarsh bulrush	OBL	native	n/a
Bolboschoenus robustus	seacoast bulrush	OBL	native	n/a
Brassica nigra	black mustard	NL	non native	moderate
Bromus diandrus	ripgut brome	NL	non native	moderate
Carduus pycnocephalus	Italian thistle	NL	non native	moderate
Carpobrotus chilensis	sea fig	FACU	non native	moderate
Centaurea solstitialis	yellow star-thistle	NL	non native	high
Cotula coronopifolia	brass buttons	OBL	non native	limited
Cuscuta salina	saltmarsh dodder	NL	native	n/a
Digitaria sanguinalis	crabgrass	FACU	non native	NL
Distichlis spicata	saltgrass	FAC	native	n/a
Elymus ponticus	tall wheat grass	NL	non native	NL
Foeniculum vulgare	sweet fennel	NL	non native	high
Frankenia salina	alkali heath	FACW	native	n/a
Grindelia stricta var. *angustifolia*	marsh gumplant	NL	native	n/a
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	FAC	non native	NL
Jaumea carnosa	marsh jaumea	OBL	native	n/a
Lepidium latifolium	perennial pepperweed	FAC	non native	high
Lolium multiflorum	Italian rye grass	NL	non native	moderate
Lotus corniculatus	bird's foot trefoil	FAC	non native	NL
Malva neglecta	common mallow	NL	non native	NL
Mesembryanthemum nodiflorum	small flowered iceplant	FAC	non native	NL
Rumex crispus	curly dock	FAC	non native	limited

Salicornia depressa	pickleweed	OBL	native	n/a
Salicornia pacifica	Pacific pickleweed	OBL	native	n/a
Salsola soda	Russian thistle	FACW	non native	moderate
Schoenoplectus acutus var. *occidentalis*	hard stemmed tule	OBL	native	n/a
Schoenoplectus californicus	California bulrush	OBL	native	n/a
Spartina foliosa	Pacific cordgrass	OBL	native	n/a
Spartina sp. *(S. alterniflora, S. alterniflora* x *S. foliosa)*	saltwater cordgrass	OBL	non native	high
Tetragonia tetragonioides	New Zealand spinach	NL	non native	high

Wetland Indicator:
NL = not listed
FAC = Facultative: equally likely to occur in upland or wetland habitats.
FACW = Facultative Wetland: more commonly occurs in wetlands but can occur in uplands.
FACU = Facultative Upland: more commonly occurs in uplands but can occur in wetlands.
OBL = Obligate Wetland: almost always occurs in wetlands, rarely occurs in uplands.

Cal-IPC:
High – Species with severe ecological impacts in California: on physical processes, ecological communities, and vegetation structure.
Moderate – Species with substantial and apparent – but generally not severe – impacts in California on physical processes, ecological communities, and vegetation structure.
Limited – Species that are invasive in California but whose ecological impacts may be minor (though potentially locally persistent and problematic), or information is limited.

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Appendix C

Arid West Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Ravenswood | City/County: Menlo Park, San Mateo County | Sampling Date: 7/10/13

Applicant/Owner: USFWS | State: CA | Sampling Point: WL01

Investigator(s): S. Lindquist, J. Novak, D. Peña, E. Maroni | Section, Township, Range: S14 T5S R3W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.49797157 | Long: -122.1657307 | Datum:

Soil Map Unit Name: Novato clay | NWI classification: L2USKh

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks: Photos 0918-0924

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Salicornia depressa*	100	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
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)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: WL01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	Gley1 3/1	80	5YR 4/6	20	C	PL	silty clay	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Munsell M-3

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): 0-12

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks: Located within high tide location of San Francisco Bay.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Ravenswood | City/County: Menlo Park, San Mateo County | Sampling Date: 7/10/13

Applicant/Owner: USFWS | State: CA | Sampling Point: UP01

Investigator(s): S. Lindquist, J. Novak, D. Peña, E. Maroni | Section, Township, Range: S14 T5S R3W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.49791468 | Long: -122.1657342 | Datum:

Soil Map Unit Name: Novato clay | NWI classification: L2USKh

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Photos 0925-0927. Point located on San Francisco Bay side of levee.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus diandrus*	60	Yes	UPL
2. *Frankelia salina*	25	Yes	FACW
3. *Salicornia depressa*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	25	x 2 =	50
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	60	x 5 =	300
Column Totals:	95 (A)		360 (B)

Prevalence Index = B/A = 3.79

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: UP01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 3/4	100					loamy sand	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: 40% gravel.

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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Located within high tide location of San Francisco Bay.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Ravenswood | City/County: Menlo Park, San Mateo County | Sampling Date: 7/10/13

Applicant/Owner: USFWS | State: CA | Sampling Point: WL02

Investigator(s): J. Novak and D. Peña | Section, Township, Range: S24 T5S R3W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.48718592 | Long: -122.1475286 | Datum:

Soil Map Unit Name: Novato clay | NWI classification: L2USKh

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Photos 4533-4540

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Scirpus schoenoplectus*	5	No	OBL
2. *Grindelia*	25	Yes	FACW
3. *Lepidium latifolium*	5	No	FAC
4. *Salicornia*	50	Yes	OBL
5. *Digitaria sanguinalis*	40	Yes	FACU
6.			
7.			
8.			
Total Cover:	125%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	25	x 2 =	50
FAC species	5	x 3 =	15
FACU species	40	x 4 =	160
UPL species		x 5 =	0
Column Totals:	125 (A)		280 (B)

Prevalence Index = B/A = 2.24

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Edge of Schoenoplectus complex; channel has Salicornia / Schoenoplectus as dominants.

SOIL

Sampling Point: WL02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	2.5YR 5/1		5YR 5/8	15	C	M	sapric\hemic	Semi "greasy" muck horizon
6-14	Gley1 3/1	70	Gley1 2.5/black	20			clay	See remarks

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Hand lens test; Hemic horizon when unrubbed (50%). Sapric horizon when rubbed (<15%).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] 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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Edge of standing water at low tide, channel between two levees.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Ravenswood | City/County: Menlo Park, San Mateo County | Sampling Date: 7/10/13

Applicant/Owner: USFWS | State: CA | Sampling Point: UP02

Investigator(s): J. Novak and D. Peña | Section, Township, Range: S24 T5S R3W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.48721975 | Long: -122.1475466 | Datum:

Soil Map Unit Name: Novato clay | NWI classification: L2USKh

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Pictures 4541-4542. On top of levee at top of bank.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus diandrus*	65	Yes	UPL
2. *Atriplex sp.*	40	Yes	
3. *Lepidium latifolium*	1	No	FAC
4. *Grindelia*	4	No	FACW
5.			
6.			
7.			
8.			
Total Cover:	110 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	4	x 2 =	8
FAC species	1	x 3 =	3
FACU species		x 4 =	0
UPL species	65	x 5 =	325
Column Totals:	70 (A)		336 (B)

Prevalence Index = B/A = 4.80

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: UP02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	5Y 3/2		N/A				silty clay loam	High root content - very light when dry. Mildly hydrophobic.

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No 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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Top of bank of levee.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Pond A8 City/County: San Jose, Santa Clara County Sampling Date: 7/12/13

Applicant/Owner: USFWS State: CA Sampling Point: WL03

Investigator(s): S. Lindquist, E. Maroni Section, Township, Range: S9 T6S R1W

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

Subregion (LRR): C - Mediterranean California Lat: 37.42548194 Long: -121.9803801 Datum:

Soil Map Unit Name: Novato clay NWI classification: L2UBK1h

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks: Wetland east side of levee. Photos 1049-1050.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Schoenoplectus sp.*	100	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
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)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: WL03

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	2.5YR 3/1	90	10YR 4/6	10	C	PL	clay	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Munsell M-3.

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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Pond A8 City/County: San Jose, Santa Clara County Sampling Date: 7/12/13

Applicant/Owner: USFWS State: CA Sampling Point: UP03

Investigator(s): S. Lindquist, E. Maroni Section, Township, Range: S9 T6S R1W

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

Subregion (LRR): C - Mediterranean California Lat: 37.4254814 Long: -121.9804279 Datum:

Soil Map Unit Name: Novato clay NWI classification: L2UBK1h

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Upland on back side of levee. Photos 1052-1053.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis pilularis*	25	Yes	UPL
2.			
3.			
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1. *Foeniculum vulgare*	75	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	75 %		
Woody Vine Stratum			
1.			
2.			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: UP03

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Crushed rock from back of levee formed majority of matrix.

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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Island Ponds | City/County: Fremont, Alameda County | Sampling Date: 7/12/13

Applicant/Owner: USFWS | State: CA | Sampling Point: WL04

Investigator(s): Shannon Lindquist, Erin Maroni | Section, Township, Range: S27 T5S R1W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.47455533 | Long: -121.9544606 | Datum:

Soil Map Unit Name: Reyes clay | NWI classification: E2EM1Nh

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )		
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?**	**Yes (●) No ( )**
Wetland Hydrology Present?	Yes (●)	No ( )		

Remarks: Pond A21. Photos 1015-1016.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Salicornia depressa*	85	Yes	OBL
2. *Frankelia salina*	15	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
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)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	15	x 2 =	30
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		115 (B)

Prevalence Index = B/A = 1.15

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: WL04

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	2.5YR 3/1	85	2.5YR 4/8	15	C	PL	clay	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Munsell M-3.

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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Island Ponds | City/County: Fremont, Alameda County | Sampling Date: 7/12/13

Applicant/Owner: USFWS | State: CA | Sampling Point: UP04

Investigator(s): Shannon Lindquist, Erin Maroni | Section, Township, Range: S27 T5S R1W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.47455156 | Long: -121.9544399 | Datum:

Soil Map Unit Name: Reyes clay | NWI classification: E2EM1Nh

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Pond A21. Photos 1017-1018.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Brassica nigra*	85	Yes	UPL
2. *Frankelia salina*	15	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
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)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	15	x 2 =	30
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	85	x 5 =	425
Column Totals:	100 (A)		455 (B)

Prevalence Index = B/A = 4.55

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: UP04

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	2.5YR 4/1	95	7.5YR 5/8	5	C	PL	sandy loam	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic 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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Island Ponds | City/County: Fremont, Alameda County | Sampling Date: 7/12/13

Applicant/Owner: USFWS | State: CA | Sampling Point: WL05

Investigator(s): Shannon Lindquist, Erin Maroni | Section, Township, Range: S27 T5S R1W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.47276001 | Long: -121.9543397 | Datum:

Soil Map Unit Name: Reyes Clay | NWI classification:

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Wetland point on backside of levee. Pond A21. Photos 1031-1032.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Salicornia depressa*	75	Yes	OBL
2. *Carex sp.*	25	Yes	
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	75 (A)		75 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: WL05

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	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.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Munsell M-3.

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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Island Ponds | City/County: Fremont, Alameda County | Sampling Date: 7/12/13

Applicant/Owner: USFWS | State: CA | Sampling Point: UP05

Investigator(s): Shannon Lindquist, Erin Maroni | Section, Township, Range: S27 T5S R1W

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

Subregion (LRR): C - Mediterranean California | Lat: 37.47274559 | Long: -121.9543691 | Datum:

Soil Map Unit Name: Reyes clay | NWI classification: E2EM1Nh

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Upland point on backside of levee. Pond A21. Photos 1033-1034.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis pilularis*	20	Yes	UPL
2.			
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1. *Brassica nigra*	50	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	50 %		
Woody Vine Stratum			
1.			
2.			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	70	x 5 =	350
Column Totals:	70 (A)		350 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: UP05

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	2.5YR 4/1	95	7.5YR 5/8	5	C	PL	sandy loam	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic 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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Mountain View Ponds City/County: Mountain View, Santa Clara Co Sampling Date: 7/11/13

Applicant/Owner: USFWS State: CA Sampling Point: WL06

Investigator(s): Jan Novak, Danielle Pena Section, Township, Range: S33 T5S R2W

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

Subregion (LRR): C - Mediterranean California Lat: 37.44896232 Long: -122.0809111 Datum:

Soil Map Unit Name: Novato clay NWI classification: L2UBK1h

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ( )	No (•)	**within a Wetland?** Yes ( ) No (•)

Remarks: Photos 4633-4635

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Frankelia*	98	Yes	FACW
2. *Salicornia depressa*	2	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	98	x 2 =	196
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		198 (B)

Prevalence Index = B/A = 1.98

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: WL06

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
3-0	-		-				-	organic matter
0-6	2.5YR 4/1		10R 4/8	30			clay	
6-15	2.5YR 4/2		10YR 4/8	30			clay	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic 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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 2.5' above high tide line. Soil moist but not saturated, near top of levee.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Mountain View Ponds City/County: Mountain View, Santa Clara Co Sampling Date: 7/11/13

Applicant/Owner: USFWS State: CA Sampling Point: UP06

Investigator(s): Jan Novak, Danielle Pena Section, Township, Range: S33 T5S R2W

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

Subregion (LRR): C - Mediterranean California Lat: 37.44896232 Long: -122.0809111 Datum:

Soil Map Unit Name: Novato clay NWI classification: L2UBK1h

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks: Photos 4633-4635

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Frankelia*	98	Yes	FACW
2. *Salicornia depressa*	2	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	98	x 2 =	196
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		198 (B)

Prevalence Index = B/A = 1.98

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: UP06

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
3-0	-		-				-	organic matter
0-6	2.5YR 4/1		10R 4/8	30			clay	
6-15	2.5YR 4/2		10YR 4/8	30			clay	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic 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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 2.5' above high tide line. Soil moist but not saturated, near top of levee.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Mountain View Ponds City/County: Mountain View, Santa Clara Co Sampling Date: 7/11/13

Applicant/Owner: USFWS State: CA Sampling Point: WL07

Investigator(s): Shannon Lindquist, Erin Maroni Section, Township, Range: S3 T6S R2W

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

Subregion (LRR): C - Mediterranean California Lat: 37.44511 Long: -122.0651734 Datum:

Soil Map Unit Name: Novato clay NWI classification: L2UBK1h

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (•)	No ( )		
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?**	**Yes (•)** **No ( )**
Wetland Hydrology Present?	Yes (•)	No ( )		

Remarks: Wetland on Bay side of A2W. Photos 0990-0992.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Salicornia depressa*	100	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
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)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes (•)** **No ( )**

Remarks:

SOIL

Sampling Point: WL07

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 3/2	85	5YR 4/6	15	C	PL	clay loam	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Munsell M-1.

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): 0-12

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SBSP Alviso Mountain View Ponds City/County: Mountain View, Santa Clara Co Sampling Date: 7/11/13

Applicant/Owner: USFWS State: CA Sampling Point: UP07

Investigator(s): Jan Novak, Danielle Pena Section, Township, Range: S33 T5S R2W

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

Subregion (LRR): C - Mediterranean California Lat: 37.44896232 Long: -122.0809111 Datum:

Soil Map Unit Name: Novato clay NWI classification: L2UBK1h

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ( )	No (•)	**within a Wetland?** Yes ( ) No (•)

Remarks: Photos 4633-4635

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Frankelia*	98	Yes	FACW
2. *Salicornia depressa*	2	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	98	x 2 =	196
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		198 (B)

Prevalence Index = B/A = 1.98

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: UP07

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
3-0	-		-				-	organic matter
0-6	2.5YR 4/1		10R 4/8	30			clay	
6-15	2.5YR 4/2		10YR 4/8	30			clay	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic 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 gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 2.5' above high tide line. Soil moist but not saturated, near top of levee.