A Report on Wetlands and Other Aquatic Habitats Occurring along the San Francisco Bay Area Rapid Transit District Proposed Warm Springs Extension

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A Report on Wetlands and Other Aquatic Habitats Occurring along the San Francisco Bay Area Rapid Transit District Proposed Warm Springs Extension

Executive Summary

This report presents the results of a Jones & Stokes survey of wetlands and other aquatic habitats for the proposed San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension Project. Jones & Stokes conducted field surveys of the project area in May and June 2002, to identify and map wetlands and other aquatic habitats that had not previously been delineated. Approximately 2.30 acres of palustrine emergent wetlands (seasonal wetlands), 1.26 acres of palustrine shrub-scrub wetlands (riparian scrub), 3.69 acres of open water habitat, and 1.09 acres of intermittent stream habitat are present in the Area of Project Effects (APE). Characteristics of these aquatic features are presented in Table 1, and locations of these features are shown in Figure 1. The seasonal wetlands and riparian scrub appear to be isolated and not subject to U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 of the federal Clean Water Act. The stream habitat is tributary to waters of the United States and appears to be subject to Corps jurisdiction. The open water habitat is adjacent to a stream that is tributary to waters of the United States and, therefore, also appears to be subject to Corps jurisdiction. This assessment is preliminary and subject to verification by Corps, which may make jurisdictional determinations on a case-by-case basis.

Introduction

This report presents the results of a Jones & Stokes survey of wetlands and other aquatic habitats for the proposed San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension Project (WSX) (Proposed Project). The objective of this survey was to map wetlands and other aquatic habitats occurring within the project area and to supplement information obtained during previous surveys. The results of this survey will be used to update the biological setting information from the environmental impact report (EIR) that was prepared for

the project in 1992, to support the supplemental EIR (SEIR) currently being prepared for the project, and to support any necessary wetland permit applications. The results of this survey provide a preliminary assessment of areas that may be regulated as waters of the United States under Section 404 of the Clean Water Act. The regulatory jurisdiction of the wetlands and other aquatic habitats identified in this survey is subject to determination by the Corps.

Project Location And Description

BART proposes to extend its existing service in Alameda County 5.4 miles to the south, from the current terminus at the Fremont Station to just north of Mission Boulevard in the Warm Springs District. The Proposed Project passes through Sections 27, 28, and 34 of Township 4 South, Range 1 West and Sections 3, 10, and unsurveyed sections of Township 5 South, Range 1 West, on the Niles and Milpitas 7.5-minute quadrangles.

The Proposed Project would consist of construction of new track, one or two new stations, and ancillary facilities such as traction power, train control and communications facilities, and maintenance and storage facilities. Most of the alignment would be at grade in the existing railroad alignment formerly operated by the Western Pacific Railroad. However, at the northern portion, the alignment would traverse a subway structure for approximately 1 mile under Fremont Central Park.

Environmental Setting

The primary sources for information on the environmental setting are the 1992 EIR prepared for the WSX (San Francisco Bay Area Rapid Transit District 1991), the Stivers Lagoon Marsh restoration/enhancement plan (Environmental Science Associates 1993), and the delineation of waters of the United States for the Fremont Grade Separations Project (Huffman & Associates 2002). The 1992 EIR examined habitats along the entire Proposed Project alignment but focused primarily on the section north of Paseo Padre Parkway. The Stivers Lagoon Marsh report addressed Lake Elizabeth, Mission Creek, and the adjacent Fremont Central Park. The Huffman & Associates delineation covered the area between the existing Southern Pacific railroad tracks and the former Western Pacific railroad tracks, from the Fremont Family Golf Center (east of Lake Elizabeth) to about 1,400 feet south of Washington Boulevard.

The Proposed Project is located in the City of Fremont in the Bay Plain geomorphic unit of Alameda County. The City of Fremont lies on an alluvial fan at the base of the western slope of Mission Peak. The most prevalent landforms in this geomorphic unit are level and nearly level floodplains, stream terraces and alluvial fans. The region has a Mediterranean climate, characterized by cool, wet winters and warm, dry summers, tempered by the maritime influence of the

adjacent San Francisco Bay. The mean annual precipitation is approximately 18 inches, with rain falling mainly between October and April (Welch 1981).

Vegetation

The land along the Proposed Project alignment has been converted from its historical condition to agricultural, residential, and commercial uses. Much of the vegetation along the alignment consists of ornamental plantings, such as grass lawn and landscaping trees. Several vacant lots and fallow fields along the alignment are vegetated by nonnative grasses and ruderal forbs. Mission Creek, which crosses the alignment on the east side of Fremont Central Park, supports a mixed riparian forest of willows (*Salix* species), Fremont cottonwood (*Populus fremontii*), and black walnut (*Juglans* sp.). Mixed riparian forest is also present at a remnant of Tule Pond, a detention basin located just south of the Fremont BART station. Most of the other streams crossing the alignment have been channelized and have concrete-lined bottoms. Small seasonal wetlands are present near the Hetch Hetchy Aqueduct on the north side of Paseo Padre Parkway and also in the toe drain along the existing railroad alignment south of Washington Boulevard.

Soils

The General Soil Map of western Alameda County indicates that the primary soil association in the Proposed Project area is the Sycamore-Yolo association, which is characterized by well-drained and poorly drained silt loams that formed from alluvium derived primarily from sedimentary rock (Welch 1981). The main soil series in the project area include Azule clay loam, 9 to 30% slopes; Clear Lake clay drained, 2 to 9% slopes; Danville silty clay loam, 0 to 2% slopes and 2 to 9% slopes; Tierra loam, 0 to 5% slopes; willows clay, drained; and Xerorthents, clayey. Clear Lake clay, drained, and Willows clay, drained, are on the Alameda County Hydric Soils List (U.S. Soil Conservation Service 1992).

Methods

Jones & Stokes conducted a reconnaissance survey of the Proposed Project area on May 17, 2002. The survey area consisted of an approximately 100-foot-wide corridor centered on the Proposed Project alignment. Jones & Stokes personnel walked and visually inspected the entire length of the project area, except for a segment between Lake Elizabeth and Paseo Padre Parkway, where access was unavailable. (This area was delineated by Huffman & Associates [2002].) All spontaneously occurring plants encountered in the survey were recorded, as well as the location of wetlands and other potential waters of the United States.

On June 6, 2002, Jones & Stokes wetland delineators returned to collect data on potential wetlands in the project area, following the routine onsite determination procedure described in the Corps wetlands delineation manual (Environmental

Laboratory 1987). At each data point, paired soil pits were excavated, one on the wetland side of the presumed wetland boundary, the other on the upland side of the boundary. A shallow soil pit was excavated by hand to compare soil characteristics with the mapped units and to determine whether soils exhibited redoximorphic features. For each soil pit, the vegetation within a 6-foot-diameter radius was recorded, and indicators of wetland hydrology were noted. Data from each sample point were recorded on standard data forms, which are included in Appendix A of this report.

Streams (water bodies that normally have flowing water) were identified by the presence of a defined bed and banks. Streams were mapped where they crossed the project area, and width was determined by the ordinary high water mark. The watershed and connectivity of streams in the project area were determined by tracing the stream signatures on the U. S. Geological Survey topographic maps for the area.

Results And Discussion

Wetlands located within the Proposed Project area include seasonal wetlands that occur in basins, topographic depressions, and low areas within riparian scrub. Other aquatic habitat includes open water habitat and streams. The characteristics of wetlands and other aquatic habitats identified in the project area are listed in Table 1 and mapped in Figure 1. Appendix B of this report lists the plant species encountered during the surveys. Riparian scrub habitat adjacent to aquatic habitat but lacking sufficient indicators to be considered wetland does not appear in Table 1.

Seasonal Wetlands

Vegetation

Seasonal wetlands that are dominated by herbaceous vegetation are classified as palustrine emergent wetlands, seasonally flooded (Cowardin et al. 1979). Palustrine emergent wetlands are present at three locations: a remnant of Tule Pond, in the vicinity of the Hetch Hetchy Aqueduct, and along the railroad right-of-way south of Washington Boulevard and between Grimmer Boulevard and Mission Boulevard. Approximately 1.53 acres of palustrine emergent wetlands are present in the Proposed Project area. (The total area is approximate because Huffman & Associates [2002] did not provide the areas of individual wetlands [Table 1].)

Tule Pond (shown in Figure 1) is a natural sag pond that was bisected by the construction of Walnut Avenue. The remnant of Tule Pond south of Walnut Avenue is no longer permanently flooded but serves as a flood control basin. Seasonal wetlands at Tule Pond are dominated by hard-stem bulrush (*Schoenoplectus acutus*) and smartweed (*Polygonum* sp.). (See Data Points A

and B in Appendix A.) In stark contrast to the adjacent grassland, the vegetation is composed of hydrophytic species, including annual grasses and forbs such as wild oat (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), beardless wheat (*Triticum aestivum*), bull mallow (*Malva nicaensis*), and sugar beet (*Beta vulgaris*).

Palustrine emergent wetlands (Wetlands B, D, and E, shown in Figure 1) are present on the north side of Paseo Padre Parkway, both north and south of the Hetch Hetchy Aqueduct (Huffman & Associates 2002). In these wetlands, the dominant species include smartweed, bristly ox-tongue (*Picris echioides*), curly dock (*Rumex crispus*), and poison hemlock (*Conium maculatum*). The herbaceous uplands at this location consist primarily of annual grassland dominated by Italian ryegrass, in association with bird's-foot trefoil (*Lotus corniculatus*), bristly ox-tongue, curly dock, field bindweed (*Convolvulus arvensis*), bull thistle (*Cirsium vulgare*), and narrow-leaved milkweed (*Asclepias fascicularis*).

Palustrine emergent wetlands (Wetland F, shown in Figure 1) are present in the railroad right-of-way south of Washington Boulevard (Huffman & Associates 2002). In these wetlands, the dominant species include creeping spikerush (*Eleocharis macrostachya*), curly dock, swamp timothy (*Crypsis schoenoides*), and umbrella sedge (*Cyperus eragrostis*). The adjacent upland vegetation is ruderal, dominated by Italian ryegrass and Bermuda grass (*Cynodon dactylon*), in association with stinkweed (*Dittrichia graveolens*), curly dock, scarlet pimpernel (*Anagallis arvensis*), Mediterranean mustard (*Hirschfeldia incana*), and wild oat.

Palustrine emergent wetlands (Wetland G, shown in Figure 1) are also present in a narrow toe drain along the railroad right-of-way north of Mission Boulevard. (See Data Points 3 and 4 in Appendix A.) In these wetlands, the dominant species include Italian ryegrass and bristly ox-tongue. The vegetation is only marginally hydrophytic, but patches of strongly hydrophytic vegetation, including narrow-leaved cattail (*Typha angustifolia*) and umbrella sedge occur along the drainage in which this wetland is located. Upland species are absent from the drainage channel. The adjacent uplands are dominated by ruderal species, including Bermuda grass and sweet fennel (*Foeniculum vulgare*).

Soils

Soils at the Tule Pond remnant are mapped as Botella loam, 0 to 2% slopes (Welch 1981). The Botella loam soil is a very deep, well-drained soil that formed in alluvium derived from sedimentary rock. The Alameda County Hydric Soils List does not classify it as hydric. However, Jones & Stokes analysts assumed soils at this location (Data Points A and B) to be hydric because they were observed to be saturated for a long period during the growing season (aquic moisture regime). For the Botella soil series, the growing season is estimated at 250 to 350 days (Welch 1981), and a long period of soil saturation would be at least 12 to 18 days.

Huffman & Associates (2002) determined that the soils in the seasonal wetlands present on the north side of Paseo Padre Parkway were hydric. Two of the soils map units (Willows clay, drained, and Clear Lake clay, drained) are on the Alameda County Hydric Soils List, and soils exhibited indicators of hydric soil conditions, including low chroma, mottling, and gleying.

Hydric soils are also present in the seasonal wetlands south of Washington Boulevard, as observed by Huffman & Associates (2002) and by Jones & Stokes wetlands delineators. The soil at Data Points 1 and 2 is mapped as Danville silty clay loam, 2 to 9% slopes (Welch 1981). The Danville silty clay loam soil is a very deep, fine-textured Mollisol that formed from alluvium derived primarily from sedimentary rocks. This soil typically consists of well-structured, dark gray to grayish brown silty clay loams and silty clays that extend to depths of more than 5 feet. The Danville soil is slowly permeable but well drained, and is not classified as hydric on the Alameda County Hydric Soils List (U.S. Soil Conservation Service 1992).

The soil profile observed at Data Point 1 was texturally similar to the Danville silty clay soil, but differed in that it lacked structure, contained railroad track ballast and trash, and was rutted and compacted near the surface. These characteristics indicate that the soil at Data Point 1 may be the remnant of Danville soil that has been manipulated in the past, probably as the result of construction within the railroad right-of-way. The soil at Data Point 1 was determined to be hydric based on the presence of a low chroma matrix and redoximorphic iron concentrations in the matrix of the Ap2 horizon.

The soil profile observed at Data Point 2 exhibited properties and characteristics similar to the soil profile observed at Data Point 1, except that the Data Point 2 profile was slightly sandier and lacked redoximorphic iron concentrations in the lower part. The soil at Data Point 2 was determined to be non-hydric based on the absence of any definitive hydric soil indicators. The low value and low chroma colors observed in the Ap1 and Ap2 horizons at Data Point 2 (10YR 3/1 – 2/1) are normal colors for the non-hydric Danville clay (Welch 1981) and are not believed to be indicative of reducing conditions (as discussed by Sprecher 1999).

The soil in the seasonal wetland north of Mission Boulevard (Data Points 3 and 4) is mapped as Clear Lake clay, 0 to 2% slopes, drained (Welch 1981). The Clear Lake clay soil is a very deep, low chroma Vertisol that formed from alluvium derived primarily from sedimentary rocks. The Clear Lake clay soil typically consists of very dark-gray, well-structured clays and silty clays that extend to depths of more than 5 feet. Surface cracking is common in the Clear Lake soil due to its high clay content. The Clear Lake clay soil is slowly permeable, poorly drained, and is classified as hydric on the Alameda County Hydric Soils List because it is typically subjected to a seasonally high water table for a significant period (usually more than 2 weeks) during the growing season.

The soil profile observed at Data Point 3 lacked the high clay content and well-developed soil structure typical of Clear Lake soil. These characteristics and the presence of trash and railroad track ballast at depth in the soil profile indicate that

the soil at Data Point 3 has been disturbed by past construction in the railroad right-of-way. The soil at Data Point 3 was determined to be hydric based on the presence of a low chroma matrix and redoximorphic iron concentrations in the matrix of the Ap2 horizon.

The soil profile observed at Data Point 4 exhibited properties and characteristics similar to the soil profile observed at Data Point 3, except that the Data Point 4 profile lacked redoximorphic iron concentrations in the lower part. The soil at Data Point 4 was determined to be non-hydric based on the absence of definitive hydric soil indicators. The dark gray low value color of the Ap2 horizon (10YR 3/1) is common for the Clear Lake soil and other associated soils in the area (Welch 1981) and is not believed to be indicative of reducing conditions (as discussed by Sprecher 1999).

Hydrology

Wetland hydrology for all of the seasonal wetlands observed in the project area is rainfall-dependent. Direct observation of wetland hydrology (inundation or saturated soils) is possible mainly during the rainy season (October to April). However, wetland hydrology was still evident in the Tule Pond remnant on May 17. At that time, the soils were saturated to the soil surface, although no ponding was evident. During the Jones & Stokes delineation of June 6, no direct evidence of wetland hydrology occurred in the seasonal wetlands. The main indicator of wetland hydrology was the presence of sediment deposited on the stems and leaves of the perennial vegetation. Huffman & Associates (2002) observed direct evidence of wetland hydrology in the seasonal wetlands north of Paseo Padre and south of Washington Boulevard during their January and March field surveys.

Riparian Scrub

Riparian scrub along the project area is characterized by a dense canopy of red willow (*Salix laevigata*), arroyo willow (*S. lasiolepis*), and sandbar willow (*S. exigua*). Seasonal wetlands are present where depressions are present. Seasonal wetland that is dominated by woody shrubs is classified as palustrine scrub-shrub wetlands, seasonally flooded (Cowardin et al. 1979).

At Tule Pond, the riparian scrub is within and on the margin of a detention basin. The dominant species include willows, Himalaya blackberry (*Rubus discolor*), and mulefat (*Baccharis salicifolius*). Seasonal wetlands (Wetlands A and C) with red willow as the dominant canopy species are present on the north side of the Hetch Hetchy Aqueduct (Huffman & Associates 2002).

Soils

Soils in the Tule Pond remnant and in the wetlands north of Paseo Padre Parkway are as described above under seasonal wetlands.

Huffman & Associates (2002) found that soils in the riparian scrub areas north of Paseo Padre Parkway had low chromas but otherwise lacked hydric soil indicators. For most of the riparian scrub, the soils were assumed to be non-hydric. Where depressions are present, the soils were observed to be saturated for a long period during the growing season and were assumed to be hydric.

Soils in the riparian scrub adjacent to Mission Creek also appear to be non-hydric. Soils in the riparian scrub along Mission Creek (Data Points 5 and 6) are mapped as Willows clay, drained (Welch 1981). Like the Clear Lake Soil, the Willows clay soil is a very deep, low chroma Vertisol that formed from alluvium derived mostly from sedimentary rock. The Willows clay soil typically consists of black to dark gray, well-structured clay that extends to depths of more than 6 feet. Surface cracking is common in the Willows soil due to its high clay content. The Willows soil is very slowly permeable, poorly drained, and is not classified as hydric on the Alameda County Hydric Soils List. However, this Willows clay soil map unit can contain unnamed soil inclusions in depressions that are classified as hydric on the county hydric soil list.

The soil observed at Data Point 5 consisted of dark gray, well-structured clay loam and clay, which is characteristic of the Willows clay soil. The soil at Data Point 5 was determined to be non-hydric based on the absence of definitive hydric soil indicators. The low value, dark gray and neutral colors of the A1 and A2 horizons at Data Point 5 are typical for the non-hydric Willows clay soil (Welch 1981), and are not believed to be indicative of reducing conditions (as discussed by Sprecher 1999).

The soil at Data Point 6 consists of dark gray silt loam, and has a slightly lower clay content than is typical for the surface horizons of the Willows clay soil. The soil at Data Point 6 was determined to be non-hydric based on the absence of definitive hydric soil indicators. The low value, dark gray color of the A1 and A2 horizons (10YR 3/1) is common for the Willows soil and other associated soils in the area (Welch 1981), and is not believed to be indicative of reducing conditions (as discussed by Sprecher 1999).

Hydrology

Wetland hydrology was determined to be present in the Tule Pond remnant, as described above, and in portions of the willow scrub north of Paseo Padre Parkway where seasonal inundation and soil saturation occurs (Huffman & Associates 2002).

Most of the willow scrub in the project area, including the scrub along Mission Creek, was determined not to possess wetland hydrology. Huffman & Associates

(2002) reported that some flooding and soil saturation may occur in the riparian scrub following rainstorms, but the areas drain rapidly, and these wet conditions persist only briefly. Wetland hydrology was not evident in the willow scrub along Mission Creek. The flood plain adjacent to the creek is several feet above the ordinary high water mark in Mission Creek, and the willow scrub is subject only to occasional flooding.

Although riparian vegetation may offer evidence that wetlands are present, riparian vegetation is not restricted to wetland habitats. Riparian scrub often indicates the presence of a shallow water table. However, to meet the wetland hydrology criterion, the water table must extend into the major portion of the root zone, which is defined as within 12 inches of the soil surface (Environmental Laboratory 1987). Although willows usually become established when saturated soils conditions are present (e.g., during a flood event), if the plants succeed in sending roots deep enough to reach the water table, they can persist to maturity.

Other Aquatic Habitats

Open Water Habitat

Open water habitat is present in Lake Elizabeth. Lake Elizabeth is a stormwater retention reservoir that was constructed in 1968 from a portion of Stivers Lagoon, a naturally occurring sag pond and freshwater marsh. The lake holds water partly because it is underlain by a naturally occurring clay layer; the surface water elevation is also maintained by groundwater that is pumped into the lake (Environmental Science Associates 1993). The lake is mostly devoid of emergent vegetation, although a small stand of hard-stem bulrush is present on the eastern shore.

A small pond (New Marsh) occurs adjacent to the north end of Lake Elizabeth. This pond serves as a retention basin for irrigation runoff from Fremont Central Park (San Francisco Bay Area Rapid Transit District 1992). The pond margins support hard-stem bulrush and broad-leaved cattail.

Streams

Nine streams within the Proposed Project area are believed to be natural and to have been present throughout the history of the area. All of the streams in the Proposed Project area have been altered from their historical condition. Their channels have been rerouted and portions of the streams are either lined with concrete or within culverts. Based on the U.S. Geological Survey topographic maps of the area (Niles and Milpitas 7.5-minute quadrangles), Mission Creek, which crosses the Proposed Project area adjacent to Lake Elizabeth, is the principal stream; all of the other streams are tributary to it. Mission Creek is a tributary of Coyote Creek, which enters the San Francisco Bay southwest of Fremont. Mission Creek's present channel in the Proposed Project area was

established in 1986, when Lake Elizabeth was excavated (Environmental Science Associates 1993).

All of the streams present on the topographic maps are shown as intermittent streams. The federal definition of an intermittent stream is a stream or reach of a stream that drains a watershed of at least 1 square mile or that is below the local water table for at least some part of the year and obtains its flow from both surface runoff and ground water discharge (30 CFR 701.5). Runoff from landscape irrigation appears to create flows in some of the channels of much greater duration than would have been present under historic conditions.

Jurisdictional Assessment

This section provides an assessment of the aquatic habitats that may be subject to regulation by the Corps. This assessment is preliminary and subject to verification by Corps, which may make jurisdictional determinations on a case-by-case basis. Although Corps regulates many wetlands, streams, and water bodies, it may make a non-jurisdictional determination for wetlands that may be isolated and lacking a connection to interstate or foreign commerce or that are human-made. Such features include non-tidal drainage and irrigation ditches excavated on dry land or artificial lakes created by excavating and/or diking dry land to collect and retain water. These constructions are used exclusively for such purposes as stock watering, irrigation, settling basins, or cultivating rice.

Although the remnant of Tule Pond was historically a natural pond, it currently serves as a stormwater detention reservoir and does not appear to be adjacent to or hydrologically connected with an existing water of the United States. Therefore, Tule Pond may not be subject to Corps jurisdiction.

New Marsh was excavated on dry land and retains irrigation water from Fremont Central Park. Therefore, New Marsh does not appear to be subject to Corps jurisdiction.

Lake Elizabeth is an artificial lake, but it was excavated, at least in part, from an existing wetland, Stivers Lagoon. Lake Elizabeth is adjacent to Mission Creek and functions as a floodwater detention reservoir for high water flows from the creek. Therefore, Lake Elizabeth appears to be subject to Corps jurisdiction.

Mission Creek is a natural stream that is tributary to other waters of the United States (Coyote Creek). Therefore, Mission Creek is subject to Corps jurisdiction.

Corps conducted a field verification of Huffman & Associates (2002) wetland delineation on July 17, 2002. Corps determined that the seasonal wetlands north of Paseo Padre Parkway (Wetlands A through E) and south of Washington Boulevard (Wetland F) were isolated and therefore were not subject to Corps jurisdiction. Stream A, including the north lobe, was determined to be subject to Corps jurisdiction.

The named and unnamed streams that cross the project area south of Washington Boulevard all appear to be tributary to Mission Creek. All of these streams were probably intermittent historically but now convey some irrigation runoff during the summer months. These streams appear to be subject to Corps jurisdiction.

Seasonal wetlands north of Mission Boulevard (Wetland G) occur in the toe drain along the east side of the railroad embankment. The toe drain was apparently excavated in dry land to provide stormwater drainage. Therefore, this wetland does not appear to be subject to Corps jurisdiction.

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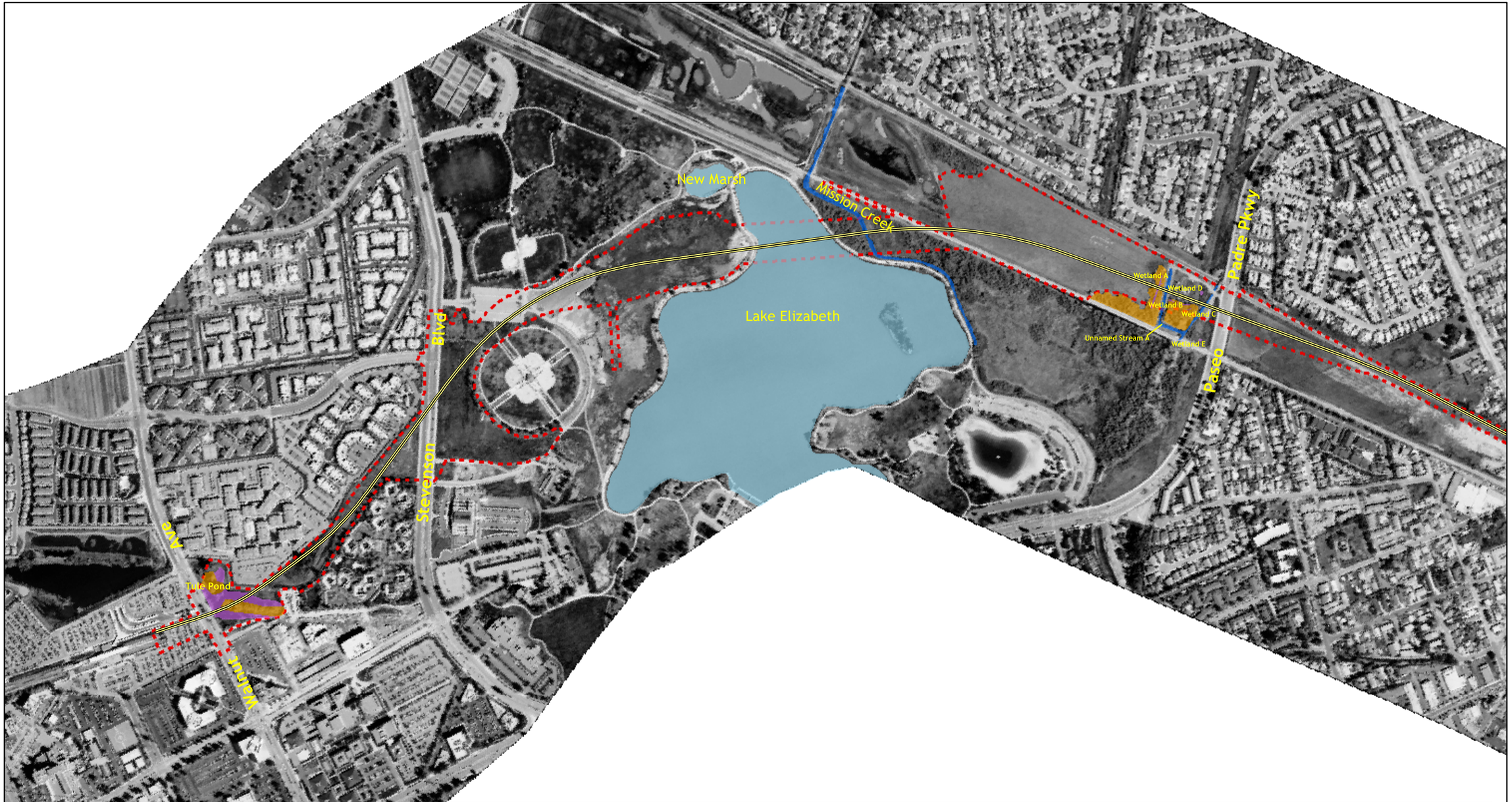
Table 1. Aquatic Features Present along Proposed Project Alignment

Feature	Habitat type	Extent in Project Vicinity (acres)	Extent within APE (acres)	Jurisdictional Considerations	Area within APE Potentially Subject to Corps Jurisdiction (acres)
Tule Pond	seasonal wetland	1.53	1.53	isolated	0.00
Tule Pond	riparian scrub	1.17	1.17	isolated	0.00
New Marsh	open water/marsh	1.37	0.00	artificial, excavated on dry land, serves for irrigation retention	0.00
Lake Elizabeth	open water	75.33	3.69	artificial but constructed in wetlands; adjacent to Mission Creek	3.69
Mission Creek	stream	1.57	0.19	tributary to Coyote Creek	0.19
*Wetland A	riparian scrub	0.07	0.07	isolated	0.00
*Unnamed Stream A	stream	0.41	0.41	tributary to Mission Creek	0.41
*Wetland B	riparian scrub	0.02	0.02	isolated	0.00
*Wetland C	seasonal wetland	0.01	0.01	isolated	0.00
*Wetland D	seasonal wetland	0.02	0.02	isolated	0.00
*Wetland E	seasonal wetland	0.01	0.00	isolated	0.00
*Wetland F	seasonal wetland	0.70	0.70	isolated	0.00
Unnamed Stream B	stream	0.32	0.20	tributary to Mission Creek	0.20
Unnamed Stream C	stream	0.26	0.00	tributary to Mission Creek	0.00
Unnamed Stream D	stream	0.59	0.00	tributary to Mission Creek	0.00
Cañada del Aliso	stream	0.98	0.00	tributary to Mission Creek	0.00
Unnamed Stream E	stream	0.66	0.05	tributary to Mission Creek	0.05
Unnamed Stream F	stream	0.24	0.24	tributary to Mission Creek	0.24
Wetland G	seasonal wetland	0.04	0.04	artificial, constructed on dry land	0.04
Agua Caliente Creek	stream	0.28	0.00	tributary to Mission Creek	0.00

Feature	Habitat type	Extent in Project Vicinity (acres)	Extent within APE (acres)	Jurisdictional Considerations	Area within APE Potentially Subject to Corps Jurisdiction (acres)
Totals					
	open water	76.70	3.69		3.69
	seasonal wetland	2.31	2.30		0.00
	riparian scrub	0.09	1.26		0.00
	stream	5.44	1.09		1.09

Wetlands and other Aquatic Habitat Previously Delineated by Huffman & Associates (2002) are Identified by an asterisk (*).



Jones & Stokes

Legend

- Proposed Project Alignment
- Boundary of Proposed Project APE

Habitats

- Riparian Scrub
- Creek
- Open Water
- Seasonal Wetland

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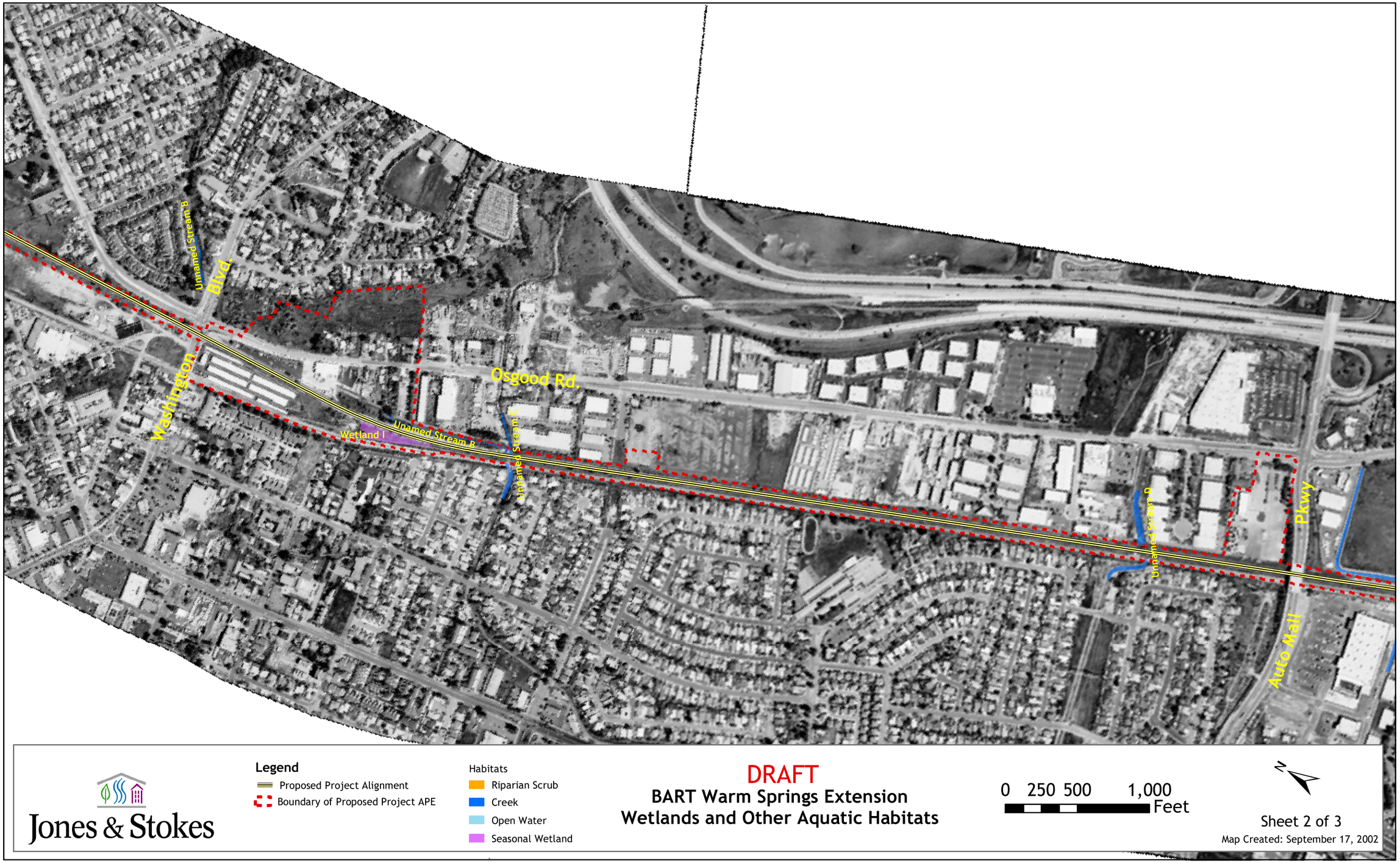
BART Warm Springs Extension
Wetlands and Other Aquatic Habitats

0 250 500 1,000 Feet

Sheet 1 of 3

Map Created: September 17, 2002



Jones & Stokes

Legend

- Proposed Project Alignment
- Boundary of Proposed Project APE

Habitats

- Riparian Scrub
- Creek
- Open Water
- Seasonal Wetland

DRAFT

BART Warm Springs Extension
Wetlands and Other Aquatic Habitats

0 250 500 1,000 Feet

N

Sheet 2 of 3

Map Created: September 17, 2002

Jones & Stokes

Legend

- Proposed Project Alignment
- Boundary of Proposed Project APE

Habitats

- Riparian Scrub
- Creek
- Open Water
- Seasonal Wetland

DRAFT

BART Warm Springs Extension
Wetlands and Other Aquatic Habitats

0 250 500 1,000 Feet

N

Sheet 3 of 3

Map Created: September 17, 2002

Jones & Stokes

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site:	BART WSX	Date:	6/6/02
Applicant/Owner:		County:	Alameda
Investigator(s):	Preston, Frazier	State:	CA
		T/R/S	

Do normal circumstances exist on the site?	☑ YES	☐ NO	Community ID:	seasonal wetland
Is the site significantly disturbed (atypical situation)?	☐ YES	☑ NO	Transect ID:	Wetland F
Is the area a potential problem area?	☑ YES	☐ NO	Plot ID:	1
(If needed, explain below)				

VEGETATION

Dominant Plant Species	Strata	% Cover	Indicator	Associate Plant Species	Strata	% Cover	Indicator
Crypsis schoenoides	herb		OBL	*Lythrum hyssopifolium*	herb		FACW
Rumex crispus	herb		FACW-	*Dittrichia graveolens*	herb		NI
				Eleocharis macrostachya	herb		OBL
				Cynodon dactylon	herb		FAC

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 100%

Check all other indicators that apply & explain below:

- ☐ Morphological Adaptations
- ☐ Physiological/Reproductive Adaptations
- ☐ Visual Observation of Plant Species Growing in Areas of Prolonged Inundation/Saturation
- ☑ Personal Knowledge of Regional Plant Communities
- ☐ Technical Literature
- ☐ Other (explain below)

Hydrophytic Vegetation Present? ☑ YES ☐ NO

Remarks:

Vegetation primarily composed of ruderal hydrophytes.

HYDROLOGY

Is it the growing season? ☑ YES ☐ NO

Based On:
- ☐ Soil Temp (record)
- ☐ Other (explain)

Typical length: Days 5% =

Recorded Data (describe below):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☑ None Available

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☑ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water:	0	inches
Depth to Free Water in Pit:	>17	inches
Depth to Saturated Soil:	>17	inches

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain below)

Wetland Hydrology Present? ☑ YES ☐ NO

Remarks:

Seasonal wetland hydrology. Direct evidence of wetland hydrology lacking because site was examined during the normal dry season. Indirect evidence present included water-deposited sediment and detritus.

SOILS

Map Unit Name: (series and phase) Danvillesilty clay loam, 2 to 9% slopes

Drainage Class: well drained

Taxonomy (subgroup): Pachic Argixerolls

Field observations confirm mapped type? ☐ YES ☑ NO

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell moist)	Mottle Colors (Munsell moist)	Mottle Abundance/ Size	Texture, Concretions, Structure
0-4	Ap1	10YR3/1	--	none	clay loam, none, massive/weak granular
4-17	Ap2	2.5Y2/1	7.5YR3/4	few/fine	clay, none, massive
			5Y4/1	few/fine	

Hydric Soil Indicators: (check all that apply):

☐	Histosol	☑	Matrix Chroma ≤2 with Mottles
☐	Histic Epipedon	☐	Mn or Fe Concretions
☐	Sulfidic Odor	☐	High Organic Content in Surface Layer of Sandy Soils
☐	Aquic Moisture Regime	☐	Organic Streaking in Sandy Soils
☐	Reducing Conditions	☐	Listed on National/Local Hydric Soils List
☐	Gleyed or Low-Chroma (=1) matrix	☐	Other (explain below)

Hydric Soils Present? ☑ YES ☐ NO

Remarks:

Soil test pit located near wetland/upland boundary. Soil observed in test pit appears to consist largely of fill/manipulated soil material.

WETLAND DETERMINATION :

Hydrophytic vegetation present?	☑ YES	☐ NO	
Wetland hydrology present?	☑ YES	☐ NO	
Hydric soils present?	☑ YES	☐ NO	Is the sampling point within a wetland? ☑ YES ☐ NO

Remarks:

Jones & Stokes

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site:	BART WSX	Date:	6/6/02
Applicant/Owner:		County:	Alameda
Investigator(s):	Preston, Frazier	State:	CA
		T/R/S	

Do normal circumstances exist on the site?	☑ YES	☐ NO	Community ID:	seasonal wetland
Is the site significantly disturbed (atypical situation)?	☐ YES	☑ NO	Transect ID:	Wetland F
Is the area a potential problem area?	☑ YES	☐ NO	Plot ID:	2
(If needed, explain below)				

VEGETATION

Dominant Plant Species	Strata	% Cover	Indicator	Associate Plant Species	Strata	% Cover	Indicator
Lolium multiflorum	herb		FAC	*Dittrichia graveolens*	herb		NI
Cynodon dactylon	herb		FAC	*Rumex crispus*	herb		FACW-
				Anagallis arvensis	herb		FAC
				Hirschfeldia incana	herb		UPL
				Avena fatua	herb		UPL

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 100%

Check all other indicators that apply & explain below:

- ☐ Morphological Adaptations
- ☐ Physiological/Reproductive Adaptations
- ☐ Visual Observation of Plant Species Growing in Areas of Prolonged Inundation/Saturation
- ☑ Personal Knowledge of Regional Plant Communities
- ☐ Technical Literature
- ☐ Other (explain below)

Hydrophytic Vegetation Present? ☐ YES ☑ NO

Remarks:

Dominants are FAC, but overall, the vegetation is ruderal rather than hydrophytic.

HYDROLOGY

Is it the growing season? ☑ YES ☐ NO

Based On:
- ☐ Soil Temp (record)
- ☐ Other (explain)

Typical length: Days 5% =

Recorded Data (describe below):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☑ None Available

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water:	0	inches
Depth to Free Water in Pit:	>17	inches
Depth to Saturated Soil:	>17	inches

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain below)

Wetland Hydrology Present? ☐ YES ☑ NO

Remarks:

Data point is above the elevation at which water-deposited sediment and detritus are found.

SOILS

Map Unit Name: (series and phase) Danville silty clay loam, 2 to 9% slopes

Drainage Class: well drained

Taxonomy (subgroup): Pachic Argixeroll

Field observations confirm mapped type? ☐ YES ☑ NO

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell moist)	Mottle Colors (Munsell moist)	Mottle Abundance/ Size	Texture, Concretions, Structure
0-5	Ap1	10YR3/1	--	none	sandy clay loam, none, platy
5-17	Ap2	10YR2/1	--	none	clay, none, massive

Hydric Soil Indicators: (check all that apply):

☐	Histosol	☐	Matrix Chroma ≤2 with Mottles
☐	Histic Epipedon	☐	Mn or Fe Concretions
☐	Sulfidic Odor	☐	High Organic Content in Surface Layer of Sandy Soils
☐	Aquic Moisture Regime	☐	Organic Streaking in Sandy Soils
☐	Reducing Conditions	☐	Listed on National/Local Hydric Soils List
☐	Gleyed or Low-Chroma (=1) matrix	☐	Other (explain below)

Hydric Soils Present? ☐ YES ☑ NO

Remarks:

Soil test pit located near wetland/upland boundary. Soil observed in test pit appears to consist largely of fill/manipulated soil material.

WETLAND DETERMINATION :

Hydrophytic vegetation present?	☐ YES	☑ NO	
Wetland hydrology present?	☐ YES	☑ NO	
Hydric soils present?	☐ YES	☑ NO	Is the sampling point within a wetland? ☐ YES ☑ NO

Remarks:

Jones & Stokes

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site:	BART WSX	Date:	6/6/02
Applicant/Owner:		County:	Alameda
Investigator(s):	Preston, Frazier	State:	CA
		T/R/S	

Do normal circumstances exist on the site?	☑ YES	☐ NO	Community ID:	seasonal wetland
Is the site significantly disturbed (atypical situation)?	☐ YES	☑ NO	Transect ID:	Wetland G
Is the area a potential problem area?	☑ YES	☐ NO	Plot ID:	3
(If needed, explain below)				

VEGETATION

Dominant Plant Species	Strata	% Cover	Indicator	Associate Plant Species	Strata	% Cover	Indicator
Lolium multiflorum	herb		FAC	*Paspalum dilatatum*	herb		FAC
Picris echioides	herb		FAC	*Poa annua*	herb		FACW-

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 100%

Check all other indicators that apply & explain below:

- ☐ Morphological Adaptations
- ☐ Physiological/Reproductive Adaptations
- ☐ Visual Observation of Plant Species Growing in Areas of Prolonged Inundation/Saturation
- ☑ Personal Knowledge of Regional Plant Communities
- ☐ Technical Literature
- ☐ Other (explain below)

Hydrophytic Vegetation Present? ☑ YES ☐ NO

Remarks:

The vegetation is predominantly ruderal and only marginally hydrophytic. Because it lacks upland species, determined as hydrophytic.

HYDROLOGY

Is it the growing season? ☑ YES ☐ NO

Based On:
- ☐ Soil Temp (record)
- ☐ Other (explain)

Typical length: Days 5% =

Recorded Data (describe below):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☑ None Available

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☑ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water:	0	inches
Depth to Free Water in Pit:	>18	inches
Depth to Saturated Soil:	>18	inches

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain below)

Wetland Hydrology Present? ☑ YES ☐ NO

Remarks:

Point is in a topographic depression with water-deposited sediment and detritus. Direct evidence of wetland hydrology probably absent because was sampled during normal dry season.

SOILS

Map Unit Name: (series and phase) Clear Lake clay, 0 to 2% slopes, drained

Drainage Class: poorly drained

Taxonomy (subgroup): Typic Pelloxererts

Field observations confirm mapped type? ☐ YES ☑ NO

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell moist)	Mottle Colors (Munsell moist)	Mottle Abundance/ Size	Texture, Concretions, Structure
0-6	Ap1	10YR3/1	--	none	silt loam, none, massive
6-18	Ap2	2.5Y3/1-4/1	7.5YR3/3-3/4	very few/very fine	silty clay loam+, none, massive

Hydric Soil Indicators: (check all that apply):

☐	Histosol	☑	Matrix Chroma ≤2 with Mottles
☐	Histic Epipedon	☐	Mn or Fe Concretions
☐	Sulfidic Odor	☐	High Organic Content in Surface Layer of Sandy Soils
☐	Aquic Moisture Regime	☐	Organic Streaking in Sandy Soils
☐	Reducing Conditions	☐	Listed on National/Local Hydric Soils List
☐	Gleyed or Low-Chroma (=1) matrix	☐	Other (explain below)

Hydric Soils Present? ☑ YES ☐ NO

Remarks:

Soil test pit located near wetland/upland boundary. Soil observed in test pit appears to consist largely of fill/manipulated soil material.

WETLAND DETERMINATION :

Hydrophytic vegetation present? ☑ YES ☐ NO

Wetland hydrology present? ☑ YES ☐ NO

Hydric soils present? ☑ YES ☐ NO

Is the sampling point within a wetland? ☑ YES ☐ NO

Remarks:

Jones & Stokes

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site:	BART WSX	Date:	6/6/02
Applicant/Owner:		County:	Alameda
Investigator(s):	Preston, Frazier	State:	CA
		T/R/S	

Do normal circumstances exist on the site?	☑ YES	☐ NO	Community ID:	seasonal wetland
Is the site significantly disturbed (atypical situation)?	☐ YES	☑ NO	Transect ID:	Wetland G
Is the area a potential problem area?	☑ YES	☐ NO	Plot ID:	4
(If needed, explain below)				

VEGETATION

Dominant Plant Species	Strata	% Cover	Indicator	Associate Plant Species	Strata	% Cover	Indicator
Cynodon dactylon	herb		FAC	*Vicia sativa*	herb		FACU
Foeniculum vulgare	herb		FACU				

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 50%

Check all other indicators that apply & explain below:

- ☐ Morphological Adaptations
- ☐ Physiological/Reproductive Adaptations
- ☐ Visual Observation of Plant Species Growing in Areas of Prolonged Inundation/Saturation
- ☑ Personal Knowledge of Regional Plant Communities
- ☐ Technical Literature
- ☐ Other (explain below)

Hydrophytic Vegetation Present? ☐ YES ☑ NO

Remarks:

The vegetation is ruderal, lacks hydrophytes.

HYDROLOGY

Is it the growing season? ☑ YES ☐ NO

Based On:
- ☐ Soil Temp (record)
- ☐ Other (explain)

Typical length: Days 5% =

Recorded Data (describe below):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☑ None Available

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water:	0	inches
Depth to Free Water in Pit:	>18	inches
Depth to Saturated Soil:	>18	inches

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain below)

Wetland Hydrology Present? ☐ YES ☑ NO

Remarks:

Data point outside of the topographic depression.

SOILS

Map Unit Name: (series and phase) Clear Lake clay, 0 to 2% slopes, drained

Drainage Class: poorly drained

Taxonomy (subgroup): Typic Pelloxererts

Field observations confirm mapped type? ☐ YES ☑ NO

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell moist)	Mottle Colors (Munsell moist)	Mottle Abundance/ Size	Texture, Concretions, Structure
0-4	Ap1	10YR3/2	--	none	silt loam+, none, massive
4-18	Ap2	10YR3/1	--	none	silty clay, none, massive

Hydric Soil Indicators: (check all that apply):

☐	Histosol	☐	Matrix Chroma ≤2 with Mottles
☐	Histic Epipedon	☐	Mn or Fe Concretions
☐	Sulfidic Odor	☐	High Organic Content in Surface Layer of Sandy Soils
☐	Aquic Moisture Regime	☐	Organic Streaking in Sandy Soils
☐	Reducing Conditions	☐	Listed on National/Local Hydric Soils List
☐	Gleyed or Low-Chroma (=1) matrix	☐	Other (explain below)

Hydric Soils Present? ☐ YES ☑ NO

Remarks:

Soil test pit located near wetland/upland boundary. Soil observed in test pit appears to consist largely of fill/manipulated soil material.

WETLAND DETERMINATION :

Hydrophytic vegetation present?	☐ YES	☑ NO	
Wetland hydrology present?	☐ YES	☑ NO	
Hydric soils present?	☐ YES	☑ NO	Is the sampling point within a wetland? ☐ YES ☑ NO

Remarks:

Jones & Stokes

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site:	BART WSX	Date:	6/6/02
Applicant/Owner:		County:	Alameda
Investigator(s):	Preston, Frazier	State:	CA
		T/R/S	

Do normal circumstances exist on the site?	☑ YES	☐ NO	Community ID:	seasonal wetland
Is the site significantly disturbed (atypical situation)?	☐ YES	☑ NO	Transect ID:	
Is the area a potential problem area?	☑ YES	☐ NO	Plot ID:	5
(If needed, explain below)				

VEGETATION

Dominant Plant Species	Strata	% Cover	Indicator	Associate Plant Species	Strata	% Cover	Indicator
Salix bonplandiana	tree		FACW+		herb		
Rubus ursinus	shrub		FACW				
Juncus balticus	herb		OBL				

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 100%

Check all other indicators that apply & explain below:

- ☐ Morphological Adaptations
- ☐ Physiological/Reproductive Adaptations
- ☐ Visual Observation of Plant Species Growing in Areas of Prolonged Inundation/Saturation
- ☑ Personal Knowledge of Regional Plant Communities
- ☐ Technical Literature
- ☐ Other (explain below)

Hydrophytic Vegetation Present? ☑ YES ☐ NO

Remarks:

Mixed riparian forest. Salix bonplandiana = S. laevigata in Jepson Manual, which was apparently overlooked for the National List.

HYDROLOGY

Is it the growing season? ☑ YES ☐ NO

Based On:
- ☐ Soil Temp (record)
- ☐ Other (explain)

Typical length: Days 5% =

Recorded Data (describe below):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☑ None Available

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water:	0	inches
Depth to Free Water in Pit:	>18	inches
Depth to Saturated Soil:	>18	inches

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain below)

Wetland Hydrology Present? ☐ YES ☑ NO

Remarks:

Old floodplain channel on high/medium terrace adjacent to Mission Creek.

SOILS

Map Unit Name: (series and phase) Willows clay, drained

Drainage Class: poorly drained

Taxonomy (subgroup): Typic Pelloxererts

Field observations confirm mapped type? ☑ YES ☐ NO

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell moist)	Mottle Colors (Munsell moist)	Mottle Abundance/ Size	Texture, Concretions, Structure
0-6	A1	10YR3/1	--	none	clay loam+, none, prismatic-granular
6-18	A2	N 3/ (dark gray)	--	none	clay, none, weak prismatic-blocky

Hydric Soil Indicators: (check all that apply):

☐	Histosol	☐	Matrix Chroma ≤2 with Mottles
☐	Histic Epipedon	☐	Mn or Fe Concretions
☐	Sulfidic Odor	☐	High Organic Content in Surface Layer of Sandy Soils
☐	Aquic Moisture Regime	☐	Organic Streaking in Sandy Soils
☐	Reducing Conditions	☐	Listed on National/Local Hydric Soils List
☐	Gleyed or Low-Chroma (=1) matrix	☐	Other (explain below)

Hydric Soils Present? ☐ YES ☑ NO

Remarks:

WETLAND DETERMINATION :

Hydrophytic vegetation present?	☑ YES	☐ NO	
Wetland hydrology present?	☐ YES	☑ NO	
Hydric soils present?	☐ YES	☑ NO	Is the sampling point within a wetland? ☐ YES ☑ NO

Remarks:

Jones & Stokes

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site:	BART WSX	Date:	6/6/02
Applicant/Owner:		County:	Alameda
Investigator(s):	Preston, Frazier	State:	CA
		T/R/S	

Do normal circumstances exist on the site?	☑ YES	☐ NO	Community ID:	seasonal wetland
Is the site significantly disturbed (atypical situation)?	☐ YES	☑ NO	Transect ID:	
Is the area a potential problem area?	☑ YES	☐ NO	Plot ID:	6
(If needed, explain below)				

VEGETATION

Dominant Plant Species	Strata	% Cover	Indicator	Associate Plant Species	Strata	% Cover	Indicator
Conium maculatum	herb		FACW				

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 100%

Check all other indicators that apply & explain below:

- ☐ Morphological Adaptations
- ☐ Physiological/Reproductive Adaptations
- ☐ Visual Observation of Plant Species Growing in Areas of Prolonged Inundation/Saturation
- ☑ Personal Knowledge of Regional Plant Communities
- ☐ Technical Literature
- ☐ Other (explain below)

Hydrophytic Vegetation Present? ☑ YES ☐ NO

Remarks:

Conium present as a virtual monoculture.

HYDROLOGY

Is it the growing season? ☑ YES ☐ NO

Based On:
- ☐ Soil Temp (record)
- ☐ Other (explain)

Typical length: Days 5% =

Recorded Data (describe below):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☑ None Available

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water:	0	inches
Depth to Free Water in Pit:	>17	inches
Depth to Saturated Soil:	>17	inches

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain below)

Wetland Hydrology Present? ☐ YES ☑ NO

Remarks:

Elevated area (high terrace or natural levee?) near Mission Creek; appears to be well above ordinary high water mark for the creek.

SOILS

Map Unit Name: (series and phase) Willows clay, drained

Drainage Class: poorly drained

Taxonomy (subgroup): Typic Pelloxererts

Field observations confirm mapped type? ☐ YES ☑ NO

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell moist)	Mottle Colors (Munsell moist)	Mottle Abundance/ Size	Texture, Concretions, Structure
0-9	A1	10YR3/1	--	none	silt loam+, none, weak blocky
9-17	A2	10YR31	--	none	silt loam, none, prismatic/blocky
		(10YR3/3 sand lenses)			lenses are fine sandy loam

Hydric Soil Indicators: (check all that apply):

☐	Histosol	☐	Matrix Chroma ≤2 with Mottles
☐	Histic Epipedon	☐	Mn or Fe Concretions
☐	Sulfidic Odor	☐	High Organic Content in Surface Layer of Sandy Soils
☐	Aquic Moisture Regime	☐	Organic Streaking in Sandy Soils
☐	Reducing Conditions	☐	Listed on National/Local Hydric Soils List
☐	Gleyed or Low-Chroma (=1) matrix	☐	Other (explain below)

Hydric Soils Present? ☐ YES ☑ NO

Remarks:

WETLAND DETERMINATION :

Hydrophytic vegetation present?	☑ YES	☐ NO	
Wetland hydrology present?	☐ YES	☑ NO	
Hydric soils present?	☐ YES	☑ NO	Is the sampling point within a wetland? ☐ YES ☑ NO

Remarks:

Jones & Stokes

DATA FORM

ROUTINE WETLAND DETERMINATION

Project/Site:	BART Warm Srpings Extension	Date:	5/17/02
Applicant/Owner:		County:	Alameda
Investigator(s):	R. Preston, B. Schafer	State:	CA
		T/R/S	
Do normal circumstances exist on the site?	☑ YES ☐ NO	Community ID:	
Is the site significantly disturbed (atypical situation)?	☐ YES ☑ NO	Transect ID:	Tule Pond
Is the area a potential problem area?	☐ YES ☑ NO	Plot ID:	A
(If needed, explain below)			

VEGETATION

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species	Strata	% Rel. Cover	Indicator
Scirpus acutus	herb		OBL	*Sparganium eurycarpum*	herb		OBL
Polygonum sp.	herb		OBL	*Juncus balticus*	herb		OBL
				Eleocharis macrostachya	herb		OBL
				Cyperus eragrostis	herb		FACW

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 100% Total Vegetation cover %

☑	Morphological Adaptations	☑	Personal Knowledge of Regional Plant Communities
☐	Physiological/Reproductive Adaptations	☐	Technical Literature
☑	Visual Observation of Plant Species Growing in Areas of	☐	Other (explain below)
	Prolonged Inundation/Saturation		

Hydrophytic Vegetation Present? ☑ YES ☐ NO

Remarks:

HYDROLOGY

Is it the growing season?	☑ YES ☐ NO				
Based On:	☐	Soil Temp (record)		Wetland Hydrology Indicators:	
	☐	Other (explain)		Primary Indicators:	
Typical length:		Days	5% =	☐	Inundated
				☑	Saturated Upper 12 Inches
Recorded Data (describe below):				☐	Water Marks
☐	Stream, Lake, or Tide Gauge			☐	Drift Lines
☐	Aerial Photographs			☐	Sediment Deposits
☐	Other			☐	Drainage Patterns in Wetlands
☐	None Available				

Field Observations:				Secondary Indicators (2 or more required):	
Depth of Surface Water:	0	inches		☐	Oxidized Rhizospheres in Upper 12 Inches
Depth to Free Water in Pit:		inches		☑	Water-Stained Leaves
Depth to Saturated Soil:	at surface	inches		☐	Local Soil Survey Data
				☐	FAC-Neutral Test
				☐	Other (explain below)

Wetland Hydrology Present? ☑ YES ☐ NO

Remarks:

SOILS

Map Unit Name: | Drainage Class:

(series and phase)

Taxonomy (subgroup): | Field observations confirm mapped type? ☐ YES ☐ NO

Is data point located within a hydric inclusion? ☐ YES ☐ NO

Profile Description

Horizon	Depth (inches)	Texture	Structure	Matrix Color (moist)	Redoximorphic Features: Abundance, Size, Contrast	Redoximorphic Features: Type, location	Redoximorphic Features: Color (moist)	Other

Hydric Soil Indicators: (check all that apply):

	☐	Histosol			☐	Mn or Fe Concretions or Nodules		
	☐	Histic Epipedon			☐	Mn or Fe Masses		
	☐	Sulfidic Odor			☐	High Organic Content in Surface Layer of Sandy Soils		
	☐	Aquic Moisture Regime			☐	Organic Streaking in Sandy Soils		
	☐	Reducing Conditions (α,α' dipyridyl)			☐	Listed on National/Local Hydric Soils List		
	☐	Gleyed or Low-Chroma (=1) matrix			☑	Other (explain below)		
	☐	Matrix Chroma ≤2 with Redoximorphic Features						

Hydric Soils Present? ☑ YES ☐ NO

Remarks:

Hydric soils assumed because all dominant species have a wetland indicator status of OBL and wetland hydrology is evident.

WETLAND DETERMINATION :

Hydrophytic vegetation present?		☑ YES	☐ NO					
Wetland hydrology present?		☑ YES	☐ NO					
Hydric soils present?		☑ YES	☐ NO	Is the sampling point within a wetland?			☑ YES	☐ NO

Remarks:

Storm water detention basin, known locally as "Tule Pond". Palustrine emergent wetland, seasonally flooded.

Jones & Stokes

DATA FORM

ROUTINE WETLAND DETERMINATION

Project/Site:	BART Warm Springs Extension	Date:	5/17/02
Applicant/Owner:		County:	Alameda
Investigator(s):	R. Preston, B. Schafer	State:	CA
		T/R/S	
Do normal circumstances exist on the site?	☑ YES ☐ NO	Community ID:	
Is the site significantly disturbed (atypical situation)?	☐ YES ☑ NO	Transect ID:	Tule Pond
Is the area a potential problem area?	☐ YES ☑ NO	Plot ID:	B
(If needed, explain below)			

VEGETATION

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species	Strata	% Rel. Cover	Indicator
Salix laevigata	tree		[FACW+]	*Salix exigua*	shrub		OBL
				Salix lasiolepis	shrub		FACW
				Rubus discolor	shrub		FACW
				Baccharis salicifolius	shrub		FACW

Percent of Dominants that are OBL, FACW, or FAC (excluding FAC-): 100% Total Vegetation cover %

☐	Morphological Adaptations	☑	Personal Knowledge of Regional Plant Communities
☐	Physiological/Reproductive Adaptations	☐	Technical Literature
☐	Visual Observation of Plant Species Growing in Areas of	☑	Other (explain below)
	Prolonged Inundation/Saturation		

Hydrophytic Vegetation Present? ☑ YES ☐ NO

Remarks:

Red willow (Salix laevigata) was overlooked during compilation of the 1988 National List of Wetland Species. It should be classified as FACW+.

HYDROLOGY

Is it the growing season?	☑ YES ☐ NO				
Based On:	☐	Soil Temp (record)		Wetland Hydrology Indicators:	
	☐	Other (explain)		Primary Indicators:	
Typical length:		Days	5% =	☐	Inundated
				☐	Saturated Upper 12 Inches
Recorded Data (describe below):				☑	Water Marks
☐	Stream, Lake, or Tide Gauge			☐	Drift Lines
☐	Aerial Photographs			☑	Sediment Deposits
☐	Other			☐	Drainage Patterns in Wetlands
☐	None Available				
Field Observations:				Secondary Indicators (2 or more required):	
	Depth of Surface Water:		inches	☐	Oxidized Rhizospheres in Upper 12 Inches
	Depth to Free Water in Pit:		inches	☑	Water-Stained Leaves
	Depth to Saturated Soil:		inches	☐	Local Soil Survey Data
				☐	FAC-Neutral Test
				☐	Other (explain below)

Wetland Hydrology Present? ☑ YES ☐ NO

Remarks:

SOILS

Map Unit Name:		Drainage Class:	
(series and phase)			
Taxonomy (subgroup):		Field observations confirm mapped type?	☐ YES ☐ NO
Is data point located within a hydric inclusion?	☐ YES ☐ NO		

Profile Description

Horizon	Depth (inches)	Texture	Structure	Matrix Color (moist)	Redoximorphic Features: Abundance, Size, Contrast	Redoximorphic Features: Type, location	Redoximorphic Features: Color (moist)	Other

Hydric Soil Indicators: (check all that apply):

	☐	Histosol				☐	Mn or Fe Concretions or Nodules		
	☐	Histic Epipedon				☐	Mn or Fe Masses		
	☐	Sulfidic Odor				☐	High Organic Content in Surface Layer of Sandy Soils		
	☐	Aquic Moisture Regime				☐	Organic Streaking in Sandy Soils		
	☐	Reducing Conditions (α,α' dipyridyl)				☐	Listed on National/Local Hydric Soils List		
	☐	Gleyed or Low-Chroma (=1) matrix				☐	Other (explain below)		
	☐	Matrix Chroma ≤2 with Redoximorphic Features							
Hydric Soils Present?		☑ YES ☐ NO							

Remarks:

Hydric soils are assumed because all dominant species have an indicator status of OBL or FACW and the wetland boundary is abrupt.

WETLAND DETERMINATION :

Hydrophytic vegetation present?		☑ YES ☐ NO						
Wetland hydrology present?		☑ YES ☐ NO						
Hydric soils present?		☑ YES ☐ NO	Is the sampling point within a wetland?				☑ YES	☐ NO

Remarks:

Storm water detention basin, known locally as "Tule Pond". Palustrine scrub-shrub wetland, seasonally flooded.

Appendix B. List of Plant Species Observed along Proposed Project Alignment.

Scientific Name	Common Name	Wetland Indicator Status
**Agrostis stolonifera*	creeping bent	FACW
Alisma plantago-aquatica	water plantain	OBL
Ambrosia psilostachya	western ragweed	FAC
**Anagallis arvensis*	scarlet pimpernel	FAC
**Arundo donax*	giant reed	FACW
Asclepias fascicularis	narrow-leaf milkweed	FAC
**Avena fatua*	wild oat	---
Baccharis pilularis	coyote brush	---
Baccharis salicifolius	mulefat	FACW
**Beta vulgaris*	beet	FACU
**Bromus catharticus*	rescue grass	---
**Bromus diandrus*	ripgut brome	---
**Bromus hordeaceus*	soft chess	FACU-
**Bromus madritensis* ssp. *rubens*	red brome	NI
**Bromus tectorum*	cheatgrass	---
**Capsella bursa-pastoris*	shepherd's-purse	FAC-
**Cardaria draba*	heart-podded hoary cress	---
**Carduus pycnocephalus*	Italian thistle	---
**Centaurea calcitrapa*	purple star-thistle	---
**Chamaesyce* sp.	spurge	---
**Chenopodium* sp.	goosefoot	---
**Cirsium vulgare*	bull thistle	FACU
**Conium maculatum*	poison hemlock	FACW
**Convolvulus arvensis*	field bindweed	---
**Conyza bonariensis*	horseweed	---
**Coronopus didymus*	wartcress	---
Crassula aquatica	water pygmy-weed	OBL
**Crypsis schoenoides*	swamp timothy	OBL
Cyperus eragrostis	umbrella sedge	FACW
Distichlis spicata	saltgrass	FACW
**Dittrichia graveolens*	stinkweed	---
Eleocharis macrostachys	creeping spikerush	OBL
Epilobium brachycarpum	panicled willow-herb	---
Eremocarpus setigerus	turkey mullein	---
**Erodium cicutarium*	red-stem filaree	---
Eschscholzia californica	California poppy	---
**Eucalyptus camaldulensis*	red gum	---
**Foeniculum vulgare*	sweet fennel	FACU
Galium aparine	bedstraw	FACU

Scientific Name	Common Name	Wetland Indicator Status
**Geranium dissectum*	cut-leaf geranium	---
**Gnaphalium luteo-album*	weedy cudweed	FACW-
**Hirschfeldia incana*	Mediterranean mustard	---
Hordeum brachyantherum	meadow barley	FACW
**Hordeum murinum* ssp. *leporinum*	foxtail barley	NI
**Hordeum vulgare*	barley	---
Juglans sp.	black walnut	---
Juncus balticus	Baltic rush	OBL
**Lactuca serriola*	prickly lettuce	FAC
**Lepidium strictum*	wayside peppergrass	---
Leymus triticoides	creeping wildrye	FAC+
**Lolium multiflorum*	Italian ryegrass	FAC
**Lotus corniculatus*	bird's-foot trefoil	FAC
**Malva nicaensis*	bull mallow	---
Malvella leprosa	alkali mallow	FAC
**Matricaria matricarioides*	pineapple weed	FACU
**Medicago polymorpha*	burclover	---
**Melilotus alba*	white sweetclover	FACU+
**Myoporum laetum*	myoporum	---
**Nasturtium officinale*	watercress	OBL
**Olea europaea*	olive	---
**Opuntia* sp.	prickly-pear	---
**Paspalum dilatatum*	Dallisgrass	FAC
**Phalaris minor*	Mediterranean canary grass	---
**Phalaris paradoxa*	paradox canary grass	---
**Picris echioides*	bristly ox-tongue	FAC
**Piptatherum mileaceum*	smilo grass	---
**Plantago lanceolata*	English plantain	FAC-
Polygonum sp.	smartweed	OBL to FACW
**Polygonum arenastrum*	common knotweed	FAC
**Polypogon monspeliensis*	annual rabbit's-foot grass	FACW+
**Prunus dulcis*	almond	---
**Raphanus sativus*	wild radish	---
**Ricinis communis*	castor-bean	FACU
**Rubus discolor*	Himalaya blackberry	FACW
Rubus ursinus	California blackberry	FACW
**Rumex crispus*	curly dock	FACW-
Salix exigua	narrow-leaved willow	OBL
Salix laevigata	red willow	---
Salix lasiolepis	arroyo willow	FACW

Scientific Name	Common Name	Wetland Indicator Status
**Salsola tragus*	Russian thistle	FACU+
Sambucus mexicanus	blue elderberry	FAC
**Schinus* sp.	pepper tree	---
Schoenoplectus acutus var. *occidentalis*	hard-stem bulrush	OBL
Scrophularia californica	California figwort	FAC
**Senecio vulgaris*	common groundsel	NI
**Silybum marianum*	milk-thistle	---
**Sinapis arvensis*	field mustard	---
**Sonchus asper*	prickly sow-thistle	FAC
**Sonchus oleraceus*	common sow-thistle	NI
Sparganium eurycarpum	bur-reed	OBL
Toxicodendron diversilobum	poison-oak	---
**Tragopogon porrifolius*	salsify	---
**Tribulus terrestris*	puncture vine	---
**Trifolium pratense*	red clover	FACU+
**Triticum aestivum*	wheat	---
Typha angustifolia	narrow-leaved cattail	OBL
Typha latifolia	broad-leaved cattail	OBL
**Vicia sativa* ssp. *sativa*	common vetch	FACU
**Vicia villosa* ssp. *varia*	winter vetch	---
**Vinca major*	greater periwinkle	---
**Xanthium strumarium*	common cocklebur	FAC+

Note: Introduced species are indicated by an asterisk (*). Species lacking a wetland indicator status are presumed to be upland species.

Source: Jones & Stokes 2002.