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SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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5090
Ser 06CH.KF/1188
August 14, 2003

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Dear BCT members:

Forwarded for your information and records is the Final Parcel E Nonstandard Data Gaps Investigation Wetlands Delineation and Functions and Values Assessment Parcels B and E, Hunters Point Shipyard. Changes have been incorporated into the document to reflect the comments from U.S. EPA, DTSC and California Dept. of Fish and Game. The U.S. Army Corps of Engineers has also reviewed this document and did not request any changes. Appendix A is the Response to Agency Comments on the draft version of this document.

Should you have any concerns with this matter, please contact the undersigned at (619) 532-0913.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith Forman", is written over a white background.

KEITH FORMAN
BRAC Environmental Coordinator
By direction of the Commander

Enclosure: 1. Final Parcel E Nonstandard Data Gaps Investigation Wetlands Delineation and Functions and Values Assessment Parcels B and E, Hunters Point Shipyard, San Francisco, CA

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This public summary represents information presented in the document listed below.

**Public Summary: Final Parcel E Nonstandard Data Gaps Investigation
Wetlands Delineation and Functions and Values Assessment,
Parcels B and E, Hunters Point Shipyard
San Francisco, California,
August 14, 2003**

The wetlands delineation was conducted on October 1, 2001, and the functions and values assessment on December 3, 2001. A confirmatory functions and values assessment was conducted on April 10, 2002. The wetlands delineation followed technical guidelines and methods described in the U.S. Army Corps of Engineers (USACE) 1987 wetland delineation manual. The functions and values assessment followed the methods and guidance outlined in the USACE 1992 wetland evaluation technique technical reports.

Three general wetland areas were identified at Hunters Point Shipyard: a small tidal wetland along the Parcel B shoreline, tidal wetlands along the Parcel E shoreline, and an inland seasonal freshwater wetland in Parcel E. Parcel B contains about 0.03 acre of shoreline wetland habitat consisting of salt marsh vegetation. The wetland in Parcel B is bordered by India Basin to the north and riprap to the south. Parcel E contains about 8,142 linear feet of shoreline, with segments of tidal and saline emergent wetlands, riprap, and debris located randomly along the shoreline. The total area of shoreline wetlands is about 3.2 acres. The wetlands are bounded by the riprap wall and South Basin, which is contiguous with San Francisco Bay (Bay).

The freshwater wetland in Parcel E is a seasonally ponded area within Installation Restoration Site 01/21 along the western boundary of Parcel E. The total area of the wetland is about 1.3 acres. The wetland consists of a storm water drainage ditch and a low-lying area where runoff ponds during the wet season. The wetland is bordered by the Parcel E landfill to the northeast, the Bayview/Hunters Point district of San Francisco to the west and northwest, and a large berm to the south. The wetland receives runoff from the north through a drainage ditch. During storm events, there may be some tidal influx through a culvert in the south berm. The Bay side opening of the drainage culvert has a flap to prevent tidal inflow, but the flap has been rusted open for some time.

The wetlands functions and values evaluation indicated the following.

Parcels B and E Tidal Wetlands: The primary features of these tidal wetlands that contribute to the overall function of the system include presence of known contaminants, vegetation cover, and its location along the Pacific Flyway. The prime function of these wetlands consists of a low ability to retain sediments and to produce nutrients. The tidal system and substrate type reduce the groundwater recharge/discharge ability of this wetland. The wetlands are situated along the Pacific Flyway; therefore, an abundance and diversity of wintering and migrating waterfowl species is a significant feature. The diversity and abundance of aquatic organisms is moderate. The wetlands currently have little or no recreational value, and access to the wetlands is restricted because the site is located within a naval base. The wetlands are not unique and have no cultural value because they are manmade and situated on artificial fill. In general, the most significant function of these wetlands is seasonal wildlife use for wintering and migrating birds. Because the wetlands are a known hazardous waste site on manmade land, value in terms of social significance, effectiveness, and opportunity is currently low.

Parcel E Seasonal Freshwater Wetlands: The features of the seasonal freshwater wetlands that contribute to the overall function of the system include a storm water ditch that provides surface water to the wetland, a drainage culvert that drains the wetland, the watershed, infrequent tidal influences, lack of year-round source of water, vegetative cover, and its location along the Pacific Flyway. The prime functions of this wetland consist of the ability to retain sediments and toxicants, and to produce nutrients. Because of the restricted outlet, export of nutrients is minimal. The tidal system and substrate type reduce the groundwater recharge/discharge ability of this wetland. The wetland is situated along the Pacific Flyway; therefore, an abundance and diversity of wintering and migrating waterfowl species is a significant feature. Only red-winged blackbirds were observed to nest in this wetland. The diversity and abundance of aquatic organisms is low, presumably because of the seasonal nature of the wetland. This wetland currently has no recreational value, and access to this wetland is restricted because the site is located within a naval base. This wetland is not unique and has no cultural value because it is manmade and situated on artificial fill. In general, the most significant function of this wetland is its use for wintering and migrating birds. Because this wetland is a known hazardous waste site on manmade land, value in terms of social significance, effectiveness, and opportunity is currently low.

Information Repositories: A complete copy of the "Draft Wetlands Delineation and Functions and Values Assessment, Hunters Point Shipyard, San Francisco, California" dated August 14, 2003, is available to community members at:

San Francisco Main Library
100 Larkin Street
Government Information Center, 5th Floor
San Francisco, CA 94102
Phone: (415) 557-4500

Anna E. Waden Library
5075 Third Street
San Francisco, CA 94124
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The report is also available to community members upon request to the U.S. Department of the Navy. For more information about environmental investigation and cleanup at Hunters Point Shipyard, contact Mr. Keith S. Forman of the Navy at (619) 532-0913 (phone), (619) 532-0995 (fax), or formanks@efdswnavy.navy.mil (e-mail).

A-E CERCLA/RCRA/UST STUDIES AND REMEDIAL DESIGN

CONTRACT NUMBER N68711-00-D-0005



Parcel E Nonstandard Data Gaps Investigation Wetlands Delineation and Functions and Values Assessment Parcels B and E

Hunters Point Shipyard
San Francisco, California

DS.A057.10920

FINAL

August 14, 2003



Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, California 92132-5190

AECRU Contract No. N68711-00-D-0005
Delivery Order No. 057

Final
Parcel E Nonstandard Data Gaps Investigation
**Wetlands Delineation and
Functions and Values
Assessment**

Parcels B and E, Hunters Point Shipyard
San Francisco, California

August 14, 2003

Prepared for



DEPARTMENT OF THE NAVY
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- A Responses to Regulatory Agency Comments on the Draft Parcel E Nonstandard Data Gaps Investigation, Wetlands Delineation and Functions and Values Assessment, Parcels B and E

Attachment

- 1 U.S. Army Corps of Engineers Wetland Determination Data Forms
- 2 Photographs of Parcel B Tidal Wetland
- 3 Photographs of Parcel E Tidal Wetland
- 4 Photographs of Parcel E Seasonal Freshwater Wetland

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ACRONYMS AND ABBREVIATIONS

AA	Assessment area
Bay	San Francisco Bay
DO	Delivery Order
HPS	Hunters Point Shipyard
Navy	U.S. Department of the Navy
Tetra Tech	Tetra Tech EM Inc.
USACE	U.S. Army Corps of Engineers
USDA-SCS	U.S. Department of Agriculture, Soil Conservation Service
WET	Wetland evaluation technique
USFWS	U.S. Department of the Interior, Fish and Wildlife Service

1.0 INTRODUCTION

Tetra Tech EM Inc. (Tetra Tech) received Delivery Order (DO) 003 from the U.S. Department of the Navy (Navy), Naval Facilities Engineering Command, Southwest Division, under Indefinite Quantity Contract for Architectural-Engineering Services to Provide CERCLA/RCRA/UST Studies No. N68711-00-D-0005, to provide technical support at Parcel E at Hunters Point Shipyard (HPS) in San Francisco, California (Figure 1). Under DO 003, Tetra Tech prepared this wetland evaluation for Parcels B and E at HPS. Tetra Tech conducted the wetland delineation and wetland functions and values assessment in support of a revised remedial investigation and feasibility study for Parcel E and future wetland enhancement and development alternatives for HPS.

In 1991, the Navy conducted wetland delineation work and identified eight areas that potentially met the criteria for wetlands: two areas in Parcel B along the shore of India Basin and six sites in Parcel E along the shoreline of the South Basin. Tetra Tech and LFR Levine-Fricke subsequently identified an estuarine/freshwater wetland west of the Parcel E landfill that was not identified during the 1991 wetlands identification field effort. The major input to this estuarine/freshwater wetland is surface water runoff; however, some tidal influx also occurs. Wetland vegetation includes both freshwater and marine species.

This document presents the results of the wetland delineation and functions and values assessment conducted for Parcels B and E at HPS in San Francisco, California. The wetlands delineation was conducted on October 1, 2001, and the functions and values assessment was conducted on December 3, 2001. A confirmatory functions and values assessment was conducted on April 10, 2002. The wetlands delineation followed technical guidelines and methods described in the U.S. Army Corps of Engineers' (USACE) wetland delineation manual (USACE 1987a). The functions and values assessment followed the methods and guidance outlined in the USACE's wetland evaluation technique (WET) technical reports (USACE 1987b). Because the evaluation was conducted as part of the Comprehensive Environmental Response, Compensation, and Liability Act process, the Navy is not required to comply with the administrative requirements of the Clean Water Act. However, conducting the wetland delineation is a substantive requirement that the Navy must comply with. The Navy will forward a copy of this report to USACE.

This document summarizes the results of the wetland delineations for Parcels B and E. Section 2.0 summarizes the delineation methodology. Section 3.0 describes the site vegetation, hydrology, and soils. Section 4.0 presents the results of the WET evaluation. Section 5.0 presents the conclusions of the wetland evaluation. Section 6.0 lists the references used to prepare this document. Figures and tables are presented after they are first mentioned in the text. Appendix A contains the responses to regulatory agency comments on the draft wetlands delineation and functions and values assessment report. Attachment 1 contains completed USACE wetland determination data forms. Attachments 2, 3, and 4 contain photographs of the Parcels B and E tidal wetlands and the Parcel E seasonal freshwater wetlands, respectively.



Location Map



Hunters Point Shipyards, San Francisco, California
 U.S. NAVY SOUTHWEST DIVISION NAVFAC, SAN DIEGO

FIGURE 1
SITE LOCATION MAP

Wetlands Delineation Functions and
 Values Assessment

2.0 METHODOLOGY

The wetland delineation and functions and values assessment consisted of three steps: (1) preliminary data gathering and review, (2) field delineation and data collection, and (3) wetland boundary flagging and surveying. A variety of site-specific information was reviewed before the on-site delineation and functions and values assessment of the wetlands at HPS was conducted. The following information was reviewed to verify the wetland location and to assist in determining the fieldwork approach:

- Aerial photographs
- U.S. Geological Survey topographic quadrangle maps
- U.S. Department of Agriculture, Soil Conservation Service (USDA-SCS) soil surveys
- National wetland inventory maps and local wetland maps ([San Francisco Estuary Project 1991](#))
- “National List of Plant Species that Occur in Wetlands: California (Region 10)” (U.S. Department of the Interior, Fish and Wildlife Service [[USFWS](#)] 1988)

2.1 WETLAND DELINEATION METHODOLOGY

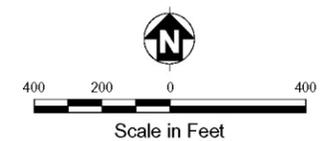
Wetland boundaries were delineated using the routine on-site inspection method outlined in the 1987 USACE wetland delineation manual ([USACE 1987a](#)). In accordance with the 1987 manual, under normal circumstances, hydrophytic (wetland) vegetation, hydric soils, and wetland hydrology must all be present for an area to be considered a wetland. [Attachment 1](#) contains completed USACE wetland determination data forms.

Wetland boundaries were delineated by visually observing soil, vegetation, and hydrology characteristics along a transect line perpendicular to site contours and across potential representative wetlands and uplands. For each transect, soils were characterized by (1) digging 1-foot-diameter test pits with a shovel and (2) inspecting the upper 18 inches for hydric soil indicators, in accordance with USACE guidance ([USACE 1987a](#)). The first test pit was excavated from a location where wetland vegetation and hydrology were obvious. Test pits were then dug upslope, until an upland soil was encountered. Test pits were not required for each wetland area because either the wetland boundaries were clearly defined or the delineation could be made based on previous wetland work already completed earlier that day. The boundary of the wetland was indicated with flagging, and the location of each flag was surveyed using a Global Positioning System (Garmin model GPS 45XL). The field team recorded relevant soil, vegetation, and hydrology data on USACE wetland determination forms. [Figure 2](#) shows the wetland boundaries in Parcels B and E. [Section 3.0](#) presents the approach to the vegetation, soil, hydrologic, and topographic surveys for conducting the wetland determination. [Attachments 2, 3, and 4](#) contain photographs of the Parcels B and E tidal wetlands and the Parcel E seasonal freshwater wetlands.



Location Map

- Test Pit Location
- Emergent Wetlands (8 Areas)
- Freshwater Wetlands (5 Areas)
- Intertidal Saltmarsh (9 Areas)
- Parcel Boundaries



Hunters Point Shipyard, San Francisco, California
 U.S. Navy, Southwest Division, NAVFAC, San Diego

FIGURE 2
PARCEL B AND PARCEL E
WETLAND DELINEATION MAP
 Wetlands Delineation Functions and
 Values Assessment

2.2 WETLAND FUNCTIONS AND VALUES ASSESSMENT METHODOLOGY

The WET analysis evaluates 12 wetland functions and values in terms of 3 evaluation procedures: (1) effectiveness and opportunity, (2) social significance, and (3) habitat suitability. Effectiveness and opportunity measures the probability that a wetland has the capability and opportunity to perform a function. The capability of a wetland to perform a function is evaluated based on its physical, chemical, or biological characteristics. Opportunity assesses the probability that a wetland has to perform a function to its level of capability. Social significance is the value of the wetland in terms of special designations, potential economic value, and strategic location. For habitat suitability, WET evaluates a wetland's suitability as habitat for waterfowl, freshwater fish, wetland-dependant birds, and invertebrates.

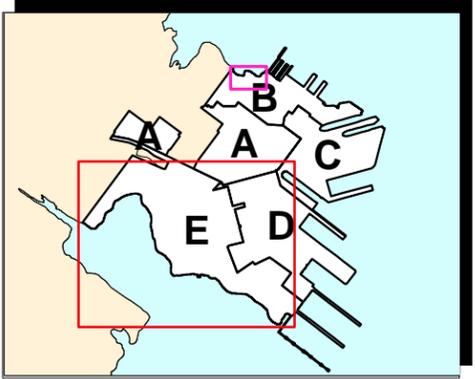
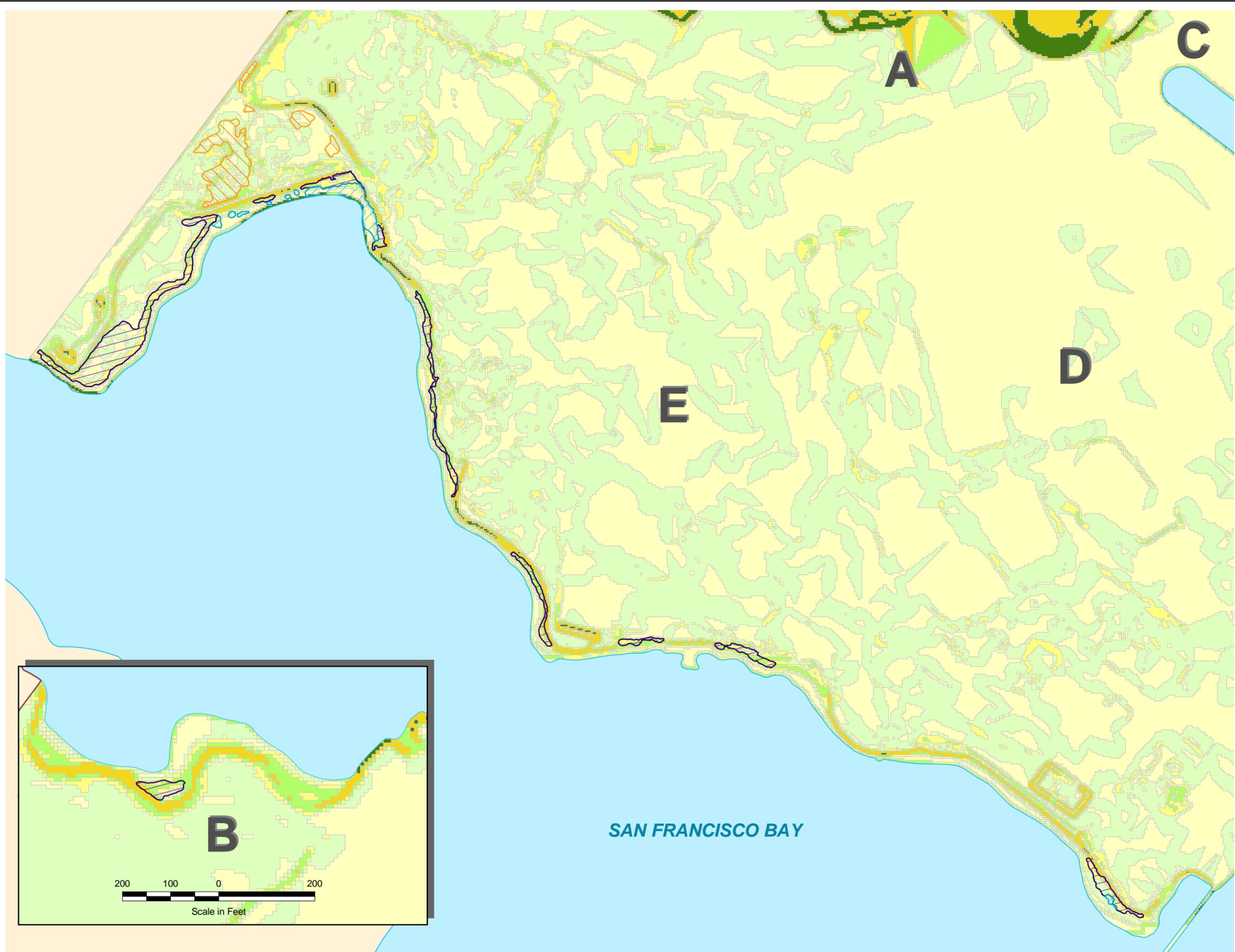
The purpose of the WET analysis is to create an information baseline so that if wetlands are destroyed at HPS during remedial activities, the Navy and regulatory agencies have baseline information for assessing a mitigation ratio. In addition, the Navy does not have a complete list of wildlife and fisheries species that may use the wetlands at HPS, which is needed to conduct a habitat evaluation. The habitat suitability analysis was completed for a few species that the Navy did observe using the wetlands at HPS, but because of the limited knowledge of species using the area, the Navy did not complete additional analyses. Therefore, a habitat suitability evaluation was not conducted as part of the functions and values assessment.

Wetlands functions and values were assessed by answering WET evaluation questionnaires. The responses to WET evaluation questions are interpreted to describe the relationship between the wetland variables (predictors) and wetland function and values. The technique computes probability ratings of high, moderate, or low for each function and value. The results of the WET model rate the effectiveness and social significance of most of the functions; however, the model provides opportunity ratings for only 10 of the wetland functions. The uniqueness/heritage and recreation functions are evaluated only in terms of social significance. [Attachment 1](#) includes the completed WET evaluation forms. [Section 4.0](#) describes the results of the wetlands functions and values assessment.

[Figure 2](#) shows the wetland habitat in Parcels B and E. The extent of surface water during wet and dry seasons for the seasonal freshwater wetland in Parcel E is shown on photographs in [Attachment 4](#). [Figure 3](#) shows the WET analysis area map for Parcels B and E, which includes wetland areas and slope classifications that show where runoff enters and exits the wetland system (input zones, and service areas).

3.0 WETLAND DELINEATION RESULTS

Three general wetland areas were identified at HPS: a small tidal wetland along the Parcel B shoreline, tidal wetlands along the Parcel E shoreline, and an inland seasonal freshwater wetland in Parcel E.



Location Map

Wetlands Surveyed October 2001

- Emergent Wetlands (8 Areas)
- Freshwater (5 Areas)
- Intertidal Saltmarsh (9 Areas)

Slope

- Less than 1%
- 1% to Less than 5%
- 5% to Less than 10%
- 10% to Less than 20%
- 20% to Less than 45%
- Greater than 45%
- Non-Navy Property
- San Francisco Bay

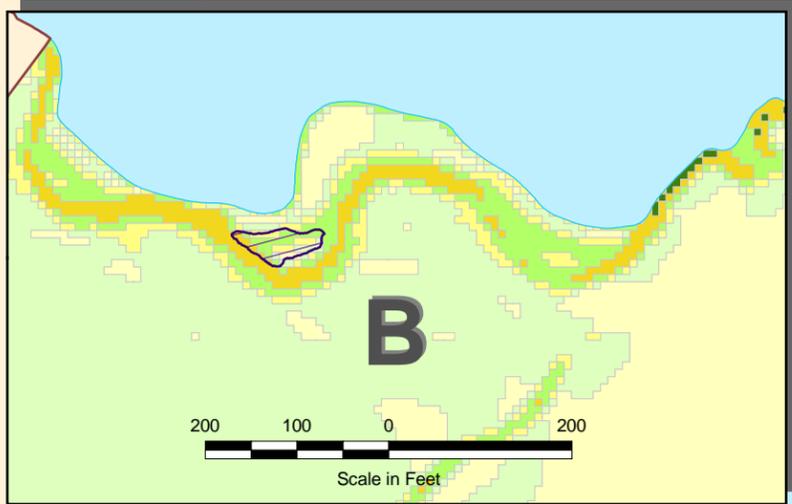


Scale in Feet



Hunters Point Shipyard, San Francisco, California
 U.S. Navy Southwest Division, NAVFAC, San Diego

FIGURE 3
WETLANDS AREAS AND
SLOPE CLASSIFICATIONS AT HPS
 Wetlands Delineation Functions and
 Values Assessment



Parcel B contains about 0.03 acre of shoreline wetland habitat consisting of salt marsh vegetation. Vegetation in the Parcel B wetland is sparse and discontinuous. The wetland in Parcel B is bordered by India Basin to the north and riprap to the south.

Parcel E contains about 8,142 linear feet of shoreline, with segments of intertidal and saline emergent wetlands, riprap, and debris located randomly along the shoreline. The total area of shoreline wetlands is about 3.2 acres. The wetlands are bounded by the riprap wall and the South Basin, which is contiguous with San Francisco Bay (Bay). The riprap wall was placed discontinuously along the shoreline for erosion control and has variable composition ([Tetra Tech and others 1997](#)). The riprap wall varies from about 10 to 30 feet in width and from 3 to 15 feet in height. The ground surface in the wetland areas generally slopes gently downward from the base of the riprap wall.

The freshwater wetland in Parcel E is a seasonally ponded area within Installation Restoration Site 01/21 along the western boundary of Parcel E. The total area of the wetland is about 1.3 acres. The wetland consists of a storm water drainage ditch and a low-lying area where runoff ponds during the wet season. The wetland is bordered by the Parcel E landfill to the northeast, the Bayview/Hunters Point district of San Francisco to the west and northwest, and a large berm to the south. The wetland receives runoff from the north through a drainage ditch. During storm events, there may be some tidal influx through a culvert in the south berm. The Bay side opening of the drainage culvert has a flap to prevent tidal inflow, but the flap has been rusted open for some time.

Tetra Tech identified 22 potential jurisdictional wetland areas: 9 intertidal salt marshes, 8 emergent wetlands, and 5 freshwater wetlands. Delineation results for the three diagnostic parameters of vegetation, soils, and hydrology are discussed below. The extent of the wetlands delineation at HPS covered all potential areas even when only one of the wetlands parameters was observed. Therefore, the areas defined as wetlands at HPS in this report will likely correspond to wetlands areas defined using other delineation methods (for example, USFWS). No areas at HPS were excluded from potential wetland area delineation because they only possessed one or two wetlands parameters ([Figure 2](#)).

3.1 VEGETATION

As discussed in [Section 2.1](#), wetland boundaries were delineated by visually observing soil, vegetation, and hydrology characteristics along a transect line. Along each transect, soils were characterized by test pits. [Figure 2](#) shows the test pit locations. Test pits were not required for each wetland area because either the wetland boundaries were clearly defined or the delineation could be made based on previous wetland work already completed earlier that same day. At each test pit, dominant plant species observed within a 10-foot radius were identified and characterized as obligate, facultative wetland, facultative, facultative upland, or upland species according to the “National List of Plant Species that Occur in Wetlands: 1996 National Summary” ([USFWS 1996](#)). Vegetation information was recorded on USACE wetland determination data sheets, included as [Attachment 1](#).

In general, vegetation observed in the tidal wetlands areas in Parcels B and E consisted of halophytic plant species typically associated with tidal salt marsh or nontidal saline marsh. [Table 1](#) lists the dominant plants observed at test pit locations in the Parcel B and E shoreline wetlands, and [Table 2](#) lists the dominant plants observed at the Parcel E seasonal freshwater wetland. The dominant vegetation at all locations was common pickleweed and salt grass. The substrate was rocky with dispersed debris. Except for iceplant (*Carpobrotus edulis*), very little other vegetation was observed. Emergent wetland vegetation (cord grass) was observed near test pit T2-C and north of T3-R ([Figure 2](#)). Photographs of the Parcels B and E tidal wetland vegetation are provided in [Attachments 2 and 3](#), respectively.

In general, the wetland vegetation in areas identified as freshwater wetlands ([Figure 2](#)) was dominated by salt grass (*Distichlis spicata*). [Table 2](#) lists vegetation data associated with the Parcel E seasonal freshwater wetland. Additional detail is provided on the wetland determination forms provided in [Attachment 1](#). [Figure 2](#) shows the test pit locations.

Test pit T2-R was located about 10 feet in front of a drainage culvert in the freshwater wetland ([Figure 2](#) and [Attachment 4, Photographs 9 and 13](#)). Surface water runoff from the drainage ditch accumulates during the wet season at this location. In December 2001, the depth of the water in this area was about 1.5 feet ([Attachment 4, Photograph 9](#)). In addition, this area is also infrequently flooded with tidal water during extreme tidal events; therefore, this area receives both saline and fresh water. Wetland vegetation near the drainage ditch (test pit T4-R) consists of some freshwater species (curly dock and alkali heath), while near the drainage culvert, salt marsh vegetation dominated.

Overall, wetland vegetation appeared generally healthy and vigorous throughout most of the area, although, along the shoreline wetlands were discontinuous. Upland vegetation included ruderal (weedy) vegetation.

3.2 HYDROLOGY

Hydrology was assessed visually by observing primary and secondary wetland hydrologic indicators. Primary hydrologic indicators observed during the field investigation included watermarks, drift lines, sediment deposits, and drainage patterns. Secondary hydrologic indicators observed were algal matting and matted vegetation. The hydrology profile descriptions were recorded on USACE wetland determination data sheets ([Attachment 1](#)).

Wetlands areas along the shoreline in both Parcel B and E are within and slightly above the intertidal zone, and are therefore periodically inundated with water from the Bay. On the day of the field investigation (October 1, 2001), low tide was 0.56 foot and high tide was 6.04 feet. Based on the National Weather Service tide charts for HPS, normal tides range up to about 8 feet. Therefore, the intertidal area would extend another 1.5 feet in elevation from that observed on October 1, 2001. During storm events, the tide would be expected to be even higher.

TABLE 1: PLANT SPECIES OBSERVED IN PARCELS B AND E TIDAL WETLANDWetlands Delineation and Functions and Values Assessment, Parcels B and E
Hunters Point Shipyard, San Francisco, California

Test Pit ^a	Common Name	Scientific Name	Dominant Plant Species (Percent) ^b	Regional Indicator or Status
Parcel B				
T1-R	Common Pickleweed	<i>Salicornia virginica</i>	45	OBL
	Salt Grass	<i>Distichlis spicata</i>	30	FACW
Parcel E				
T1-C	Common Pickleweed	<i>Salicornia virginica</i>	100	OBL
T2-C	Common Pickleweed	<i>Salicornia virginica</i>	90	OBL
	Cord Grass	<i>Spartina foliosa</i>	10	OBL
T3-C	Common Pickleweed	<i>Salicornia virginica</i>	70	OBL
	Salt Grass	<i>Distichlis spicata</i>	25	FACW
T4-C	Common Pickleweed	<i>Salicornia virginica</i>	75	OBL
	Salt Grass	<i>Distichlis spicata</i>	25	FACW
T7-C	Common Pickleweed	<i>Salicornia virginica</i>	75	OBL
	Salt Grass	<i>Distichlis spicata</i>	25	FACW
T8-C	Common Pickleweed	<i>Salicornia virginica</i>	70	OBL
	Salt Grass	<i>Distichlis spicata</i>	25	FACW
T9-C	Common Pickleweed	<i>Salicornia virginica</i>	50	OBL
	Salt Grass	<i>Distichlis spicata</i>	25	FACW
T10-C	Common Pickleweed	<i>Salicornia virginica</i>	75	OBL
	Salt Grass	<i>Distichlis spicata</i>	20	FACW
T11-C	Common Pickleweed	<i>Salicornia virginica</i>	55	OBL
	Salt Grass	<i>Distichlis spicata</i>	35	FACW
T12-C	Common Pickleweed	<i>Salicornia virginica</i>	50	OBL
	Salt Grass	<i>Distichlis spicata</i>	25	FACW
T3-R	Common Pickleweed	<i>Salicornia virginica</i>	50	OBL
	Salt Grass	<i>Distichlis spicata</i>	5	FACW
	Marsh Rosemary	<i>Limonium californicum</i>	45	OBL

Notes:

- a Test pits were not required for each wetland area because either the wetland boundaries were clearly defined or the delineation could be made based on previous wetland work already completed earlier the same day.
- b If the percentage shown for dominant plant species for a test point does not equal 100 percent, the remaining portion is represented by bare ground.

FACW Facultative wetland

OBL: Obligate

Source: U.S. Department of the Interior, Fish and Wildlife Service. 1996. "National List of Plant Species that Occur in Wetlands: 1996 National Summary."

TABLE 2: PLANT SPECIES OBSERVED IN PARCEL E SEASONAL FRESHWATER WETLAND

Wetlands Delineation and Functions and Values Assessment, Parcels B and E
 Hunters Point Shipyard, San Francisco, California

Test Pit	Common Name	Scientific Name	Dominant Plant Species (Percent)	Regional Indicator or Status
T2-R	Salt Grass	<i>Distichlis spicata</i>	90	FACW
	Common Pickleweed	<i>Salicornia virginica</i>	10	OBL
T4-R	Marsh Gumplant	<i>Grindelia stricta</i> var. <i>angustifolia</i>	20	OBL
	Curly Dock	<i>Rumex crispus</i>	10	FACW
	Other		20	
	Alkali Heath	<i>Frankenia salina</i>	10	FAC
	Bare ground		10	
T5-R	Data sheet not filled out			
T6-R	Salt Grass	<i>Distichlis spicata</i>	95	FACW
	Grass	<i>Bromus</i> spp.	5	

Notes:

- FAC Facultative
- FACW Facultative wetland
- OBL Obligate

Source: U.S. Department of the Interior, Fish and Wildlife Service. 1996. "National List of Plant Species that Occur in Wetlands: 1996 National Summary."

The primary source of water to the freshwater wetland in Parcel E is drainage from surface runoff ([Attachment 4, Photographs 5 and 6](#)). However, during high tide and storm events, some tidal inflow occurred from a drainage culvert in the southern berm ([Attachment 4, Photograph 13](#)). Except for the area directly in front of the culvert, the freshwater wetland is only seasonally inundated. [Photographs 13 to 15 in Attachment 4](#) show the freshwater wetland at the end of the dry season. [Photographs 1 through 9 in Attachment 4](#) show the freshwater wetland during the wet season after a heavy rainfall.

3.3 SOILS

Soils on this site have been mapped as part of the soil survey of San Mateo County, Eastern Part, and San Francisco County, California ([USDA-SCS 1991](#)). Most of the Parcel E area is included in a general soil mapping unit called unit 134-Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes.

The Urban land-Orthents map unit includes areas that were once part of the Bay and adjacent tidal flats. This map unit may contain areas covered by asphalt, concrete, and other urban features, as well as areas that are only minimally developed. The USDA-SCS estimates that about 65 percent of this map unit is covered with asphalt, concrete, or buildings, while about 35 percent has soil on the surface. Areas that have been filled but not built on are mostly mapped as “Orthents, reclaimed,” designating that they are recent manmade land areas. As may be expected, these soils have variable textures because of their makeup of soil material, gravel, broken cement and asphalt, Bay Mud, and solid waste materials.

Included in the Urban land-Orthents map unit are small areas of Reyes clay and Novato clay soils. Both the Reyes and Novato clay soils are listed as hydric soils ([USDA-SCS 1991](#)) because of a frequently occurring water table at less than 18 inches from the surface for more than 2 weeks during the growing season. The Reyes soils are also considered hydric soils because they are frequently ponded or flooded for greater than 1 month during the growing season.

The field team identified locations to characterize potential upland and wetland soils in the field based on topography, landscape characteristics, vegetative communities, and visual observations during site walkthrough. Soils were characterized by (1) digging 1-foot-diameter soil pits with a shovel and (2) inspecting the upper 16 inches of the soil pits for hydric soil indicators, in accordance with USACE guidance ([USACE 1987a](#)). Soil color was described using the Munsell Soil Color Chart ([Kollmorgen Corporation 1992](#)) for soil texture, organic content, consistency, moisture content, and special soil characteristics such as mottling and gleyed conditions. The field team recorded soil descriptions and data for each soil pit on USACE wetland determination data sheets ([Attachment 1](#)).

3.3.1 Parcels B and E Tidal Wetland Area Soils

The field team identified 17 discontinuous tidal area wetland areas (8 emergent and 9 intertidal) along or near the Parcel B and E shoreline. The soils in the tidal wetlands of Parcels B and E are

even more highly variable than the Parcel E freshwater wetland soils ([Section 3.3.2](#)) because of the differences in the kind and amount of fill material used. The tidal wetlands were filled with brick, concrete, asphalt debris, other demolition materials, and earthen-fill materials. In addition, to help protect the manmade filled lands from wave action and the storm tides, rubble and riprap were placed along much of the shoreline. The actual soils that support these tidal area wetlands most likely formed from recently deposited sediments from the Bay or from erosion of the adjacent filled areas above the shoreline. Numerous shallow soil excavations in these tidal wetland areas encountered buried debris and rubble. The most reliable hydric soil indicators for the tidal wetland areas were the high tide trash line and the depth to the tidally influenced saturated zone.

3.3.2 Parcel E Seasonal Freshwater Wetland Area Soils

The field team identified five individual seasonal freshwater wetlands at soil pits T2, T4, T5, and T6 within the freshwater wetland area north of the breakwater levee in the northwestern portion of Parcel E ([Figure 2](#)). The soils in this area are variable because of the differences in the kind and amount of fill material used. This freshwater wetland area was most likely filled with a heterogeneous construction-type borrow material that has few, if any, inherent soil properties or characteristics. This filled area has differentially settled, thereby creating numerous closed ponds, channels, and low-lying areas that do not freely drain. In addition, an earthen breakwater levee was built between the wetland and the shoreline, creating an impounded area. A culvert penetrates the levee to help drain the ponded water behind the levee and ensure the levee's stability. A tide gate attached to one end of the culvert has become rusted and remains permanently open ([Attachment 4, Photograph 12](#)). The elevation of the culvert controls the level of storm water ponded behind the levee, but it could also allow seawater to flow into the wetland through the open tide gate during higher storm tide events. The uppermost soils in this wetland area are predominantly hydric because storm water that runs onto this property from the catchment area above is ponded long enough during the growing season to develop anaerobic conditions. The definition of a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Reliable hydric soil indicators were difficult to determine in the freshwater wetland areas because of naturally low chroma colors and poor mottling in the excavated fill materials. In some areas, a reduced, mottled, and unsaturated clay layer was locally encountered at about 12 to 18 inches below the surface. Saturated soils were not typically encountered within depths of about 2 feet below the surface. This lack of saturation was assumed to be related to the timing of the delineation field work (during the dry season), rather than from a permanently low water table. The primary source of water in this wetland area is evidently surface water runoff, rather than a permanently elevated water table.

4.0 WETLANDS FUNCTIONS AND VALUES FIELD INVESTIGATION

This section summarizes the WET process used to assess the functions and values and the findings associated with the application of this technique to the wetlands observed at Parcels B and E. WET evaluates functions and values in terms of social significance, effectiveness, and opportunity. Social significance assesses the value of a wetland to society because of its special

designations, potential economic value, and strategic location. Effectiveness assesses the capability of a wetland to perform a function because of its physical, chemical or biological characteristics. Opportunity assesses the opportunity of a wetland to perform a function to its level of capability. [Table 3](#) outlines the definitions of the wetland functions and values. [Table 4](#) summarizes the wetland functions and their values.

The WET procedures require the delineation of specific evaluation areas: the assessment area (AA), input zone, watershed, service area, and watershed of the service area. The AA is characterized by hydrological interaction, and is the area where the functions and values are being assessed. The input zone is an area surrounding the AA that may have a significant affect on the AA in terms of sediments, nutrient, or contaminant input, and is defined as the upland area extending 300 feet upslope from the upland/wetland boundary of the AA. The service area is described as a well-defined point where a wetland service, such as nutrient export, is delivered. The watershed is the upslope area from which surface water enters the AA.

4.1 EFFECTIVENESS AND OPPORTUNITY FOR TIDAL AREA WETLANDS

In Parcel B, the tidal wetland is about 0.03 acre of salt marsh vegetation. Parcel E contains about 8,142 linear feet of shoreline with segments of intertidal and saline emergent wetlands, riprap, and debris located randomly along the shoreline. There are five discontinuous wetland areas, which vary in length and width along the shoreline ([Figure 2](#)). The ground surface slopes toward the Bay. The total area of shoreline wetlands in Parcel E is about 3.2 acres, with 2.7 acres of salt marsh vegetation and 0.5 acre of emergent vegetation.

The WET procedures require the delineation of the AA, input zone, watershed, service area, and watershed of the service area. [Figure 3](#) shows the wetland areas overlaid with slope classifications derived from ground surface elevation at HPS to provide a general indication of the input zone and service area for each wetland area.

The following sections discuss the results of the effectiveness and opportunity assessment as applied to the tidal wetlands delineated. [Table 5](#) summarizes the results of the functions and values assessment for the Parcel E tidal wetlands.

4.1.1 Groundwater Recharge

Net annual groundwater recharge is rated low. Groundwater recharge is considered low in most tidal systems.

4.1.2 Groundwater Discharge

Groundwater discharge is rated low. Groundwater flow through low permeability tidal sediments in areas with low hydraulic gradients is expected to be low; therefore, tidal wetlands seldom receive a high rating in a WET analysis.

TABLE 3: WET WETLANDS FUNCTIONS AND DEFINITIONS

Draft Wetlands Delineation and Functions and Values Assessment, Parcels B and E
Hunters Point Shipyard, San Francisco, California

Wetland Function	Definition
Groundwater Recharge	Those areas where recharge to underlying materials or groundwater exceeds groundwater discharge to the wet depression on a net annual basis, and/or the rate of recharge typically exceeds the rate of recharge from terrestrial environments.
Groundwater Discharge	Those areas where the rate of discharge from groundwater into the wetland exceeds the rate of recharge to the underlying groundwater from the wetland on a net annual basis.
Floodflow Alteration	This function occurs in areas where surface water is stored or its velocity is attenuated to a greater degree than typically occurs in terrestrial environments.
Sediment Stabilization	This function evaluates the ability of a wetland to bind soil and dissipate erosive forces.
Sediment/Toxicant Retention	The ability of a wetland to physically or chemically trap and retain the inorganic sediments and/or chemical substances generally toxic to aquatic life on a net annual basis.
Nutrient Removal/ Transformation	The ability of a wetland to retain or transform inorganic phosphorus and/or nitrogen into their organic forms or transform nitrogen into its gaseous form, either on a net annual basis or during the growing season.
Production Export	The flushing of relatively large amounts of organic plant material from the assessment area into downslope waters.
Wildlife Diversity/ Abundance – Breeding	The variety and quantity of bird species observed during the breeding season.
Wildlife Diversity/ Abundance – Migrating and Wintering	The variety and quantity of bird species observed overwintering in a wetland or using the wetland during migration.
Aquatic Diversity/Abundance	The variety of species and quantity of individuals of aquatic organisms observed in the wetland.
Uniqueness/Heritage	Historical and aesthetic value of a wetland.
Recreation	Recreational opportunities for a wetland.

TABLE 4: WET WETLANDS FUNCTIONS AND THEIR VALUES

Wetlands Delineation and Functions and Values Assessment, Parcels B and E
 Hunters Point Shipyard, San Francisco, California

Functions Related to Hydrologic Processes	Benefits, Products, and Services Resulting from the Wetland Function
Short-Term Storage of Surface Water: the temporary storage of surface water for short periods	On-site: Replenish soil moisture, import/export materials, conduit for organisms Off-site: Reduce downstream peak discharge and volume and help maintain and improve water quality
Long-Term Storage of Surface Water: the temporary storage of surface water for long periods	On-site: Provide habitat and maintain physical and biogeochemical processes Off-site: Reduce dissolved and particulate loading and help maintain and improve surface water quality
Storage of Subsurface Water: the storage of subsurface water	On-site: Maintain biogeochemical processes Off-site: Recharge surficial aquifers and maintain baseflow and seasonal flow in streams
Moderation of Groundwater Flow or Discharge: the moderation of groundwater flow or groundwater discharge	On-site: Maintain habitat Off-site: Maintain groundwater storage, baseflow, seasonal flows, and surface water temperatures
Dissipation of Energy: the reduction of energy in moving water at the land/water interface	On-site: Contribute to nutrient capital of ecosystem Off-site: Reduced downstream particulate loading helps to maintain or improve surface water quality
Functions Related to Biogeochemical Processes	Benefits, Products, and Services Resulting from the Wetland Function
Cycling of Nutrients: the conversion of elements from one form to another through abiotic and biotic processes	On-site: Contributes to nutrient capital of ecosystem Off-site: Reduced downstream particulate loading helps to maintain or improve surface water quality
Removal of Elements and Compounds: the removal of nutrients, contaminants or other elements and compounds on a short-term or long-term basis through burial, incorporation into biomass, or biochemical reactions	On-site: Contributes to nutrients capital of ecosystem; contaminants are removed, or rendered innocuous Off-site: Reduced downstream loading helps to maintain or improve surface water quality
Retention of Particulates: the retention of organic and inorganic particulates on a short-term or long-term basis through physical processes	On-site: Contributes to nutrient capital of ecosystem Off-site: Reduced downstream particulate loading helps to maintain or improve surface water quality
Export of Organic Carbon: the export of dissolved or particulate organic carbon	On-site: Enhances decomposition and mobilization of metals Off-site: Supports aquatic food webs and downstream biogeochemical processes
Functions Related to Habitat	Benefits, Goods, and Services Resulting from the Wetland Function
Maintenance of Plant and Animal Communities: the maintenance of plant and animal community that is characteristic with respect to species composition, abundance, and age structure	On-site: Maintain habitat for plants and animals for rest and agriculture products, and aesthetic, recreational, and educational opportunities Off-site: Maintain corridors between habitat islands and landscape/regional biodiversity

TABLE 5: SUMMARY OF RESULTS FOR HPS WETLAND FUNCTIONS AND VALUES ASSESSMENT

Wetlands Delineation and Functions and Values Assessment, Parcels B and E Hunters Point Shipyard, San Francisco, California

Wetland Function	Social Significance Rating	Rationale for Social Significance Rating	Effectiveness and Opportunity Rating	Rationale for Effectiveness and Opportunity Rating
Parcels B and E Tidal Wetlands (evaluated on 12/04/01)				
Groundwater Recharge	Moderate	Moderate rating because AA is in urban area	Low	Groundwater recharge is considered to be low in all tidal wetland systems.
Groundwater Discharge	Moderate	Moderate rating because AA is in urban area	Low	The rating is low, because it is difficult to predict the presence of groundwater discharge in tidal systems; therefore, tidal wetlands never receive a high rating in a WET analysis.
Floodflow Alteration	Moderate	Moderate rating because AA is in urban area	Low	The effectiveness rating is low, because the outlet is unconstricted; therefore, no potential exists for ponding of storm flow.
Sediment Stabilization	Moderate	Moderate rating because AA is in urban area	Moderate	The only type of wetland considered to be capable of being considered high is one in which there is no flowing water, no boat wakes, no open water wider than 100 feet, no eroding areas abutting the wetland, and no vegetation or rubble. Slope steepness greater than 10 percent adjacent to the AA suggested a moderate rating.
Sediment/ Toxic Retention	High	High rating because AA is in urban area and downstream areas in violation of Section 401 of Clean Water Act (AWQC exceeded for some toxicants in Parcel F/ offshore)	Low (effectiveness), Moderate (opportunity)	The primary feature that stabilizes sediment and toxicants is a constricted outlet. A moderate opportunity rating was suggested based on emergent vegetation growing in areas wider than 20 feet.
Nutrient Removal/ Transformation	Moderate	Moderate rating because AA is in urban area	Low (effectiveness), Moderate (opportunity)	Wetlands are rated low for nutrient removal if they also are rated low for sediment trapping or if they are a marine system. The opportunity rating was moderate, because the wetland has a permanent inlet caused by overland flow and erosion based on slope steepness adjacent to the AA greater than 10 percent.
Production Export	None	Social significance evaluation not available for production export	Moderate	To attain a rating of low, the AA must have no permanent or intermittent outlets. A moderate rating was recommended, because there is a permanent outlet, erosion based on slope steepness adjacent to the AA greater than 10 percent, and the width of erect vegetation is greater than 20 feet.

TABLE 5: SUMMARY OF RESULTS FOR HPS WETLAND FUNCTIONS AND VALUES ASSESSMENT (Continued)

Wetlands Delineation and Functions and Values Assessment, Parcels B and E, Hunters Point Shipyard, San Francisco, California

Wetland Function	Social Significance Rating	Rationale for Social Significance Rating	Effectiveness and Opportunity Rating	Rationale for Effectiveness and Opportunity Rating
Parcels B and E Tidal Wetlands (evaluated on 12/04/01) (Continued)				
Wildlife Diversity Abundance	High	High rating because AA is in Pacific Flyway	Low (breeding), High (migration), Moderate (wintering)	A low rating for breeding was recommended because of the size of the wetland (less than 5 acres), low vegetation class diversity, and potential toxic input. A high rating for migration was suggested, because there are moderate mudflats with good visibility from the air, adjoined by areas of emergent vegetation. A high rating for migration was suggested, because this vegetated wetland occurs along the shore of San Francisco Bay, which is part of the Pacific Flyway. A moderate rating for wintering was suggested because of the small size of the wetland (less than 5 acres) and reduced effectiveness because of lack of presence of water year round.
Aquatic Diversity Abundance	Moderate	Moderate rating because AA is in urban area and because California is losing wetlands at a rate greater than the national average	Moderate	The wetland received a moderate rating, because it is marine and has some mudflat areas; however, effectiveness is reduced because of the small size of the wetlands and lack of water year round.
Recreation	Low	Low rating because AA is not used for recreational activities and is not a public access point to a recreational waterway	None	An effectiveness and opportunity evaluation is not available for recreation.
Uniqueness/Heritage	Moderate	Moderate rating because AA is in urban area	None	An effectiveness and opportunity evaluation is not available for uniqueness/heritage.
Parcel E Freshwater Seasonal Wetland (evaluated on 12/04/01 and 04/10/02)				
Groundwater Discharge	Moderate	Moderate rating because AA is in urban area	Low	It is difficult to predict the presence of groundwater discharge in estuarine systems; therefore, estuarine wetlands never receive a high rating in a WET analysis.
Floodflow Alteration	Moderate	Moderate rating because AA is in urban area	Low (effectiveness), Moderate (opportunity)	The recommended rating for this function is moderate, because a portion of this wetland stores water during the wet season. Inflow of runoff exceeds outflow.
Sediment Stabilization	Moderate	Moderate rating because AA is in urban area	Moderate	While characteristics of this wetland stabilize sediments, the amount of sediment entering the wetland is small because of urbanized upper watershed characteristics.

TABLE 5: SUMMARY OF RESULTS FOR HPS WETLAND FUNCTIONS AND VALUES ASSESSMENT (Continued)

Wetlands Delineation and Functions and Values Assessment, Parcels B and E, Hunters Point Shipyard, San Francisco, California

Wetland Function	Social Significance Rating	Rationale for Social Significance Rating	Effectiveness and Opportunity Rating	Rationale for Effectiveness and Opportunity Rating
Parcel E Freshwater Seasonal Wetland (evaluated on 12/04/01 and 04/10/02) (Continued)				
Sediment/ Toxic Retention	High	High rating because AA is in urban area and downstream areas are in violation of Section 401 of Clean Water Act (AWQC exceeded for some toxicants in Parcel F)	Moderate (effectiveness), High (opportunity) on 10/03/01 High (effectiveness and opportunity) on 4/10/02	The primary feature that stabilizes sediment and toxicants is a constricted outlet. However, the AA is predominantly surrounded by an urbanized upper watershed and is therefore not in a depositional environment. Although the wetland lacks potential sediment sources, potential toxicants from off-site industrial sites and the adjacent Parcel E landfill may be present in runoff that enters the wetland.
Nutrient Removal/ Transformation	Moderate	Moderate rating because AA is in urban area	Low (effectiveness), Low (opportunity) on 10/03/01 Low (effectiveness), High (opportunity) on 04/10/02	This effectiveness and moderate opportunity rating for nutrient removal/transformation is low; however, the wetland has characteristics of a wetland with a high rating. These features include a constricted outlet, low water velocity, the presence of significant vegetation, and an irregularly flooded tidal system. The irregular tidal action does not provide much flushing of organic sediments. In October 2001, the opportunity rating for nutrient removal/transformation was rated low because there are no major point or non-point nutrient sources (septic systems, feed lots) that would indicate a high rating. A high rating in April 2002 was indicated based on an abundance of algal blooms, which were likely the result of ash and other soil nutrients (ash) from a fire in the AA in 2000.
Production Export	No social significance evaluation for production export	Social significance evaluation not available for production export	Moderate	Many of the characteristics of this estuarine wetland are conducive to nutrient production such as flooded, erect vegetation growing in areas wider than 20 feet, high plant productivity, and eutrophic conditions. Normally, estuarine systems would be rated high; however, this manmade wetland has a constricted permanent outlet that reduces the capacity for the export of organic nutrients. The moderate rating for this wetland is appropriate because of the high nutrient production and the reduced ability for export.
Wildlife Diversity Abundance	High	High rating because AA is in Pacific Flyway	Low (breeding), High (migration), Moderate (wintering)	A low rating for breeding was recommended because of the small size of the wetland (less than 5 acres) and potential toxic input. A high rating for migration was suggested, because this vegetated wetland occurs along the shore of San Francisco Bay, which is part of the Pacific Flyway. A moderate rating for wintering was suggested because of the small size of the wetland (less than 5 acres) and reduced effectiveness because of the lack of water year round and a constricted outlet.

TABLE 5: SUMMARY OF RESULTS FOR HPS WETLAND FUNCTIONS AND VALUES ASSESSMENT (Continued)

Wetlands Delineation and Functions and Values Assessment, Parcels B and E, Hunters Point Shipyard, San Francisco, California

Wetland Function	Social Significance Rating	Rationale for Social Significance Rating	Effectiveness and Opportunity Rating	Rationale for Effectiveness and Opportunity Rating
Parcel E Freshwater Seasonal Wetland (evaluated on 12/04/01 and 04/10/02) (Continued)				
Aquatic Diversity Abundance	Moderate	Moderate rating because AA is in urban area and because California is losing wetlands at a rate greater than the national average	Low	The AA wetland was rated low, because it is seasonal and therefore does not sustain aquatic invertebrates or fish populations. Effectiveness also was reduced because of the lack of water year round and a constricted outlet.
Recreation	Low	Low rating because AA is not used for recreational activities and is not a public access point to a recreational waterway	--	No evaluation for effectiveness and opportunity
Uniqueness/Heritage	Moderate	Moderate rating because AA is in urban area	--	No evaluation for effectiveness and opportunity

Notes: For the seasonal freshwater wetland, unless otherwise indicated, effectiveness and opportunity rating was the same on 12/04/01 and 04/10/02.

-- Rating not available

AA Assessment area

AWQC Ambient water quality criteria

WET Wetland evaluation technique

4.1.3 Floodflow Alteration

The WET evaluation procedure suggested a low rating for effectiveness and opportunity for floodflow alteration. The effectiveness rating is low because the outlet is unconstricted; therefore, there is no potential for ponding of storm flow in the tidal wetlands in Parcels B and E.

4.1.4 Sediment Stabilization

The WET evaluation procedure suggested a moderate rating for sediment stabilization. The only type of wetland capable of being rated as high is one in which there is no flowing water, no boat wakes, no open water wider than 100 feet, no eroding areas abutting the wetland, and no vegetation or rubble. Slope steepness greater than 10 percent adjacent to the AA is indicative of potential erosion; therefore, a moderate rating was suggested ([Figure 3](#)).

4.1.5 Sediment/Toxicant Retention

The WET evaluation procedure suggested a low effectiveness and moderate opportunity rating for sediment/toxic retention. The unconstricted outlet along the shoreline suggests little potential for sediment retention; however, a moderate opportunity rating was suggested based on emergent vegetation growing in areas wider than 20 feet.

4.1.6 Nutrient Removal/Transformation

The WET evaluation procedure suggested a low effectiveness and moderate opportunity rating for nutrient removal/transformation. Wetlands are rated low for nutrient removal if they are also rated low for sediment trapping or if they are a marine system. The opportunity rating was moderate because the wetland has a permanent inlet due to overland flow and erosion based on slope steepness adjacent to the AA greater than 10 percent ([Figure 3](#)).

4.1.7 Production Export

The WET evaluation procedure suggested a moderate effectiveness and opportunity rating for production export. To attain a rating of low, the AA must have no permanent or intermittent outlets. A moderate rating was recommended because (1) a permanent outlet exists, (2) potential erosion based on slope steepness adjacent to the AA is greater than 10 percent ([Figure 3](#)), and (3) the width of erect vegetation is greater than 20 feet.

4.1.8 Wildlife Diversity/Abundance Breeding, Migration, and Wintering

The WET evaluation procedure suggested a low effectiveness and opportunity for wildlife breeding, a high effectiveness and opportunity for migration, and moderate effectiveness and opportunity for wintering. A high rating means that during breeding, migration, and wintering the wetland normally supports a notably greater on-site diversity of wetland dependant birds. A low rating for breeding was recommended because of the small size and discontinuous nature of the

wetland (less than 5 acres), low vegetation class diversity, and potential toxic input. A low rating for breeding was recommended because of the size of the wetland (less than 5 acres), low vegetation class diversity, and potential toxic input. A high rating for migration was suggested because there are moderate mudflats with good visibility from the air adjoined by areas of emergent vegetation. Additionally, this wetland occurs along the shore of the Bay, which is part of the Pacific Flyway. A moderate rating for wintering was suggested because of the small size of the wetland (less than 5 acres) and reduced effectiveness because of the lack of water year round.

4.1.9 Aquatic Diversity/Abundance

The WET evaluation procedure suggested a moderate effectiveness and opportunity rating for aquatic diversity abundance. A high rating means that the AA supports a notably great on-site diversity of fish or invertebrates. The wetland received a moderate rating because it is marine and has some mudflat areas; however, effectiveness is reduced because of the lack of water year round.

4.1.10 Uniqueness/Heritage

The effectiveness and opportunity of this function are not provided by the WET analysis. This manmade wetland occurs in an area with known hazardous substances; therefore, it does not have unique biological value. This wetland occurs on recent historic fill of shallow Bay waters; therefore, no cultural resources would be expected in this area.

4.1.11 Recreation

The effectiveness and opportunity of this function are not provided by the WET analysis. No recreational value occurs in this wetland because access is controlled and because toxic substances potentially affect the wetlands.

4.2 EFFECTIVENESS AND OPPORTUNITY FOR PARCEL E SEASONAL FRESHWATER WETLANDS

The Parcel E seasonal freshwater wetland is located near the western boundary of Parcel E. The wetland consists of a storm water drainage ditch and a low-lying area where surface water runoff ponds during the wet season. The wetland is bordered by the Parcel E landfill to the northeast, the Bayview/Hunters Point district of San Francisco to the west and northwest, and a large berm to the south. The wetland receives runoff from the north. A culvert through the berm allows limited exchange of ponded water and tidal water. During storm events, some tidal influx may occur through a culvert in the south berm.

The AA is the delineated area described in [Section 3.0](#). The input zone was delineated at a distance of 300 feet upslope of the north ditch ([Figure 3](#)). The service area is a semicircle area centered on the culvert in the southern berm. The watershed is the upslope area from which surface water enters the AA.

The following paragraphs discuss the results of the effectiveness and opportunity assessment. [Table 5](#) summarizes the results of the functions and values assessment for the Parcel E seasonal freshwater wetland. A wet and dry season WET evaluation was conducted for the Parcel E seasonal freshwater wetland. Unless otherwise noted, suggested ratings were the same for both wet and dry season evaluations.

4.2.1 Groundwater Recharge

Groundwater recharge is rated low because of the impervious silt and clay sediment in the fill material and the underlying Holocene Bay Mud geologic unit. Groundwater recharge is considered low in most estuarine wetland systems. However, some limited groundwater recharge may result from the seasonal ponding of runoff.

4.2.2 Groundwater Discharge

The rating for groundwater discharge is low. It is difficult to predict the presence of groundwater discharge in estuarine/freshwater systems; therefore, estuarine wetlands seldom receive a high rating in a WET analysis.

4.2.3 Floodflow Alteration

The WET evaluation procedure suggested a low rating for effectiveness and moderate opportunity for floodflow alteration. The recommended rating for this function is moderate because a portion of this wetland stores water during the wet season. Inflow of runoff exceeds the outflow.

4.2.4 Sediment Stabilization

The WET evaluation procedure suggested a moderate rating for sediment stabilization. In the WET model, estuarine (freshwater system) wetlands are never rated low for this category. The presence of a restricted outlet creates a low-energy environment that encourages sediment stabilization. However, the amount of sediment entering the wetland is small because of urbanized upper watershed characteristics.

4.2.5 Sediment/Toxicant Retention

The WET evaluation procedure suggested a moderate to high effectiveness and opportunity rating for sediment/toxicant retention. The primary feature that stabilizes sediment and toxicants is a constricted outlet. However, the AA is predominantly surrounded by an urbanized upper watershed, which is not expected to be a significant source of sediments. Although the wetland lacks significant sediment sources, potential toxicants from off-site industrial sites and the adjacent Parcel E landfill may be present in runoff that enters the site.

4.2.6 Nutrient Removal/Transformation

The WET evaluation procedure suggested a low effectiveness and moderate opportunity rating for nutrient removal/transformation; however, the wetland has characteristics of a wetland with a high rating. These characteristics include a constricted outlet, low water velocity, the presence of significant vegetation, and an irregularly flooded system. The irregular tidal flooding is infrequent and does not provide much flushing of organic sediments.

In October 2001, the opportunity rating for nutrient removal/transformation was low because no major point or nonpoint nutrient sources (septic systems, feed lots) exist that would indicate a high rating. A high rating in April 2002 was indicated based on an abundance of algal blooms, which were likely the result of ash and other soil nutrients from a fire in the AA in 2000.

4.2.7 Production Export

The effectiveness rating for this function is moderate. Many of the characteristics of this estuarine (freshwater system) wetland are conducive to nutrient production such as flooded, erect vegetation growing in areas wider than 20 feet, high plant productivity, and eutrophic conditions. Normally, estuarine systems would be rated high; however, this manmade wetland has a constricted permanent outlet that reduces the capacity for the export of organic nutrients. The moderate rating for this wetland is appropriate because of the high nutrient production and the reduced ability for export.

4.2.8 Wildlife Diversity/Abundance Breeding, Migration, and Wintering

The WET evaluation procedure suggested a low effectiveness and opportunity for wildlife breeding, high effectiveness and opportunity for migration, and a moderate effectiveness and opportunity for wintering. A high rating means that during breeding, migration, and wintering the wetland normally supports a notably greater on-site diversity of wetland dependant birds. A low rating for breeding was recommended because of the small size of the wetland (less than 5 acres) and potential toxic input. A high rating for migration was suggested because this vegetated wetland occurs along the shoreline of the Bay, which is part of the Pacific Flyway. A moderate rating for wintering was suggested because of the small size of the wetland (less than 5 acres), lack of the presence of water throughout the year, and a constricted outlet.

4.2.9 Aquatic Diversity/Abundance

The WET evaluation procedure suggested a low effectiveness and opportunity rating for aquatic diversity abundance. A high rating means that the AA supports a greater on-site diversity of fish or invertebrates. The AA wetland was rated low because it is seasonal and therefore does not sustain aquatic invertebrates or fish populations. Effectiveness was also reduced because of the lack of water year round and a constricted outlet.

4.2.10 Uniqueness/Heritage

The effectiveness and opportunity of this function are not provided by the WET analysis. This manmade wetland occurs within a known hazardous waste area; therefore, it does not have unique biological value. This wetland occurs on recent historic fill of shallow Bay waters; therefore, no cultural resources would be expected in this area.

4.2.11 Recreation

The effectiveness and opportunity of this function also are not provided by the WET analysis. No recreational value occurs in this wetland because it is a hazardous waste area and access is controlled.

4.3 SOCIAL SIGNIFICANCE – TIDAL AND FRESHWATER WETLANDS

The social significance ratings, which are independent of effectiveness and opportunity ratings, are a measure of the probability that a wetland is of value to society because of its economic value, official status, or strategic location. The WET model provided the same social significance results for both the tidal and seasonal freshwater wetlands; therefore, the results are discussed together.

The WET model appropriately provides a high social significance rating for the functions of sediment/toxicant retention because the wetlands are located in an urban area and downstream areas are in violation of Section 401 of the Clean Water Act with some toxicants exceeding ambient water quality criteria. The high rating for the seasonal freshwater wetland is appropriate, since it has a constricted outlet and features that retain substances entering the wetland. This is socially significant because any contaminants that enter into the wetland through storm water runoff would be retained and not released downstream and would not contribute further contamination to the Bay. The tidal wetlands have an unrestricted outlet; therefore, a rating of moderate to low would be more descriptive. The model also provides a high rating for the wildlife diversity/abundance function for these wetlands, which are located along the Pacific Flyway. The moderate rating for nutrient removal/transformation is appropriate for the freshwater seasonal wetland, but probably not for the tidal wetlands, which have an unrestricted outlet to the Bay.

The WET model rating is low for groundwater recharge/discharge and floodflow alteration because these functions are not significant in terms of social value. The aquatic diversity/abundance function is rated moderate in the WET model; however, this function should be rated low because of the overall lack of aquatic species observed and the presence of contaminants in both wetlands.

The uniqueness/heritage function was rated high by the WET model because the wetlands are located in an urban area. However, because they are less than 5 acres in size, are potentially contaminated, and do not provide unique habitat in the Bay area, a moderate rating is appropriate

for HPS. A low rating for recreation is appropriate for the HPS wetlands because these wetlands are not accessible to the public.

5.0 CONCLUSIONS

This section presents the conclusions for the wetland delineation and WET evaluation.

5.1 WETLAND DELINEATION

Conclusions of the wetland delineation for the Parcels B and E tidal wetlands and Parcel E seasonal freshwater wetland are provided in the sections below.

5.1.1 Parcels B and E Tidal Wetlands

Based on the presence of wetland vegetation, hydrology, and soils, the field team delineated the following wetlands for Parcels B and E, as indicated on [Figure 2](#):

- Parcel B: one isolated tidal wetland, totaling about 0.03 acre of tidal wetlands at the subject site
- Parcel E: 17 isolated tidal wetlands (9 salt marsh and 8 emergent), totaling about 3.2 acres of tidal wetlands at the subject site

5.1.2 Parcel E Seasonal Freshwater Wetland

Based on the presence of wetland vegetation, hydrology, and soils, the field team delineated five isolated freshwater wetlands, totaling about 1.3 acres at the subject site, as indicated on [Figure 2](#).

5.2 WETLAND FUNCTIONS AND VALUES EVALUATION

Conclusions of the WET evaluation for the Parcels B and E tidal wetlands and Parcel E seasonal freshwater wetland are provided in the sections below.

5.2.1 Parcels B and E Tidal Wetlands

The primary features of these tidal wetlands that contribute to the overall function of the system include presence of known contaminants, vegetation cover, and its location along the Pacific Flyway.

The prime function of these wetlands consists of a low ability to retain sediments and toxicants and to produce nutrients. The tidal system and substrate type reduce the groundwater recharge/discharge ability of this wetland.

The wetlands are situated along the Pacific Flyway; therefore, an abundance and diversity of wintering and migrating waterfowl species is a significant feature. The diversity and abundance of aquatic organisms is moderate, possibly because of the small size of the wetlands and lack of water year round.

The wetlands have little or no recreational value. Access to the wetlands is restricted because the site is located within a naval base. The wetlands are not unique and have no cultural value because they are manmade and situated on artificial fill.

In general, the most significant function of these wetlands is seasonal wildlife use for wintering and migrating. Because the wetlands are a known hazardous waste site on manmade land, value in terms of social significance, effectiveness, and opportunity is low.

5.2.2 Parcel E Seasonal Freshwater Wetlands

The features of the seasonal wetlands that contribute to the overall function of the system include a storm water ditch that drains to the wetland, a drainage culvert that drains the wetland, the watershed, infrequent tidal influences, presence of known contaminants, vegetative cover, and its location along the Pacific Flyway.

The prime functions of this wetland consist of the ability to retain sediments and toxicants, and to produce nutrients. Because of the restricted outlet, export of nutrients is minimal. The tidal system and substrate type reduce the groundwater recharge/discharge ability of this wetland.

The wetland is situated along the Pacific Flyway; therefore, an abundance and diversity of wintering and migrating waterfowl species is a significant feature. Only red-winged blackbirds were observed to nest in this wetland. The diversity and abundance of aquatic organisms is low, presumably because of the seasonal nature of the wetland, small size of the wetland, and lack of water year round.

This wetland has no recreational value. Access to this wetland is restricted because the site is located within a naval base. This wetland is not unique and has no cultural value because it is manmade and situated on artificial fill.

In general, the most significant function of this wetland is its use for wintering and migrating birds. Because this wetland is a known hazardous waste site on manmade land, value in terms of social significance, effectiveness, and opportunity is low.

6.0 REFERENCES

- Kollmorgen Corporation. 1992. *Munsell Soil Color Charts*. MacBeth Division. Newburg, New York.
- San Francisco Estuary Project. 1991. "Status and Trends Report on Wetlands and Related Habitats in the San Francisco Estuary."
- Tetra Tech EM Inc., Uribe and Associates, and Levine-Fricke-Recon. 1997. "Draft Final Parcel E Remedial Investigation Report, HPS, San Francisco, California." October 27.
- U.S. Army Corps of Engineers (USACE). 1987a. "Wetland Evaluation Technique (WET) Volume II: Methodology, Operational Draft."
- USACE. 1987b. "Corps of Engineers Wetland Delineation Manual, Final Report." Wetlands Research Program. Technical Report Y-87-1. January.
- U.S. Department of Agriculture, Soil Conservation Service (USDA-SCS). 1991. "Soil Survey of San Mateo County, Easter Part, and San Francisco County, California. May.
- U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 1988. "National List of Plant Species that Occur in Wetlands: California (Region 10)."
- USFWS. 1996. "National List of Plant Species that Occur in Wetlands: 1996 National Summary."

**APPENDIX A
RESPONSES TO REGULATORY AGENCY COMMENTS ON THE DRAFT PARCEL E
NONSTANDARD DATA GAPS INVESTIGATION WETLANDS DELINEATION AND
FUNCTIONS AND VALUES ASSESSMENT, PARCELS B AND E**

**RESPONSES TO REGULATORY AGENCY COMMENTS ON THE
DRAFT PARCEL E NONSTANDARD DATA GAPS INVESTIGATION
WETLANDS DELINEATION AND FUNCTIONS AND VALUES ASSESSMENT
PARCELS B AND E, HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA**

This document presents the U.S. Department of the Navy's (Navy) responses to comments from the regulatory agencies on the "Draft Parcel E Nonstandard Data Gaps Investigation, Wetlands Delineation and Functions and Values Assessment, Parcels B and E, Hunters Point Shipyard [HPS], San Francisco, California," dated May 15, 2003. The Navy received the comments addressed below from U.S. Environmental Protection Agency (EPA) on June 30, 2003; California Regional Water Quality Control Board (RWQCB) on June 30, 2003; California Department of Toxic Substances Control (DTSC) on July 7, 2003; and California Department of Fish and Game (CDFG) on July 7, 2003.

RESPONSES TO COMMENTS FROM EPA

General Comments

- Comment:** The text on page 1 that states "Because HPS is federal land, the Navy is not required to comply with the administrative requirements of the Clean Water Act; therefore USACE approval of the wetland delineation is not required" is inaccurate. The Navy may have confused its authority to view the Clean Water Act as an ARAR for a CERCLA action with its separate responsibility to comply with the Clean Water Act itself for the non-CERCLA action of wetland delineation. In this case EPA is seeking review by the USACE.

Response: The "Draft Parcel E Nonstandard Data Gaps Investigation Wetlands Delineation and Functions and Values Assessment" was prepared in support of a revised remedial investigation and feasibility study (RI/FS) for Parcel E. The report was prepared as part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process to identify wetland areas that may be affected by response/remedial actions at the site. The Navy does not agree that the delineation is a separate, non-CERCLA task.

It is the Navy's position that the Clean Water Act (CWA) is an applicable or relevant and appropriate requirement for Parcel E, and therefore the Navy must only comply with the substantive provisions and not the administrative provisions of the CWA. The wetlands delineation was conducted as part of the site characterization process and is necessary for planning and conducting the response actions at the site.

The Navy acknowledges that the quoted text, which states, "...because HPS is federal land, the Navy is not required to comply with the

administrative requirements of the Clean Water Act,” is inaccurate. The text should have stated, “...because this evaluation was conducted as part of the CERCLA process, the Navy is not required to comply with the administrative requirements of the Clean Water Act.” This document was submitted to the U.S. Army Corps of Engineers (USACE) for review to ensure technical adequacy and compliance with all substantive requirements. The USACE responded on July 30, 2003, that it had no comments; wetlands were identified where they would expect them to be found. The USACE indicated that they did not have to visit HPS to review the wetlands.

2. **Comment:** **The conclusion section of the report repeatedly refers to the reduced effectiveness of the delineated wetlands “due to the presence of toxic substances.” The report also notes that one of the principal functions of these wetlands is as habitat for wintering and migrating waterfowl. However, the report does not address whether the presence of toxic substances make the wetlands an attractive nuisance to wildlife using the habitat on a seasonal basis. The report should be revised to consider this possibility as part of the functions and values assessment. Additionally, please explain why a habitat suitability evaluation was not conducted as part of the assessment (page 5).**

Response: The only reason the functions and values assessments rate the Parcel E wetlands high for migrating waterfowl was because HPS is in the Pacific flyway. However, the intertidal wetlands at HPS do not attract waterfowl because of the wetlands limited extent. The seasonal freshwater wetland attracts only limited waterfowl because water is not consistently present and the wetland is rather small in size. These factors affect the presence of waterfowl more than the possibility that toxic substances may be present.

The purpose of the wetland evaluation technique (WET) analysis was to create an information baseline so that if wetlands are destroyed at HPS during remedial activities, then the Navy and regulator agencies have baseline information for assessing a mitigation ratio. In addition, the Navy does not have a complete list of wildlife and fisheries species that may use the wetlands at HPS, which is needed to conduct a habitat evaluation. The habitat suitability analysis was completed for a few species that the Navy did observe using the wetlands at HPS, but because of the limited knowledge of species using the area, the Navy did not complete additional analyses.

This fact will be explained in the final version of this document.

Specific Comments

1. **Comment:** **Section 1.0, Introduction, Page 1: The objectives of the delineation and functions and values assessment are not very specific and it is unclear how the information in the report will be used in decision-making for Parcels B and E. The text states that the report was prepared in support of a revised remedial investigation/feasibility study (RI/FS) for Parcel E, and future wetland enhancement and development alternatives. However, the conclusions of the report are not discussed with respect to these objectives; the report does not provide any recommendations as to how the RI/FS should be revised to incorporate the results of the wetland assessment, nor does it evaluate or refer to a document that evaluates future wetland enhancement and development alternatives. The report should provide additional discussion with respect to the objectives of the assessment, or should refer to a document that will include this type of discussion.**

Response: The intent of this document was not to discuss how the RI/FS would be affected by the wetlands delineation. This document will be reviewed during RI/FS activities and will be used to guide the decisions that need to be made during the process. As stated in the WET technical report ([U.S. Army Corps of Engineers 1991](#)), WET is primarily a tool for assessing the amount of mitigation that is required and to compare a wetlands area under various future management or impact scenarios using a point rating. Also, not all decisions have been made regarding the remedial options currently being considered at Parcel E.

2. **Comment:** **Section 3.0, Wetland Delineation Results, Page 6: The text briefly describes the riprap wall along the shoreline in Parcel E. Please indicate when the riprap wall was likely installed and to what extent the intertidal and emergent wetlands may have changed following placement of the riprap. Please also indicate whether the Navy has evaluated aerial photographs from the time periods before and after the placement of the riprap wall (i.e., whether the extent of the wetland changed after installation of the riprap wall).**

Response: There is no historical write-up on when the riprap was placed. The Navy has reviewed a series of aerial photographs taken from 1946 through 1990; 1990 was the year before the first wetlands delineation took place. Based on a review of these aerial photographs, it would appear that much of the riprap along the shoreline was in place as early as 1969 (please see Figure E-5, Tetra Tech EM Inc. [[Tetra Tech](#)] 2002). It is difficult to identify the wetlands along the shoreline based on the aerial photographs. Based on an aerial photograph, the intertidal wetlands along the shoreline

in the panhandle and adjacent to the landfill may have formed as early as 1981 (please see Figure E-8, [Tetra Tech 2002](#)). A review of the initial assessment study of HPS does not refer to the presence of any wetlands at HPS ([Navy 1984](#)).

As fill settled and erosion of the shoreline occurred, the shoreline slopes became less steep, thereby facilitating the continuous wetting of the shoreline in certain areas by the tides. This continuous source of moisture facilitated the formation of intertidal wetlands along the shoreline. Based on the wetlands map delineated in 1991 and the wetlands map created after the delineation in 2001, both the intertidal and freshwater wetlands have increased in size and extent.

RESPONSES TO COMMENTS FROM RWQCB

- 1. Comment:** **San Francisco Bay Regional Water Quality Control Board (RWQCB) Staff defers review of the subject document to the U.S. Army Corps of Engineers (ACE). For projects where Water Quality Certification is required under Clean Water Act Section 401, Staff typically defers review of jurisdictional delineation to the U.S. ACE.**

Response: Please see response to EPA general comment 1.

RESPONSES TO COMMENTS FROM DTSC

General Comments

Comment: **This document clearly presents the results of a wetland delineation for jurisdictional wetland using the U.S. Army Corps of Engineers (USACE) wetland delineation methodology.**

Response: Thank you for the comment.

Specific Comments

- 1. Comment:** **This wetland uses the USACE wetland delineation methodology (Section 2.1, page 3) which requires that all three wetland criteria (i.e, soil type, vegetation type and hydrological characteristics). Historically the California Department of Fish and Game (DFG) has considered an area a wetland if it meets one of these criteria. The DFG should be consulted to determine their position on this wetland delineation using the USACE methodology. Discussions with DFG on June 20, 2003 indicated that DFG will request potential wetland maps using the U.S. Fish and Wildlife Service wetland criteria.**

Response: The extent of the wetlands delineation at HPS covered all potential areas where even one of the wetlands parameters was present. Therefore, the areas defined as wetlands at HPS in this report will likely correspond to wetlands areas defined using other delineation methods (such as U.S. Fish and Wildlife Service [USFWS]). As stated in [Section 3.3.1](#), the soils at HPS where wetlands occur are fill material and the most reliable hydric soil indicators were the presence of other parameter indicators, such as the high-tide trash line and the depth of the tidally influenced saturated zone. There are no additional areas at HPS where only one or two wetland parameters were noted, and as such, none were excluded from the wetlands delineation map.

2. Comment: **Tetra Tech initially identified 22 potential jurisdictional wetland area: nine intertidal salt marshes; eight emergent wetlands; and, five freshwater wetlands (Section 3.0, page 7). Please explain in the text why the number of potential wetlands does not agree with the number evaluated later in the document. For example, the listing of plant species observed in Parcel B and Parcel E tidal wetlands (Table 1, page 8) lists one for Parcel B and eleven for Parcel E. A map displaying the potential wetlands and a simple statement in the text for the difference between 12 test pits in 9 potential intertidal wetlands should be sufficient.**

Response: These 22 potential jurisdictional wetlands are shown on [Figure 2](#) along with the location of the test pits listed in [Tables 1 and 2](#). Test pits were not required for each wetland area because either the wetland boundaries were clearly defined or the delineation could be made based on previous wetland work already completed at HPS earlier that day. As shown in [Table 1](#), the intertidal wetlands at HPS were easily identified by the presence of the salt grass and pickleweed in each case. The final version of this document will clarify this information.

3. Comment: **There appears to be a duplicate entry for the Groundwater Recharge Wetland Function in Table 5 for the 12/04/2001 evaluation of tidal wetlands (Pages 16 and 17). If this is, indeed, a typographic error it should be corrected.**

Response: This is a duplicate entry and will be deleted in the final version of the document.

CONCLUSIONS

Comment: This report presents a clear description of the USACE methodology and the criteria used in the functions and values analysis of the Parcel B and Parcel E potential jurisdictional wetlands. Slightly more detail is required to identify the sample locations listed in some of the tables regarding in which potential wetland the samples were taken. A map is the suggested addition.

HERD has no disagreement with the jurisdictional wetlands identified and the values determined. However, the California Department of Fish and Game should be contacted for concurrence.

Response: Thank you for the comment. Figure 2 presents the locations of the test pits. This clarification is included in Section 3.0 in the final version of this document.

See response to DTSC specific comment 1. CDFG has reviewed the document and provided comments.

RESPONSES TO COMMENTS FROM CDFG

1. **Comment:** The wetlands delineation was a clear and well-presented report. There was a nice use of graphics with maps and photographs. The document represents a good faith effort by the Navy to delineate wetlands for Parcels B and E. I am prepared to conditionally accept its conclusions for the wetland delineation and WET evaluation. However, I reiterate that the Navy should recognize DFG consistently using the U.S. Fish and Wildlife Service (USFWS) definition of wetland in its wetland policy (http://www.dfg.ca.gov/fg_comm/p4misc.html#WETLANDS). The DFG wetland policy is a To-Be-Considered guidance which recommends that wetland characterization utilize USFWS definition of wetlands (USFWS 1979). The USFWS definition relies on the presence of wetland vegetation, hydric soils, and wetland hydrology (e.g., saturation or inundation for an extended period of time), and requires the presence of at least one of these criteria (rather than all three) in order to classify an area as a wetland. Therefore, the USFWS criteria for wetland characterization is more stringent than the USACE criteria. In order to uphold the DFG policy, we must utilize USFWS criteria for wetland delineation at HPS and other BRAC sites. The new wetland delineation report would be unacceptable if USACE criteria for wetland delineation were applied at HPS.

Response: See response to DTSC specific comment 1.

2. Comment: I recommend that the Navy provide a map of wetlands that meets the USFWS definition either as an appendix to this report or under a separate cover, which would meet the purpose of showing additional areas of interest to DFG.

Response: See response to DTSC specific comment 1. This fact will be explained in the final version of this document.

REFERENCES

Tetra Tech EM Inc. (Tetra Tech). 2002. "Revised Draft Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Parcel E Standard Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." August 5.

U.S. Army Corps of Engineers. 1991. "Wetland Evaluation Technique (WET), Final Report. Volume I: Literature Review and Evaluation Rationale." Waterways Experiment Station. October.

U.S. Department of the Navy. 1984. "Initial Assessment Study of Hunters Point Naval Shipyard (Disestablished) San Francisco, California." NEEAA 13-059. Naval Energy and Environmental Support Activity. Port Hueneme, California. October.

ATTACHMENT 1
U.S. ARMY CORPS OF ENGINEERS WETLAND DETERMINATION DATA FORMS

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u> Applicant/Owner: <u>U.S. Navy</u> Investigator(s): <u>TtEMI (Ed Surbrugg, Cindi Rose)</u>	Date: <u>October 1, 2001</u> City: <u>San Francisco</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If needed, explain answer on reverse or attach separate sheet.)	Community ID: _____ Transect ID: <u>T2-R</u> Plot ID: _____

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	90%	FACW	9.		
2. <i>Salicornia virginica</i>	10%	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb ___%; shrub ___% tree ___%; vine ___%

2. Assume presence of wetland vegetation? Yes No; or, No; or, No

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> _____ <input type="checkbox"/> Other a. _____ b. _____ c. _____ Comment: _____ _____ <input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input checked="" type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated: <input type="checkbox"/> In Upper 12" of Soil Profile Corps Primary Indicators (Historic conditions): <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, If Necessary (Explain) a. <input type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.)</p> <p><input checked="" type="checkbox"/> Tidal Influence Comments: <u>Test hole 10 feet in front of drain pipe on inland side in burn area. Both tidal and FW influence</u> <input checked="" type="checkbox"/> Non-Tidal Influence</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____		
Profile Description (Surface 0" to 12"):			Field Observations Confirm NRCS Mapping? ____ Yes ____ No ____ N/A		
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 8	1	10YR 4/4	None	None	Sandy loam, granular
8 to 13	2	10YR 4/2	5GY 4/1 5YR 5/8	Common, Many, Distinct Few, Fine, Distinct	Sandy clay loam
13 to 18+	3	10YR 2/1	N3 /0	Common, Large, Faint	Sandy clay loam

Hydric Soil Indicators:

Historic: _____ Histosol
 _____ Histic Epipedon
 _____ Organic Streaking in Sandy Soils
 _____ Listed on National Hydric Soils List
 _____ Listed on Local Hydric Soils List
 Mottles Present Redoximorphic features)

Current: _____ Sulfidic Odor
 Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)

Comment: Lots of brick debris in horizon 2

_____ Concretions (Redoximorphic Feature)
 _____ High Organic Content in Surface Layer in Sandy Soils
 Gleyed or Low-Chroma Colors (chrome ≤ 2)
 _____ Other (Explain in Remarks): _____
 _____ Redoximorphic Feature Along Dead Root Channel (Halo)
 Other:
 a. Buried organic matter at 15 inches
 b. _____
 c. _____

_____ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
 _____ Peraquic Moisture Regime (near permanent)
 _____ Other (Explain in Remarks):
 a. _____
 b. _____

Observations and Remarks:

1. Smell: Neutral; _____ Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor
 2. Site has been: _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope
 3. Soils Currently are: _____ Flooded; _____ Pondered; Saturated⁸
 4. Soils: _____ do _____ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; Unknown
 4. Soils: _____ do _____ do not, become continuously saturated, under normal conditions, for 14 days or greater, unknown
 6. **Comment:**

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes _____ No	Is this Sampling Point Within a Wetland <input checked="" type="checkbox"/> Yes _____ No
Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes _____ No	Signature: Cindi Rose: <i>Cindi Rose</i>
Hydric Soil Conditions Currently Present? <input checked="" type="checkbox"/> Yes _____ No	

Remarks:

1. Possible water of the U.S.? _____ Yes _____ No (can be a water and not a wetland when vegetation is absent if bed and bank present).
 2. Possibly exempt from Corps/EPA regulation? _____ Yes _____ No (if yes, check item(s) below).
 (a) _____ Non-tidal drainage and irrigation ditches excavated on dry land.
 (b) _____ Artificially irrigated areas which would revert to upland if the irrigation ceased.
 (c) _____ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
 (d) _____ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.
 (e) _____ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V)).
³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
⁴ Mottle abundance: Few (F), Common (C), or Many (M).
⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u> Applicant/Owner: <u>U.S. Navy</u> Investigator(s): <u>TtEMI (Ed Surbrugg, Cindi Rose)</u>	Date: <u>October 1, 2001</u> City: <u>San Francisco</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If needed, explain answer on reverse or attach separate sheet.)	Community ID: _____ Transect ID: <u>T3-R</u> Plot ID: _____

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	5%	FACW	9.		
2. <i>Salicornia virginica</i>	50%	OBL	10.		
3. <i>Limonium californicum</i>	45%	OBL	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %

2. Assume presence of wetland vegetation? Yes No; or, No; or, No

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

___ Recorded Data (Attached): ___ Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> ___ Other a. _____ b. _____ c. _____ Comment: _____ ___ No Recorded Data Found	Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input checked="" type="checkbox"/> Inundated: <u> </u> Flooded <u> </u> Ponded <input type="checkbox"/> Saturated: <u> </u> In Upper 12" of Soil Profile Corps Primary Indicators (Historic conditions): <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <u> </u> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, if Necessary (Explain) a. <input checked="" type="checkbox"/> Landscape Position "Drains" b. <u> </u> Landscape Position "Ponds" c. <u> </u> Landscape Position "Saturates" Comments: <u>In drainage ditch. Soil saturated at > 12"</u>
Current Field Observation with upper 12" of soil profile: Depth of Surface Water: <u> </u> (in.) Depth of Free Water in Pit: <u> </u> (in.) Depth of Saturated Soil: <u> </u> (in.) ___ Tidal Influence Comments: _____ <input checked="" type="checkbox"/> Non-Tidal Influence	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PDT, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____ _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to _____					
_____ to _____					
_____ to _____					

Hydric Soil Indicators:

<i>Historic:</i> ___ Histosol ___ Histic Epipedon ___ Organic Streaking in Sandy Soils ___ Listed on National Hydric Soils List ___ Listed on Local Hydric Soils List ___ Mottles Present Redoximorphic features)	___ Concretions (Redoximorphic Feature) ___ High Organic Content in Surface Layer in Sandy Soils ___ Gleyed or Low-Chroma Colors (chrome \leq 2 ___ Other (Explain in Remarks): _____ ___ Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____
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Comment:
 Test hole 12 inches deep. Soil was fill and debris. Because fill and debris, soil profile not conducted.

<i>Current:</i> ___ Sulfidic Odor ___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)	___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically) ___ Peraquic Moisture Regime (near permanent) ___ Other (Explain in Remarks): _____ a. _____ b. _____
--	--

Comment:

Observations and Remarks:

1. *Smell:* ___ Neutral; ___ Slightly Fresh; ___ Freshly Plowed Field Smell; or ___ Sulfidic Odor
2. *Site has been:* ___ Irrigated; ___ Land Leveled; ___ Ditch Drained; ___ Tile Drained; ___ Pumped; ___ Graded to drain via slope
3. *Soils Currently are:* ___ Flooded; ___ Ponded; ___ Saturated⁸
4. *Soils:* ___ do ___ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; ___ Unknown
4. *Soils:* ___ do ___ do not, become continuously saturated, under normal conditions, for 14 days or greater, ___ unknown
6. **Comment:**

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? ___ Yes ___ No Wetland Hydrology Conditions Present? ___ Yes ___ No Hydric Soil Conditions Currently Present? ___ Yes ___ No	Is this Sampling Point Within a Wetland ___ Yes ___ No Signature: Cindi Rose: <i>Cindi Rose</i>
---	--

Remarks:

1. Possible water of the U.S.? ___ Yes ___ No (can be a water and not a wetland when vegetation is absent if bed and bank present).
2. Possibly exempt from Corps/EPA regulation? ___ Yes ___ No (if yes, check item(s) below).
 - (a) ___ Non-tidal drainage and irrigation ditches excavated on dry land.
 - (b) ___ Artificially irrigated areas which would revert to upland if the irrigation ceased.
 - (c) ___ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
 - (d) ___ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.
 - (e) ___ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Ed Surbrugg, Cindi Rose)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____ Transect ID: <u>T4-R</u> Plot ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Grindelia stricta</i>	20%	OBL	9.		
2. <i>Rumex (curly dock)</i>	10%		10.		
3. <i>Sihi ?</i>	20%		11.		
4. <i>Frankenia salina</i>	10%	FAC	12.		
5. Bare ground	10%		13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks: Dead *scirpus* about 8 feet from test hole

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %

2. Assume presence of wetland vegetation? Yes No; or,

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> <input type="checkbox"/> Other a. _____ b. _____ c. _____ Comment: _____ <input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated: <input type="checkbox"/> In Upper 12" of Soil Profile Corps Primary Indicators (Historic conditions): <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, If Necessary (Explain) a. <input checked="" type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____ Sediment deposits from water passing in drainage ditch</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: <u> </u> (in.) Depth of Free Water in Pit: <u> </u> (in.) Depth of Saturated Soil: <u>>12"</u> (in.)</p> <p><input type="checkbox"/> Tidal Influence _____ <input checked="" type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet. 5:55 PTD. High Tide 6.04 feet. 12:24 PTD

SOILS

Map Unit Name (Series and Phase): <u>Sandy sediment</u> Taxonomy (Subgroup): _____ _____ Profile Description (Surface 0" to 12"): _____	Drainage Class ¹ : <u>Well drained</u> Permeability ² : <u>rapid</u> Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A
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Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to <u>18+</u>	Fill sediment	10YR 4/3	None	None	Sandy to loamy sand, some concretions
_____ to _____					
to					

Hydric Soil Indicators:

Historic: _____ Histosol _____ Histic Epipedon _____ Organic Streaking in Sandy Soils _____ Listed on National Hydric Soils List _____ Listed on Local Hydric Soils List _____ Mottles Present Redoximorphic features)	<input checked="" type="checkbox"/> Concretions (Redoximorphic Feature) _____ High Organic Content in Surface Layer in Sandy Soils _____ Gleyed or Low-Chroma Colors (chrome ≤ 2) _____ Other (Explain in Remarks): _____ _____ Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____
---	--

Comment: _____

Current: _____ Sulfidic Odor _____ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)	_____ Aquic Moisture Regime (nearly free of dissolved oxygen periodically) _____ Peraquic Moisture Regime (near permanent) _____ Other (Explain in Remarks): _____ a. _____ b. _____
---	--

Comment: _____

Observations and Remarks:

1. Smell: _____ Neutral; Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor

2. Site has been: _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope

3. Soils Currently are: _____ Flooded; _____ Ponded; _____ Saturated⁸

4. Soils: _____ do do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; _____ Unknown

4. Soils: _____ do do not, become continuously saturated, under normal conditions, for 14 days or greater, _____ unknown

6. **Comment:** In drainage ditch

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soil Conditions Currently Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Signature: Cindi Rose: <i>Cindi Rose</i>

Remarks:

1. Possible water of the U.S.? Yes No (can be a water and not a wetland when vegetation is absent if bed and bank present).

2. Possibly exempt from Corps/EPA regulation? Yes No (if yes, check item(s) below).

(a) _____ Non-tidal drainage and irrigation ditches excavated on dry land.

(b) _____ Artificially irrigated areas which would revert to upland if the irrigation ceased.

(c) _____ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

(d) _____ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.

(e) _____ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).

² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).

³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).

⁴ Mottle abundance: Few (F), Common (C), or Many (M).

⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).

⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.

⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.

⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 2, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Ed Surbrugg, Cindi Rose)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.) <u>Area recently burned, also soil is fill</u>	Transect ID: <u>T6-R</u> Plot ID: _____

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	95%	FACW	9.		
2. <i>Bromus</i> spp. (burned)	5%	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub _____ % tree _____ %; vine _____ %

2. Assume presence of wetland vegetation? _____ Yes _____ No; or,

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: _____ Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Attached): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> <input type="checkbox"/> Other a. _____ b. _____ c. _____ Comment: _____ <input type="checkbox"/> No Recorded Data Found	Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input type="checkbox"/> Inundated: <input checked="" type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated: <input type="checkbox"/> In Upper 12" of Soil Profile Corps Primary Indicators (historic conditions): <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: _____ Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, If Necessary (Explain) a. <input type="checkbox"/> Landscape Position "Drains" b. <input checked="" type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____
Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.) <input type="checkbox"/> Tidal Influence _____ <input checked="" type="checkbox"/> Non-Tidal Influence _____	

Observation & Remarks:

1. Filamentous or sheet forming algae present? _____ Yes _____ No

2. Matted vegetation _____ Yes _____ No

3. Surface Sediment with Bedding Planes _____ Yes No

4. Encrusted detritus _____ Yes _____ No

5. Slope: _____ 0-2%; or _____ > 2%

6. Oxidized rhizospheres: _____ new roots only; _____ Old roots only; _____ New and old roots, or _____ none

7. Flooding: _____ none, flooding not probable; _____ rare, unlikely but possible under unusual weather conditions; _____ occasional, occurs on an average of once or less in 2 years, or _____ frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); _____ long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); _____ long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); _____ long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

Comments: Low Tide 0.81 feet, 6:28 PDT, High Tide 6.17 feet, 12:51 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____ _____ Profile Description (Surface 0" to 12"): _____	Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A
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Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 4	Sod	10YR 4/2 10YR 5/3	None	None	Numerous fine roots, silty clay loam
4 to 12+	Previously Deposited fill	10YR 4/4	10YR 3/2	Common, Large, Distinct	Clay loam 30-40% coarse grain
to					

Hydric Soil Indicators:

Historic: ___ Histosol
 ___ Histic Epipedon
 ___ Organic Streaking in Sandy Soils
 ___ Listed on National Hydric Soils List
 ___ Listed on Local Hydric Soils List
 ___ Mottles Present Redoximorphic features)

Current: ___ Sulfidic Odor
 ___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)

Comment: _____

___ Concretions (Redoximorphic Feature)
 ___ High Organic Content in Surface Layer in Sandy Soils
 Gleyed or Low-Chroma Colors (chrome ≤ 2)
 ___ Other (Explain in Remarks): _____
 ___ Redoximorphic Feature Along Dead Root Channel (Halo)
 Other:
 a. _____
 b. _____
 c. _____

___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
 ___ Peraquic Moisture Regime (near permanent)
 ___ Other (Explain in Remarks): _____
 a. _____
 b. _____

Observations and Remarks:

1. Smell: Neutral; ___ Slightly Fresh; ___ Freshly Plowed Field Smell; or ___ Sulfidic Odor

2. Site has been: ___ Irrigated; ___ Land Leveled; ___ Ditch Drained; ___ Tile Drained; ___ Pumped; ___ Graded to drain via slope

3. Soils Currently are: ___ Flooded; ___ Pondered; ___ Saturated⁸

4. Soils: do ___ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; Unknown

4. Soils: ___ do ___ do not, become continuously saturated, under normal conditions, for 14 days or greater, unknown

6. **Comment:** _____

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Hydric Soil Conditions Currently Present? <input checked="" type="checkbox"/> Yes ___ No	Is this Sampling Point Within a Wetland <input checked="" type="checkbox"/> Yes ___ No Signature: Cindi Rose: <i>Cindi Rose</i>
---	--

Remarks:

1. Possible water of the U.S.? ___ Yes ___ No (can be a water and not a wetland when vegetation is absent if bed and bank present).

2. Possibly exempt from Corps/EPA regulation? ___ Yes ___ No (if yes, check item(s) below).

(a) ___ Non-tidal drainage and irrigation ditches excavated on dry land.

(b) ___ Artificially irrigated areas which would revert to upland if the irrigation ceased.

(c) ___ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

(d) ___ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.

(e) ___ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).

² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).

³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).

⁴ Mottle abundance: Few (F), Common (C), or Many (M).

⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).

⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.

⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.

⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	
Transect ID: <u>T1-C</u> Plot ID: _____	

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status		Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Salicornia virginica</i>	100%	OBL	9.			
2.			10.			
3.			11.			
4.			12.			
5.			13.			
6.			14.			
7.			15.			
8.			16.			

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub _____ % tree _____ %; vine _____ %

2. Assume presence of wetland vegetation? Yes No; or, _____

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p>___ Recorded Data (Attached):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u></p> <p>___ Other</p> <p style="margin-left: 20px;">a. _____</p> <p style="margin-left: 20px;">b. _____</p> <p style="margin-left: 20px;">c. _____</p> <p>Comment: _____</p> <p>___ No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile:</p> <p>Corps Primary Indicators (current conditions):</p> <p><input checked="" type="checkbox"/> Inundated: _____ Flooded _____ Ponded _____</p> <p><input type="checkbox"/> Saturated: _____ In Upper 12" of Soil Profile _____</p> <p>Corps Primary Indicators (Historic conditions):</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Corps Secondary Indicators (2 or more required; historic conditions):</p> <p><input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: _____ Upper 12" of Soil Profile</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p>Other, If Necessary (Explain)</p> <p style="margin-left: 20px;">a. ___ Landscape Position "Drains"</p> <p style="margin-left: 20px;">b. ___ Landscape Position "Ponds"</p> <p style="margin-left: 20px;">c. ___ Landscape Position "Saturates"</p> <p>Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth of Free Water in Pit: _____ (in.)</p> <p>Depth of Saturated Soil: _____ (in.)</p> <p><input checked="" type="checkbox"/> Tidal Influence Comments: <u>Close to pier</u></p> <p>___ Non-Tidal Influence</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: _____ 0-2%; or > 2%

6. Oxidized rhizospheres: _____ new roots only; _____ Old roots only; _____ New and old roots, or none

7. Flooding: _____ none, flooding not probable; _____ rare, unlikely but possible under unusual weather conditions; _____ occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); _____ long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); _____ long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD, High Tide 6.04 feet, 12:24 PDT

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	
Transect ID: <u>T2-C</u> Plot ID: _____	

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Salicornia virginica</i>	90%	OBL	9.		
2. <i>Spartina foliosa</i>	10%	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub _____ % tree _____ %; vine _____ %

2. Assume presence of wetland vegetation? Yes No; or, _____

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u></p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p style="margin-left: 40px;">a. _____</p> <p style="margin-left: 40px;">b. _____</p> <p style="margin-left: 40px;">c. _____</p> <p>Comment: _____</p> <p><input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile:</p> <p>Corps Primary Indicators (current conditions):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Inundated: _____ Flooded _____ Ponded _____</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Saturated: _____ In Upper 12" of Soil Profile</p> <p>Corps Primary Indicators (Historic conditions):</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Water Marks</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Drift Lines</p> <p style="margin-left: 20px;"><input type="checkbox"/> Sediment Deposits</p> <p style="margin-left: 20px;"><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Corps Secondary Indicators (2 or more required; historic conditions):</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: _____ Upper 12" of Soil Profile</p> <p style="margin-left: 20px;"><input type="checkbox"/> Water-Stained Leaves</p> <p style="margin-left: 20px;"><input type="checkbox"/> Local Soil Survey Data</p> <p style="margin-left: 20px;"><input type="checkbox"/> FAC-Neutral Test</p> <p>Other, If Necessary (Explain)</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> Landscape Position "Drains"</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> Landscape Position "Ponds"</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> Landscape Position "Saturates"</p> <p>Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile:</p> <p style="margin-left: 20px;">Depth of Surface Water: _____ (in.)</p> <p style="margin-left: 20px;">Depth of Free Water in Pit: _____ (in.)</p> <p style="margin-left: 20px;">Depth of Saturated Soil: _____ (in.)</p> <p><input checked="" type="checkbox"/> Tidal Influence Comments: <u>Near pier</u></p> <p><input type="checkbox"/> Non-Tidal Influence</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: _____ 0-2%; or > 2%

6. Oxidized rhizospheres: _____ new roots only; _____ Old roots only; New and old roots, or _____ none

7. Flooding: _____ none, flooding not probable; _____ rare, unlikely but possible under unusual weather conditions; _____ occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); _____ long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

11. Saturation? Yes No

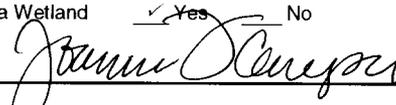
12. Continuous duration of Saturation: _____ None; _____ very brief, if < 2 days; _____ brief, if < 5% growing season (GS); _____ long, if >5% to 12.5% GS; or _____ very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 3	Sand, shell hash, roots	10YR 3/2	2.5YR 3/6	Few, medium, distinct	Loamy sand
3 to 6		N2.5 /	10YR 3/4	Few, medium, distinct	Silty clay
6 to 12+	Intermittent sand & shell mixture	N3 / (shell layer) 10YR 3/3 (sand layer)	None None	None None	Coarse sand
Hydric Soil Indicators: <i>Historic:</i> <input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Mottles Present Redoximorphic features) <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors (chrome \leq 2) <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____					
Comment: Soil saturated at 3 inches					
<i>Current:</i> <input type="checkbox"/> Sulfidic Odor <input checked="" type="checkbox"/> Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions) <input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen periodically) <input type="checkbox"/> Peraquic Moisture Regime (near permanent) <input type="checkbox"/> Other (Explain in Remarks): _____ a. _____ b. _____					
Comment:					
Observations and Remarks: 1. Smell: <input checked="" type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained; <input type="checkbox"/> Tile Drained; <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Pondered; <input checked="" type="checkbox"/> Saturated ⁸ 4. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; <input checked="" type="checkbox"/> Unknown 4. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously saturated, under normal conditions, for 14 days or greater, <input type="checkbox"/> unknown 6. Comment:					

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Conditions Currently Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Signature: Joanna Canepa: 
Remarks: 1. Possible water of the U.S.? <input type="checkbox"/> Yes <input type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input type="checkbox"/> No (if yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land. (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).	

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	
Transect ID: <u>T3-C</u> Plot ID: _____	

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	9.	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Salicornia virginica</i>	75%	OBL	9.			
2. <i>Distichlis spicata</i>	25%	FACW	10.			
3.			11.			
4.			12.			
5.			13.			
6.			14.			
7.			15.			
8.			16.			

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %

2. Assume presence of wetland vegetation? Yes No; or, No; or, No

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u></p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p style="margin-left: 40px;">a. _____</p> <p style="margin-left: 40px;">b. _____</p> <p style="margin-left: 40px;">c. _____</p> <p>Comment: _____</p> <p><input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile:</p> <p>Corps Primary Indicators (current conditions):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded</p> <p style="margin-left: 20px;"><input type="checkbox"/> Saturated: <input checked="" type="checkbox"/> In Upper 12" of Soil Profile</p> <p>Corps Primary Indicators (Historic conditions):</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Water Marks</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Drift Lines</p> <p style="margin-left: 20px;"><input type="checkbox"/> Sediment Deposits</p> <p style="margin-left: 20px;"><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Corps Secondary Indicators (2 or more required; historic conditions):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile</p> <p style="margin-left: 20px;"><input type="checkbox"/> Water-Stained Leaves</p> <p style="margin-left: 20px;"><input type="checkbox"/> Local Soil Survey Data</p> <p style="margin-left: 20px;"><input type="checkbox"/> FAC-Neutral Test</p> <p>Other, if Necessary (Explain)</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> Landscape Position "Drains"</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> Landscape Position "Ponds"</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> Landscape Position "Saturates"</p> <p>Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile:</p> <p style="margin-left: 20px;">Depth of Surface Water: _____ (in.)</p> <p style="margin-left: 20px;">Depth of Free Water in Pit: _____ (in.)</p> <p style="margin-left: 20px;">Depth of Saturated Soil: _____ (in.)</p> <p><input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u></p> <p><input type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD. High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 6	Sandy, moist, all shells				
_____ to _____					
_____ to _____					
Hydric Soil Indicators: <i>Historic:</i> _____ Histosol _____ Histic Epipedon _____ Organic Streaking in Sandy Soils _____ Listed on National Hydric Soils List _____ Listed on Local Hydric Soils List _____ Mottles Present Redoximorphic features) Comment: _____					
_____ Concretions (Redoximorphic Feature) _____ High Organic Content in Surface Layer in Sandy Soils _____ Gleyed or Low-Chroma Colors (chrome \leq 2 _____ Other (Explain in Remarks): _____ _____ Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____					
<i>Current:</i> _____ Sulfidic Odor _____ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions) Comment: _____					
_____ Aquic Moisture Regime (nearly free of dissolved oxygen periodically) _____ Peraquic Moisture Regime (near permanent) _____ Other (Explain in Remarks): a. _____ b. _____					
Observations and Remarks: 1. <i>Smell:</i> _____ Neutral; _____ Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor 2. <i>Site has been:</i> _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope 3. <i>Soils Currently are:</i> _____ Flooded; _____ Pondered; _____ Saturated ⁸ 4. <i>Soils:</i> _____ do _____ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; _____ Unknown 4. <i>Soils:</i> _____ do _____ do not, become continuously saturated, under normal conditions, for 14 days or greater, _____ unknown 6. Comment: _____					

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Conditions Currently Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Signature: Joanna Canepa:
Remarks: 1. Possible water of the U.S.? <input type="checkbox"/> Yes <input type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input type="checkbox"/> No (if yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land. (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).	

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	
Transect ID: <u>T4-C</u> Plot ID: _____	

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Salicornia virginica</i>	75%	OBL	9.		
2. <i>Distichlis spicata</i>	25%	FACW	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %
2. Assume presence of wetland vegetation? Yes No; or, No; or, No
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No
4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u></p> <p><input type="checkbox"/> Other _____</p> <p style="margin-left: 20px;">a. _____</p> <p style="margin-left: 20px;">b. _____</p> <p style="margin-left: 20px;">c. _____</p> <p>Comment: _____</p> <p><input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile:</p> <p>Corps Primary Indicators (current conditions):</p> <p><input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded</p> <p><input checked="" type="checkbox"/> Saturated: <input checked="" type="checkbox"/> In Upper 12" of Soil Profile</p> <p>Corps Primary Indicators (Historic conditions):</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Corps Secondary Indicators (2 or more required; historic conditions):</p> <p>Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p>Other, If Necessary (Explain)</p> <p>a. <input type="checkbox"/> Landscape Position "Drains"</p> <p>b. <input type="checkbox"/> Landscape Position "Ponds"</p> <p>c. <input type="checkbox"/> Landscape Position "Saturates"</p> <p>Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth of Free Water in Pit: _____ (in.)</p> <p>Depth of Saturated Soil: _____ (in.)</p> <p><input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u></p> <p><input type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No
2. Matted vegetation Yes No
3. Surface Sediment with Bedding Planes Yes No
4. Encrusted detritus Yes No
5. Slope: 0-2%; or > 2%
6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none
7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.
8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS
9. Ponding? Yes No
10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS
11. Saturation? Yes No
12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PT. High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A				
Profile Description (Surface 0" to 12"):							
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.		
Surface (0) to 1	shell hash, roots						
1 to 8	Upper clay	5B 4/1	5YR 4/6	Few, faint, distinct			
8 to 14+	Lower clay	5B 4/1	None		Subangular blocking		
Hydric Soil Indicators: Historic: <table style="width:100%; border:none;"> <tr> <td style="width:50%; vertical-align: top;"> <input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Mottles Present Redoximorphic features) </td> <td style="width:50%; vertical-align: top;"> <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Gleyed or Low-Chroma Colors (chrome \leq2 <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____ </td> </tr> </table> Comment: _____						<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Mottles Present Redoximorphic features)	<input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Gleyed or Low-Chroma Colors (chrome \leq 2 <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Mottles Present Redoximorphic features)	<input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Gleyed or Low-Chroma Colors (chrome \leq 2 <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____						
Current: <table style="width:100%; border:none;"> <tr> <td style="width:50%; vertical-align: top;"> <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions) </td> <td style="width:50%; vertical-align: top;"> <input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen periodically) <input type="checkbox"/> Peraquic Moisture Regime (near permanent) <input type="checkbox"/> Other (Explain in Remarks): a. _____ b. _____ </td> </tr> </table> Comment: _____						<input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)	<input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen periodically) <input type="checkbox"/> Peraquic Moisture Regime (near permanent) <input type="checkbox"/> Other (Explain in Remarks): a. _____ b. _____
<input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)	<input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen periodically) <input type="checkbox"/> Peraquic Moisture Regime (near permanent) <input type="checkbox"/> Other (Explain in Remarks): a. _____ b. _____						
Observations and Remarks: 1. Smell: <input checked="" type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained; <input type="checkbox"/> Tile Drained; <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Pondered; <input checked="" type="checkbox"/> Saturated ⁸ 4. Soils: <input type="checkbox"/> do <input type="checkbox"/> do not, become continuously flooded or pondered, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; <input type="checkbox"/> Unknown 4. Soils: <input type="checkbox"/> do <input type="checkbox"/> do not, become continuously saturated, under normal conditions, for 14 days or greater, <input checked="" type="checkbox"/> unknown 6. Comment: _____							

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Conditions Currently Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Signature: Joanna Canepa:
Remarks: 1. Possible water of the U.S.? <input type="checkbox"/> Yes <input type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input type="checkbox"/> No (if yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land. (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).	

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	
Transect ID: <u>T7-C</u> Plot ID: _____	

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	25%	FACW	9.		
2. <i>Salicornia virginica</i>	75%	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %

2. Assume presence of wetland vegetation? Yes No; or, No; or, No

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> _____ <input type="checkbox"/> Other a. _____ b. _____ c. _____ Comment: _____ _____ <input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input checked="" type="checkbox"/> Saturated: <input checked="" type="checkbox"/> In Upper 12" of Soil Profile Corps Primary Indicators (Historic conditions): <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <u> </u> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, If Necessary (Explain) a. <input type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.) <input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u> _____ <input type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

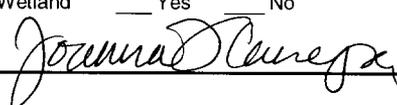
12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____ _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 1	Shell hash, roots				Clay
1 to 8	Upper clay	5B 4/1	5YR 4/6	Few, fine, distinct	
8 to 14+	Lower clay	5B 4/1	None		subangular blocking
Hydric Soil Indicators: Historic: _____ Histosol _____ Histic Epipedon _____ Organic Streaking in Sandy Soils _____ Listed on National Hydric Soils List _____ Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Mottles Present Redoximorphic features)					
Comment: _____ _____ Concretions (Redoximorphic Feature) _____ High Organic Content in Surface Layer in Sandy Soils <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors (chrome \leq 2) _____ Other (Explain in Remarks): _____ _____ Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____					
Current: _____ Sulfidic Odor _____ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)					
Comment: _____ <input checked="" type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen periodically) _____ Peraquic Moisture Regime (near permanent) _____ Other (Explain in Remarks): a. _____ b. _____					
Observations and Remarks: 1. Smell: <input checked="" type="checkbox"/> Neutral; _____ Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor 2. Site has been: _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope 3. Soils Currently are: _____ Flooded; _____ Pondered; <input checked="" type="checkbox"/> Saturated ⁸ 4. Soils: _____ do _____ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; _____ Unknown 4. Soils: _____ do _____ do not, become continuously saturated, under normal conditions, for 14 days or greater, _____ unknown 6. Comment: _____					

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Hydric Soil Conditions Currently Present? <input checked="" type="checkbox"/> Yes ___ No	Is this Sampling Point Within a Wetland <input checked="" type="checkbox"/> Yes ___ No Signature: Joanna Canepa: 
Remarks: 1. Possible water of the U.S.? ___ Yes ___ No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? ___ Yes ___ No (if yes, check item(s) below). (a) ___ Non-tidal drainage and irrigation ditches excavated on dry land. (b) ___ Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) ___ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) ___ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons. (e) ___ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).	

NOTES:
¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
⁴ Mottle abundance: Few (F), Common (C), or Many (M).
⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	Transect ID: <u>T8-C</u> Plot ID: _____

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status		Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	25%	FACW	9.			
2. <i>Salicornia virginica</i>	70%	OBL	10.			
3.			11.			
4.			12.			
5.			13.			
6.			14.			
7.			15.			
8.			16.			

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %

2. Assume presence of wetland vegetation? Yes No; or, No; or, No

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: No; or, Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u></p> <p><input type="checkbox"/> Other a. _____ b. _____ c. _____</p> <p>Comment: _____</p> <p><input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile:</p> <p>Corps Primary Indicators (current conditions): <input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input checked="" type="checkbox"/> Saturated: <input checked="" type="checkbox"/> In Upper 12" of Soil Profile</p> <p>Corps Primary Indicators (Historic conditions): <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Corps Secondary Indicators (2 or more required; historic conditions): <input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test</p> <p>Other, If Necessary (Explain) a. <input type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates"</p> <p>Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.)</p> <p><input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u> _____ Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____		
Profile Description (Surface 0" to 12"):			Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 2	shell hash, salt grass roots				
2 to 12		N3/	5YR 4/6	Few. faint	
to					

Hydric Soil Indicators:

Historic: ___ Histosol
 ___ Histic Epipedon
 ___ Organic Streaking in Sandy Soils
 ___ Listed on National Hydric Soils List
 ___ Listed on Local Hydric Soils List
 ___ Mottles Present Redoximorphic features)

Concretions (Redoximorphic Feature)
 ___ High Organic Content in Surface Layer in Sandy Soils
 Gleyed or Low-Chroma Colors (chrome ≤ 2)
 ___ Other (Explain in Remarks): _____
 ___ Redoximorphic Feature Along Dead Root Channel (Halo)
 Other:
 a. _____
 b. _____
 c. _____

Comment:

Current: ___ Sulfidic Odor
 ___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)

Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
 ___ Peraquic Moisture Regime (near permanent)
 ___ Other (Explain in Remarks): _____
 a. _____
 b. _____

Comment:

Observations and Remarks:

1. *Smell:* ___ Neutral; Slightly Fresh; ___ Freshly Plowed Field Smell; or ___ Sulfidic Odor

2. *Site has been:* ___ Irrigated; ___ Land Leveled; ___ Ditch Drained; ___ Tile Drained; ___ Pumped; ___ Graded to drain via slope

3. *Soils Currently are:* ___ Flooded; ___ Pondered; Saturated⁸

4. *Soils:* ___ do ___ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; ___ Unknown

4. *Soils:* ___ do ___ do not, become continuously saturated, under normal conditions, for 14 days or greater, ___ unknown

6. **Comment:**
 Wetland area is about 30 feet wide in this area. Note monitoring wells nearby

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Hydric Soil Conditions Currently Present? <input checked="" type="checkbox"/> Yes ___ No	Is this Sampling Point Within a Wetland <input checked="" type="checkbox"/> Yes ___ No Signature: Joanna Canepa:
---	---

Remarks:

1. Possible water of the U.S.? ___ Yes ___ No (can be a water and not a wetland when vegetation is absent if bed and bank present).

2. Possibly exempt from Corps/EPA regulation? ___ Yes ___ No (if yes, check item(s) below).

(a) ___ Non-tidal drainage and irrigation ditches excavated on dry land.

(b) ___ Artificially irrigated areas which would revert to upland if the irrigation ceased.

(c) ___ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

(d) ___ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.

(e) ___ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u> Applicant/Owner: <u>U.S. Navy</u> Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	Date: <u>October 1, 2001</u> City: <u>San Francisco</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If needed, explain answer on reverse or attach separate sheet.)	Community ID: Transect ID: <u>T9-C</u> Plot ID: _____

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status		Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	25%	FACW	9.			
2. <i>Salicornia virginica</i>	50%	OBL	10.			
3.			11.			
4.			12.			
5.			13.			
6.			14.			
7.			15.			
8.			16.			

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub _____ % tree _____ %; vine _____ %

2. Assume presence of wetland vegetation? Yes No; or, _____

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> <input type="checkbox"/> Other _____ a. _____ b. _____ c. _____ Comment: _____ <input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input type="checkbox"/> Inundated: _____ Flooded _____ Ponded _____ <input checked="" type="checkbox"/> Saturated: <input checked="" type="checkbox"/> In Upper 12" of Soil Profile Corps Primary Indicators (Historic conditions): <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: _____ Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, If Necessary (Explain): a. <input type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.) <input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u> <input type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PDT, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____ _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to _____					
_____ to _____					
_____ to _____					

Hydric Soil Indicators:

Historic: _____ Histosol
 _____ Histic Epipedon
 _____ Organic Streaking in Sandy Soils
 _____ Listed on National Hydric Soils List
 _____ Listed on Local Hydric Soils List
 Mottles Present Redoximorphic features)

Current: _____ Sulfidic Odor
 _____ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)

Comment:
 Inundated

_____ Concretions (Redoximorphic Feature)
 _____ High Organic Content in Surface Layer in Sandy Soils
 Gleyed or Low-Chroma Colors (chrome ≤ 2)
 _____ Other (Explain in Remarks): _____
 _____ Redoximorphic Feature Along Dead Root Channel (Halo)
 Other:
 a. _____
 b. _____
 c. _____

_____ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
 _____ Peraquic Moisture Regime (near permanent)
 _____ Other (Explain in Remarks):
 a. _____
 b. _____

Observations and Remarks:

1. *Smell:* Neutral; _____ Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor

2. *Site has been:* _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope

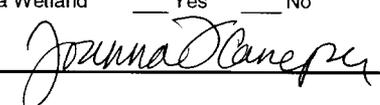
3. *Soils Currently are:* _____ Flooded; _____ Pondered; Saturated⁸

4. *Soils:* _____ do _____ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; _____ Unknown

4. *Soils:* _____ do _____ do not, become continuously saturated, under normal conditions, for 14 days or greater, _____ unknown

6. **Comment:**
 Wetland area is about 30 feet wide in this area. Note monitoring wells nearby

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes _____ No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes _____ No Hydric Soil Conditions Currently Present? <input checked="" type="checkbox"/> Yes _____ No	Is this Sampling Point Within a Wetland <input checked="" type="checkbox"/> Yes _____ No Signature: Joanna Canepa: 
---	---

Remarks:

1. Possible water of the U.S.? _____ Yes _____ No (can be a water and not a wetland when vegetation is absent if bed and bank present).

2. Possibly exempt from Corps/EPA regulation? _____ Yes _____ No (if yes, check item(s) below).

(a) _____ Non-tidal drainage and irrigation ditches excavated on dry land.

(b) _____ Artificially irrigated areas which would revert to upland if the irrigation ceased.

(c) _____ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

(d) _____ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.

(e) _____ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).

² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).

³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).

⁴ Mottle abundance: Few (F), Common (C), or Many (M).

⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).

⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.

⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.

⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>

Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If needed, explain answer on reverse or attach separate sheet.)	Community ID: _____ Transect ID: <u>T10-C</u> Plot ID: _____
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VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	9.	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	20%	FACW	9.			
2. <i>Salicornia virginica</i>	75%	OBL	10.			
3.			11.			
4.			12.			
5.			13.			
6.			14.			
7.			15.			
8.			16.			

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %

2. Assume presence of wetland vegetation? Yes No; or, No; or, No

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: No; or, Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> <input type="checkbox"/> Other _____ a. _____ b. _____ c. _____ Comment: _____ <input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input checked="" type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated: <input checked="" type="checkbox"/> In Upper 12" of Soil Profile Corps Primary Indicators (Historic conditions): <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, If Necessary (Explain) a. <input type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.) <input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u> <input type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or > 2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 15+	Shell hash Clay mud	5GY 5/1	2.5YR 4/4 7.5YR 4/6	Few, common, distinct Few, common, faint	Shell hash 0-6" Clay 6-15"
_____ to _____					
_____ to _____					

Hydric Soil Indicators:

Historic: _____ Histosol
 _____ Histic Epipedon
 _____ Organic Streaking in Sandy Soils
 _____ Listed on National Hydric Soils List
 _____ Listed on Local Hydric Soils List
 Mottles Present Redoximorphic features)

Current: _____ Sulfidic Odor
 _____ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)

Comment: _____

_____ Concretions (Redoximorphic Feature)
 _____ High Organic Content in Surface Layer in Sandy Soils
 Gleyed or Low-Chroma Colors (chrome ≤ 2)
 _____ Other (Explain in Remarks): _____
 _____ Redoximorphic Feature Along Dead Root Channel (Halo)
 Other:
 a. _____
 b. _____
 c. _____

_____ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
 _____ Peraquic Moisture Regime (near permanent)
 _____ Other (Explain in Remarks):
 a. _____
 b. _____

Observations and Remarks:

1. Smell: Neutral; _____ Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor

2. Site has been: _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope

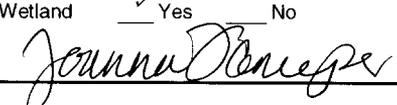
3. Soils Currently are: _____ Flooded; _____ Pondered; Saturated⁸

4. Soils: _____ do _____ do not, become continuously flooded or pondered, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; _____ Unknown

4. Soils: _____ do _____ do not, become continuously saturated, under normal conditions, for 14 days or greater, _____ unknown

6. **Comment:** _____

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes _____ No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes _____ No Hydric Soil Conditions Currently Present? <input checked="" type="checkbox"/> Yes _____ No	Is this Sampling Point Within a Wetland <input checked="" type="checkbox"/> Yes _____ No Signature: Joanna Canepa: 
---	---

Remarks:

1. Possible water of the U.S.? _____ Yes _____ No (can be a water and not a wetland when vegetation is absent if bed and bank present).

2. Possibly exempt from Corps/EPA regulation? _____ Yes _____ No (if yes, check item(s) below).

(a) _____ Non-tidal drainage and irrigation ditches excavated on dry land.

(b) _____ Artificially irrigated areas which would revert to upland if the irrigation ceased.

(c) _____ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

(d) _____ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.

(e) _____ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>

Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If needed, explain answer on reverse or attach separate sheet.)	Community ID: _____ Transect ID: <u>T11-C</u> Plot ID: _____
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VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status		Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	35%	FACW	9.			
2. <i>Salicornia virginica</i>	55%	OBL	10.			
3.			11.			
4.			12.			
5.			13.			
6.			14.			
7.			15.			
8.			16.			

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub % tree %; vine %

2. Assume presence of wetland vegetation? Yes No; or, No; or, No

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No

4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> _____ <input type="checkbox"/> Other a. _____ b. _____ c. _____ Comment: _____ _____ <input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input checked="" type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated: <input checked="" type="checkbox"/> In Upper 12" of Soil Profile</p> <p>Corps Primary Indicators (Historic conditions): <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Corps Secondary Indicators (2 or more required; historic conditions): <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input checked="" type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test</p> <p>Other, If Necessary (Explain) a. <input type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.)</p> <p><input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u> _____ <input type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No

2. Matted vegetation Yes No

3. Surface Sediment with Bedding Planes Yes No

4. Encrusted detritus Yes No

5. Slope: 0-2%; or >2%

6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none

7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.

8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

9. Ponding? Yes No

10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

11. Saturation? Yes No

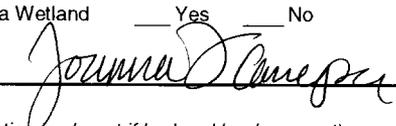
12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

Comments: Low Tide 0.56 feet, 5:55 PTD, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ___ Yes ___ No ___ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 5	Dry sand				
5 to 6	Wet sand				
6 to 8	Clay				Inundated, low chroma
Hydric Soil Indicators: Historic: _____ Histosol _____ Histic Epipedon _____ Organic Streaking in Sandy Soils _____ Listed on National Hydric Soils List _____ Listed on Local Hydric Soils List _____ Mottles Present Redoximorphic features)					
_____ Concretions (Redoximorphic Feature) _____ High Organic Content in Surface Layer in Sandy Soils <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors (chroma ≤2) _____ Other (Explain in Remarks): _____ _____ Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____					
Comment:					
Current: _____ Sulfidic Odor _____ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)					
_____ Aquic Moisture Regime (nearly free of dissolved oxygen periodically) _____ Peraquic Moisture Regime (near permanent) _____ Other (Explain in Remarks): a. _____ b. _____					
Comment:					
Observations and Remarks: 1. Smell: <input checked="" type="checkbox"/> Neutral; _____ Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor 2. Site has been: _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope 3. Soils Currently are: _____ Flooded; _____ Ponded; <input checked="" type="checkbox"/> Saturated ⁸ 4. Soils: _____ do _____ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; _____ Unknown 4. Soils: _____ do _____ do not, become continuously saturated, under normal conditions, for 14 days or greater, _____ unknown 6. Comment:					

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes ___ No Hydric Soil Conditions Currently Present? ___ Yes ___ No	Is this Sampling Point Within a Wetland ___ Yes ___ No Signature: Joanna Canepa: 
Remarks: 1. Possible water of the U.S.? ___ Yes ___ No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? ___ Yes ___ No (if yes, check item(s) below). (a) ___ Non-tidal drainage and irrigation ditches excavated on dry land. (b) ___ Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) ___ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) ___ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons. (e) ___ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).	

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

DATA FORM – ROUTINE WETLAND DETERMINATION
(Adapted from 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Hunters Point Parcel E</u>	Date: <u>October 1, 2001</u>
Applicant/Owner: <u>U.S. Navy</u>	City: <u>San Francisco</u>
Investigator(s): <u>TtEMI (Joanna Canepa, Jim Baker)</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	Transect ID: <u>T12-C</u> Plot ID: _____

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status
1. <i>Distichlis spicata</i>	25%	FACW	9.		
2. <i>Salicornia virginica</i>	50%	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observation & Remarks:

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): herb 100 %; shrub %; tree %; vine %
2. Assume presence of wetland vegetation? Yes No; or, No; or, No
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: Yes No
4. Taxonomic Reference(s): _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: <u>2001</u> _____ <input type="checkbox"/> Other a. _____ b. _____ c. _____ Comment: _____ _____ <input type="checkbox"/> No Recorded Data Found</p>	<p>Corps Wetland Hydrology Indicators within upper 12" of soil profile: Corps Primary Indicators (current conditions): <input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated: <input type="checkbox"/> In Upper 12" of Soil Profile Corps Primary Indicators (historic conditions): <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Corps Secondary Indicators (2 or more required; historic conditions): <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other, If Necessary (Explain) a. <input type="checkbox"/> Landscape Position "Drains" b. <input type="checkbox"/> Landscape Position "Ponds" c. <input type="checkbox"/> Landscape Position "Saturates" Comments: _____</p>
<p>Current Field Observation with upper 12" of soil profile: Depth of Surface Water: _____ (in.) Depth of Free Water in Pit: _____ (in.) Depth of Saturated Soil: _____ (in.) <input checked="" type="checkbox"/> Tidal Influence Comments: <u>shoreline</u> _____ <input type="checkbox"/> Non-Tidal Influence _____</p>	

Observation & Remarks:

1. Filamentous or sheet forming algae present? Yes No
2. Matted vegetation Yes No
3. Surface Sediment with Bedding Planes Yes No
4. Encrusted detritus Yes No
5. Slope: 0-2%; or >2%
6. Oxidized rhizospheres: new roots only; Old roots only; New and old roots, or none
7. Flooding: none, flooding not probable; rare, unlikely but possible under unusual weather conditions; occasional, occurs on an average of once or less in 2 years, or frequent, occurs on an average of more than once in 2 years.
8. Continuous flooding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS
9. Ponding? Yes No
10. Continuous ponding duration: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS
11. Saturation? Yes No
12. Continuous duration of Saturation: None; very brief, if < 2 days; brief, if < 5% growing season (GS); long, if >5% to 12.5% GS; or very long, if > 12.5% GS

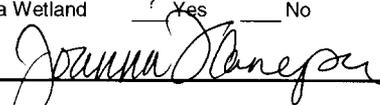
Comments: Low Tide 0.56 feet, 5:55 PDT, High Tide 6.04 feet, 12:24 PDT

SOILS

Map Unit Name (Series and Phase): _____ Taxonomy (Subgroup): _____			Drainage Class ¹ : _____ Permeability ² : _____ Run off ³ : _____ Field Observations Confirm NRCS Mapping? ____ Yes ____ No ____ N/A		
Profile Description (Surface 0" to 12"):					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Abundance ⁴ / Contrast ⁵	Texture ⁶ Concretions, Structures ⁷ , etc.
Surface (0) to 15+	Shell hash Sandy gravel				Coarse grained sand, not packed
_____ to _____					
to					
Hydric Soil Indicators:					
Historic: _____ Histosol _____ Histic Epipedon _____ Organic Streaking in Sandy Soils _____ Listed on National Hydric Soils List _____ Listed on Local Hydric Soils List _____ Mottles Present Redoximorphic features)			_____ Concretions (Redoximorphic Feature) _____ High Organic Content in Surface Layer in Sandy Soils _____ Gleyed or Low-Chroma Colors (chrome ≤ 2) _____ Other (Explain in Remarks): _____ _____ Redoximorphic Feature Along Dead Root Channel (Halo) Other: a. _____ b. _____ c. _____		
Comment:					

Current: _____ Sulfidic Odor _____ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)			_____ Aquic Moisture Regime (nearly free of dissolved oxygen periodically) _____ Peraquic Moisture Regime (near permanent) _____ Other (Explain in Remarks): _____ a. _____ b. _____		
Comment:					
Observations and Remarks:					
1. Smell: _____ <input checked="" type="checkbox"/> Neutral; _____ Slightly Fresh; _____ Freshly Plowed Field Smell; or _____ Sulfidic Odor					
2. Site has been: _____ Irrigated; _____ Land Leveled; _____ Ditch Drained; _____ Tile Drained; _____ Pumped; _____ Graded to drain via slope					
3. Soils Currently are: _____ Flooded; _____ Pondered; <input checked="" type="checkbox"/> Saturated ⁸					
4. Soils: _____ do _____ do not, become continuously flooded or ponded, under normal conditions, for long (> 7 to 30 days) to very long durations; (> 30 days) during growing season; _____ Unknown					
4. Soils: _____ do _____ do not, become continuously saturated, under normal conditions, for 14 days or greater, _____ unknown					
6. Comment: _____					

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? _____ Yes _____ No	Is this Sampling Point Within a Wetland _____ Yes _____ No
Wetland Hydrology Conditions Present? _____ Yes _____ No	Signature: Joanna Canepa: 
Hydric Soil Conditions Currently Present? _____ Yes _____ No	
Remarks:	
1. Possible water of the U.S.? _____ Yes _____ No (can be a water and not a wetland when vegetation is absent if bed and bank present).	
2. Possibly exempt from Corps/EPA regulation? _____ Yes _____ No (if yes, check item(s) below).	
(a) _____ Non-tidal drainage and irrigation ditches excavated on dry land.	
(b) _____ Artificially irrigated areas which would revert to upland if the irrigation ceased.	
(c) _____ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.	
(d) _____ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primary aesthetic reasons.	
(e) _____ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).	

NOTES:

- ¹ Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).
- ² Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.6 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inch), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches, or Variable (V).
- ³ Runoff: Very slow (VS), Slow (S), Moderate (M), Rapid (R), or Variable (V).
- ⁴ Mottle abundance: Few (F), Common (C), or Many (M).
- ⁵ Mottle contrast: Faint (F), Distinct (D), or Prominent (P).
- ⁶ Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.
- ⁷ Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.
- ⁸ Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

ATTACHMENT 2
PHOTOGRAPHS OF PARCEL B TIDAL WETLAND



Photograph 1. Beach area adjacent to IR-07, showing the wetlands (center left) at Parcel B, Hunters Point Shipyard, San Francisco, California; looking northwest (April 8, 2002).



Photograph 2. Close-up of beach area in front of Parcel B wetland area; looking northwest (April 8, 2002).



Photograph 3. Open beach adjacent to the northern property boundary of Parcel B, showing water level at low tide; looking northwest (April 8, 2002).



Photograph 4. Open beach area at the eastern end of the shoreline adjacent to IR-07, showing the low tide; looking east (April 8, 2002).



Photograph 5. Tide level indicator at the eastern end of the open beach area shown on [Photograph 4](#) (April 8, 2002).

ATTACHMENT 3
PHOTOGRAPHS OF PARCEL E TIDAL WETLAND



Photograph 1. Low tide at Parcel E in area adjacent to the silt screen by the landfill, looking southwest (April 8, 2002).



Photograph 2. The intertidal wetland along the eastern edge of the Parcel E peninsula, Hunters Point Shipyard. The freshwater seasonal wetland is located to the left, and the landfill area is in the immediate background; looking northeast (December 4, 2001).



Photograph 3. The intertidal wetland along the eastern edge of the Parcel E peninsula, Hunters Point Shipyard. The freshwater seasonal wetland is located in the immediate background to the left; looking northeast (December 4, 2001).



Photograph 4. The intertidal wetland along the eastern edge of the Parcel E peninsula, Hunters Point Shipyard. The freshwater seasonal wetland is located to the left, and the landfill area is in the immediate background; looking northeast (December 4, 2001).



Photograph 5. The intertidal wetland along the eastern edge of the Parcel E peninsula, Hunters Point Shipyard. Note the debris indicating the high tide line to the right and the high water level at the time the picture was taken; looking south (December 4, 2001).



Photograph 6. The intertidal wetland along the eastern edge of the Parcel E peninsula, Hunters Point Shipyard. Note the debris used for erosion protection and the high-tide level at the time the picture was taken. The berm separating the seasonal freshwater wetlands from the intertidal area is located in the immediate background to the left; looking north (December 4, 2001).



Photograph 7. Intertidal wetlands at the extreme eastern end of Parcel E; looking west (October 2, 2001).



Photograph 8. Recording data at the intertidal wetlands; looking west (October 2, 2001).



Photograph 9. Recording data at the intertidal wetlands; looking southeast (October 2, 2001).

ATTACHMENT 4
PHOTOGRAPHS OF PARCEL E SEASONAL FRESHWATER WETLAND



Photograph 1. Standing water in seasonal freshwater wetland in Parcel E, Hunters Point Shipyard. Water depth varies from about 4 to 8 inches; looking southwest (December 4, 2001).



Photograph 2. Standing water in seasonal freshwater wetland in Parcel E, Hunters Point Shipyard. Looking west toward industrial area in the background (December 4, 2001).



Photograph 3. Standing water in seasonal freshwater wetland in Parcel E, Hunters Point Shipyard; looking northeast (December 4, 2001).



Photograph 4. Standing water in seasonal freshwater wetland in Parcel E, Hunters Point Shipyard. Looking southwest toward industrial area in the background (December 4, 2001).



Photograph 5. Standing water in the drainage ditch that flows into the seasonal freshwater wetlands in Parcel E, Hunters Point Shipyard. Looking northwest toward industrial area to the left and the landfill area to the right (December 4, 2001).



Photograph 6. Standing water in the drainage ditch that flows into the seasonal freshwater wetlands in Parcel E, Hunters Point Shipyard. Industrial area is on the left, and the landfill area is to the right; looking north (December 4, 2001).



Photograph 7. The open area just west of the intertidal wetland along the Parcel E peninsula, Hunters Point Shipyard. The freshwater seasonal wetland is in the immediate background, and the industrial area is to the left; looking north (December 4, 2001).



Photograph 8. The freshwater seasonal wetlands from the berm area surrounding the wetland, Parcel E, Hunters Point Shipyard. Mallard ducks are swimming in the ponded water at the top and in the center of the picture; looking northeast (December 4, 2001).



Photograph 9. Male and female mallard ducks swimming in the largest of the ponded water areas in the freshwater seasonal wetlands, Parcel E, Hunters Point Shipyard. Drainage pipe from the seasonal wetlands to the South Basin is to the right (December 4, 2001).



Photograph 10. *Distichlis* in freshwater seasonal wetlands, Parcel E, Hunters Point Shipyard (October 1, 2001).



Photograph 11. Freshwater seasonal wetlands, Parcel E, Hunters Point Shipyard; looking northwest toward input zone (October 1, 2001).



Photograph 12. Drainage pipe from the seasonal wetlands to the South Basin. Photograph was taken on the South Basin side and shows how the tidal gate is stuck open (October 1, 2001).



Photograph 13. Drainage pipe from the seasonal wetlands to the South Basin. Photograph was taken in the seasonal wetland (October 1, 2001).



Photograph 14. Drainage ditch that serves as input zone to the seasonal freshwater wetlands (October 1, 2001).



Photograph 15. Looking south toward Parcel E freshwater seasonal wetland from top of drainage ditch (October 1, 2001).