FINAL
EXPLANATION OF SIGNIFICANT DIFFERENCES
INSTALLATION RESTORATION SITE 17

ALAMEDA POINT
ALAMEDA, CALIFORNIA

February 2016

Department of the Navy
Base Realignment and Closure
Program Management Office West
San Diego, California

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FIGURES

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Abbreviations and Acronyms

ARAR	applicable or relevant and appropriate requirements
Cal-EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
CFR	Code of Federal Regulations
COC	chemical of concern
DDD	4,4′-dichlorodiphenyldichlorethane
DDE	4,4′-dichlorodiphenyldichloroethene
DDT	4,4’-dichlorodiphenyltrichloroethane
DDx	the sum of DDD, DDE and DDT
DON	Department of the Navy (United States)
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency (United States)
ESD	Explanation of Significant Differences
FFA	Federal Facility Agreement
FS	Feasibility Study
IC	institutional control
ID	identification
IR	Installation Restoration
LUC RD	Land Use Control Remedial Design
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NE RA	Northeast Remediation Area
NPL	National Priorities List
NW RA	Northwest Remediation Area
OU	operable unit
PCBs	polychlorinated biphenyls
pCi/g	picocuries per gram
Ra	radium
RACR	Remedial Action Completion Report
RAOs	remedial action objectives
Regional Water Board	Regional Water Quality Control Board, San Francisco Bay Region
RG	remediation goals
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SMP	Sediment Management Plan
TtEC	Tetra Tech EC, Inc.
UCL	upper confidence limit
USC	United States Code
USFWS	United States Fish and Wildlife Service

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1.0 INTRODUCTION, SITE DESCRIPTION, AND STATEMENT OF PURPOSE

1.1 Introduction

This Explanation of Significant Differences (ESD) applies to the Final Record of Decision (ROD) signed in October 2006 for Installation Restoration (IR) Site 17 (Department of the Navy [DON] 2006), which is Seaplane Lagoon, located at the former Naval Air Station (NAS) Alameda, in Alameda, California (Figures 1 and 2). This ESD follows successful implementation of the selected remedy in the ROD for IR Site 17 (DON 2006). This ESD documents a change in the remedy from dredging and disposal of contaminated sediments to dredging and disposal of contaminated sediments and implementation of an institutional control (IC) applicable to any future dredging and/or removal of sediments.

NAS Alameda was added to the National Priorities List (NPL) on July 22, 1999. A Federal Facility Agreement (FFA) between the DON and United States Environmental Protection Agency (EPA) was signed on July 5, 2001, and by the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) in 2005. The FFA documents how the DON intends to meet its statutory obligations and implement the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in partnership with EPA, DTSC, and the Regional Water Board. The EPA is the lead regulatory agency under the FFA.

IR Site 17 is located within Operable Unit (OU) 4B. Figure 3 shows the IR Site 17 boundary and area of institutional controls. The EPA Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) identification (ID) number on the NPL that is applicable to this ESD is CA 2170023236.

This ESD will become part of the Administrative Record. The Administrative Record file (40 Code of Federal Regulations [CFR] Section [§] 300.825(a)(2)) is maintained at the Naval Facilities Engineering Command, Southwest, in San Diego, California. The address is:

Naval Facilities Engineering Command, Southwest
Ms. Diane Silva, Records Manager
Administrative Record
NBSD Building 3519
2965 Mole Road,
San Diego, CA 92136
Business hours: 8:00 AM – 5:00 PM Monday – Friday
Telephone: (619) 556-1280

In addition, the ESD will be available for public review at the Information Repository located at:

City Administration Building 1
950 West Mall Square
Second Floor
Alameda Point, Alameda CA 94501
Business hours: 9:00 AM – 5:00 PM Monday – Friday

The Alameda public library also maintains new DON environmental documents. The Alameda public library is located at:

Alameda Main Library
1550 Oak Street
Alameda, CA 94501
Business hours: 12:00 PM – 8:00 PM Monday - Wednesday; 10:00 AM – 5:00 PM Thursday - Saturday; 1:00 PM – 5:00 PM Sunday
Telephone: (510) 747-7777

1.2 Site Description

The former NAS Alameda, now referred to as Alameda Point, is located at the western tip of Alameda Island, which is surrounded by San Francisco Bay and the Oakland Inner Harbor (Figure 1). IR Site 17 is located in the southeastern portion of Alameda Point, which is in Alameda, California (Figures 2 and 3).

IR Site 17, also referred to as Seaplane Lagoon, is a partially enclosed lagoon consisting of approximately 110 acres (DON 2006). This area was originally a tidal flat until the 1930s when seawalls were built along the eastern, western, and southern boundaries and a sheet pile wall was installed at the northern edge of the area. The interior of the lagoon was historically about 20 feet deep (DON 2006). The lagoon's entrance is an approximately 800-foot opening in the seawall along the southern perimeter (Figure 2).

Tides in Seaplane Lagoon are mixed semidiurnal (two high tides and two low tides of variable heights in a 24-hour period). Tidal currents are fastest in the entrance to the lagoon, where seawater enters and exits the opening in the breakwater. Recent investigations have determined sediment accumulation rates since 1963 have been approximately 0.4 inches/year (1 centimeter/year) (DON 2006). Fine-grained sediments can be re-suspended by waves, currents, ship wakes and propeller wash, dredging activities, and biological processes. Little erosion of the bottom sediments is expected from tidal or wind-generated currents except near the entrance, where current velocities are higher. Currently biological activity is likely the dominant process controlling sediment re-suspension in most of the lagoon. Given the proposed future use as a commercial marina, boat traffic and activities associated with marina use could become controlling forces of sediment transport in the lagoon (DON 2006).

Seaplane Lagoon is a foraging area for the California Least Tern. In accordance with the Biological Opinion (United States Fish and Wildlife Service [USFWS] 2012), dredging is prohibited during their breeding season, which is between April 1 and August 15. Since no dredging was necessary for the DON's historical use of the lagoon, it is believed that the first dredging of the lagoon was during the remedial action when sediment in the northeast and northwest corners of the lagoon was dredged. The dredging for the DON's remediation was conducted between 2011 and 2012 and showed the sediment in the lagoon to be hard and dense. A significant amount of non-hazardous debris was encountered during the dredging, including wire and large debris such as anchors and tires. It is likely that significant debris also is present in the sediment in other portions of the lagoon.

1.3 Statement of Purpose

The purpose of this ESD is to document a change to the IR Site 17 remedy from dredging and disposal of contaminated sediments to dredging and disposal of contaminated sediments and implementation of an IC applicable to any future dredging and/or removal of sediments. The IC will be implemented to minimize the potential for exposure to potential residual (post-remediation) low-level radium (Ra)-226 activity in

the sediment (from either Ra-226 activity associated with the sediment itself or items with Ra-226 activity within the sediment). The IC prohibits dredging and removal of sediments in Seaplane Lagoon by a future property owner unless such activity is conducted in accordance with a sediment management plan (SMP) approved by the DON and regulatory agencies. The IC applies to the entire IR Site 17 (Figure 3). The ESD also adds a requirement for Five-Year Reviews to be performed for IR Site 17.

The ROD specified removal of contaminated sediments at IR Site 17. The remedy had five components: (1) initial remedial action sampling to enable proper and safe handling, segregation, and disposal of sediment to be dredged; (2) dredging; (3) quality control sampling and confirmation testing; (4) dewatering; and (5) upland disposal at a permitted off-site waste disposal facility. The remedy was selected in accordance with CERCLA of 1980, as amended by Superfund Amendments and Reauthorization Act (SARA) of 1986 (Title 42 of the United States Code (USC) § 9601 et seq.), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 of the CFR Part 300). The remedy is based on information catalogued in the Administrative Record file (40 CFR § 300.825(a)(2)).

The DON and EPA, as the lead agencies, co-selected the IC requirements in this ESD. The DTSC and Regional Water Board concur on this ESD.

2.0 SITE HISTORY, CONTAMINATION, AND REMEDY IMPLEMENTATION

The former NAS Alameda was selected for closure by Congress in September 1993, and officially closed in April 1997. NAS Alameda was an active military installation from the 1930s to the 1990s that primarily provided facilities and support for fleet aviation activities. IR Site 17 was used by the DON for a variety of water-related activities, throughout the history of the NAS. From the 1940s to 1975, industrial wastewater and storm water generated at the former NAS Alameda was discharged directly into a network of storm drains and carried, in part, into IR Site 17 through storm water outfalls. During this period, approximately 300 million gallons of untreated industrial wastewater and storm water that reportedly contained heavy metals, solvents, paints, detergents, acids, caustics, mercury, oil and grease, and Ra-226 were discharged into the lagoon (DON 2006). Radiological constituents associated with the application and removal of radio luminescent paints, containing Ra-226, were primarily discharged into the lagoon through outfalls in the northwestern corner of the lagoon.

The outfalls located in the northeast and northwest corners of IR Site 17 were the primary sources of sediment contamination. In 1975, the direct discharge of industrial wastewater through the storm water network was terminated and since that time, a storm water pollution prevention program has been in place at Alameda Point.

As documented in the IR Site 17 ROD, between 1993 and 2002 numerous investigations were conducted by DON at IR Site 17. Results of these investigations showed that remedial action was required for sediment in the northeast and northwest corners of Seaplane Lagoon.

The ROD identifies the chemicals of concern (COCs) and remediation goals (RGs) for sediment in Seaplane Lagoon. The COCs with RGs are cadmium, total polychlorinated biphenyls (PCBs), and total DDx (the sum of 4,4′-dichlorodiphenyldichlorethane (DDD), 4,4′-dichlorodiphenyldichloroethene (DDE), and 4,4’-dichlorodiphenyltrichloroethane (DDT).

In addition to the COCs with RGs, the ROD identified chromium and lead in the sediment as risk drivers for ecological receptors. The Remedial Investigation Report for IR Site 17 evaluated risk related to Ra-226 and did not identify Ra-226 as a risk driver in the ecological or human health risk assessments for IR

Site 17 (Battelle et al. 2004). However, the ROD noted that there may be elevated Ra-226 concentrations co-located with other COCs within the remediation areas. The ROD stated that any potential risks will be addressed through the remedial activity of sediment removal and proper disposal (DON 2006). Due to the potential for Ra-226 in the sediment, the ROD required health and safety monitoring of workers and decontamination and radiological clearance of equipment during the dredging.

The ROD presents the remedial action objectives (RAOs) related to protection of ecological receptors and human health. It specifies that the RAOs will be addressed primarily through achieving numerical sediment RGs for the primary risk drivers identified in the ecological risk assessment – cadmium, Total PCBs, and Total DDx.

The remedy selected in the ROD is Alternative 5: Dredging, Dewatering, and Upland Disposal at a Permitted Off-Site Waste Disposal Facility. Alternative 5 entails dredging contaminated sediment within the remediation areas in the northeast and northwest corners of the lagoon to a minimum uniform depth of 4 feet (plus 1-foot overdredge allowance to ensure that the design thickness is achieved). The ROD specifies verification of removal of contaminated sediment from the lagoon through confirmation sampling. The selected remedy complies with the statutory requirements set by CERCLA and requires removal of contaminants that otherwise would be present at levels that would preclude future re-use. The ROD (DON 2006) states that the sediment removal will enable unrestricted use and unlimited exposure, so a Five-Year Review was not required.

To ensure protectiveness and prevent potential adverse ecological impacts associated with TPH, turbidity curtains were installed around all areas to be dredged, and a skimmer boat was anchored within the turbidity curtain for dredging in the northeastern portion of the lagoon based on the history of petroleum operations along the northeastern shoreline. The dredging for the northeast remediation area (NE RA) was conducted in 2011, with 61,767 cubic yards of sediment dredged. The northwest remediation area (NW RA) was dredged in 2012, with 34,231 cubic yards of sediment dredged (Tetra Tech EC, Inc. [TtEC] 2014). The post-dredge Ra-226 activity in the sediment confirmation samples was highest in the NW RA. The maximum Ra-226 activity in the NW RA samples was 4.18 picocuries per gram (pCi/g). The 95 percent (%) upper confidence limit (UCL) for Ra-226 in the NW RA confirmation samples was 1.104 pCi/g.

The Final Remedial Action Completion Report (RACR) for IR Site 17 (Appendix E) presents the details of the remedial action, post-dredge confirmation sample results, and the statistical data evaluation (TtEC 2014). For Ra-226, statistical evaluations showed that after the remedial action, the levels in the sediment in the remediation areas are not higher than levels in the lagoon-wide data set located outside the areas where remediation was required per the ROD. Therefore, the RACR concludes that the IR Site 17 remediation was successfully completed in accordance with the ROD and remedial action work plan (TtEC 2014).

The IR Site 17 RACR also documents the removal of a radiological anomaly area, outside of the footprint of IR Site 17, located along the shoreline adjacent to IR Site 17 prior to the IR Site 17 sediment remediation (TtEC 2014). Although there was significant radiological contamination in this area, it was removed.

Finally, the IR Site 17 RACR includes documentation of removal of small items with Ra-226 activity (believed to have Ra-226 paint on them) during the radiological surveying of the sediment removed from both the NE RA and NW RA. As documented in the RACR, based on the Seaplane Lagoon dredging conducted for the remediation, one item with Ra-226 activity was identified per 1,882 cubic yards of sediment (TtEC 2014). The maximum curie content for an individual item with Ra-226 activity located

in each remediation area was 0.679 uCi (TtEC 2014). The size of the recovered discrete items with Ra-226 activity varied from a ship's compass to small pill-like items. The RACR Appendix W describes the discrete items and evaluates potential risk, concluding that there is no unacceptable risk due to these items, if present, for any potential use of the lagoon (TtEC 2014). All items with radiological activity in the NE and NW RAs that were identified during the remediation were removed and properly disposed at an out-of-state low-level radiation waste landfill.

During the IR Site 17 remediation, sediment removed close to the outfalls was placed on one drying pad and sediment removed at a greater distance from the outfalls was placed on a different drying pad. Both the size and distribution of the items with Ra-226 activity within sediment that was removed close to the outfalls and sediment removed at a greater distance from the outfalls indicate that they may not have been deposited via the outfalls. In addition to the site conceptual model in the ROD wherein contaminants entered the lagoon via the storm water system, these items may have fallen into the lagoon inadvertently from the seaplanes or were possibly discarded (TtEC 2014). Therefore, there is a potential for items with Ra-226 activity to be present throughout the lagoon. No items with radiological activity have been identified in other areas of the lagoon to date. However, it should be noted that unless the sediment is dredged, dried, and radiologically surveyed in 6-inch lifts, it is not likely that it would be possible to identify items with Ra-226 activity within the sediment.

3.0 ESD BASIS AND DESCRIPTION OF SIGNIFICANT DIFFERENCES

3.1 ESD Basis

The basis for the ESD is data collected as part of the remediation, specifically related to the potential for Ra-226 activity within the sediment (see Section 2.1 of this ESD and TtEC 2014). The RACR (included in the Administrative Record) concludes that the remediation was successfully completed in accordance with the ROD, and there is no unacceptable risk due to Ra-226 activity in the sediment for any potential future use of the lagoon (TtEC 2014). The CERCLA control to be imposed is only considered necessary to address potential risks associated with dredging and/or sediment removal, managing, and disposing sediment that may contain Ra-226 activity, whether due to diffused Ra-226 activity in the sediment or in the form of discrete items with Ra-226 activity that may be present in the sediment. Planned reuse of the lagoon includes a marina and a ferry terminal. The Ra-226 activity may present a risk if sediments are removed during potential future dredging and are disposed without restrictions, such as re-used in sensitive settings including residential or school properties.

3.2 Description of Significant Differences

This ESD documents a change in the remedy for IR Site 17 from dredging and disposal of contaminated sediments (per the ROD) to dredging and disposal of contaminated sediments and implementation of an IC. ICs are legal and administrative mechanisms used to limit the potential for exposure. The significant difference to the IR Site 17 remedy documented by this ESD is the addition of an IC that prohibits future dredging and/or removal of sediments due to potential Ra-226 activity within the sediment throughout Seaplane Lagoon by a future property owner unless a SMP is approved by the DON and regulatory agencies in writing prior to the start of the dredging/sediment removal and is implemented for future dredging/sediment removal.

The IC boundaries are the boundaries of IR Site 17 shown on Figure 3. The IC applies to Ra-226 activity associated with the sediment itself and the potential for discrete items with Ra-226 activity to be present within the sediment.

The ROD did not require Five-Year Reviews for IR Site 17. This ESD adds the requirement for Five-Year Reviews for IR Site 17. Each Five-Year Review will determine if the remedy remains protective of human health and the environment. All components of the ROD were successfully implemented, and there is no other change to the remedy.

The performance objectives for the IC are as follows:

- Minimize the potential for exposure to Ra-226 activity in the sediment that may result in risks to human health or the environment during dredging and/or sediment removal activities;
- Prevent re-use or disposal of dredged/removed sediment in a manner that presents unacceptable risk to human health or the environment; and
- Preserve access to the area requiring the IC (entire IR Site 17 - Seaplane Lagoon) for the relevant regulatory agencies and the DON.

The associated land use restriction will be incorporated into the Covenants to Restrict the Use of Property, which will be executed prior to the transfer of title to such property. The restriction is a prohibition on future dredging and removal of sediments throughout Seaplane Lagoon unless an SMP is approved by the DON and regulatory agencies in writing prior to the start of the dredging/sediment removal and is implemented for future dredging/sediment removal. The SMP to be prepared by the transferee for review and approval shall define Ra-226 criteria to meet the performance objectives in a manner that is appropriate for proper risk management, taking into account the proposed activities. The transferees' SMP particularly shall include the transferee's detailed procedures and protocols related to their proposed dredging, sediment handling/management, and disposal of the dredged materials. The requirement for SMP approval is independent of and in addition to requirements of applicable regulations and standards enforced by other agencies and approval of dredging plans by the appropriate agencies that regulate dredging in the San Francisco Bay Area. No dredging and/or sediment removal shall be conducted until written regulatory agency approvals have been provided.

Land use controls will be maintained until the concentration of hazardous substances in the sediment are at such levels throughout IR Site 17 to allow for unrestricted use and exposure for any sediment removed at IR Site 17.

In accordance with the FFA schedule, the DON shall prepare and submit to the FFA signatories for review and approval a land use control remedial design (LUC RD) that shall contain implementation specifics, including periodic inspections. Although the DON may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or other means, the DON shall retain ultimate responsibility for the CERCLA remedy and enforcement of the IC described in this ESD in accordance with the approved LUC RD. Should the IC fail, the DON shall ensure that appropriate actions are taken to reestablish protectiveness. Further details for the implementation, monitoring and enforcement of the IC will be described in the LUC RD, including the items to be included in the SMP.

The LUC RD will include the following:

- Identification of responsibilities for DON, EPA, DTSC, Regional Water Board, other government agencies, and property owner;
- Statement of the IC with its expected duration;
- Map identifying where the IC will be implemented;

- Requirement for CERCLA Five-Year Reviews;
- Frequency and requirements for periodic monitoring or visual inspections;
- Reporting results from monitoring or inspections;
- Notification procedures to the regulators for planned property conveyance, corrective action required, and/or response to actions inconsistent with the IC; and
- Consultation with EPA, DTSC, Regional Water Board, and other government agencies regarding wording for land use restrictions and parties to be provided copies of the deed language once executed.

The restriction will be incorporated into the Covenants to Restrict the Use of Property, which will be executed prior to the transfer of title to such property and which will run with the land. The Covenants to Restrict the Use of Property will provide that the DON and FFA signatories and their authorized agents, employees, contractors, and subcontractors shall have the right to enter the site to conduct investigations, tests, or surveys; inspect site activities; or operate and maintain any response or remedial action as deemed necessary.

Based on the Feasibility Study (FS) report estimate of $100,000 for IC implementation and Five-Year Reviews (for 30 years) and adding the FS report's 30% contingency, the estimated cost for the ICs in this ESD is $130,000. Although the IC is expected to be required for longer than 30 years, this engineering estimate is consistent with CERCLA estimating requirements.

4.0 STATUTORY DETERMINATIONS

The DON's primary responsibility in regard to CERCLA is to achieve statutory requirements for protection of human health and the environment. Section 121 of CERCLA establishes several statutory requirements and preferences. The selected remedy, as changed pursuant to this ESD, remains protective of human health and the environment, continues to comply with Federal and State requirements that are applicable or relevant and appropriate requirements (ARARs) to the remedial action, and is cost-effective. It also accommodates the proposed future reuse of the site. This remedy uses permanent solutions by removing the contaminated sediments so that fish, birds, and humans will not come in contact with them in the future. This ESD adds an IC to the selected remedy, with the requirement for Five-Year Reviews to prevent exposure to potential Ra-226 activity associated with sediment and/or discrete items with radiological activity within the sediment if it is removed from IR Site 17; this modified remedy satisfies Section 121 of CERCLA.

5.0 ADMINISTRATIVE RECORD FILE AND PUBLIC PARTICIPATION

This ESD will become a part of the Administrative Record File for IR Site 17 in accordance with NCP Sections 300.435 (c)(2)(i)(A) and 300.825 (a)(2). The public can access this ESD by contacting Diane Silva, the Administrative Records Manager, at (619) 556-1280, or by email at diane.silva@navy.mil. In addition, the public can access the ESD at the Alameda Point Information Repository. The address of the Information Repository, along with its business hours, is presented in Section 1.1.

Following regulatory agency review, a notice of availability and a brief description of the ESD will be published in a major local newspaper of general circulation as required by NCP Section 300.435(c)(2)(i)(B).

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6.0 AUTHORIZING SIGNATURES

This signature sheet documents the DON's and the EPA's co-selection of the institutional control specified in this Explanation of Significant Differences for IR Site 17 at Alameda Point. It also documents the concurrence of the State of California through the DTSC and the Regional Water Board. The respective parties may sign this sheet in counterparts.

Cecily Sabedra
Signature

February 16, 2016
Date

Ms. Cecily Sabedra
Base Realignment and Closure Environmental Coordinator
Base Realignment and Closure Program Management Office West
Department of the Navy

Signature

March 16, 2016
Date

Ms. Angeles Herrera
Assistant Director, Superfund Division
Federal Facilities and Cleanup Branch
United States Environmental Protection Agency, Region 9

Signature

3/18/2016
Date

Ms. Karen M. Toth, P.E.
Unit Chief
Brownfields and Environmental Restoration Program
California Environmental Protection Agency
Department of Toxic Substances Control

for Assistant Executive Officer
Signature

3/18/2016
Date

Mr. Bruce H. Wolfe
Executive Officer
California Environmental Protection Agency
Regional Water Quality Control Board, San Francisco Bay Region

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7.0 REFERENCES

Battelle et al. 2004. Battelle, BBL, Inc., and Neptune & Company. Final Remedial Investigation Report, Seaplane Lagoon, Alameda Point, California, June.

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U.S. Department of the Navy (DON) 2006. Final Record of Decision, Site 17, Seaplane Lagoon, Alameda Point, Alameda, California. October

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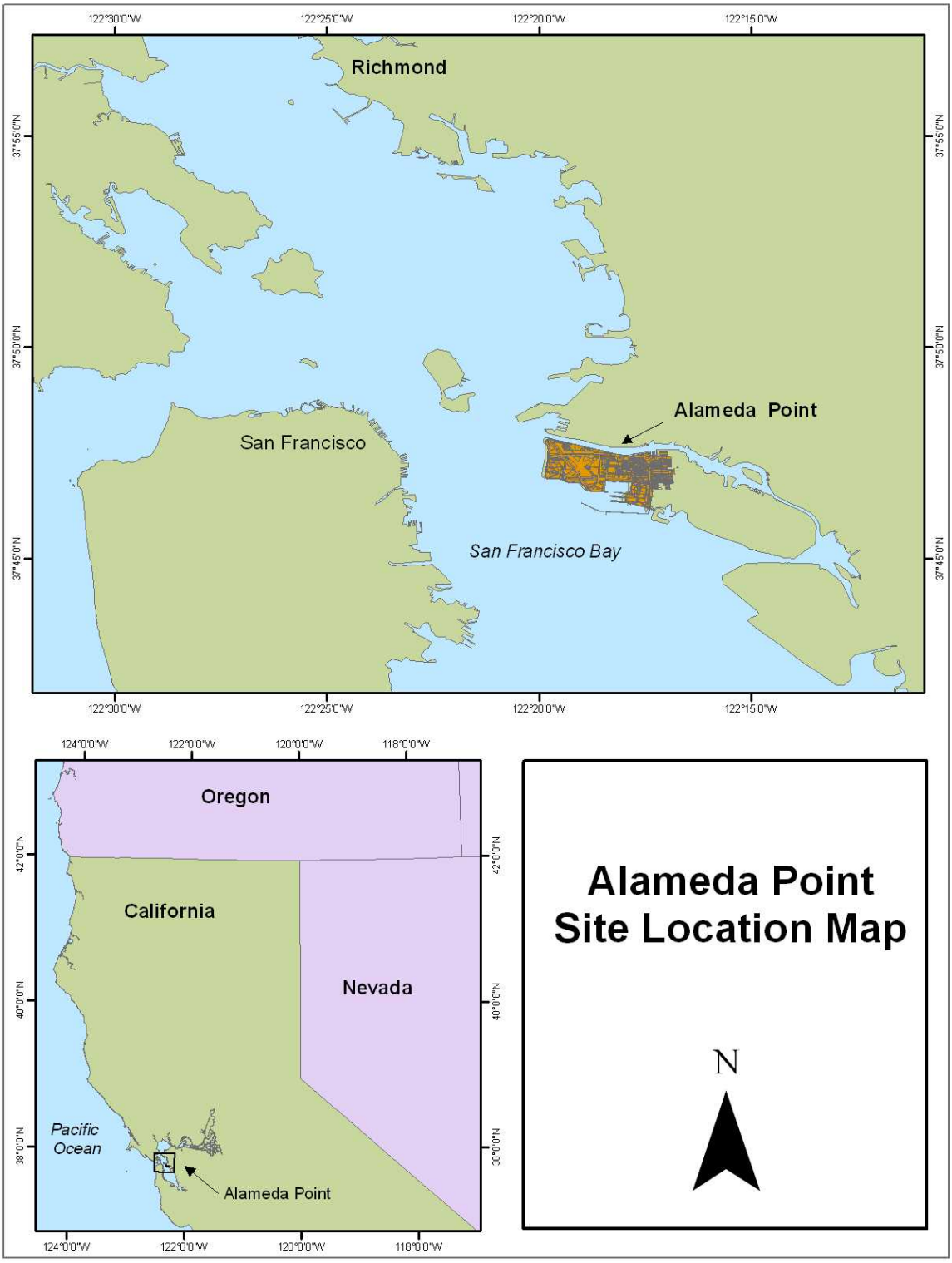

Figure 1. Alameda Point Site Location Map

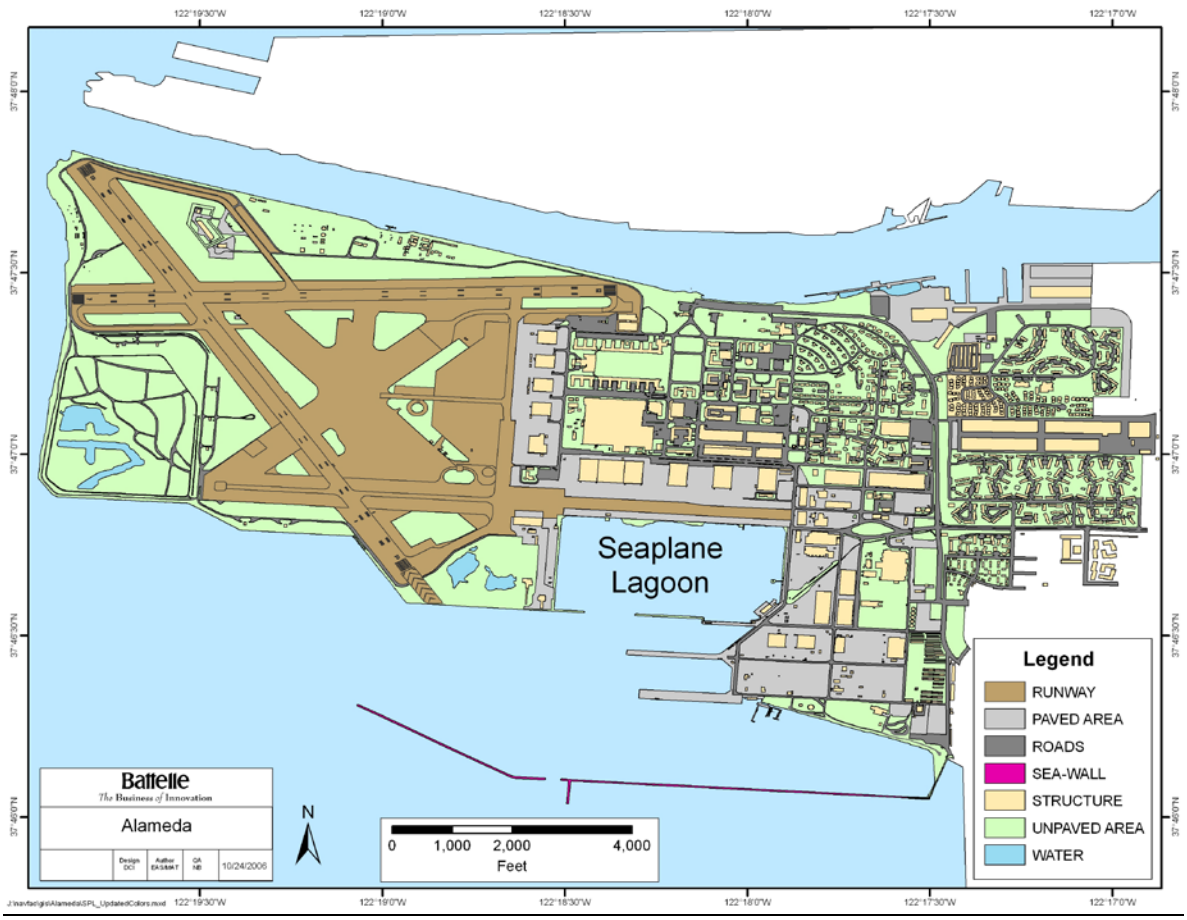

Figure 2. Seaplane Lagoon Location Map

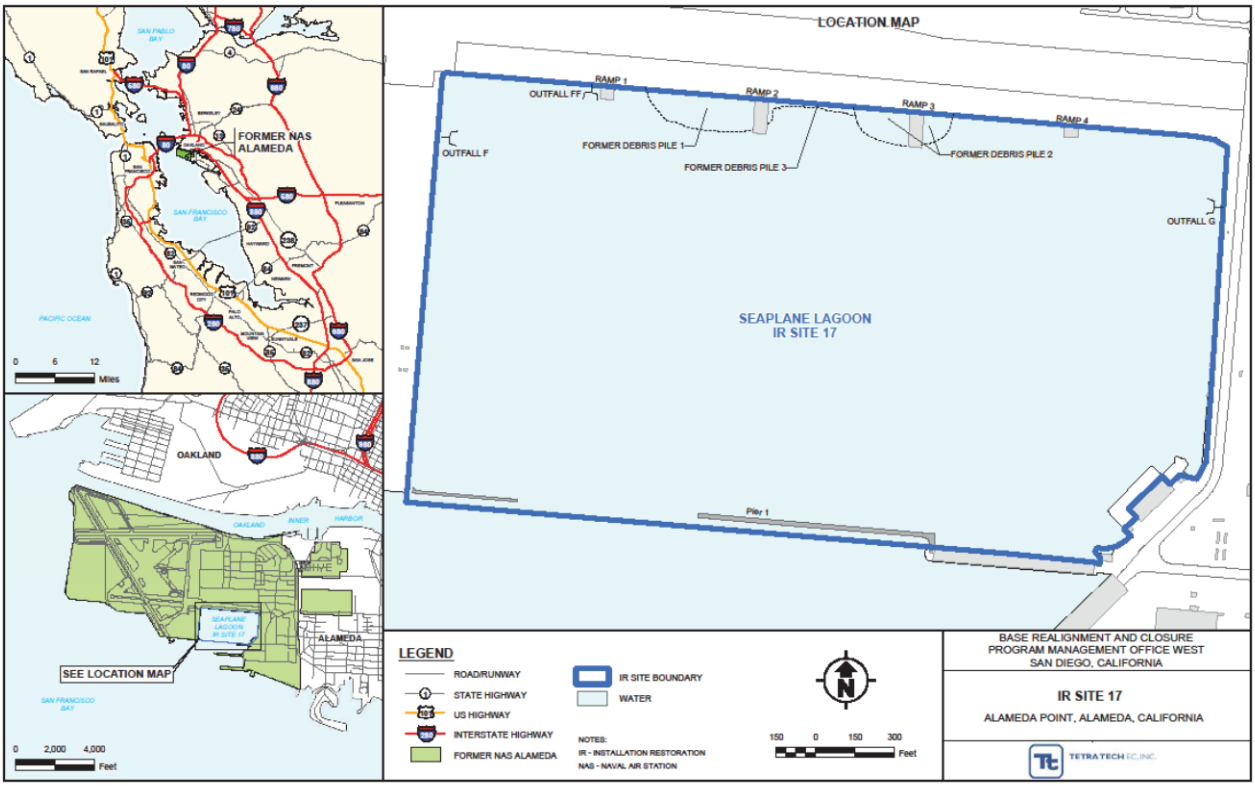

Figure 3. Area of Institutional Controls (entire IR Site 17)