# Final Restoration Plan Addendum
# and
# Supplemental Environmental Assessment
# for the
# May 14, 1996
# Chevron Pipeline Oil Spill
# Into
# Waiau Stream and Pearl Harbor,
# Oahu, Hawaii

**Prepared by:**
**The Natural Resource Trustees**
**for Pearl Harbor, Oahu, Hawaii**

**U.S. Department of the Interior**
*U.S. Fish and Wildlife Service*

**U.S. Department of Commerce**
*National Oceanic and Atmospheric Administration*

**State of Hawaii**
*Department of Health*
*Department of Land and Natural Resources*

**April 2023**

# I. INTRODUCTION

This Restoration Plan Addendum and Supplemental Environmental Assessment for the Chevron Pipeline Oil Spill (RP Addendum/Supplemental EA) has been prepared by state and federal natural resource trustees responsible for restoring natural resources and resource services injured by the May 14, 1996 oil spill into Waiau Stream and Pearl Harbor in Oahu, Hawaii. This document is an addendum to the original Final Restoration Plan and Environmental Assessment (Final RP/EA) and it supplements the environmental assessment of one of the selected restoration alternatives in the Final RP/EA. The natural resource trustees (the Trustees) for the Chevron Pipeline Oil Spill are the U.S. Department of the Interior (DOI), represented by the U.S. Fish and Wildlife Service (USFWS); the U.S. Department of Commerce, represented by the National Oceanic and Atmospheric Administration (NOAA); and the State of Hawaii, represented by the Department of Health (DOH) and the Department of Land and Natural Resources (DLNR).[1]

The Trustees have selected to fund the Pouhala Marsh Enhancement Project with the remaining settlement balance for the Chevron Pipeline Oil Spill held in DOI's Natural Resource Damage Assessment and Restoration (NRDAR) Fund. The Pouhala Marsh Enhancement Project was evaluated and selected for implementation in the Final RP/EA, but the project was never fully funded or completed. This document provides a supplemental environmental assessment of the updated Pouhala Marsh Enhancement Project.

The Final RP/EA is incorporated by reference in this document and is available at: https://www.cerc.usgs.gov/orda_docs/CaseDetails?ID=916. The discussion below is intended to supplement Chapter 4 (Restoration Planning) of the Final RP/EA, and specifically section 4.4.2 Selected Alternative: Pouhala Marsh Enhancement, which provided only a general analysis of environmental and socio-economic impacts. With the project design for Pouhala Marsh Enhancement now further refined, a more specific analysis of impacts is provided in section IV of this RP Addendum/Supplemental EA.

DOI is acting as the lead federal agency for compliance with the National Environmental Policy Act for this RP Addendum/Supplemental EA and NOAA is a cooperating agency. NOAA may adopt the Final RP Addendum/Supplemental EA in accordance with 40 CFR § 1506.3 and its agency-specific NEPA procedures.

## A. Compliance with Other Authorities

In addition to the Oil Pollution Act of 1990 (OPA) (33 U.S.C. § 2701 et seq.) and the OPA NRDA regulations (15 C.F.R Part 990), and the National Environmental Policy Act (NEPA) (42 U.S.C § 4321 et seq.) and its implementing regulations (40 C.F.R. § 1500-1508), other legal requirements may apply to NRDA restoration planning or implementation. The Trustees will ensure compliance with authorities applicable to the selected restoration project. Whether, and

[1] The U.S. Department of Defense, represented by the U.S. Navy, was named as a natural resource trustee in the Final RP/EA, but they have subsequently withdrawn from this matter. The National Park Service (NPS), also named as a trustee in the Final RP/EA, has also withdrawn from this matter following the completion of all restoration projects associated with NPS natural resource injuries.

to what extent, an authority applies to a particular project depends on the specific characteristics of the project, among other parameters. The subset of authorities listed below is the most relevant for the selected marsh enhancement project:

Endangered Species Act (16 U.S.C. §§ 1531 et seq.)

The Endangered Species Act (ESA) establishes a process for identifying and listing species. It requires all Federal agencies to carry out programs for the conservation of federally listed endangered and threatened plants and animals, and prohibits actions by Federal agencies that may adversely affect listed species or adversely modify designated critical habitat without formal consultation with the USFWS or NOAA. Section 7 of this Act specifies the consultation program conducted with these Federal agencies.

National Historic Preservation Act (16 U.S.C. §§ 470 et seq.)

The National Historic Preservation Act requires agencies to take into account the effects of Federal undertakings on historic properties. The Section 106 process, as defined in 36 C.F.R. § 800, provides for the identification and evaluation of historic properties, for determining the effects of undertakings on such properties, and for developing ways to resolve adverse effects through the process of consultation.

Coastal Zone Management Act (16 U.S.C. §§ 1451-1464)

The purpose of the Coastal Zone Management Act (CZMA) of 1972 is to encourage States to manage and conserve coastal areas as a unique, irreplaceable resource. Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of approved State management programs.

Clean Water Act (33 U.S.C. §§ 1251 et seq.)

The Clean Water Act (CWA) of 1972 is the primary Federal law that protects the nation's waters, including lakes, rivers and coastal areas. The primary objective of the CWA is to restore and maintain the integrity of the nation's waters.

Section 401 of the CWA requires a Water Quality Certification (WQC) be obtained from the State (or territory) for actions that require a Federal permit to conduct an activity, construction or operation that may result in a discharge into waters of the United States. The State of Hawaii Department of Health, Clean Water Branch (DOH-CWB) implements this program issuing WQC permits for activities affecting jurisdictional waters.

Section 402 of the CWA establishes a National Pollution Discharge Elimination System (NPDES) general permit process for point and non-point source discharges such as storm water discharges associated with construction activities. Such a permit would be required if construction activities disturb a land area of one acre or more and discharge storm water from the construction site to waters of the U.S. The DOH-CWB implements this NPDES for the State.

Section 404 of the CWA requires a permit for the discharge of dredged or fill material into a wetland, navigable water, or jurisdictional waters of the United States. The U.S. Army Corps of Engineers (USACE) issues a permit under these regulations.

Migratory Bird Treaty Act (16 U.S.C. §§ 703-712)

The Migratory Bird Treaty Act of 1918 implements four international conservation treaties that the U.S. entered into with Canada in 1916 (446.6KB), Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species.

Fish and Wildlife Coordination Act (16 U.S.C. §§ 661 et seq.)

The Fish and Wildlife Coordination Act requires that federal agencies consult with the USFWS, NMFS, and state wildlife agencies for activities that affect, control or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat. This consultation is generally incorporated into the process of complying with Section 404 of the Clean Water Act, NEPA or other federal permit, license, or review requirements.

## B. Purpose and Need

In November 1999, the Trustees completed the Final RP/EA for the Chevron Pipeline Oil Spill and selected four preferred restoration projects for implementation. Only three of the four restoration projects were implemented. This RP Addendum/Supplemental EA updates the planned implementation methodology for the Pouhala Marsh Enhancement Project and supplements the environmental assessment for the project. The remaining funds for the Chevron Pipeline Oil Spill will be expended on the Pouhala Marsh Enhancement.

The purpose of the Pouhala Marsh Enhancement Project, is to replace freshwater marsh resources and services injured by the Chevron Pipeline Oil Spill. Additionally, the project will compensate for lost services provided by the injured intertidal and shallow subtidal areas that were oiled. Those injured habitats provide forage for the same types of shorebirds that will utilize the enhanced Pouhala Marsh. The selected action is needed to fulfill the commitment made to the public in the Final RP/EA to restore the injured natural resources and services.

## C. Public Participation

Public participation and review is an integral part of the NEPA process. The Trustees requested comments and made this RP Addendum/Supplemental EA available for review and comment for a period of 30 days. The public comment period ended on August 5, 2022. The Trustees did not receive any public comments.

## II. BACKGROUND

### A. The Incident

At 1:30 a.m. on May 14, 1996, a Chevron Products Company (Chevron) pipeline ruptured at a thin spot caused by external erosion and began discharging No. 6 bunker fuel oil adjacent to the Hawaiian Electric Company (HECO) Waiau Power Plant in Pearl City, Oahu, Hawaii. The released oil entered the nearby Waiau Stream, flowed downstream and entered East Loch of Pearl Harbor. An estimated total of 982 barrels (41,244 gallons) of No. 6 fuel oil were released into Waiau Stream, creating pools of submerged oil throughout the lower portion of the 10-acre marsh. While in the fresh water of Waiau Stream, the oil remained mostly submerged and then floated to the surface upon entering the denser salt water of Pearl Harbor. In Pearl Harbor, the floating oil spread widely around East Loch, fouling shorelines in the process. The spill created a sheen of floating oil throughout East Loch, covering approximately 2,290 acres of open water during the first six days of the spill event.

Oiling of shorelines and intertidal areas affected freshwater and saltwater wetlands, mangroves, mudflats, rocky shorelines, sandy beaches, riprap, seawalls and piers. These oiled habitats support many recreationally and commercially valuable fish and wildlife species and the prey and forage items for these species. The contamination of the water column and sediments of Waiau Marsh and Pearl Harbor by this oil may also have caused impacts to egg, larval, juvenile and adult stages of recreationally and commercially valuable finfish and invertebrates which utilize the Pearl Harbor estuary.

The NRDA damage claim for the incident encompassed compensatory restoration actions for injuries to the following natural resources and services:

- freshwater marsh habitat in Waiau Stream,
- intertidal habitat in Pearl Harbor,
- subtidal habitat in Pearl Harbor,
- water column habitat in Pearl Harbor, and
- human use services related to the USS Arizona Memorial

### B. Coordination with the Responsible Party and Settlement

On September 13, 1999, the United State District Court for the District of Hawaii entered a partial consent decree, settling the Trustees natural resource damages claims against Chevron. Under the terms of the settlement, Chevron agreed to pay up to $600,000 for the Trustees' assessment costs, to repair rip rap at the U.S.S. Arizona Memorial Visitor Center, and to pay $1,650,000, plus interest, in natural resource damages and Hawaii civil penalties. Of the $1,650,000 payment, Chevron agreed to pay $1,350,000 to the Trustees for natural resource injuries ($550,000 for National Park Service injuries and $800,000 for other natural resource injuries), $100,000 to Hawaii as a civil penalty, and an additional $200,000 to the Trustees for supplemental environmental projects selected by the Trustees in lieu of additional civil penalties. Pursuant to the consent decree, $1,572,953.74, including interest, was deposited in the DOI

NDRDAR fund for the design, implementation, permitting, and monitoring of restoration projects.

## C. Restoration Planning, Environmental Compliance, and Implementation

On April 12, 1999, the Trustees released the Draft Restoration Plan/Environmental Assessment for the May 14, 1996 Chevron Pipeline Oil Spill into Waiau Stream and Pearl Harbor, Oahu, Hawaii for a 51-day public comment period. A public meeting was held in Honolulu, Hawaii, on May 17, 1999. In November 1999 the Trustees released the Final RP/EA and issued a Finding of No Significant Impact (FONSI).

The RP/EA evaluated the "no action" alternative[2] as well as preferred and non-preferred restoration alternatives to address the ecological and lost human use injuries. In the Final RP/EA, the Trustees selected two preferred ecological restoration alternatives and two preferred lost human use restoration alternatives for implementation: Pouhala Marsh Enhancement; Waiawa Unit Mangrove Removal; Shoreline Protection System; and Visitor Center Boat Dock.

### 1. *Pouhala Marsh Enhancement*

Pouhala Marsh, located in Pearl Harbor's West Loch (Figure 1), is a remnant fish pond and coastal marsh. The 70-acre marsh is the largest remaining wetland habitat in Pearl Harbor. The USFWS identified Pouhala Marsh as a wetland of critical concern for protection and habitat enhancement (USFWS 1995, USFWS 1998a). The marsh serves as habitat for native endangered waterbirds and several species of migratory shorebirds.

Development, water pollution, and invasion of introduced flora have degraded the wetland. The local residential community uses the area as an illegal dumping site, and cats and dogs disturb waterbird nesting sites.

[2] NEPA requires the Trustees to consider a "no action" alternative, and the OPA regulations require consideration of the equivalent, the natural recovery option. Under this alternative, the Trustees would take no direct action to restore injured natural resources or compensate for lost services pending environmental recovery. Instead, the Trustees would rely on natural processes for recovery of the injured natural resources. While natural recovery would occur over varying time scales for various injured resources, the interim losses suffered would not be compensated under the no action alternative.

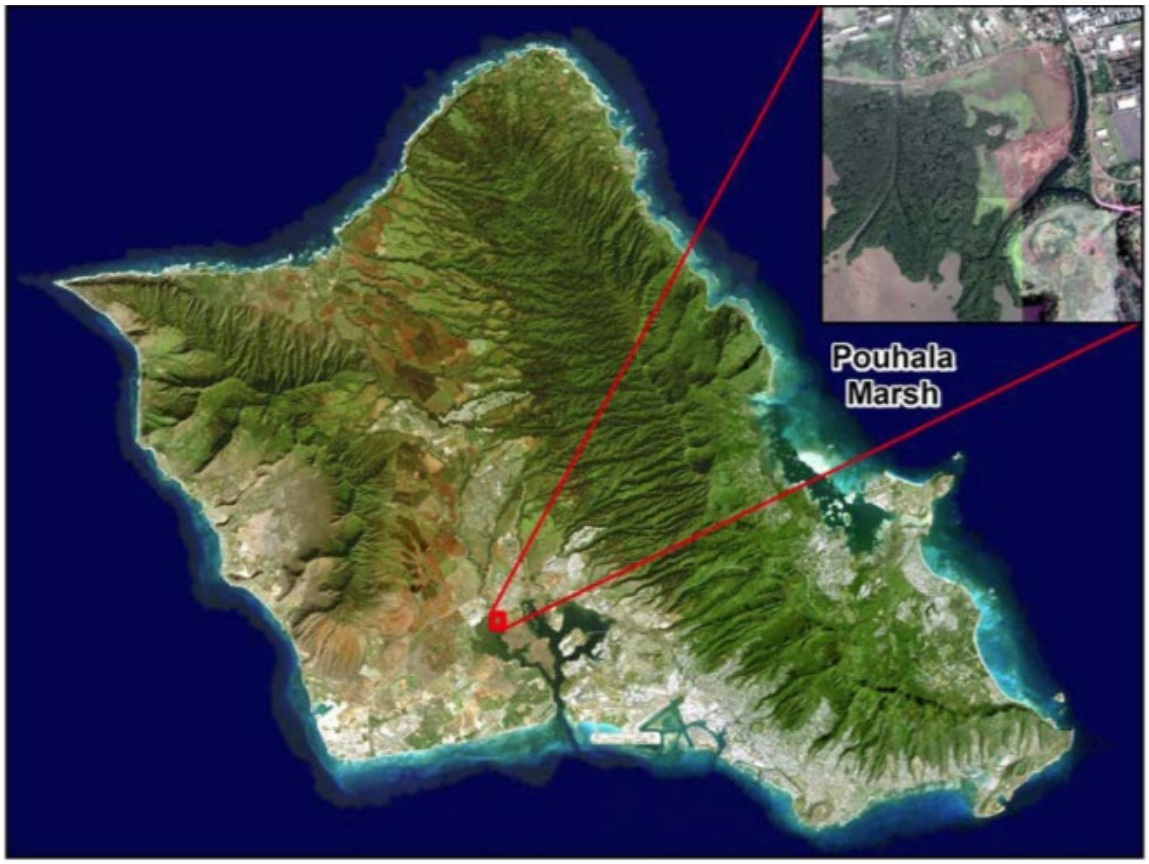


Figure 1: Location of Pouhala Marsh adjacent to West Loch of Pearl Harbor.

The overall goal of the Pouhala Marsh Project was to restore the area to its historic seasonal and semi-permanent marsh functions. This overall objective also met the goals of the Trustees to replace lost services related to injuries to the freshwater Waiau Marsh. Additionally, the project would compensate for lost services provided by the injured intertidal and shallow subtidal areas which were oiled. Those injured habitats provide forage (e.g., small invertebrates such as polychaetes) for the same types of shorebirds that will utilize the enhanced Pouhala Marsh.

The Trustees proposed to fund the restoration of the eight acres of degraded and partially filled marsh and establish an endowment for the maintenance of Pouhala Marsh for a total of $950,000.00. In addition to the funds provided by the Natural Resource Trustees, a significant portion of the project would be supported by community volunteers and by matching and non-matching funds provided by partnerships to further enhance the habitat for wildlife. In 2003, the Trustees authorized the dispersal of $250,000.00 to the State of Hawaii, Department of Land and Natural Resources for the initial debris and soil removal at Pouhala Marsh.

Using the funds provided by the Trustees, as well as various other State and grant funds, hundreds of tons of debris have been removed from Pouhala Marsh and adjacent stream areas, a fence was designed and constructed along the northern boundary to exclude dogs and reduce human impacts, numerous volunteer wetland clean-up days and environmental education field trips have been organized, the engineering and design for 8-10 acres of wetland habitat was

completed, 20-40 acres (depending on grow back, need, waterbird habitat usage surveys) of non-native invasive weeds were cleared and wetlands areas are grubbed on an annual basis to create and maintain waterbird habitat, native plants were installed along Kapakahi Stream, and predator control is conducted annually. However, the 8-acre pond has not been constructed and the additional $700,000.00 that the Trustees planned to spend on the project were never dispersed.

2. *Waiawa Unit Mangrove Removal*

The Pearl Harbor National Wildlife Refuge serves as habitat for four species of federal and state endangered endemic waterbirds and 25 other species of federally protected migratory birds including shorebirds and waterbirds. The Refuge is composed of two geographically separate units, one of which is the Waiawa Unit. The western boundary of the Waiawa Unit is vegetated with a dense stand of red mangroves which have invaded the shallow waters along the shoreline. Red mangrove is an exotic plant species in Hawaii. Red mangroves encroach on coastal shorelines and nearshore waters, displace native fauna and flora, and alter habitat essential to a number of native estuarine species and foraging habitat for various species of waterbirds and shorebirds.

The major component of this project was the removal of approximately 4 acres of red mangroves along the shoreline to create a more open water environment adjacent to the Refuge. Adult red mangroves were cut below the water line to prevent them from re-emerging. The root systems were not removed thereby minimizing disturbance of sediments. The cut red mangroves were removed from the shoreline area. The planned project also involved predator control fencing and re-vegetation of the shoreline with native vegetation to enhance the area. The total estimated cost of the project was $200,000.00.

The Trustees approved the dispersal of $200,000.00 to FWS in 2003 for implementation of the mangrove removal work at Waiawa. The FWS used the funds to complete the mangrove removal and revegetation work at Waiawa, but a fence was never constructed.

3. *Shoreline Protection System*

This project replaced the existing, inadequate shoreline protection system at the Arizona Memorial with a new permanent riprap system. The existing shoreline is composed of broken concrete pilings and other rubble with naupaka (*Scaevola* sp.) shrub landscaping. This project required removal of the sandbags installed as a temporary erosion control measure after the oil spill cleanup and the design and construction of a riprap system that would provide a permanent shoreline protection system to prevent erosion. The project area encompasses the shoreline from the Visitor Center dock to the ferry landing adjacent to the Visitor Center, approximately 600 feet. Most of the work would be accomplished from the water side of the shoreline.

Pursuant to the consent decree, Chevron completed this restoration work at the Arizona Memorial.

4. *Visitor Center Boat Dock*

The Visitor Center boat dock supplements an ongoing project for the design, removal, and replacement construction of the shoreside dock at the Visitor Center. The existing dock needed to be replaced because it was deteriorating along the concrete pile cap, beams and skirt. This project enhances visitor services by ensuring future and safe transport of visitors to the Memorial via USN boats.

The consent decree specifically awarded $550,000.00 of the natural resource damages settlement to the NPS for their lost human use injuries. In 2000, $550,000.00 was dispersed to NPS and the visitor center boat dock construction has been completed.

## III. POUHALA MARSH ENHANCEMENT PROJECT

There are currently more than $850,000.00 in recovered natural resource damages, including earned interest, remaining in the NRDAR fund for restoration for the Chevron Pipeline Oil Spill. The Trustees will use the remaining funds to complete the Pouhala Marsh Enhancement Project, and to reimburse the Trustees for the costs of additional restoration planning and administration. An updated description of the restoration work for Pouhala Marsh is provided below. The restoration work is consistent with the project selected as a preferred alternative in the Final RP/EA. The project meets the Trustees' original restoration goals and objectives, and remains consistent with the original evaluation of alternatives based on the OPA evaluation criteria (15 CFR § 990.54) and other factors considered by the Trustees, as described in section 4.2 of the Final RP/EA and incorporated here by reference.

### A. Project Description

The primary goal of the Pouhala Marsh Enhancement Project is to provide habitat for waterbird nesting, foraging, and loafing, while recovering wetland habitat, watershed function, and native plant communities. Secondarily, to continue to foster community involvement, stewardship, and to provide educational opportunities to community groups, schools, and the general public.

The Pouhala Marsh Enhancement Project will be accomplished in two phases, over five years. Phase I will be the construction of an eight-acre restoration pond. Phase II will be the expansion of available waterbird habitat and wetland ecosystems through habitat enhancement activities. Phases I and II will complement and supplement the work that is already being done with current habitat areas—the expansion, enhancement and creation of wetland habitats and ecosystems. The justification for Phases I and II is based on biological monitoring of the targeted waterbird species, their habitats, and wetland function. Information gathered from the onset of the project has provided a road map of strategies and tactics needed to increase productivity and contribute to waterbird recovery in the Pearl Harbor basin.

1. *Restoration Phase I: Pond Construction – 8 Acres*

This project would finalize the planning and permitting and fund the construction of a restoration pond (Figure 2). The pond is projected to create 8 acres of waterbird habitat in an area that does not currently function as a wetland or support waterbirds.

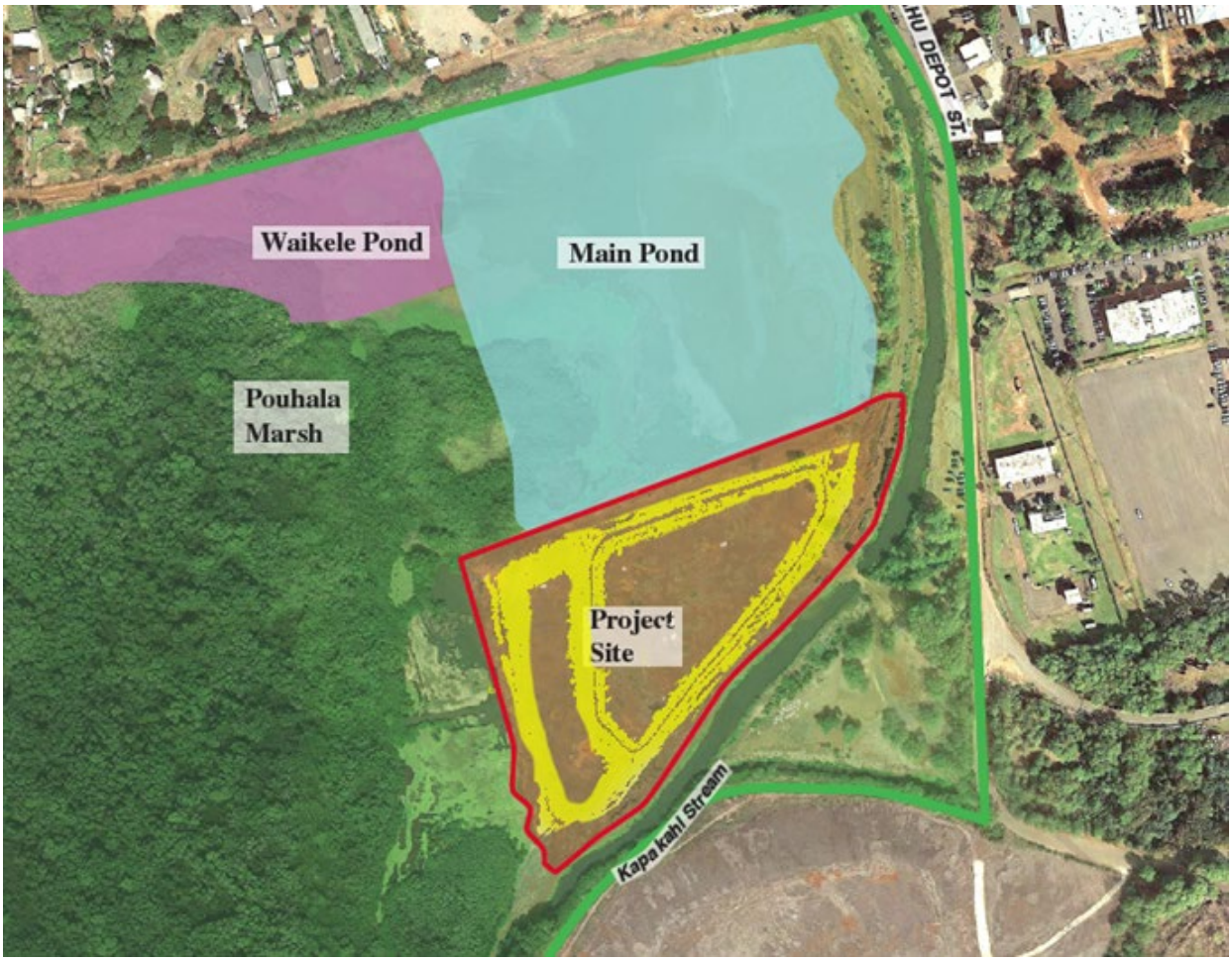


Figure 2: Restoration Phase I, Project Site

The basic pond design will allow for greater water retention capabilities, with construction to a specified depth. Hydrology studies have determined the appropriate sub-surface depths for optimal water retention. Based on observations in other areas at Pouhala Marsh, this would create the ideal habitat for the Hawaiian Stilt. The Hawaiian Coot and Gallinule, the other target species, also typically prefer deeper water. The hydrology of the marsh is characterized by influences from sea level, tidal fluctuations, and ground and surface water inputs from Kapakahi and Waikele streams. Together these factors create "micro" habitats within the larger three areas of the marsh, and are utilized differently by the waterbirds. A mudflat is described as an area without vegetation that may be inundated during a high tide or rain event, but at the survey time is not covered with water. A mudflat with vegetation is the same as a mudflat, but is vegetated. Habitats described as 0-3", 3-6", or > 6" of water, are those that are mostly always inundated, but

the depth at which they are submerged varies based on the hydrological factors mentioned above. Hawaiian Stilt observations have shown the main pond to be extremely productive habitat when water is present. Phase I therefore aims to replicate the main pond habitat, in order to benefit stilts.

2. *Restoration Phase II: Habitat Enhancement/Pickle-Weed Control – 13 Acres*

Current waterbird inventories and monitoring surveys have identified the most productive areas to be the Waikele and Main Pond areas of Pouhala Marsh (Figure 3). Within these areas, pickle-weed is the dominant vegetation. If controlled, while not the most desirable alternative, pickle-weed provides adequate habitat for the waterbird species. To control pickle-weed, a mechanized, amphibious machine is needed for large, landscape areas and these machines have been used successfully at other wildlife sanctuaries in Hawaii.


Figure 3: Restoration Phase II, Project Site

Pickle-weed control will occur in three steps. A manageable "unit" or "island" within the restoration area is selected. In step 1, the entire unit is cleared and grubbed (preferably towards the end of the dry season). In step 2, the area must be maintained clear of aggressive vegetation during restoration efforts, and adaptive adjustments are made based on discovery of natural water flows after clearing. In step 3 native plants are planted to align with and enhance water flow and open water areas, the unit is monitored for aggressive weeds and predators during the establishment period; and there is ongoing wetland maintenance to control aggressive weeds.

The acquisiton and use of speciality aquatic wetland machinery will be a key part of Phase II. The machinery and equipment will allow crews to access parts of Pouhala Marsh that have been

inaccessible due to enviromental conditons. The machinery will also be used to maintain the newly constructed ponds. The ponds will require yearly maintenance, similar to the operations outlined in the habitat enhancement steps.

## IV. SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

This Supplemental Environmental Assessment expands on the environmental assessment in the Final RP/EA and incorporates that assessment by reference. The discussion below is intended to supplement Chapter 4: Restoration Planning, and specifically the NEPA analysis of environmental and socio-economic impacts provided in section 4.4.2 Preferred Alternative: Pouhala Marsh Enhancement.

### A. Affected Environment

Section 2.0 of the Final RP/EA summarizes the affected environment and relevant resources associated with Pearl Harbor that were impacted by the Chevron pipeline oil spill, and that information is incorporated by reference. Additional description of the affected environment in the Pouhala Marsh Enhancement Project area is provided below.

1. *Soils and Topography*

The Natural Resources Conservation Service (NRCS) classifies the soils in Pouhala Marsh as mixed fill land. Waipahu Silty Clay and Tropaquepts soils are also found adjacent to the project site. Waipahu Silty Clay weathered directly from the existing volcanic rock and is common near the ocean in southern O‘ahu. Tropaquepts are soils formed in wetlands. They were formed in conditions of periodic flooding. The landfill soils at the site represent a well-homogenized fill material that do not appear to present an environmental risk, and do not require special handling, treatment, or disposal. The site has been cleared of surface materials in previous cleanup efforts and no further illegal dumping has occurred. Elevations on the project site range from 3-4 feet Mean Sea Level (MSL). The area of selected wetland restoration is relatively flat.

2. *Hydrology and Water Quality*

Water levels at Pouhala Marsh are affected by direct rainfall and tidal and stream waters. The two major water inputs for Pouhala Marsh are from the Ko‘olau and Wai‘anane Ranges. Water inputs that come directly to Pouhala Marsh are the Waikele Stream, West Loch, and rainfall. Waikele Stream and tidal fluctuations directly contribute to water levels within the marsh. Surface water from Kapakahi Stream does not influence the groundwater or surface water in the marsh due to a dike separating the stream and the marsh. Because of the raised fill on the project site, little to no ponding occurs and the project site remains dry under most conditions.

A review of the USFWS National Wetland Inventory Map was completed to identify the presence of wetlands within the vicinity of the project. While there is Estuarine and Marine Wetland identified for other areas of Pouhala Marsh, no potentially jurisdictional wetlands or wetlands of the United States were identified on the project site. Wetlands located within the Pouhala Marsh Wildlife Sanctuary are State waters, classified by the DOH as “Inland waters,

Class 1." The objective for Class 1 Inland waters is that the waters remain in their natural state as nearly as possible with the absolute minimum of pollution from any human-cause source. To the extent possible, the wilderness character of these areas shall be protected.

The 2016 State of Hawaii Water Quality Monitoring and Assessment Report lists the Pearl Harbor estuary for levels of total nitrogen, total phosphorus, and other pollutants that have exceeded water quality standards, and is categorized as a "high" priority for initiating TMDL development for the next cycle of monitoring and assessment. Pearl Harbor has been identified and posted as area where fish and shellfish should not be consumed. Both the Kapakahi and Waikele streams are listed as impaired water bodies under the Clean Water Act's 303(d) listing. Both streams have been identified as a high priority for initiating TMDL development in order to improve water quality, with the TMDLs in progress for Kapakahi Stream. Waikele Stream is listed for total nitrogen, nitrates, and turbidity during the wet season. Kapakahi Stream is listed for total nitrogen, nitrates, and total phosphorus during the wet season, in addition to trash during the wet and dry season, and a visual listing from 2001-2004 for turbidity during the dry season.

3. *Biological Resources*

Pouhala Marsh Wildlife Sanctuary consists of established wetlands and mangroves. The Marsh provides important habitat for four endangered species of native Hawaiian waterbirds: the Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), Hawaiian moorhen (*Gallinule chloropus sandvicensis*), and Hawaiian duck (*Anas wyviliana*). It has been identified by the USFWS as a protected, core wetland area with habitat that supports a substantial number of waterbirds. Based on nesting information, the current suitable habitat for waterbirds is in the Main Pond area. Although nesting efforts are at a minimal status overall in Pouhala, the habitat that the Main Pond provides encourages varying numbers of stilts, gallinules, and coots to congregate within this area. These birds are commonly sighted within this area and food resources, vegetation, water-levels, and preventative predation efforts are all supporting the water-birds' survival. The marsh is adjacent to a small residential area that has resulted in illegal dumping and the introduction of cat and dog predators to nesting sites. Over the past several decades, the marsh has been degraded through siltation, waste disposal, water pollution, and alien plant invasions.

The project site consists of an 8.8-acre area that has been previously disturbed by the importation of fill material. The project site is distinguished from the Main Pond and Waikele Pond in that it is has a mean elevation of 1.0-foot, is dry year around, except during exceptional rain events, has kiawe scattered throughout, and pickle-weed and saltbrush bordering with the adjacent Kapakahi stream. No federally-listed endangered or threatened plant species have been observed within the project site. And, because the project site is dry, no fisheries are present. The project site has been described to have loafing stilts scattered around the parcel, with an occasional heavy rain event that creates a pond in the southwest portion of the area. Nesting attempts have been made in the project site by stilts, but few have been successful. Exposure to predators and the elements continuously cause nesting attempts to fail without having the proper habitat established for the stilts. Other water-bird species do not make any attempts to nest in this area due to the dry-nature of the land and lack of wetland vegetation.

FWS has indicated that the following federally listed species may occur or transit through the vicinity of the selected project area: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); the endangered Hawaiian stilt, endangered Hawaiian coot, endangered Hawaiian gallinule (moorhen), and endangered Hawaiian duck (hereafter collectively referred to as Hawaiian waterbirds), and the endangered Hawaiian goose (*Branta sandvicensis*). Also, the Pacific golden-plover (Pluvialis julva), ruddy turnstone (*Arenaria interpres*), sanderling (*Calidris alba*), and wandering tattler (*Tringa incana*), shorebird species protected under the MBTA, are known to occur within the selected project area.

4. *Archeological Resources*

The two main historic features of the project area were Ka‘auku‘u and Pouhala fishponds (loko), which extended into the Sea of Kaihuopalaai, or the West Loch of Pearl Harbor. Although most of the fishponds have been filled in the twentieth century, the walls of the fishponds were not necessarily destroyed in the process of filling. It is well documented that many of the Hawaiian fishponds were simply filled in with the walls intact. However, based on historical evidence, these appear to have changed their boundaries over the course of the historic period, and most are no longer readily discernible on the ground.

5. *Air Quality*

The Department of Health, Clean Air Branch, monitors the ambient air in the State of Hawai‘i for various gaseous and particulate air pollutants. The U. S. Environmental Protection Agency has set national ambient air quality standards (NAAQS) for six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, ozone, and particulate matter (PM10 and PM2.5). Hawai‘i has established state ambient air standards for all of these pollutants (except for PM2.5) in addition to hydrogen sulfide, a product of volcanic emissions. The primary purpose of the statewide monitoring network is to measure ambient air concentrations of these pollutants and ensure that these air quality standards are met. In 2015, there were four air monitoring stations on the island of O‘ahu. One of the monitoring stations is located in Pearl City, in the general vicinity of the project site. According to the State of Hawai‘i Department of Health Annual Summary 2015 Air Quality Data, criteria and pollutant levels in the State remained below all federal and state ambient air quality standards (excluding exceedances due to volcanic activity).

6. *Visual Resources*

The project area includes wetland marsh, including vegetated areas of pickle-weed and mangrove. The project site consists of exposed soil that is predominantly cleared of vegetation. From the project site, there are views of the Kapakahi Stream and wetlands in the short range, and the Waianae Mountain range in the distance.

7. *Noise*

The project site is located in Pearl Harbor Estuary’s West Loch, with marshland to the west and the Police Academy to the east in the immediate surrounding area. Surrounding noise levels in

the vicinity of the project site are considered relatively low. Existing noise sources include the sound of flowing stream water, occasional vehicular traffic on Waipahu Depot Street, and activities at the Police Academy.

## B. Environmental Consequences of the No Action Alternative

NEPA regulations require the Trustees to consider a "no action" alternative as part of the alternatives analysis. The No Action Alternative identifies the expected environmental impacts in the future if existing conditions were left as is with no action taken by the approving agency. Under the No Action Alternative, establishment of the selected wetland pond and habitat enhancement/pickle-weed control activities would not occur. As a result, the present conditions within the project area would predominantly continue into the future with continued crowding of endangered Hawaiian waterbirds in the existing limited wetland habitat, with continued susceptibility to predation. This alternative would not meet any of the identified project objectives.

## C. Environmental Consequences of the Pouhala Marsh Enhancement Project

The discussion below supplements the general analysis of environmental and socio-economic impacts provided in section 4.4.2.5 of the Final RP/EA.

### 1. *Soils and Topography*

The Pouhala Marsh Enhancement Project involves the excavation and temporary stockpiling of previously filled material onsite, in addition to hauling soil for disposal when funding becomes available. There would be a short-term increase in soil erosion during construction since soil excavation and slope grading associated with construction of the selected project would result in the exposure of bare soil to potential erosion. An erosion control plan will be submitted prior to grading and trenching activities and will specify best management practices (BMPs) in accordance with the City and County of Honolulu's Best Management Practices Manual for Construction Sites, as amended (City and County of Honolulu 2011). BMPs and soil stabilization measures would also be required for removal of stockpiled materials and hauling soil for disposal, to be completed in phases. All excavation and grading operations would be conducted in compliance with dust and erosion control requirements included in the grading and trenching permits issued by the City and County of Honolulu, and the selected project would not result in a significant impact due to soil erosion or off-site sediment transport. The removal of the soil and stockpiling of the materials would include slope stabilization measures that would mitigate transport to the adjacent wetland areas. Since it was determined no contaminants of concern are present in the project site soils, no impacts from mobilization of hazardous soil contaminants during construction would occur. No long-term or cumulative adverse effects to topography or soils are anticipated with implementation of the selected action.

### 2. *Hydrology and Water Quality*

A stormwater pollution prevention plan and BMPs designed to reduce potential impacts to water quality will be prepared and implemented prior to the initiation of grading. The BMPs will

identify the most effective erosion, sedimentation, and turbidity control measures to reduce the amount of soil and sediment accumulation in the coastal waters as a result of construction activities. With implementation of BMPs, the construction of the project would not result in a violation of water quality standards.

The pond would not result in an increase in stormwater since there would be no increase in impervious surfaces. Comparing existing drainage and selected drainage impacts, the pond would create an area for waters to settle instead of allowing existing sheetflow over the current fill. Therefore, there would be no impact on flooding of the areas upstream which currently occurs in a storm. Further, the marsh and new wetland pond would act as a buffer for pollutant sources and sediments in stormwater.

The selected pond improvements are not expected to cause an increase in sediment discharge from the project site to nearby surface waters and should have a beneficial impact on water quality by providing a new wetland pond that would act as a filter for pollutants and sediments in stormwater from upland urbanized areas.

Wetland restoration improvements planned under the Pouhala Marsh Enhancement Project would have a positive beneficial impact on the larger Pouhala Marsh wetland by increasing overall wetland pond area. Increased open water areas and seasonal mud flats created would provide better habitat for endangered waterbirds to breed and forage within Pouhala Marsh. Site-specific BMPs will be implemented during construction to prevent any wastewater, sediment, soil, and debris resulting from the construction from adversely impacting the coastal ecosystem and State Waters. No long-term or cumulative adverse effects to hydrology or water quality are anticipated with implementation of the selected action.

3. *Biological Resources*

The Pouhala Marsh Enhancement project is expected to have an overall positive beneficial impact on the wetland environment and the four species of endangered Hawaiian waterbirds found in Pouhala Marsh. Construction of the pond would not result in displacement during implementation, since the project site is not currently preferred habitat for Hawaiian waterbirds. Establishment of the wetland pond and habitat enhancement/pickleweed control will create additional habitat for these waterbirds. Creating a new pond in the project site provides wildlife managers an opportunity to create carefully designed preferred habitats. Having deeper-water perimeters would create a “moat”-like buffer that can prevent predators from entering the sensitive interior pond and provide foraging habitat for coots. Creating exposed elevated mudflats and planting native water plants along the perimeters and interior areas of the pond would allow a full utilization of the habitat. This would avoid the problem that the Main Pond faces in having nesting habitat only on the perimeter, where birds are vulnerable to predation. Having a new pond to mold from the beginning would also ensure that native plants can be planted and thrive while ensuring invasive plants like mangrove and pickle weed are not introduced.

During construction, site-specific BMPs developed as part of the permitting process would minimize erosion and sedimentation and potential adverse effects to aquatic biota in the vicinity

of the project site. No adverse long-term effects to aquatic biota would occur, and no mitigation would be necessary.

4. *Archeological Resources*

With the close proximity of historic settlement sites to the selected project site and historic use as fishponds, there is potential for previously unidentified subsurface historic and or cultural deposits to be present in the selected project area. While it is possible that archaeological materials are deeply buried by alluvium and modern fill activities and may not be encountered by land clearance associated with the wetland habitat reconstruction, the following mitigation measure will be used to minimize impacts to unidentified cultural resources:

- A qualified archaeological monitor will be present during all ground-altering activities in order to document any historic artifacts that may be encountered.
- In the event that historic resources, including human skeletal remains, are identified during the construction activities, all work will cease in the immediate vicinity of the find, the find will be protected from additional disturbance, and the State Historic Preservation Department will be contacted immediately.

With implementation of these conditions, no adverse effect to cultural, historic, or archaeological resources would occur.

5. *Air Quality*

Construction of the selected project could result in temporary air quality effects, including exhaust emissions from construction vehicles and dust generated by short-term construction related activities. Components of construction emissions include employee trips, exhaust emissions from construction equipment, and fugitive dust emissions. Excavation and grading within the project area could generate airborne dust particulates. Dust control measures such as watering and sprinkling will be implemented as needed to minimize wind-blown dust. To minimize construction-related exhaust emissions, project contractors will ensure that all internal combustion engines are maintained in proper working order. All construction work will be in conformance with State of Hawaii air pollution control standards. Once completed, the wetland creation would not result in any air emissions, and there would be no long-term adverse air quality impacts. Other than passing vehicles on nearby roadways, there are no air contaminant sources in the immediate project area.

6. *Visual Resources*

Visual impacts during the construction phase of the Pouhala Marsh Enhancement Project would be temporary and intermittent. The temporary stockpiling of material adjacent to the created wetland would create an embankment that could vary from 11 to 12.8 feet. Existing elevations on the project site range from 3-4 feet MSL. The increase of approximately 7 to 9 feet of raised embankment could create more expansive views Waianae Mountain range at this location. While the embankment could be used by educational groups or volunteers to stage maintenance efforts, following completion of the wetland creation and removal of the stockpiled material, the

embankment would no longer be available for use. Since the Pouhala Marsh Enhancement Project consists of wetland restoration within the Pouhala Marsh area, the selected project would not significantly change the scenic and visual character of the surrounding area. However, restoration improvements should have a beneficial impact by improving this marsh as a scenic resource. Creating additional wetland in a currently dry area would enhance the overall visual unity of the marsh.

7. *Noise*

Noise impacts from a project can be categorized as those resulting from construction and those from operational activities. Construction noise would have a short-term effect; operational noise would continue throughout the lifetime of the project. Implementation of the Pouhala Marsh Enhancement Project could temporarily increase noise levels during construction. A Community Noise Permit for construction activities may be required by the Department of Health. Prior to construction, consultation with the state Department of Health will occur to determine permitting requirements. There would be no long-term increase in noise during project operations and the project would not generate additional traffic and associated noise.

## D. Cumulative Impacts

1. *No Action Alternative*

Since no active restoration would occur, the no action alternative would have long-term adverse effects to environmental and socio-economic resources in the project area and interim losses would not be fully compensated for. However, the adverse cumulative effects of the no action alternative would be minor and not at a regional scale, and are not expected to be significant as defined under NEPA.

2. *Pouhala Marsh Enhancement Project*

The long-term environmental consequences of the Pouhala Marsh Enhancement Project will be enlargement and enhancement of breeding habitat for the four endangered waterbirds, reduction in invasive weeds, and enhanced protection from predators. The pond creation and nesting habitat will also enhance viewing opportunities for visitors from adjacent State lands just across Kapakahi Stream, which will act as a natural barrier from encroachment. Further, the selected action is intended to compensate the public for resources injuries caused by the release of oil into Pearl Harbor.

When considered in tandem with other past, present, and reasonably foreseeable future actions in Pouhala Marsh and Pearl Harbor, the Pouhala Marsh Enhancement Project is not anticipated to have adverse cumulative impacts. The project is expected to result in long-term, beneficial cumulative impacts on the human environment resulting from synergy with previous and current restoration efforts, as well as any future restoration activities. These beneficial cumulative impacts are not expected to be significant as defined under NEPA.

## REFERENCES

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