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BIOLOGICAL ASSESSMENT FOR DEBRIS DELINEATION AT SITE UNEXPLODED
ORDNANCE 2 SOLID WASTE MANAGEMENT UNIT 1 NAVAL ACTIVITY PUERTO RICO
8/1/2013
CH2M HILL

**Biological Assessment for Debris Delineation
Site UXO 2 (SWMU 1) – Army Cremator Disposal Site**

**Naval Activity Puerto Rico
Ceiba, Puerto Rico**

Contract Task Order JM04

August 2013

Prepared for

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Prepared by



CH2MHILL

Atlanta, Georgia

Approval Signatures

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Ceiba, Puerto Rico**

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Prepared by:


Richard Reaves, Ph.D. 8-28-13
Endangered Species Biologist Date
CH2M HILL

Reviewed by:


David Criswell Date
BRAC PMO SE Environmental Coordinator

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Acronyms and Abbreviations

| | |
|-------|---|
| BA | Biological Assessment |
| BIP | blow in place |
| dbh | diameter at breast height |
| DGM | digital geophysical mapping |
| DNER | Puerto Rico Department of Natural and Environmental Resources |
| ESA | Endangered Species Act |
| EFH | Essential Fish Habitat |
| GPS | global positioning system |
| MC | munitions constituents |
| MD | munitions debris |
| MDAS | material designated as safe |
| MEC | munitions and explosives of concern |
| MPPEH | material potentially presenting an explosive hazard |
| MRS | munitions response site |
| PID | photoionization detector |
| RCRA | Resource Conservation and Recovery Act |
| SWMU | Solid Waste Management Unit |
| U.S. | United States |
| USN | United States Navy |
| USFWS | U.S. Fish and Wildlife Service |
| UXO | unexploded ordnance |

1 Summary of Determinations

This United States Navy (USN) biological assessment (BA) has formulated a determination regarding the potential effects on the federally endangered yellow-shouldered blackbird (*Agelaius xanthomus*), federally endangered Puerto Rican boa (*Epicrates inornatus*), federally endangered Virgin Islands tree boa (*Epicrates monensis granti*), and federally threatened c6bana negra tree (*Stahlia monosperma*) that could result from debris delineation activities at Munitions Response Program (MRP) Site UXO 2, also known as Resource Conservation and Recovery Act (RCRA) Solid Waste Management Unit 1 (SWMU 1) - Army Cremator Disposal Site, at Naval Activity Puerto Rico (NAPR). This BA also considers the potential for impacting designated critical habitat for the yellow-shouldered blackbird.

Prior to commencing onsite intrusive work, the project area boundary will be clearly marked in the field and recorded in field notes. In addition, all areas to be avoided and protected during the work will be clearly marked in the field and recorded in field notes, and all onsite personnel will receive training about the conservation of protected species, the types of species that may be encountered on the site, and the proper communication protocol should such protected species be encountered.

All personnel involved in site clearing will be informed of the potential presence of tree boas, and the importance of protecting the boas. Prior to any use of mechanized equipment in areas where boas may occur, vegetation will be hand-cleared to provide time for any boa to be observed or to move away from the area.

There is historical documentation of nesting by the **yellow-shouldered blackbird** at NAPR. The yellow-shouldered blackbird continues to occur on NAPR, but it has not been observed at or in the vicinity of Site UXO 2 in recent surveys. The mangroves to the east of the site provides suitable habitat for this species. No intrusive work is planned for the mangrove habitat, so no direct impacts to birds in this area will occur. Prior to the debris delineation, a nest survey will be conducted that will include the site and the mangroves adjacent to the site. Should any active yellow-shouldered blackbird nests be identified, the location(s) will be mapped and provided to the United States Fish and Wildlife Service (USFWS). If nests are identified, a 100-foot buffer will be established around each nest and this buffer will be marked clearly with fencing/barricade. The proposed work locations then will be modified to avoid designated nest buffer areas.

Prior to demolition of any munitions and explosives of concern (MEC) or material potentially presenting an explosive hazard (MPPEH) through explosive detonation procedures, the area within 100 meters of the proposed detonation site will be inspected by a qualified and trained person for yellow-shouldered blackbirds or active nests of the species. Should a yellow-shouldered blackbird be found within the search radius, the detonation will be delayed until the bird has voluntarily moved more than 100 meters from the detonation site. If an active nest is found within the search radius, the detonation will be delayed until after the young has fledged, or the MEC will be relocated to an alternate MEC disposal site if the item is determined to be safe to move.

Vegetation clearing will occur within an area designated as critical habitat for the yellow-shouldered blackbird. No vegetation greater than 4 inches diameter at breast height (dbh) will be cleared and most vegetation clearing will occur in areas where the habitat is poorly suited for the yellow-shouldered blackbird. Therefore, no adverse impacts to designated critical habitat for the yellow-shouldered blackbird are expected.

Recent surveys have documented the **Puerto Rican boa** on the former Roosevelt Roads Naval Station within approximately 1.5 miles of the proposed debris delineation area. Because this relatively large snake could travel the 1.5-mile distance from where it has been documented to reach the work area, the Puerto Rican boa could occur in the project area. The **Virgin Islands tree boa** has not been found on NAPR in recent surveys, and likely does not occur in the project area.

Each day prior to vegetation clearing, the area to be cleared will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. If a boa is observed, it will either be relocated to nearby suitable habitat by a Puerto Rico Department of Natural and Environmental Resources (DNER) authorized person, or clearing in that area will be delayed until the snake has voluntarily moved away. Because no

vegetation equal to or greater than 4 inches dbh will be cleared, no impacts to the Puerto Rican boa are anticipated from vegetation removal. Because the Virgin Islands tree boa is not expected to occur in the project area and because no vegetation equal to or greater than 4 inches dbh will be cleared, no impacts to this species are anticipated.

Should it become necessary to relocate or otherwise alter a debris pile that a boa may rest under, the debris pile will be inspected by a qualified and trained person prior to disturbance. If a boa is found, it will be relocated to nearby suitable habitat by a DNER-authorized person. If it is not possible to relocate the snake, a different debris pile will be selected for analysis/alteration to avoid impacting the boa.

Prior to any explosive detonation procedures, debris within 100 meters of the proposed detonation site will be inspected for resting boas by a qualified and trained person. Should a boa be found within the search radius, a DNER authorized person will relocate the snake outside the disturbance area. If it is not possible to relocate the snake, the detonation will be delayed until the boa had voluntarily moved more than 100 meters from the detonation site or the MEC will be relocated to a dedicated MEC disposal site, if moving the item is determined to be safe.

A single **cóbana negra** was documented near the proposed work area in the most recent surveys. Because this tree is restricted to the landward edge of mangrove habitats, and because a 100-meter setback will be established and maintained throughout the debris delineation, no potential to adversely impact the cóbana negra is expected. Prior to work, a survey will be completed along the project area boundary, beginning in the mangroves and extending landward until the habitat is no longer suitable for cóbana negra. Should any cóbana negra be identified, the location(s) will be mapped and provided to USFWS. A 50-foot buffer will be established around each tree and this buffer will be marked clearly with fencing/ barricade. The proposed work will be revised such that transects will avoid designated tree buffer areas.

The USN requests United States Fish and Wildlife Service (USFWS) concurrence with the determination of findings of this analysis that debris delineation activities in the above-identified areas on NAPR are **not likely to affect** yellow-shouldered blackbird, Puerto Rican boa, Virgin Islands tree boa, and cóbana negra and are **not likely to adversely affect** designated critical habitat for the yellow-shouldered blackbird. Additionally, the proposed actions will not threaten the continued existence of these species.

2 Introduction

This document is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA). This USN BA addresses potential impacts to protected species associated with site characterization activities being conducted as part of the RCRA corrective action process at Site UXO 2/SWMU 1 at NAPR in Ceiba, Puerto Rico (Figure 1, Figure 2).

Site UXO 2/SWMU 1 was used from the early 1940s until approximately 1960 as the main base landfill. It is reported (NEESA, 1984) that wastes were disposed by piling and burning, then compacting. An estimated 100,000 tons of scrap metal, inert ordnance, batteries, tires, appliances, cars, cables, dry cleaning solvent cans, paint cans, gas cylinders, construction debris, dead animals, and residential waste were disposed onsite (NEESA, 1984). Site UXO 2/SWMU 1 is currently inactive. The work addressed under this BA will be conducted in an attempt to further characterize the types and the horizontal and vertical extent of subsurface debris at Site UXO2/SWMU 1.

The full site encompasses 116 acres of upland and wetland areas. The debris delineation investigation area encompasses a portion of Site UXO2/SWMU 1 and some adjacent areas outside of the site boundary and is defined as the munitions response site (MRS) for the purpose of identifying areas where precautions must be taken for the potential presence of MEC and MPPEH.

In January 2010, Right Way Environmental began removing surficial debris piles at SWMU 1. During this operation, suspected munitions items were encountered and debris removal was stopped. Navy Explosive Ordnance Disposal Detachment Mayport was contacted in February 2010 and identified the munitions items as inert. Debris removal

resumed in March 2010 with Tetra Tech NUS, Inc. providing MEC avoidance support. Work was halted again because numerous suspected MEC and MPPEH items were encountered, which prevented debris removal from being accomplished by employing MEC avoidance alone. Tetra Tech NUS, Inc. provided construction support for debris removal from April 11 through May 25, 2011. During the debris removal, 11 debris piles were identified, with three of the piles outside the boundaries of SWMU 1. Eight MEC items were identified in one pile, along with numerous pieces of munitions debris. All suspected MEC and MPPEH were removed from the debris piles. However, heavy seasonal rains made the site inaccessible and removal of the dismantled and processed debris piles was not completed. Uncertainty existed as to the presence of MEC and MPPEH elsewhere and it was recommended that the site be considered to present a surface and subsurface explosive hazard until proven otherwise.

3 Consultation History

No previous consultations have been conducted for the proposed work area, beyond the general inclusion in consultations to support previous National Environmental Policy Act analyses for the transfer of NAPR (which was the former Roosevelt Roads Naval Station) to the Commonwealth of Puerto Rico and the subsequent redevelopment of NAPR. In 2007, USN completed the *Environmental Assessment for the Disposal of Naval Activity Puerto Rico (formerly Naval Station Roosevelt Roads)* and in 2011 the *Supplemental Environmental Assessment for the Disposal of Naval Activity Puerto Rico (Formerly Naval Station Roosevelt Roads)* was developed.

Because no work will occur in mangrove swamps or off-shore waters, the USN will have no potential to adversely affect species under the jurisdiction of the National Oceanic and Atmospheric Administration Marine Fisheries Service Office of Protected Resources, either under ESA or under the Marine Mammal Protection Act, and will have no potential to adversely affect Essential Fish Habitat under the jurisdiction of the National Oceanic and Atmospheric Administration Marine Fisheries Service Habitat Conservation Division. Therefore, USN will not be consulting with these agency offices regarding the proposed work.

4 Proposed Action

The main objectives of the debris delineation are to estimate the volumes of surface and subsurface debris at the Site UXO 2/SWMU 1, to delineate the horizontal and vertical extent of surface and subsurface debris, and to visually determine the types of debris present. These objectives will be accomplished through the following activities:

- Vegetation clearing along transects at the site
- Digital geophysical mapping to delineate lateral extent of subsurface debris
- Test pitting to determine horizontal and vertical extent of subsurface debris, visually determine the types of buried debris, and screen subsurface soils using a photoionization detector (PID) and olfactory observations
- Correlation of digital geophysical mapping (DGM) and test pit data to estimate the amount of debris present
- Demolition of MEC and demilitarization of MPPEH that may be recovered during the investigation

Vegetation clearing will be conducted using hand tools and handheld power tools (such as chainsaws). Vegetation will be cleared along geophysical survey transects (approximate locations shown in Figure 3) that will be approximately 1 meter wide. The transects will cover potential disposal areas within the MRS and are based on historical records and field observations made during a September 2012 site visit. The layout encompasses areas where historical surface debris was most concentrated and areas along former access roads that were shown on historical aerial photographs, but may be adjusted based on field observations to satisfy in investigation objectives. The total area of vegetation removal will be approximately 1.4 acres (1 meter wide by 18,985 linear feet of transects). All vegetation removal will be conducted under MEC avoidance escort by a qualified Unexploded Ordnance (UXO) Technician.

Vegetation will be cut to within 6 inches of ground surface. Vegetation to be cut consists primarily of vines, low brush and small trees and to the extent possible will be limited to trees less than 4 inches in diameter. The cut vegetation will be moved to uncut areas adjacent to the cleared transects and piled so as to avoid creating obstructions that could alter water flow patterns. No clearing will occur within 100 meters of the landward edge of Mangroves. The limits of clearing will be clearly marked and this buffer will prevent encroachment into and impacts to wetland areas.

Following vegetation clearance, and in advance of mobilization of the DGM work, wooden stakes will be placed along transects at a maximum spacing of approximately 82 feet to allow the DGM operator to maintain a straight-line walking path from one stake to the next. DGM work will be accomplished using an EM31-MK2, or equivalent, coupled with positioning data linked to the stakes. A geo-referenced map showing the interpreted DGM data will be prepared and the DGM results will be used in conjunction with historical site information to assist in the selection of test pit locations to delineate vertical and horizontal extent of debris.

Test pits will be excavated to determine the depth to subsurface debris and the thickness of debris. The test pits also will be used to confirm the presence of a burial pit indicated by past investigations. Test pits will be excavated by qualified UXO Technicians using a backhoe and hand-excavation tools. The maximum depth of each pit will be determined based on the depth of debris encountered and/or the depth to groundwater. Debris from the test pits will be visually examined, and the types of debris present will be recorded. Up to 12 test pits will be excavated; the number and location of test pits will be determined after reviewing the DGM results. The following procedures will be followed for test pit excavations:

- Surface debris will be removed from the test pit location and placed in a pile in a nearby location.
- Vegetation and several inches of soil will be removed using hand tools or mechanical excavation equipment and placed nearby for later replacement
- Debris will be removed by hand or using mechanical equipment until debris-free soil is reached, or until saturated conditions are encountered, whichever is shallower.
- If MEC is encountered, it will be destroyed by explosive detonation methods at the location where it is found, or it may be relocated for demolition if the MEC is safe to move. MPPEH that cannot be classified as material documented as safe (MDAS) will be destroyed in the same manner as MEC.
- If suspected hazardous waste is encountered (such as batteries, intact or leaking containers of liquid, or solid chemicals), a contingency plan will be implemented. The handling and disposal of the suspected hazardous waste will be performed in accordance with direction of the EM depending on the type(s) and volume of waste observed.
- After excavation of a test pit is complete, all excavated soil and debris (except for MEC, MPPEH, and suspected hazardous waste) will be placed back into the excavation and the previously removed surface vegetation will be placed over the disturbed area.
- If it is necessary for an excavation to remain open overnight, temporary construction fencing will be placed around the excavation to prevent wildlife from falling into the pit and becoming entrapped. Prior to work the following day, each open pit will be inspected by a qualified and trained person to determine if any wildlife, including boas, entered the pit overnight. If animals are discovered in the pit, the qualified and trained person will safely remove any trapped animals and release them away from the work area.

MEC will be destroyed by explosive detonation methods at the location where it is found, or it may be relocated for demolition if the MEC is safe to move. MPPEH that cannot be classified as material documented as safe (MDAS) will be destroyed in the same manner as MEC.

Prior to the debris delineation, proposed transects will be surveyed for the presence of active bird nests. To avoid impacts to bird species protected under the Migratory Bird Treaty Act and the endangered yellow shouldered blackbird, any active bird nests identified will be avoided by relocating the transect. A 100-meter protection zone

will be established around each identified nest. No human activity, including vegetation clearing, will occur within the protection zone and transects will be routed to accommodate all protection zones.

Surveys also will be conducted along the eastern border of the MRS to determine whether any *cóbana negra* trees occur within the MSR. A setback of 100 meters from the landward edge of mangroves will be established and clearly marked. All disturbance will be confined landward of the established setback.

5 Location and Setting Description

5.1 Location

NAPR is located in the northeastern coast of Puerto Rico and includes small islands in nearshore waters of the Caribbean Sea (Figure 1). NAPR abuts the municipality of Ceiba. Site UXO 2/SWMU 1 is located behind the former Navy Lodge, east of Langley Drive and south of Kearsarge Road (former Coast Guard Pier Service Road) (Figure 2).

5.2 Setting Description

The MRS is located within previously disturbed regrowth sub-mesic coastal forest on the eastern side of NAPR. The western, southern, and southcentral portions of the MRS are relatively flat and the north-central portion contains a steep-sided rocky knoll with large boulders along the slopes. The eastern portion of the MRS is a ravine oriented north-south. The majority of the MRS, with the exception of the southwestern section, is covered by dense vegetation. Former access roads and paths shown on historical aerial images are largely overgrown. The project area consists of a mix of native and non-native species, with non-native species predominating. Vegetation varies from grass-forb community to scrub-shrub community to small areas of forest community. The scrub-shrub community is the most prevalent, but the southwestern section of the MRS is covered primarily by tall grasses. Interspersed among the vegetation are piles of debris consisting of scrap metal, inert ordnance, batteries, tires, appliances, cables, dry cleaning solvent cans, paint cans, gas cylinders, construction debris, and residential waste. A mangrove lagoon, consisting mainly of red mangroves (*Rhizophora mangle*) and black mangroves (*Avicennia germinans*), occurs to the east of the MRS but is not within the proposed work area.

6 Species Descriptions

This BA is limited to discussions of species that could occur in the terrestrial environments where work is proposed. The USFWS Caribbean Ecological Services Office identifies 17 listed or monitored species that are known to occur in the Ceiba region. The project area is not within the range of occurrence for many of these species and there are only four species with potential to occur within or in the vicinity of Site UXO 2/SWMU 1.

Seven endangered species from this area (three birds and four plants) are restricted to the El Yunque National Forest and their distribution does not extend onto NAPR. There will be no potential to affect the Puerto Rican sharp-shinned hawk (*Accipiter striatus venator*), Puerto Rican parrot (*Amazona vittata vittata*), Puerto Rican broadwinged hawk (*Buteo platypterus brunnescens*), uvillo (*Eugenia haematocarpa*), Palo Colorado (*Ternstroemia luquillensis*), and two plants with no common name (*Ilex sintenisii* and *Lepanthes eltorensis*). Therefore, these species are not considered in this BA.

Six listed or monitored species that occur in the Ceiba region are restricted to marine environments or specific terrestrial habitats closely associated with the marine environment. All work will be conducted landward of the mangrove lagoon east of the MRS and there are no beaches that may be used as nesting areas. There will be no potential to the endangered hawksbill sea turtle (*Eretmochelys imbricata*), threatened green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), and endangered West Indian manatee (*Trichechus manatus*). Additionally, critical habitat has been designated in Puerto Rico for the green and hawksbill sea turtles. There is no designated critical habitat for these species within or adjacent to the project area and there will be no potential to adversely affect critical habitat for sea turtles. Additionally, the threatened piping plover (*Charadrius melodus*) and the now delisted but monitored brown pelican (*Pelicanus occidentalis*) will not use the habitats within or adjacent to the project area and there will be no potential to affect these two birds as a result of the debris delineation activities. Therefore, these species are not considered in this BA.

Species included in the analysis are the endangered yellow-shouldered blackbird (*Agelaius xanthomus*), endangered Puerto Rican boa (*Epicrates inornatus*), endangered Virgin Islands tree boa (*Epicrates monensis granti*), and threatened c6bana negra (*Stahlia monosperma*). Also, as all of NAPR has been designated as critical habitat for the yellow-shouldered blackbird, the potential for impacting critical habitat for this species is considered.

6.1 Yellow-shouldered Blackbird

There are two subspecies yellow-shouldered blackbird, but only one, *Agelaius xanthomus xanthomus*, occurs on Puerto Rico. The other subspecies, *Agelaius xanthomus monensis*, occurs only on Mona and Monito Islands. The yellow-shouldered blackbird is a medium-sized (20 to 23 centimeters) glossy black bird with yellow epaulets. Male and female plumage is similar. Immature birds are a duller than adults and have a brown abdomen. The yellow epaulets are usually edged with a narrow white margin.

The breeding season extends from April through August and appears to coincide with onset of spring rains. The yellow-shouldered blackbird is monogamous, with pairing beginning 6 to 10 weeks prior to breeding. Pairs display site fidelity and re-establish nests in areas used in previous years. Yellow-shouldered blackbirds nest in scattered mangroves and in cavities in dead trees and stumps.

The yellow-shouldered blackbird was listed as endangered in 1976 and critical habitat was designated for the species. All of NAPR has been designated as critical habitat for this species. However, not all of NAPR provides suitable habitat for this species. The yellow-shouldered blackbird was widespread and abundant in Puerto Rico and Mona Island until the 1940s. Loss of habitat, predation by exotic mammals (cats and rats), and brood parasitism by the shiny cowbird have since contributed to its drastic decline in numbers, estimated at more than 80 percent reduction in population size.

Recent surveys have documented a slight population recovery on NAPR following Hurricane Hugo, followed by a more recent decline in numbers. The mangrove swamp in Ensenada Honda provides suitable habitat for this species, and the palms that occur throughout the proposed work area also could be used for nesting. No vegetation over 4 inches in diameter will be cleared, so the potential for impacting this species is low. If intrusive work is scheduled between March 15 and August 31, a nest survey will be conducted prior to vegetation clearing. Should a yellow-shouldered blackbird nest be found, consultation with USFWS will be required prior to conducting any vegetation clearing during this period. The silt fencing that will be placed around the edge of the proposed work area will protect the mangrove swamp and the habitat it provides. Therefore, no adverse impacts to the mangrove lagoon will result.

All of NAPR has been designated as critical habitat for the yellow-shouldered blackbird, but not all areas within the boundaries of the installation provide suitable habitat for the species. The preferred habitat for the species is mangrove forests, which occur to the east of the MRS. No intrusive work is planned within mangrove habitats.

6.2 Puerto Rican Boa

The Puerto Rican boa is the largest snake native to Puerto Rico, reaching lengths of 6 to 9 feet. The color of the boa is variable, usually ranging from tan to very dark brown (sometimes grayish), with 70-80 dorsal blotches (indistinct cross-bars) from neck to vent. The Puerto Rican boa is nocturnal and remains dormant throughout the day, retreating to caves, rocky areas along streams, or trees for concealment during the day. Adult prey items include small mammals, birds, and bats. Juveniles feed on smaller prey items including lizards and insects.

Large-scale habitat destruction and the introduction of exotic mammalian predators are considered the likely causes of population declines, although human predation to obtain their oil as a folk remedy is another possible cause. Introduced rats and feral cats predate upon the eggs and young.

Recent surveys have documented that this species is beginning to re-establish in the regrowth forests on NAPR and the most suitable habitat for the species is approximately one mile west of the proposed work area. It is possible that the Puerto Rican boa will use the debris piles within the proposed work area for daytime resting areas. Prior to any excavation, the area to be dug will be inspected for the presence of resting Puerto Rican boas.

Any boas found will be relocated to an area of suitable habitat outside but adjacent to the proposed work area. Prior to any explosive demolition procedures, the area within 100 meters of the explosive demolition location will be inspected for boas. If a boa is found, it will be relocated to more than 100 meters from the explosive demolition location, the explosive demolition will be delayed until after the boa had voluntarily moved to more than 100 meters from the explosive demolition location, or the MEC will be relocated (if safe to move) for detonation to an explosive demolition location away from any sensitive species locations.

6.3 Virgin Islands Tree Boa

The Virgin Islands tree boa is a blotched brown semi-arboreal snake restricted to a number of islands from Puerto Rico eastward into the British Virgin Islands. The Virgin Islands tree boa lives in subtropical dry forests where it hunts at night and captures lizards while they sleep in trees. During the day, it remains in termite nests or under rocks and debris. There are no current estimates of the number of Virgin Island boas, but they are rare and their extremely disjunct distribution indicates past extirpation from islands and overall population decline.

Large-scale habitat destruction and the introduction of exotic mammalian predators caused severe population declines. The Indian mongoose, feral and domestic cats, and two rat species predate on eggs and young and adult boas. The small, uninhabited cays and islets where the species has become concentrated are vulnerable to inundation from oceanic storms.

While this species was observed historically on NAPR, recent surveys have not been able to confirm that the Virgin Islands tree boa still occurs on NAPR. The species is arboreal and nocturnal, so it is unlikely to be observed during the proposed work. As no vegetation over 4 inches in diameter will be cleared, no impacts to this species will be expected. The conservation measures described for the Puerto Rican boa will also be applied for this species and no additional conservation measures are proposed.

6.4 Cóbana Negra

The cóbana negra is a medium-sized evergreen angiosperm tree that grows to 50 feet in height and typically occurs at heights between 25 and 50 feet when mature. Trunk diameter usually ranges from 1 to 1.5 feet. Cóbana negra occurs on the edges of salt flats in brackish, seasonally flooded wetlands, in association with black mangrove and button mangrove (*Conocarpus erectus*).

Development of coastal areas and cattle grazing are the main threats to remaining populations of this species. Cóbana negra also has been harvested and used for fence posts.

A cóbana negra tree was observed near the Coast Guard pier in Ensenada Honda in 1989, in proximity to Site UXO 2/SWMU 1. Subsequent surveys in 2004 did not relocate this tree, but did confirm a single tree in coastal scrub forest approximately two miles southwest of the MRS.

In November of 2012, the quality of the habitat provided by the mangrove swamp on the eastern side of the MRS was assessed (see Section 7). A pedestrian survey was conducted that included walking through the exposed or shallowly inundated portions of the mangrove lagoon and along the landward edge of the mangroves. The landward boundary of the mangrove area was marked by an abrupt topographic rise from sea level. No cóbana negra trees were observed during this effort, but a complete survey of the MRS boundary interface with the mangrove area was not conducted. As no vegetation over 4 inches in diameter will be cleared, no impacts to this species are expected. The only proposed conservation measure is to conduct a survey for cóbana negra saplings in advance of vegetation clearing. If any saplings of this species are identified, transects will be relocated as necessary to avoid cutting the saplings.

7 Mangrove Habitat Assessment and Migratory Bird Treaty Act

In November of 2012, the quality of the habitat provided by the mangrove swamp on the eastern side of the MRS was assessed. A pedestrian survey was conducted that included walking through the exposed or shallowly inundated portions of the mangrove lagoon. Smaller mangrove islands away from shore were not directly investigated.

Red mangrove is the most dominant species throughout the lagoon and is the only species occurring in the smaller islands away from shore. Black mangrove and buttonwood (*Conocarpus erectus*) occur in lesser numbers, and are more abundant in the landward areas. The understory is basically non-existent except for mangrove seedlings. All three species exhibit recruitment of seedlings/saplings.

This mangrove area provides high quality foraging and roosting habitat for many bird species protected under the Migratory Bird Treaty Act and may provide nesting habitat as well. Substantial bird use of the mangrove swamp was noted, including use by wading birds, ducks, and passerine birds. No rookeries or bird nests were noted in proximity to the boundaries of the MRS. Fiddler crabs were very abundant along the edge of the swamp. The landward boundary of the mangrove area was marked by an abrupt topographic rise from sea level.

No work is proposed within the mangrove swamp. Silt fencing will be erected 100 meters landward of the edge of the mangrove swamp and all intrusive work will be kept landward of that fencing. Therefore, the proposed activity is not expected to adversely affect mangrove habitat or birds using mangrove habitat.

8 Effects of Proposed Action Implementation

Four federally protected species were identified as having potential to occur within the MRS: Virgin Islands tree boa, Puerto Rican boa, yellow-shouldered blackbird, and the *cóbana negra*. Based on current environmental conditions and results of the most recent surveys and field investigations, it is unlikely that any of these species will occur in the project area. The activities described under the Proposed Action have the potential to affect the designated critical habitat for the yellow-shouldered blackbird. However, no vegetation over 4 inches dbh will be cleared and the smaller vegetation will quickly recover following clearing. While there will be short-term changes to vegetation along transects, no adverse affect to designated critical habitat for the yellow-shouldered blackbird will result.

The effects analysis in this document focuses on the elements associated with each activity and the potential impacts to these species and their habitats. The USFWS has developed conservation recommendations to avoid or minimize the potential for impacts on the boa during project implementation where the boa may occur and the Navy has adopted an approach consistent with these conservation recommendations. The following discussion of potential impacts is divided by activities.

8.1 Boundary Marking and Training

Prior to any intrusive work (vegetation clearing or ground disturbance), the project area boundary will be clearly marked in the project plan and in the field. In addition, all areas that will be avoided and protected during the work will be clearly marked in the field and field notes.

Prior to the start of field work, all onsite personnel (supervisors and employees) will receive training about the conservation of protected species, the types of species that may be encountered on the site, and the proper communication protocol should protected species potentially present at the site be encountered. All personnel involved in site clearing will be informed of the potential presence of protected species, and the protocol for protecting them.

Prior to any use of machinery in areas where boas may occur, vegetation will be hand-cleared to provide time for any boa to be observed or to move away from the area.

Prior to vegetation clearing, the eastern portion of the MRS, closest to the mangrove forest, will be surveyed for *cóbana negra*. If any *cóbana negra* are found, each tree will be recorded and a 50-foot buffer established and clearly marked around each tree. Vegetation clearing will be modified to avoid any established buffer areas. Because the DGM survey will be limited to transects created through vegetation clearing, there will be no potential to adversely impact the *cóbana negra* from DGM survey.

8.2 Vegetation Clearing and DGM Survey

Vegetation clearing has the potential to impact listed species or their habitats. Vegetation clearing will consist of cutting tall grass and small woody vegetation (less than 4 inches dbh) to a height of 6 inches to create a low

vegetation groundcover that will not hinder the use of geophysical equipment. Because vegetation clearing will be 6 inches above the ground surface, no adverse impacts to the Virgin Islands tree boa, Puerto Rican boa, or yellow-shouldered blackbird will result. If these animals are present in the area, they will likely temporarily relocate away from the human activity.

A survey for nests of the yellow-shouldered blackbird will be conducted in potentially suitable habitat prior to vegetation clearing. Should any nest be identified, a 100-foot buffer will be established and clearly marked around each nest and the vegetation clearing will be modified to avoid entering the buffer areas. By establishing and maintaining these buffers as appropriate, no nest abandonment is expected.

Each day prior to vegetation clearing, the area to be cleared will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. If a boa is observed, either it will be relocated to nearby suitable habitat by a DNER authorized person or clearing in that area will be delayed until the snake had voluntarily moved away. Because the DGM survey will be limited to transects created through vegetation clearing and because any animals are expected to temporarily relocate away from the activity, there will be no potential to adversely impact the Virgin Islands tree boa, Puerto Rican boa, or yellow-shouldered blackbird from DGM survey.

8.3 Test Pit Excavation and Debris Characterization

Up to 12 test pits will be excavated to characterize debris. The locations of test pits will not be determined until after the DGM survey. When selecting test pit locations, sites will be selected to avoid areas in proximity to any yellow-shouldered blackbird nest identified in pre-clearing surveys. No test pits will be located within 500 feet of a yellow shouldered blackbird nest.

Excavation of test pits and debris characterization may result in disturbance to debris piles. Prior to disturbing any debris pile, a qualified and trained person will inspect the debris for the presence of a resting Virgin Islands tree boa or Puerto Rican boa. Should a boa be found in a debris pile, a DNER authorized person will relocate the snake away from the work area or the debris pile will not be disturbed until the snake had voluntarily left the area and will not be at risk of injury from movement of debris.

Test pits may be left open overnight. Any pits left open overnight will be surrounded with temporary construction fencing to prevent wildlife from falling into the pit and becoming entrapped. Prior to work the following day, each open pit will be inspected by a qualified and trained person to determine if any wildlife, including boas, entered the pit overnight. If animals are discovered in the pit, the qualified and trained person will safely remove any trapped animals and release them away from the work area. Should a boa be found in a pit in the morning, either it will be relocated by a DNER authorized person or no work in that pit will occur until after the snake has voluntarily moved away.

No test pits will be located in proximity to any *cóbana negra* identified in pre-work surveys. No excavation will occur within 50 feet of any such tree. There will be no potential to adversely impact *cóbana negra* from test pit excavation and debris characterization.

8.4 MEC Demolition and MPPEH Demilitarization

If necessary, MEC demolition will be accomplished primarily through explosive detonation procedures using donor explosives. Some MEC may be moved to another portion of the MRS for demolition, but this will only occur if moving the item is determined to be safe. Any alternate MEC disposal sites will be established in areas away from any protected species.

The yellow-shouldered blackbird could occur at or near locations where explosive detonation may be performed. Prior to explosive detonation procedures, a qualified and trained person will inspect the area to verify that no active nests of these species are within 100 meters of the proposed explosive detonation site. If an active nest is found within 100 meters of the proposed explosive detonation location, the MEC will be left until after young have fledged or, if it is safe to do so, the MEC will be relocated to an alternate explosive detonation location within the MRS. Any alternate explosive detonation location will be away from any sensitive species or nest locations.

Immediately prior to detonation, a qualified biologist will scan the overhead sky for the presence of any birds. If birds are in flight within 100 meters of the explosive detonation location, the explosive detonation will be delayed until no birds are within 100 meters of the site.

Because these procedures will be implemented, the proposed activity is not likely to affect the yellow-shouldered blackbird.

The Puerto Rican boa and Virgin Islands tree boa could occur near potential explosive detonation locations. Prior to explosive detonation procedures, a qualified and trained person will inspect the area to verify that no debris piles are within 100 meters of the proposed explosive detonation location contain boas. If a boa is found within 100 meters of the proposed explosive detonation location, one of the following procedures will be implemented prior to BIP:

- A DNER authorized person will relocate the snake to more than 100 meters from the explosive detonation location,
- The explosive detonation will be delayed until after snake has voluntarily moved to more than 100 meters from the explosive detonation location, or
- If it is safe to do so, the MEC will be relocated to an alternate explosive detonation location for detonation.

Because these procedures will be implemented, the proposed activity is not likely to affect the Virgin Islands tree boa or the Puerto Rican boa.

Because no test pits will be located in proximity to an identified cóbana negra, there will be no explosive detonation in proximity to any cóbana negra. In addition, no alternate explosive detonation location will be located in proximity to a cóbana negra, so there will be no potential for detonation activities to adversely affect cóbana negra.

9 Conclusion

The USN proposes to delineate the type and extent of debris and to estimate the volumes of surface and subsurface debris at the MRS, delineate the horizontal and vertical extent of surface and subsurface debris, and to visually determine the types of debris present. Activities that will be conducted include

- Vegetation clearing (primarily by hand) along transects
- Digital geophysical mapping survey
- Test pit excavation and analysis
- Estimate the amount of debris present
- Demolish MEC and demilitarize MPPEH recovered

The proposed work will result in clearing vegetation less than 4 inches dbh at 6 inches above ground level along 18,985 linear feet of transects in a 1-meter swath (clearing approximately 1.4 acres). Following DGM survey, up to 12 test pits will be excavated to characterize the type and extent (vertical and horizontal) of debris. Potential MEC and MPPEH will be segregated from other debris. MEC and any MPPEH that cannot be confirmed safe will be demilitarized through explosive detonation using donor explosives. Material determined to not be MEC or MPPEH, including any soil and vegetation, removed from the test pits will be returned to the pit following characterization of the debris. No work will occur in wetlands or marine habitats.

Prior to commencing onsite intrusive work, the project area boundary will be clearly marked in the project plan and in the field. In addition, all areas that will be avoided and protected during the work will be clearly marked in the project plan and in the field. Additionally, all onsite personnel (supervisors and employees) will receive training about the conservation of protected species, the types of species that may be encountered on the site, and the penalties for harassing or harming protected species. All personnel involved in site clearing will be informed of the potential presence of the snakes, and the importance of protecting the snakes. Prior to any use of

mechanized equipment in areas where boas may occur, vegetation will be hand-cleared to provide time for any boa to be observed or to move away from the area.

The proposed work will have the potential to impact the Virgin Islands tree boa, Puerto Rican boa, yellow-shouldered blackbird, and the c6bana negra. In addition, the proposed work will occur in an area that is designated as critical habitat for the yellow shouldered blackbird.

There is historical documentation of nesting by the yellow-shouldered blackbird at NAPR. The yellow-shouldered blackbird continues to occur on NAPR, but it has not been observed at or in the vicinity of the MRS in recent surveys. The mangroves to the east of the MRS will provide suitable habitat for this species. No intrusive work is planned for the mangrove habitat, so no direct impacts to birds in this area will occur. Prior to the debris delineation, a nest survey will be conducted that will include the MRS, as well and the mangroves adjacent to the MRS. Should any active yellow-shouldered blackbird nests be identified, the location(s) will be mapped and provided to USFWS. A 100-foot buffer will be established around each nest and this buffer will be marked clearly with fencing/barricade. The proposed work will be revised such that transects will avoid designated nest buffer areas. Prior to any explosive detonation procedures, the area within 100 meters of the proposed detonation site will be inspected for yellow-shouldered blackbirds or active nests of the species by a qualified and trained person. Should a Yellow-shouldered blackbird be found within the search radius, the detonation will be delayed until the bird had voluntarily moved more than 100 meters from the detonation site. Should an active nest be found within the search radius, the detonation will be delayed until after the young had fledged or the MEC will be relocated to a dedicated MEC disposal site, if moving the item is determined to be safe.

While all of NAPR has been designated as critical habitat for the yellow-shouldered blackbird, not all of the land on the installation provides suitable habitat for the species. Because no vegetation greater than 4 inches dbh will be cleared and because most vegetation clearing will be in habitat that is poorly suited for the species, no adverse impacts to designated critical habitat for the yellow-shouldered blackbird are expected. The USN requests USFWS concurrence with the determination of findings of this analysis that the debris delineation in the MRS is **not likely to affect** the yellow-shouldered blackbird or its designated critical habitat, and will not threaten the continued existence of the species.

Recent surveys have documented the Puerto Rican boa on NAPR within approximately 1.5 miles of the proposed debris delineation area. Because this relatively large snake could travel the 1.5-mile distance from where it has been documented to reach the work area, it is possible that the Puerto Rican boa could occur in the project area. Each day prior to vegetation clearing, the area to be cleared will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. If a boa is observed, either it will be relocated to nearby suitable habitat by a DNER authorized person or clearing in that area will be delayed until the snake had voluntarily moved away. Because no vegetation equal to or greater than 4 inches dbh will be cleared, no impacts to the species are anticipated from vegetation removal. Should it become necessary to relocate or otherwise alter a debris pile that a Puerto Rican boa may rest under to allow trenching to assess the depth/composition of the pile, the debris pile will be inspected by a qualified, trained person prior to disturbance. If a boa is found, it will be relocated to nearby suitable habitat by a DNER authorized person. If it is not possible to relocate the snake, a different debris pile will be selected for analysis. Prior to any BIP procedures, debris within 100 meters of the proposed detonation site will be inspected for resting boas by a qualified and trained person. Should a boa be found within the search radius, a DNER authorized person will relocate the snake outside the disturbance area. If it is not possible to relocate the snake, the detonation will be delayed until the boa had voluntarily moved more than 100 meters from the detonation site or the MEC will be relocated to an alternate explosive detonation location, if moving the item is determined to be safe. The USN requests USFWS concurrence with the determination of findings of this analysis that the debris delineation in the MRS is **not likely to affect** the Puerto Rican boa and will not threaten the continued existence of the species.

The Virgin Islands tree boa has not been found on NAPR in recent surveys, and likely does not occur in the project area. Each day prior to vegetation clearing, the area to be cleared will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. If a boa is observed, either it will be relocated to nearby suitable habitat by a DNER authorized person or clearing in that area will be delayed until

the snake had voluntarily moved away. Because this species is not expected to occur in the project area and because no vegetation equal to or greater than 4 inches diameter at breast height (dbh) will be cleared, no impacts to the species are anticipated. Should it become necessary to relocate or otherwise alter a debris pile that a Virgin Islands tree boa may rest under to allow trenching to assess the depth/composition of the pile, the debris pile will be inspected by a qualified, trained person prior to disturbance. If a boa is found, the qualified and trained person will relocate the snake outside the disturbance area. If it is not possible to relocate the snake, a different debris pile will be selected for analysis. Prior to any explosive detonation procedures, debris within 100 meters of the proposed explosive detonation location will be inspected for resting boas by a qualified and trained person. Should a boa be found within the search radius, a DNER authorized person will relocate the snake outside the disturbance area. If it is not possible to relocate the snake, the detonation will be delayed until the boa had voluntarily moved more than 100 meters from the detonation site or the MEC will be relocated to an alternate explosive detonation location, if moving the item is determined to be safe. The USN requests USFWS concurrence with the determination of findings of this analysis that the debris delineation in the MRS is **not likely to affect** the Virgin Islands tree boa and will not threaten the continued existence of the species.

A single *cóbana negra* was documented from near the proposed work area in the most recent surveys. Because this tree is restricted to the landward edge of mangrove habitats, and because a 100-meter setback will be established and maintained throughout the debris delineation, no potential to adversely impact the *cóbana negra* is expected. Prior to work, a survey will be completed along the boundary of the MRS, beginning in the mangroves and extending landward until the habitat is no longer suitable for *cóbana negra*. Should any *cóbana negra* be identified, the location(s) will be mapped and provided to USFWS. A 50-foot buffer will be established around each tree and this buffer will be marked clearly with fencing/ barricade. The proposed work will be revised such that transects will avoid designated tree buffer areas. The USN requests USFWS concurrence with the determination of findings of this analysis that the debris delineation in the MRS is **not likely to affect** the *cóbana negra* and will not threaten the continued existence of the species.

10 Review of Literature and Other Information

All pertinent literature was reviewed. The following summary indicates the primary references utilized during preparation of this biological assessment.

Center for Biological Diversity. 2007. *The Road to Recovery 100 Success Stories for Endangered Species Day 2007: Virgin Islands Tree Boa*. http://www.esasuccess.org/reports/profile_pages/VirginIslandsBoa.html. Website accessed February 22, 2008.

Department of the Navy. 2011. *Draft Supplemental Environmental Assessment for the Disposal of Naval Activity Puerto Rico (formerly Naval Station Roosevelt Roads)*. May

Federal Register: Volume 74, Number 220. Pages 59444-59472. November 17, 2009. *Endangered and Threatened Wildlife and Plants; Removal of the Brown Pelican (Pelecanus occidentalis) From the Federal List of Endangered and Threatened Wildlife; Final Rule*.

Federal Register Volume 42, Number 184. Page 47842. September 22, 1977. Critical Habitat Designations for Puerto Rico and the U.S. Virgin Islands.

Federal Register: Volume 35, Title 50 – Wildlife and Fisheries, pages 16047 16048. Appendix D – united States List of Endangered Native Fish and Wildlife.

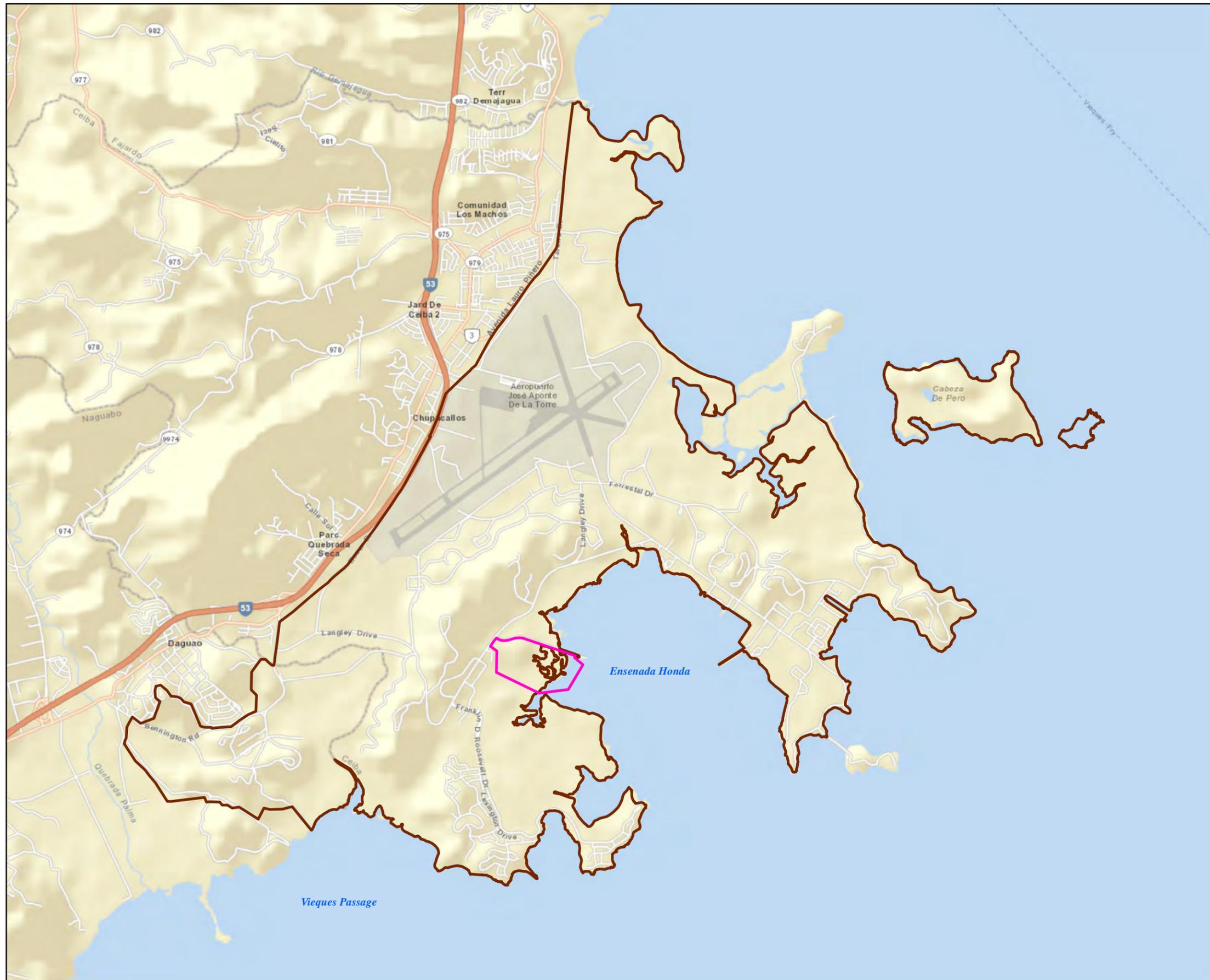
Naval Energy and Environment Support Agency (NEESA). 1984. Initial Assessment Study (IAS) Roosevelt Roads. September.

Tetra Tech NUS, Inc. 2011. *Draft Report for On-Site Construction Support for Debris Removal, SWMU 1 – Former Army Cremator Disposal Site, Naval Station Roosevelt Roads, Ceiba, Puerto Rico*. November.

U.S. Fish and Wildlife Service. 2013. *Ecological Services in the Caribbean*. <http://www.fws.gov/caribbean/2013PRBoa.html>. Accessed February 13, 2013.

- U.S. Fish and Wildlife Service. 2013. Species Profile. Cóbana negra (*Stahlia monosperma*). Online at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q2JA>. Accessed February 13, 2013.
- U.S. Fish and Wildlife Service. 2013. Species Profile. Puerto Rican boa (*Epicrates inornatus*). Online at: <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C00P>. Accessed February 15, 2013.
- U.S. Fish and Wildlife Service. 2013. Species Profile. Yellow-Shouldered blackbird (*Agelaius xanthomus*). Online at: <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B05T>. Accessed February 15, 2013.
- U.S. Fish and Wildlife Service. 2011. Puerto Rican Boa (*Epicrates inornatus*) 5-Year Review: Summary and Evaluation. Southeast Region Caribbean Ecological Services Field Office, Boquerón, Puerto Rico.
- U.S. Fish and Wildlife Service. 2011. Mariquita or yellow-shouldered blackbird (*Agelaius xanthomus*) 5-Year Review: Summary and Evaluation. Southeast Region Caribbean Ecological Services Field Office, Boquerón, Puerto Rico.
- U.S. Fish and Wildlife Service. 1996. Yellow-Shouldered Blackbird Revised Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, GA. Southeast Region. Prepared by: Boquerón Field Office, Boquerón, Puerto Rico
- U.S. Fish and Wildlife Service. 1995. *Stahlia monosperma* (cobana negra) Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, Georgia. 15 pp.
- U.S. Fish and Wildlife Service. 1986. Puerto Rican Boa Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, Georgia. 21 pp.
- U.S. Fish and Wildlife Service. 1986. Virgin Islands Tree Boa Recovery Plan, U.S. Fish and Wildlife Service, Atlanta, Georgia. 23 pp

Figures



LEGEND

- Site UXO-02 Boundary (SWMU 1 - Army Cremator Disposal Site)
- Former Facility Boundary

Notes:
 1. Background - ArcMap Streaming Map Service

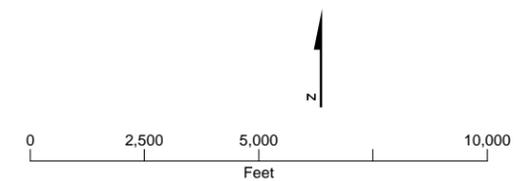
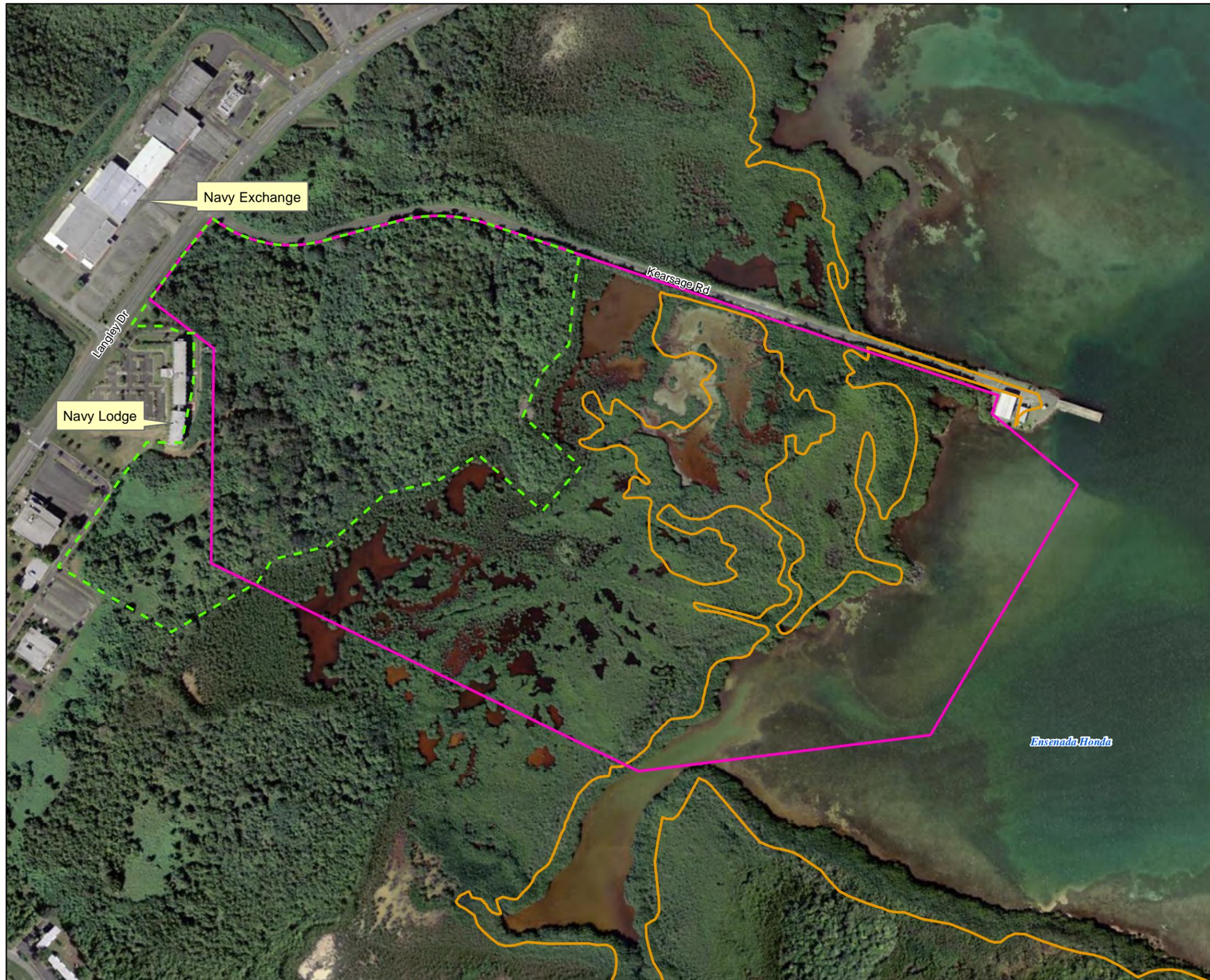


FIGURE 1
Project Location Map
Site UXO-02
Naval Activity Puerto Rico
Ceiba, Puerto Rico



- LEGEND
- Site UXO-02 Boundary (SWMU 1 - Army Cremator Disposal Site)
 - Area of Investigation
 - Former Facility Boundary

Notes:
 1. Imagery 2010 - ArcMap Streaming Map Service

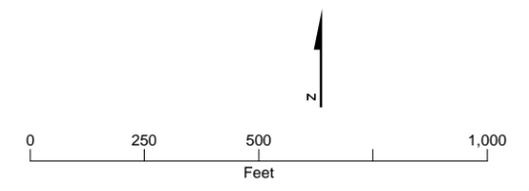
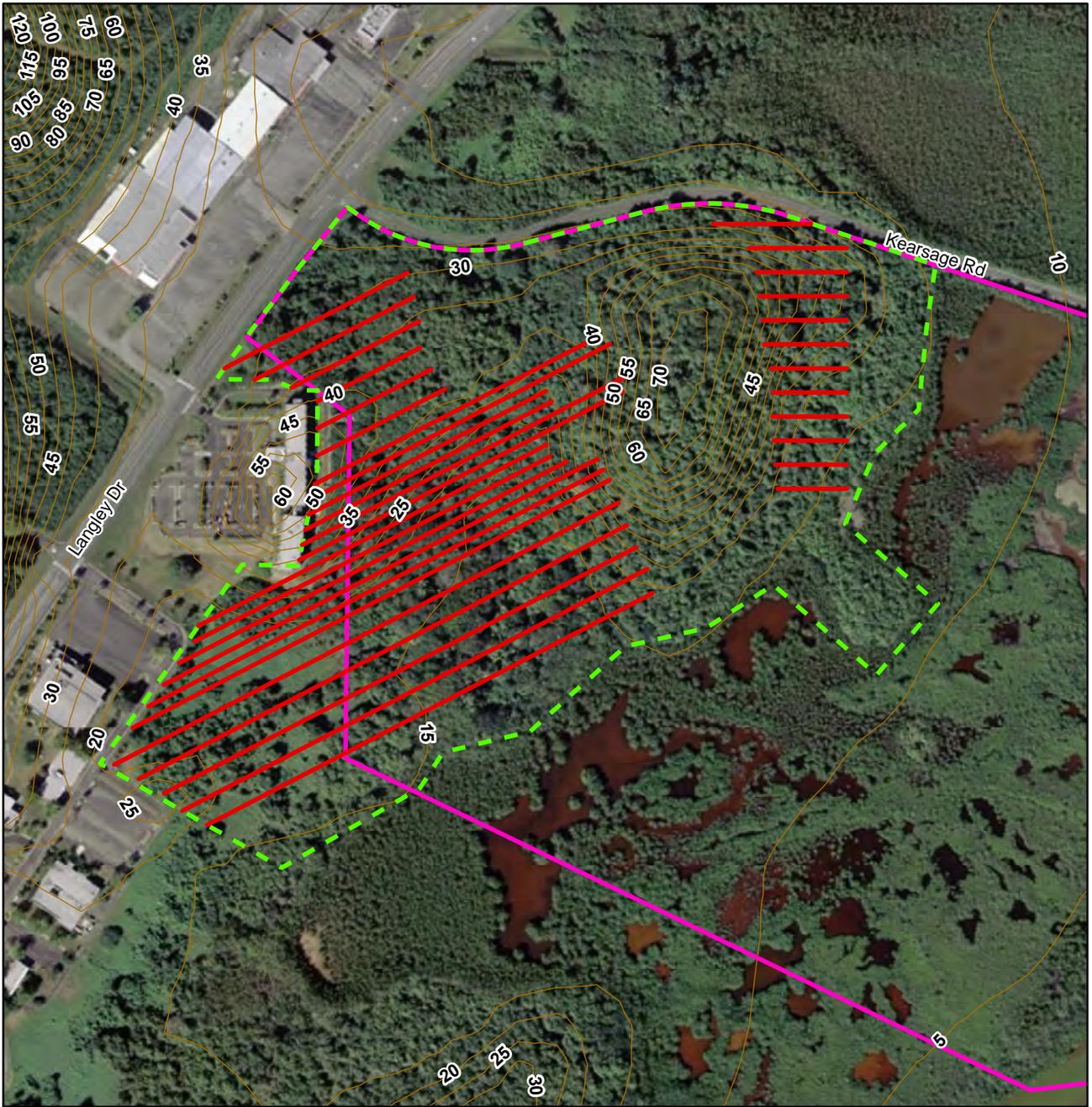


FIGURE 2
 Site Layout Map
 Site UXO-02
 Naval Activity Puerto Rico
 Ceiba, Puerto Rico



VICINITY MAP

Note:
1. Imagery from ArcGIS Streaming Map Service, 2010.

LEGEND

- Proposed Geophysical Transect
- 5 ft Contour
- - - Area of Investigation
- Site UXO 2 (SWMU 1)
- - Former Army Cremator Disposal Site

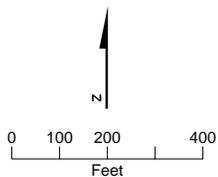


FIGURE 3-1
Proposed Geophysical Coverage Map
Site UXO 2
Naval Activity Puerto Rico
Ceiba, Puerto Rico