RECORD OF DECISION
HAZARDOUS TOXIC AND RADIOACTIVE WASTE PROJECT AT THE IONA ISLAND NAVAL AMMUNITION DEPOT FORMERLY USED DEFENSE SITE

STONY POINT, ROCKLAND COUNTY, NEW YORK

PROPERTY NUMBER: C02NY0744
PROJECT NUMBER: C02NY074402

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LIST OF ABBREVIATIONS AND ACRONYMS

µg/dL	microgram(s) per deciliter
95UCL	95 percent upper confidence limit of the mean
Alion	Alion Science and Technology Corporation
ALM	adult lead model
AM	amino
amsl	above mean sea level
AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
ASR	Archives Search Report
AST	aboveground storage tank
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
CON	Containerized
COPC	contaminant of potential concern
COPEC	contaminants of potential ecological concern
CSM	conceptual site model
CWA	Clean Water Act
DERP	Defense Environmental Restoration Program
DNT	dinitrotoluene
DoD	Department of Defense
DU	decision unit
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
EXDU	explosives building decision unit
FS	Feasibility Study
FUDS	Formerly Used Defense Site
GSA	General Services Administration
HHRA	human health risk assessment
HTRW	hazardous, toxic, and radioactive waste
ISM	incremental sampling methodology
LUC	land use control

MC	munitions constituents
mg/kg	milligram(s) per kilogram
MMRP	Military Munitions Response Program
Navy	U.S. Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NYSDEC	New York State Department of Environmental Conservation
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PIPC	Palisades Interstate Park Commission
PRG	preliminary remediation goal
QAPP	Quality Assurance Project Plan
RAO	remedial action objective
RI	remedial investigation
ROD	Record of Decision
RSL	Regional Screening Level
RSLERA	refined screening-level ecological risk assessment
Site	Iona Island Naval Ammunition Depot Formerly Used Defense Site
SLERA	screening level ecological risk assessment
TAL	Target Analyte List
TBC	to be considered
TMV	toxicity, mobility, or volume
TOC	total organic carbon
UFP	Uniform Federal Policy
USACE	U.S. Army Corps of Engineers
USAGC	U.S. Army Geospatial Center
USC	U.S. Code
UST	underground storage tank

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1. DECLARATION

1.1 PROJECT NAME AND LOCATION

The Iona Island Naval Ammunition Depot Formerly Used Defense Site (FUDS) Property (FUDS Property Number C02NY0744) consists of approximately 118.4-acres (USACE 1998) located on Iona Island (111.4 acres) and Round Island (7 acres) along the west side of the Hudson River in the Town of Stony Point, Rockland County, New York (**Figure 1-1**).

1.2 STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedy for the Iona Island Naval Ammunition Depot FUDS, located in Stony Point, Rockland County, New York, in support of the Hazardous Toxic and Radioactive Waste (HTRW) project (FUDS Project Number C02NY074402). The ROD includes an evaluation of potential risk to human health and ecological receptors associated with hazardous substances attributable to historical Department of Defense (DoD) operations at the Iona Island Naval Ammunition Depot FUDS. The selected remedy has been chosen in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Title 40 of the Code of Federal Regulations (CFR) § 300, and applicable federal and state environmental requirements. In accordance with Department of Defense Instruction (DoDI) 4715.07, DoD has designated the Secretary of the Army as the lead agent charged with meeting applicable environmental restoration requirements at FUDS, regardless of which DoD component previously had jurisdiction of the property. The Secretary of the Army further delegated the mission execution for FUDS to the Commanding General, USACE (USACE 2020b). The USACE must comply with the Defense Environmental Restoration Program (DERP) statute (10 U.S. Code [USC] 2700 et seq.), CERCLA 42 USC 9601 et seq., Executive Orders 12580 and 13016, the NCP, and all applicable DoD and Army policies in managing and executing the FUDS program. The selected remedy was chosen with concurrence from New York State Department of Environmental Conservation (NYSDEC), the New York State Department of Health, and the Palisades Interstate Park Commission (PIPC). Information supporting USACE's decisions on the Selected Remedy is contained in the Administrative Record, which can be found at USACE New England District, 696 Virginia Road, Concord, Massachusetts 01742.

The selected remedy for the Iona Island Naval Ammunition Depot FUDS HTRW Project includes excavation, ex situ treatment, and off-site disposal of contaminated soil and sediment as non-hazardous waste. A FUDS is defined as real property that was "owned by, leased to, or otherwise possessed by the United States and under the jurisdiction of the Secretary of Defense prior to October 1986". Iona Island was purchased in 1900 by DoD and was transferred to General Services Administration (GSA) in 1957 (USACE 1998). Only DoD-generated eligible contamination, which occurred before the transfer of the property to private owners or federal, state, or local governments, is eligible for a DERP FUDS response.

The selected remedy specifically addresses the potential risk to human health and ecological receptors associated with lead. Both the human health and ecological risk assessments indicated unacceptable risk for the Former Dump Area and the Iona Island Hudson River shoreline sediments (**Figure 1-2**) in the immediate vicinity. The purpose of the USACE Hazardous, Toxic, and

Radioactive Waste (HTRW) process is to consider issues associated with HTRW and how those considerations are to be factored into project planning and implementation (USACE 1992).

The land where the FUDS is located was impacted by U.S. Navy operations (preparing, assembling, maintaining, inspecting, and testing ammunition; storing bulk explosives, ammunition, and ordnance material; and issuing ammunition to the fleet, shore establishments, armed merchantmen, transport, and district forces) from 1900 to 1947. Between 1955 and 1965, the FUDS was used by the General Services Administration (GSA) and agencies under the GSA for stockpiling materials (e.g., rubber and copper) and record storage. The Maritime Administration also conducted occasional trans-shipments of heavy freight at the main wharf. In 1965, all government materials were removed from Iona Island and GSA conveyed the property to the PIPC (USACE 1997).

In 1951, when the depot was deactivated, there were 146 buildings on Iona Island. Most buildings and structures, including building foundations, were demolished and removed by PIPC between November 1965 and December 1973 (U.S. Army Geospatial Center [USAGC] 2018). The FUDS has remained undeveloped since its transfer from DoD ownership to PIPC in 1965.

1.3 ASSESSMENT OF THE SITE

A detailed discussion of previous assessment activities is presented in **Section 2.2** (Site History and Enforcement Activities). The remedial action selected in this ROD is necessary to protect human and ecological receptors from contaminated soil and sediment at the FUDS. HTRW projects are areas of an eligible FUDS where removal or remedial actions are conducted to address releases or a threat of releases to the environment of "DERP eligible CERCLA contamination for execution by the FUDS program" as the result of DoD activities on or before 17 October 1986. Several field investigations have been conducted at the property to characterize the nature and extent of contamination at the FUDS. As discussed in **Section 2.7** (Summary of Project Risks), a Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA), performed and detailed in the Remedial Investigation (RI) Report (USACE 2024), determined that unacceptable risks to human health and the environment exist at the FUDS due to presence of soil and sediment impacted by lead in the Former Dump Area and the Hudson River shoreline.

Based on a review of the historical use of the FUDS, previous investigations, and current/future use of the Former Dump Area, the CERCLA process has determined there is unacceptable risk to human health and the environment from contaminants of concern (COCs) from the Former Dump Area and the Hudson River shoreline sediments in its immediate vicinity. A HHRA and ERA (comprised of a screening level ecological risk assessment [SLERA] and refined SLERA [RSLERA]) were completed using the RI Phase I and Phase II analytical data. The HHRA and ERA were conducted to evaluate whether site-related contaminants of potential concern (COPCs) and/or contaminants of potential ecological concern (COPEC) detected in on-site media affected by past DoD usage posed unacceptable risk to human and ecological receptors. The sequence of activities and risk assessment activities conducted during the RI can be found in **Section 2.2.4**; only a summary of the final risk findings used to scope the Feasibility Study (FS) are presented here.

Potential human health concerns were identified for receptors' exposures to lead within the Former Dump Area and sediments in the Hudson River shoreline immediately adjacent. Potential human health concerns were only identified for recreational users due to lead. Potential ecological risk was driven by avian exposure to lead within the Former Dump Area and by demersal fish and avian exposure to lead within sediments in the Hudson River shoreline immediately adjacent.

1.4 DESCRIPTION OF THE SELECTED REMEDY

Alternative 3 of the FS is the selected remedial alternative. Excavation, ex situ treatment, and off-site disposal of contaminated media as non-hazardous waste is the appropriate level of protection to eliminate unacceptable risk. In the selected remedy, soil exceeding site-specific preliminary response goals (PRGs) for lead within the Former Dump Area and sediment exceeding site-specific PRGs immediately adjacent in the Hudson River would be excavated, chemically treated on-site in an upland processing area (ex situ) to bind contaminants to the soil/sediment matrix prior to disposal off-site as non-hazardous material. Risk to human and ecological receptors would be permanently eliminated. Following the removal action, the wetland would be restored with clean backfill and native wetland species. The major components of the Selected Remedy include:

- Excavation of contaminated media
- On-site chemical treatment to chemically bind contaminants into the soil/sediment matrix
- Off-site disposal of excavated and treated material as non-hazardous waste
- Site restoration (grading/backfilling and replanting with native vegetation such as broadleaf cattail)

Subsequent to the RI, the FS evaluated the following remedial alternatives for the Iona Island Naval Ammunition Depot FUDS:

- Alternative 1: No Action
- Alternative 2: Excavation and Off-Site Disposal of Contaminated Soil and Sediment as Hazardous Waste
- Alternative 3: Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste
- Alternative 4: Capping of Contaminated Soil and Sediment Accompanied by Installation of a Permanent Vertical Barrier and Additional Land Use Controls (LUCs)

1.5 STATUTORY DETERMINATIONS

Based on the information presented in this ROD, the Selected Remedy is expected to satisfy the statutory requirements of CERCLA §121(b). Specifically, the Selected Remedy is protective of human health and the environment, complies with applicable or relevant and appropriate requirements (ARARs), is cost-effective, and utilizes permanent solutions and alternative

treatment technologies to the maximum extent practicable. The Selected Remedy also satisfies the statutory preference for treatment. This remedy will not result in hazardous substances, pollutants, or contaminants remaining on-site and allows for unlimited use and unrestricted exposure.

1.6 DATA CERTIFICATION CHECKLIST

The following Data Items are included in the Decision Summary Section (**Section 2**) of this ROD. Additional information can be found in the Administrative Record for this FUDS.

Data Items
Contaminants of concern and their respective concentrations.
Baseline risk assessment.
Cleanup levels established and the basis for these levels.
How contaminants of concern will be addressed.
Current and reasonably anticipated future land use assumptions used in the baseline risk assessment and ROD.
Potential land and groundwater restrictions that will be recommended as a result of the Selected Remedy.
Estimated capital, annual operation and maintenance (O&M), and total CTC estimate recorded in Formerly Used Defense Sites Management Information System (FUDSMIS) (Remedial Action – Construction [RA-C] and RA-O = Remedial Action – Operations [RA-O] only) and the number of years over which the remedy cost estimates are projected.
Key factor(s) that led to selecting the remedy (i.e., describe how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision).

1.7 AUTHORIZING SIGNATURE

This ROD presents the selected response action at Iona Island Naval Ammunition Depot FUDS. DoD is the lead agency under the DERP at the Iona Island Naval Ammunition Depot FUDS, and USACE has developed this ROD for DoD consistent with the CERCLA, as amended, and the NCP. This ROD will be incorporated into the larger Administrative Record for the Iona Island Naval Ammunition Depot, which is available for public view at: USACE New England District, 696 Virginia Road, Concord, MA 01742.

This document, presenting a selected remedy with a total cost to complete estimate recorded in Formerly Used Defense Sites Management Information System of $9,867,000, is approved by the undersigned and pursuant to the delegated authority in the Assistant Secretary of the Army (Installations, Energy and Environment) memorandum dated 2 April 2026, subject, Assignment of Mission Execution Functions Associated with Department of War Lead Agent Responsibilities for the FUDS Program, and subsequent re-delegations.

U.S. ARMY CORPS OF ENGINEERS

Date:

RAVI I. AJODAH, SES
Regional Programs Director
North Atlantic Division
U.S. Army Corps of Engineers (USACE)

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2. DECISION SUMMARY

The Decision Summary identifies the Selected Remedy, explains how the remedy fulfills statutory and regulatory requirements, and provides a substantive summary of the Administrative Record File that supports the remedy selection decision.

2.1 PROJECT NAME, LOCATION, AND BRIEF DESCRIPTION

Site Name/Location: Iona Island Naval Ammunition Depot FUDS located in Stony Point, Rockland County, New York, for the HTRW project (FUDS Project Number C02NY074402)

The Iona Island Naval Ammunition Depot FUDS is an approximately 118.4-acre property (USACE 1998) located on Iona Island and Round Island along the west side of the Hudson River, in the Town of Stony Point, Rockland County, New York (**Figure 1-1**). Iona Island is located in Bear Mountain State Park on the east side of U.S. 202/Route 9W, 6 miles south/downstream of West Point Military Academy, 1 mile south/downstream of the Bear Mountain Bridge, and 41.2 miles upstream from New York Harbor. Iona Island is bordered on the east by the Hudson River; on the northwest by the mouth of an expanse of shallow mudflats called Doodletown Bight; and on the west and southwest by Iona Marsh, an intertidal marsh that occupies one mile between Iona Island and the mainland. Intertidal marshes along the Hudson River, including Iona Marsh and the low-lying marsh area between Iona Island and Round Island, are inundated with water twice daily during high tide and during storm events. Active River Subdivision (CSX Transportation) railroad tracks run parallel to the western shoreline of the Hudson River. The Iona Marsh shoreline, located along the west side of Iona Island, is divided by the railroad embankment.

The southeastern part of Iona Island, known as Round Island, was once cut off by marshes and was attached to Iona Island with fill in the early 20th century (NYSDEC and U.S. Department of Commerce 1992). The hill on the western side of Iona Island, south of the railroad tracks, was also once treated as separate and referred to as Courtland Island. The shoreline areas of Iona Island and adjoining marshes are located within the Hudson River.

Iona Island is connected to the mainland by a narrow two-lane road off U.S. 202/Route 9W near Doodletown. A non-climbable steel fence on top of a rubble wall and the River Subdivision (CSX Transportation) railroad track embankment separates Iona Island and the FUDS from Iona Marsh. The FUDS is accessed by crossing active River Subdivision (CSX Transportation) railroad tracks and entering through an unmanned gate during normal working hours.

The majority of Iona Island is currently open space. Original structures still standing include Building 201 (Empty Projectile Magazine), Building 212 (former Marine Barracks), Building 217 (Fire Station and Labor Office), Building 222 (Miscellaneous Storage Building), Building 508 (Bag Charge Magazine), and Building 603 (Pyrotechnic Magazine) (Bluestone Environmental Group, Inc. 2018) (**Figure 2-1**). The old roads in the main part of the former depot are still accessible by vehicle. The island is partially fenced, and the main gate is unmanned, which allows for limited access to Iona Island from Bear Mountain State Park.

A former U.S. Navy (Navy) dumping area (hereinafter referred to as the Former Dump Area) is confined to a low-lying, tidally-influenced marsh area between Iona Island and Round Island. This area is bounded to the northeast by the Hudson River and to the southwest by a fill area (believed to be building demolition debris) emplaced by the PIPC following Navy transfer of the FUDS in 1965. The fill area between Iona Island and Round Island is vegetated, and the root mass allows the area to be traversable by foot.

Iona Island is currently under the ownership of the PIPC and maintained by staff of Bear Mountain State Park. In 1965, when GSA conveyed the property to the PIPC, it was under a "restrictive clause" (park purposes only) (USACE 1995).

There are three projects at the Iona Island Naval Ammunition Depot FUDS. This document addresses the C02NY074402 HTRW project. The FUDS Containerized (CON)/HTRW project (C02NY074401) was closed in 2012. A No Action Decision Document was completed and approved for the MMRP project (C02NY074403) in 2023 (USACE 2023), and that project is now closed.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

The U.S. Navy used the property as an Ammunition Depot from 1900 to 1947, with the major effort consisting of assembling naval ammunition for World War II. Although no ammunition was manufactured at Iona Island, various types of explosives were assembled on-site. Activities included preparing, assembling, maintaining, inspecting, and testing ammunition; storing bulk explosives, ammunition, and ordnance material; and issuing ammunition to the fleet, shore establishments, armed merchantmen, transport, and district forces. Round Island, the southernmost portion of the depot, was purchased by the Navy in 1942 and utilized for ammunition storage (USACE 1997). The Department of the Navy partially filled the area between Iona Island and Round Island to provide a connection between the two islands. A 0.85-acre dump area, first identified on a 1930-dated Department of the Navy layout plan (USAGC 2018) is located between Round Island and Iona Island.

After World War II, use of the island as an ammunition depot became obsolete because of lack of expansion room to accommodate new types of ammunition. In 1947, the Department of the Navy decided to deactivate the Iona Island Naval Ammunition Depot and made the property available for restricted lease. The depot was deactivated in 1951. The FUDS was re-designated as an Annex to the U.S. Naval Ammunition Depot, Earle, New Jersey, and in 1957, the Government declared the Annex excess. In 1955 and 1960, GSA utilized the Iona Island Naval Ammunition Depot FUDS through a permit for stockpiling materials such as rubber and copper. In 1960 GSA received official jurisdiction of the property, and other agencies under GSA control utilized the property for record storage during the 1960s. These agencies included the following: Maritime Administration, Atomic Energy Commission, Civil Service Commission, USACE, and the Navy’s Bureau of Ships. The Maritime Administration also conducted occasional trans-shipments of heavy freight at the main wharf. On 30 March 1965, Iona Island was deemed evacuated after the last load of stockpiled materials left the property. In 1965, GSA conveyed the FUDS to the PIPC (USACE 1997).

In 1951, when the depot was deactivated, there were 146 buildings on Iona Island (USAGC 2018). Most buildings and structures, including building foundations, were demolished and removed by

PIPC between November 1965 and December 1973 (USAGC 2018). The FUDS has remained undeveloped since its transfer from DoD ownership to PIPC in 1965.

2.2.1 Initial Site Visit (USACE 1992)

USACE New York District performed an initial site visit on 30 October 1992. According to the Preliminary Assessment (USACE 1992), there was potential groundwater and soil contamination from a fuel oil spill at a former AST, coal storage, a former dump area, an incinerator, and former buildings used as a garage, paint storage, and sewage treatment plant. No damage to flora or fauna, or evidence of illegal or unauthorized dumping, was observed during the site visit.

The discussion of the initial site visit in the Revised Site Survey Summary Sheet (USACE 1995) listed the following remaining structures as beneficially used by the present owner: Building 201 (Empty Projectile Magazine), Building 212 (former Marine Barracks), Building 217 (Fire Station and Labor Office), Building 222 (Miscellaneous Storage Building), Building 508 (Bag Charge Magazine), and Building 603 (Pyrotechnic Magazine). These buildings are still visible on current aerial photographs of the FUDS and are identified as "remaining structures (not FUDS eligible)" on **Figure 2-1**.

2.2.2 1996 Data Collection Activities (Greeley-Polhemus 1997)

USACE conducted surface soil sampling. Metals (barium, cadmium, total chromium, lead, mercury, and silver), semi volatile organic compounds (SVOCs) (primarily explosives 2,4-dinitrotoluene (DNT) and 2,6-DNT, as well as polycyclic aromatic hydrocarbons [PAHs]), and one polychlorinated biphenyl (PCB) (Aroclor 1260) were detected in soil samples exceeding NYSDEC Recommended Soil Cleanup Objectives, as published on 16 November 1992 (not specified residential or industrial). Maximum concentrations of metals were detected in the samples collected in the low-lying area between Iona Island and Round Island near Former Building 121 (Incinerator) and within the footprint of the Former Dump Area.

SVOC detections (primarily PAHs) were widespread; however, the sum of the detected SVOC concentrations did not exceed the 1992 EPA recommended soil cleanup objective RSCO of 500 milligrams per kilogram (mg/kg) for total SVOCs in any sample (Greeley-Polhemus 1997). SVOCs (primarily 2,4-dinitrotoluene, 2,6-dinitrotoluene, and PAHs) were detected in samples from AOC #16 – Area D (Former Dump Area) and former Building 410 (Power House) (AOC #12). Aroclor 1260 exceeded the EPA recommended soil cleanup objective of 1 mg/kg in one of the two samples from the AOC #16 – Area D (Former Dump Area). Except for typical laboratory contaminants, VOCs were not detected in the soil samples.

The soil sampling report recommended evaluating site risks based on the Relative Risk Site Evaluation Program and conducting additional sampling to further delineate metals and semi-volatile organic compound contamination (Greeley-Polhemus 1997).

2.2.3 2007 Military Munitions Response Program (MMRP) Site Inspection (Alion 2008)

USACE conducted a MMRP Site Inspection, which included on-site a sampling of surface soil and sediment for MC. MC included six metals (antimony, copper, lead, mercury, nickel, and zinc)

and 10 explosives ((2,4,6-trinitrotoluene [TNT], 4-amino [AM]-2,6-DNT, 2-AM- 4,6-DNT, 2,4-DNT, 2,6-DNT, 2-nitrotoluene, 3-nitrotoluene, 4-nitrotoluene, nitroglycerin, and methyl-2,4,6-trinitrophenylnitramine [Tetryl]). Two explosives (2,4,6-TNT and 4-AM-2,6-DNT) were detected at one soil location, II-EA-SS-02-08, in the central portion of the Iona Island Naval Ammunition Depot FUDS, but at concentrations below applicable human health and ecological screening criteria. The other 8 explosives were not detected above the limits of detection, which were confirmed to be below the project action limits in the other 17 soil samples. There were no explosives detected in the sediment samples (Alion 2008).

Screening-level human health and ecological risk assessments were performed by comparing the 2007 MC results to the 2004 EPA Region 9 PRGs based on a cancer risk level of 1E-06 and non-cancer hazard quotient of 0.1 (residential and industrial for soil and sediment); ecological screening data were compared to MacDonald et al. (2000) for sediment and EPA (2007) ecological screening levels, as well as site-specific background concentrations. Lead concentrations exceeded both site-specific background concentrations and human health screening criteria, while antimony, copper, lead, nickel, and zinc concentrations exceeded site-specific background concentrations and ecological screening criteria. The Final Site Inspection Report recommended that a RI/FS be performed based on the potential for risks to human health and ecological receptors from metals in surface soil and sediment (Alion 2008).

2.2.4 Remedial Investigation

The HTRW Project RI (USACE 2024) was conducted to characterize the nature and extent of hazardous substances in environmental media attributable to past DoD activities, as well as to evaluate potential risk to human health and ecological receptors.

Based on previous documents, aerial photographs, and available information, 19 areas of concern (AOCs) were identified as eligible for further investigation in the HTRW Project RI. These AOCs encompass the locations/footprints of former buildings/structures in which contaminants related to the former buildings/structures and/or historical processes conducted during the FUDS' commission as an ammunition depot may be present. These AOCs included 16 former buildings, the locations/footprints of four former ASTs, a former dump area, two former coal storage areas, and the locations/footprints of three former transformer locations.

The ASTs themselves are not AOCs. The AOCs are the former AST locations/footprints. The ASTs were removed, but the sites were not formally closed and were not included in the Containerized HTRW project at the property (C02NY074401), which was closed out in 2012. At the two former coal storage areas, the PAH detections owing to particles of coal are not addressed under CERCLA, as coal is considered a product rather than a hazardous waste. However, PAH detections released from coal particles and absorbed on to (e.g., subsurface) soils is actionable under CERCLA. The chemical analyses that were conducted during previous investigations did not distinguish PAH contamination absorbed on to soils from PAHs in coal particles. PAHs absorbed on to soils were investigated in the RI. Similarly, the three former transformers themselves are not AOCs. The AOCs are the former transformer locations/footprints. Although the transformers may have contained PCBs, a FUDS response is not normally undertaken unless there is evidence of transformer leakage/spills prior to transfer from DoD jurisdiction. There is no record of

transformer leakage/spills, and confirmation via sampling of soil for PCBs was not previously conducted at the locations/footprints of the former transformers.

A review of additional former buildings was conducted during preparation of the HTRW Project RI Uniform Federal Policy (UFP)-Quality Assurance Project Plan (QAPP) (USACE 2020a) to identify locations where filling or possible spilling of explosives-containing materials could have occurred. Seven former explosives storage and filling operations buildings were identified for further evaluation in the HTRW Project to confirm the presence/absence of explosives constituents in soil and to evaluate potential exposure risk from remaining explosives residues to human and ecological receptors.

Previous investigations indicated that COPCs were likely mobilized beyond the footprints of the AOCs during demolition of former buildings/structures and reworking of surface and subsurface soil. Previous discrete analytical sample data were evaluated during development of the UFP-QAPP (USACE 2020a) to identify analytes in soil and sediment with concentrations above EPA screening criteria at the time of UFP-QAPP development and site-specific background concentrations. When the UFP-QAPP was developed, the screening criteria used were EPA Industrial and/or Residential Soil Regional Screening Levels (RSLs) (updated May 2020) for human receptors and EPA Ecological Soil Screening Levels (February 2005 through April 2008) and/or EPA Region 4 Marine/Estuarine Sediment Screening Benchmarks (EPA 2018) for ecological receptors. Those areas where COPCs were previously detected in surface and/or subsurface soil at concentrations above screening criteria and site-specific background concentrations were included for further evaluation in the HTRW Project RI (USACE 2024).

A two-phased approach was employed during the HTRW Project RI to facilitate data collection, evaluation, and discussion. Each phase included field investigation activities with collection of samples for on-site field screening and off-site laboratory analysis, followed by data validation, evaluation of data usability, data analysis, and evaluation of potential impacts to human and ecological receptors. Both a HHRA and an ERA (including a SLERA and RSLERA) were completed as part of the RI. The HHRA and ERA used data from Phases I and II to evaluate whether property-related contaminants posed unacceptable risk to human health or terrestrial and aquatic ecological receptors. Phase I and Phase II field activities and results of the HHRA and ERA are summarized in the subsections below.

The HTRW Project RI Report (USACE 2024) was completed in June 2024.

2.2.4.1 Phase I

Phase I of the HTRW Project RI was conducted to: (1) evaluate the presence/absence and/or nature and extent of hazardous substances in on-site soil within the FUDS boundary, (2) evaluate the source-pathway-receptor interactions, and (3) evaluate the subsequent risk to human and ecological receptors. A UFP-QAPP presenting the approach for Phase I was finalized in January 2020 (USACE 2020a). Phase I field activities were completed in March and April 2020 and consisted of on-site and background incremental sampling methodology (ISM) soil sampling and a shoreline reconnaissance along Iona Island to evaluate the source-pathway-receptor interactions.

A total of 30 on-site Phase I DUs encompassing approximately 25 acres of Iona Island were sampled to evaluate COPCs in soil. These DUs encompassed AOCs, former explosive storage and filling operations buildings, and locations where elevated concentrations of contaminants were detected during previous investigations. Of the 30 DUs, 27 were established in the upland area of Iona Island where upland soil is present (DU-1 through DU-7, DU-9 through DU-16, DU-20, DU-21 through DU-23, DU-25, and explosives building decision unit [EXDU]-1 through EXDU-7). The remaining three DUs (approximately 3 acres total) encompassed the Former Dump Area within the low-lying marsh area between Iona Island and Round Island where hydric soil was present (DU-17, DU-18, and DU-19). In addition, background sampling was conducted at eight non-contiguous background DUs (BADU-1 through BADU-8) established in Bear Mountain State Park outside the influence of the Iona Island Naval Ammunition Depot FUDS to establish site-specific background concentrations of metals and PAHs in soil.

ISM samples at each on-site DU were collected in triplicate (initial ISM sample plus two replicates) for the purpose of calculating the 95 percent upper confidence limit of the mean (95UCL) at each DU using statistical tests. Single incremental samples were collected from each BADU to provide a background dataset of eight ISM samples.

Surface soil ISM samples were collected from depths of 0 to 6 inches below ground surface (bgs) at each of the 30 on-site DUs and each background DU. Shallow subsurface soil samples (6 inches to a maximum of 36 inches bgs) were collected from 5 on-site DUs where soil depth was greater than 12 inches bgs (DU-17 through DU-21). At the remaining on-site DUs, shallow subsurface soil was limited to a maximum of 12 inches bgs; therefore, no subsurface soil samples were collected from these DUs. Subsurface soil was not collected at background DUs due to the presence of exposed/shallow bedrock and shallow depth to refusal (less than 12 inches bgs) throughout the DUs.

A total of 90 ISM surface soil samples (initial and replicates), 15 ISM subsurface soil samples (initial and replicates), and 8 ISM background surface soil samples were collected for laboratory analysis of target analyte list (TAL) metals, PAHs, PCBs, explosives residues; and/or benzene, toluene, ethylbenzene, and xylenes.

Metals and PAHs were detected in upland surface soil (0 to 6 inches bgs) at concentrations above site-specific background. In addition, metals and PAHs were detected in hydric surface soil (0 to 6 inches bgs) and subsurface soil (6 to 36 inches bgs) throughout the low-lying marsh area between Iona Island and Round Island (Former Dump Area). Analytical results summary tables are provided in Appendix A of the RI (USACE 2024). Preliminary evaluations of analytical results indicated potential risk to human receptors as well as terrestrial ecological receptors (plants and soil invertebrates in upland soil and plants, soil invertebrates, and insectivorous birds and mammals at the Former Dump Area). Although pH data were evaluated in on-site upland and hydric soil during Phase I, additional physical parameter data (grain size, total organic carbon [TOC], cation exchange capacity, and redox potential) were collected to evaluate bioavailability of metals and PAHs to terrestrial receptors as part of the RSLERA.

A shoreline reconnaissance survey was conducted to identify potential transport pathways from the upland area to the shoreline and complete a receptor and resource inventory evaluation. Contaminant migration pathways to the Hudson River and Iona Marsh shorelines were not

identified within the upland area during Phase I. It was concluded that TAL metals and PAHs in upland soil were unlikely to be transported to the shoreline and be present in shoreline media at concentrations that would pose risk to human health or aquatic ecological receptors. However, preferential surface water migration pathways were identified during the Phase I shoreline reconnaissance leading from the Former Dump Area to the Hudson River and Iona Marsh shorelines. These pathways included tidal flux back to the Hudson River during ebb tide and two defined surface water channels to Iona Marsh, a riprap-filled drainage swale and tidal wetland swale. Additional mixing occurs from water flowing into the Dump Area from both the Hudson River on the east side when tide is increasing and from the Iona Marsh on the west when the tide is decreasing.

2.2.4.2 Phase II

Phase II was conducted to further evaluate contaminant migration pathways to the shoreline environment, evaluate impacts to shoreline media, evaluate potential risk to aquatic and human receptors, and support development of the HHRA and ERA. The UFP-QAPP addendum presenting the approach for Phase II was finalized in April 2022 (USACE 2022). Phase II field activities were completed in April 2022 and included:

- Analysis of physical parameters in on-site soil and sediment to evaluate bioavailability of contaminants to ecological receptors

- On-site surface water and sediment sampling for TAL metals to evaluate the potential for inorganic constituents to impact the shoreline environment adjacent to the Former Dump Area

Eight Phase I soil DUs were targeted during Phase II for physical parameter sampling, with DUs selected to provide reasonable spatial coverage/representation within each terrestrial environment and across Iona Island. Five separate Phase I upland soil DUs (DU-4, DU-7, DU-9, DU- 11, and DU-13) were selected to be representative of the upland area. Each of the three Phase I DUs within the low-lying marsh area between Iona Island and Round Island encompassing the Former Dump Area (DU-17, DU-18, and DU-19) were selected to be representative of hydric soil conditions. A total of 24 surface ISM soil samples (initial and replicates) were collected for analysis of physical parameters including oxidation-reduction potential (field measurement), TOC, cation exchange capacity, and grain size.

Four on-site areas were targeted during Phase II for surface water metals sampling, including the Former Dump Area and the discharge locations for the surface water migration pathway (Hudson River shoreline adjacent to the Former Dump Area and Iona Marsh at the outlets of the riprap-filled drainage swale and tidal wetland swale). A total of 60 on-site discrete surface water samples were collected for analysis of dissolved TAL metals to evaluate the surface water migration pathways leading from AOC #16 – Area D (Former Dump Area) to the Hudson River and Iona Marsh shorelines, with 20 samples collected from each of the following areas:

- Source area at AOC #16 – Area D (Former Dump Area) (DUMP-SW-01 through DUMP-SW-20)

- Hudson River shoreline adjacent to AOC #16 – Area D (Former Dump Area) (IHRS-SW-01 through IHRS-SW-20)

- Iona Marsh at the outlets of the riprap-filled drainage swale (RRDS-SW-01 through RRDS-SW-10) and tidal wetland swale (TWS-SW-01 through TWS-SW-10)

Sediment sampling was completed using ISM at three DUs located at the ends of the preferential surface water flow pathways leading from AOC #16 – Area D in the Former Dump Area to the Hudson River and Iona Marsh shorelines:

- Iona Hudson River shoreline (IHRS-DU-01) along the Hudson River shoreline adjacent to the Former Dump Area (AOC #16 – Area D) to evaluate whether metals had been transported to and accumulated in the Hudson River shoreline sediments adjacent to this area.

- Riprap-filled drainage swale (RRDS-DU-01) along the Iona Marsh shoreline at outlet of the riprap filled drainage swale to evaluate whether metals from the Former Dump Area (AOC #16 – Area D) had been transported via the swale to the marsh shoreline and accumulated in marsh sediment adjacent to this area.

- Tidal wetland swale (TWS-DU-01) along the Iona Marsh shoreline at outlet of the tidal wetland swale to evaluate whether metals from the Former Dump Area (AOC #16 – Area D) had been transported via the swale to the marsh shoreline and accumulated in marsh sediment adjacent to this area.

ISM samples at each on-site sediment DU were collected in triplicate (initial ISM sample plus two replicate samples) for the purpose of calculating 95UCLs for each DU using statistical tests. Single incremental samples were collected from each of the sampling units, to provide a background dataset of eight ISM samples for each sediment DU (eight from Con Hook Hudson River shoreline and eight from the Con Hook Marsh shoreline). A total of nine on-site ISM sediment samples (initial and replicates) were collected for laboratory analysis of TAL metals and physical parameters including pH, oxidation-reduction potential, TOC, and grain size. In addition, three discrete sediment acid volatile sulfide/simultaneously extracted metals samplings were conducted at each on-site sediment DU to assess the potential for toxicity to sediment-dwelling organisms and to support development of the ERA.

Site-specific background surface water and sediment sampling was conducted during Phase II to determine whether metals in shoreline media at Iona Island could be attributed to former DoD activities. Background sampling was conducted at Con Hook Island, located approximately 3 miles upstream of Iona Island on the western side of the Hudson River; Iona Island is also on the west side of the Hudson River. Con Hook Island was selected to represent background surface water and sediment concentrations as it has similar depositional environments to Iona Island, with approximately 7 acres of upland habitat and another 12 acres of a *Phragmites*-dominated tidal marsh (Con Hook Marsh). Surface water and sediment samples were collected from both the Hudson shoreline and marsh shoreline, with a total of 40 discrete surface water samples and 16 background ISM sediment samples collected for laboratory analysis.

Phase II metals results indicated elevated concentrations of CERCLA hazardous metals in both surface water and sediment at the endpoints of contaminant migration pathways leading from the Former Dump Area to the Hudson River and Iona Marsh shorelines. Analytical results summary tables are provided in Appendix A of the RI (USACE 2024). Surface water impacts were limited to select metals (arsenic, total chromium, copper, sodium, and/or zinc in each area investigated). Statistical analyses of sediment analytical results indicated that sediment along the Hudson River shoreline adjacent to the Former Dump Area was impacted compared to site-specific background, with elevated concentrations of CERCLA hazardous metals, antimony, arsenic, cadmium, total chromium, copper, lead, nickel, silver, and zinc. Conversely, the concentrations for each analyte on the Iona Marsh side at the outlets of the riprap filled drainage swales and tidal wetland swale were statistically significantly lower (by at least an order of magnitude) than concentrations along the Hudson River shoreline.

2.2.4.3 Remedial Investigation Conclusions and Recommendations

The RI determined that the Former Dump Area is a potential source area from which releases to the Hudson River shoreline have occurred and continue to occur.

Based on the results of the HHRA in the RI, there is unacceptable risk to the recreational user (adult, youth, and child) from the Former Dump Area and the Iona Island Hudson River shoreline sediment in its immediate vicinity (**Figure 1-2**).

The Former Dump Area also represents an unacceptable risk to two New York–listed species of warblers (cerulean and golden winged) and two federally listed endangered demersal fish species (juvenile Atlantic sturgeon and juvenile short-nosed sturgeon). Both sturgeon species are federally listed, and while the New York species of special concern do not justify listing as either endangered or threatened, they warrant attention and consideration. For these four species, value is placed on an individual organism.

The RI recommended that the Former Iona Naval Ammunition Depot FUDS should proceed to an FS to evaluate the appropriate remedy to address risk to these receptors.

2.2.5 Feasibility Study

The FS evaluated four remedial alternatives to address the unacceptable risks to human health and the environment at the FUDS.

- Alternative 1—No Action
- Alternative 2—Excavation and off-site disposal of contaminated soil and sediment as hazardous waste
- Alternative 3—Excavation, on-site treatment, and off-site disposal of contaminated soil and sediment as non-hazardous waste
- Alternative 4—Capping of Contaminated Soil and Sediment Accompanied by Installation of a Permanent Vertical Barrier and Additional LUCs

Alternatives are further discussed in **Section 2.9**.

2.3 COMMUNITY PARTICIPATION

The scope of community participation activities performed was consistent with the USEPA CERCLA guidance for community involvement (USEPA 2020), Section 300 of the NCP, and USACE guidance Engineer Pamphlet 200-3-1 (USACE 2011). USACE completed the following activities as part of its public outreach effort:

- Prepared a Community Relations Plan in March 2019 (USACE 2019)
- Conducted technical project planning meetings in November 2018, July 2020, November 2020, and April 2024 with stakeholders, including PIPC and NYSDEC
- Provided project materials, including a site history, location maps, and fact sheets, for the USACE website, Administrative Record, and Information Repository
- Hosted four (4) Technical Project Planning (TPP) meetings with stakeholders at critical points during the RI/FS, specifically before developing the QAPP, after the first iteration of fieldwork and before the second iteration of fieldwork, upon completion of the RI, and before developing the FS, and to provide updates on the status of the work being performed
- Published a public notice in the News of the Highlands and Rockland County Times on 23 April 2026 announcing the Proposed Plan public meeting and the availability of the Proposed Plans for public comment (**Appendix B**)
- Solicited public comment on the Proposed Plan from 23 April to 26 May 2026
- Held a public meeting on 7 May 2026. The Proposed Plan was released to the public on the USACE website (https://www.nae.usace.army.mil/Missions/Projects-Topics/Iona-Island-FUDS/) and the following repositories:

  Information Repository:

  Bear Mountain State Park Administration Building
  3006 Seven Lakes Drive
  Tomkins Cove, New York 10986 (845-382-6704).

  Administrative Record Location:

  USACE New England District
  696 Virginia Road
  Concord, MA 01742

The questions and comments received in writing and at the public meeting are presented in detail in **Section 3** of this ROD.

2.4 SCOPE AND ROLE OF REMEDIAL ACTION

The purpose of the FUDS HTRW remedial action is to address concentrations of COCs attributable to FUDS activities that presented unacceptable risk to human health and the environment and then, to evaluate what remedial decisions, if any, are needed to address these potential risks. Based on the risk assessment conclusions from the RI, there is unacceptable risk at the Former Dump Area and the Iona Island Hudson River shoreline (**Figure 1-2**) for the recreator and juvenile life stage of the federally threatened species of sturgeon (Atlantic and short-nosed sturgeon). Excavation, Ex Situ Treatment, and Off-site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste are the selected actions that has been evaluated to remove contamination exceeding PRGs for the protection of human health and the environment.

2.5 PROJECT CHARACTERISTICS

The following sections describe the environmental setting, the CSMs, and summaries of COC investigation data.

2.5.1 Conceptual Site Model

A CSM identifies contaminant sources and transport mechanisms, contaminated media, and potential human or ecological receptors and presents an exposure pathway analysis.

The preliminary CSM for the Naval Ammunition Depot Iona Island FUDS was developed during the MMRP SI (Alion 2008) and updated during the planning phases of the HTRW RI (USACE 2024) based on site-specific data and historical information that included literature reviews, aerial photographs, maps, training manuals, technical manuals, and field observations.

2.5.1.1 Source Area

Source areas at the Iona Island FUDS include the 19 AOCs identified as being eligible for further inclusion in the HTRW project and the 7 former explosive storage and filling operations buildings where filling or possible spilling of explosive-containing materials could have occurred. The 19 AOCs were identified in investigations prior to the RI and include the locations/footprints of 16 former buildings, 4 former ASTs, a former dump area, 2 former coal storage areas, and 3 former transformers where contaminants related to the facilities or from historic processes during the FUDS' commission as an ammunition depot may be present. The 7 former explosive storage and filling operations buildings were identified in 2020 during development of the UFP-QAPP (EA 2020a) as having potential for exposure risk from remaining explosives residues in environmental media to human and ecological receptors. AOCs and former explosive storage and filling operations buildings are shown on **Figure 2-1**.

2.5.1.2 Contaminants of Concern

Based on the HHRA and ERA, risk at the FUDS for human receptors is driven solely by lead. Though a number of metals including lead were found to pose risk, risk to both human and ecological receptors was driven by exposure to lead. As the risk driver, lead showed the highest unacceptable potential risk; however, elevated concentrations of other co-located metals that may

also pose risk are co-located with lead. Therefore, lead is used as a proxy for the other metals that may pose risk to human and ecological receptors.

The presence of ash from the former on-site incinerator (Former Building 121), as encountered during test pitting in the Former Dump Area during the RI (USACE 2024), represents a source area and an ongoing release from this area to the Hudson River shoreline.

The metals contributing to unacceptable risk originate from this ash and are collocated and comingled. By remediating the primary risk driver (lead), the risk associated with other collocated metals is also mitigated.

2.5.1.3 Release Mechanisms and Fate and Transport

Contaminants released through deposition following spills, direct releases to the ground, and improper disposal including dumping may have remained in surface soil by adsorbing to soil particles. When released to the environment, contaminants such as some metals and PAHs tend to sorb to soil, sediment, and other organic materials. Reworking of surface and subsurface soil during demolition was likely a major pathway for contaminants that may have been bound to soil particles, such as metals and PAHs, to be widely dispersed across the former operational area. In addition, demolition and re-grading potentially released and mixed lead-based paint particles into the soil. While metals may generally sorb/bond to soils, very fine paint chips/particles would result in a more sporadic hit-or-miss distribution of contamination.

The types of contaminants previously detected or potentially present in site soils would be bound to soil particles but could be released in the liquid phase in response to changes in the chemical environment of the soil solution. Desorption would be dependent on the solubility of the individual chemical and the properties of the soil. Natural processes such as adsorption, ion exchange, complexation, and precipitation can cause constituents to become immobilized.

Contaminants in soil could also migrate via advective transport (bulk movement) or desorption (leaching) with the flow of surface water or groundwater toward the adjacent marshes and the Hudson River. Contaminants with high solubility in the upland area may be mobilized during precipitation events. If upland soils have lower organic carbon, some contaminants could leach from that soil and flow towards the river and sediment that may have higher organic carbon to which the contaminant can adsorb. In addition, contaminants with high solubility at AOC #16 – Area D (Former Dump Area) within the low-lying marsh area between Iona Island and Round Island may be mobilized during tidal and storm water inundation. Once mobilized, contaminants could be transported to the shoreline via advective transport (bulk movement) or as particulate complexes. However, vegetation, particularly the Phragmites australis root system within the low-lying marsh area between Iona Island and Round Island, would limit advective transport of soil and contaminants.

Once released into the liquid phase, a contaminant can move freely to a living organism. Some toxic forms of metals (e.g., lead) accumulate in plants, while others (e.g., mercury) accumulate in animal tissue. Contaminants that are bioaccumulated in plants or animals become available to the higher organisms that feed on them. The fate and behavior of contaminants in soil and sediment are determined by retention/release processes, which regulate the concentration of metals in the

soil solution and thus their bioavailability. Physical properties, such as pH, texture, ion exchange capacity, soil organic matter content, and porosity influence bioavailability.

2.5.1.4 Contaminated Media Summary

The following contaminant groups were identified in on-site media, as discussed in the RI report (USACE 2024):

- Upland surface soil: CERCLA hazardous metals widespread throughout the upland area; organic compounds (PAHs, PCBs, and explosives residues) in select DUs
- AOC #16 – Area D (Former Dump Area): CERCLA hazardous metals and organic compounds (PAHs, and PCBs) in surface and subsurface soil
- Surface water: CERCLA hazardous metals at AOC #16 – Area D (Former Dump Area) during tidal inundation and at the endpoints of surface water migration pathways leading from AOC #16 – Area D (Former Dump Area) to the Hudson River and Iona Marsh shorelines
- Sediment: CERCLA hazardous metals at the endpoints of surface water migration pathways leading from AOC #16 – Area D (Former Dump Area) to the Hudson River and Iona Marsh shorelines.

2.5.1.5 Receptors

Iona Island is currently used by a limited number of recreational canoers who must obtain a permit for access. The site recreational use is limited to educational outings and history tours (6 to 8 times per year with approximately 50 people). Additionally, the island has been historically used for camping. The Boy Scouts have previously used the FUDS for activities. Currently, there are no barriers to restrict access to the shoreline of Iona Island, and trespassers are a possibility. In addition, because the shoreline is not fenced, there is a potential for kayakers or other boaters to visit the FUDS along the shoreline from the Hudson River. The future use of Iona Island is anticipated to remain consistent with current use and will continue to be maintained by park employees and be used as an area for research. Hypothetical future plans for Iona Island may include recreational use and construction of a nature or retreat center; however, these plans are not currently approved. Communication with the Director of Development and Special Projects at PIPC indicates that construction or redevelopment is unlikely at the FUDS for the foreseeable future; however, it is possible that existing structures could be renovated or improved. Potential future work could involve repairs to existing foundations.

Terrestrial plants, invertebrates, birds, mammals, and herptiles are the primary ecological receptor categories that could be exposed to contaminants in soil. Aquatic organisms such as plants, aquatic life, benthic invertebrates, herptiles, and aquatic feeding mammals and birds are the primary ecological receptors that could be exposed to contaminants in sediment and surface water.

2.5.1.6 Exposure Pathway Analysis

The sections below discuss exposure pathways for COCs (lead). The pathways were identified as complete, potentially complete, or incomplete. The following criteria were used to evaluate the status of each pathway.

- ***Complete Pathway***—There are confirmed COCs (lead) and confirmed receptor and media interaction.

- ***Potentially Complete Pathway***—There is confirmed receptor and media interaction; however, the exposure may be limited, either due to the type of receptor or the nature of the source.

- ***Incomplete Pathway***—There are no confirmed COCs (lead) and no confirmed receptor and media interaction.

An exposure pathway is the course a chemical or physical agent takes from a source to a receptor. The information presented in the CSM is used to identify the actual, potentially complete, or incomplete pathways between a source and receptors for the Former Dump Area. Current and anticipated future land uses were considered in this analysis. The COC pathway includes source, access, activity, and receptors.

The following exposure pathways are considered complete or potentially complete for the construction worker:

- Incidental ingestion of surface and subsurface soil
- Dermal contact with surface and subsurface soil
- Inhalation of windblown particulates from surface and subsurface soil
- Inhalation of volatile organic compounds (if present) in the air of a trench

The following exposure pathways are considered complete or potentially complete for the recreational users, trespassers, and Boy Scout/camper:

- Incidental ingestion of soil, sediment, and/or surface water
- Dermal contact with soil and sediment, and/or surface water
- Inhalation of windblown particulates from soil

The following terrestrial exposure pathways are complete:

- Direct contact to constituents in soil for plants
- Ingestion and direct contact to constituents in soil for soil invertebrates and herptiles
- Ingestion of constituents in soil and food for wildlife (birds, mammals, and herptiles)

The following aquatic exposure pathways are considered complete:

- Direct contact to sediment for aquatic plants
- Ingestion and direct contact to sediment for benthic invertebrates

- Ingestion and direct contact to sediment and surface water for demersal fish and herptiles
- Ingestion and direct contact to surface water for zooplankton and pelagic fish
- Ingestion of constituents in sediment and food for aquatic wildlife (birds, mammals, and herptiles)

2.5.2 Environmental Setting

The Iona Island Naval Ammunition Depot FUDS consists of approximately 118.4 acres of land and inland water. The topography, geology, hydrology/hydrogeology, and natural and cultural resources are described in the following sections.

2.5.2.1 Topography

Iona Island is a bedrock island in the Hudson Highlands physiographic province of the New England Uplands. The surface of the New England Upland slopes southeastward from maximum inland altitudes around 2,200 feet above mean sea level (amsl) to approximately 400 to 500 feet at its riverine edge (USACE 1998). The Hudson Highlands is part of a northeast-trending mountain mass extending from Pennsylvania to Connecticut. The Hudson River cuts through the Hudson Highlands in a 15 mile long relatively straight, north/south-oriented, narrow, steep-sided gorge with bedrock flanks between West Point and Peekskill, New York. Channel width in the Hudson Highlands region is less than 0.6 miles (Yozzo et al. 2005). Maximum relief is about 1,600 feet where the Hudson River dissects the Hudson Highlands. Topography in the Hudson Highlands region is relatively rugged with prevalent bedrock-controlled landforms (New York State Department of Transportation 2013). Erosional and depositional effects of glaciation are widespread and conspicuous in upland areas of the Hudson Highlands region.

Former buildings and structures were located within the upland area of Iona Island, which has rocky terrain with varying degrees of slopes (**Figure 1-2**). Elevations within the upland area range from about 0 feet North American Vertical Datum of 1988 along the immediate shoreline to 84 feet North American Vertical Datum of 1988 in the northern portion of the island.

AOC #16 – Area D (Former Dump Area) is confined to a low-lying, tidally influenced marsh area between Iona Island and Round Island. This area is bounded to the northeast by the Hudson River and to the southwest by a fill area emplaced by the PIPC following Navy transfer of the FUDS in 1965. Surface elevations within this low-lying marsh area range from 0 feet amsl at the Hudson River shoreline to 2 feet amsl (EA 2020). Elevations within the fill area to the southwest range from 2 to 5 feet amsl. Elevations rise steeply along the bedrock wall of Round Island to the southeast and along Iona Island to the northwest.

An intertidal marsh (Iona Marsh) encompasses approximately 225 acres between Iona Island and the western shore of the Hudson River. Radiocarbon analysis of the peat indicates that the marsh began to form at least 6,000 years ago behind Iona Island, in what is believed to have been an old channel of the Hudson River (Yozzo et al. 2005). Surface elevations within the marsh range from 0 feet to approximately 7 feet amsl.

2.5.2.2 Geology

Field notes from the 1996 investigation document overburden at Iona Island as fill material overlying fine to coarse sand, with some silt and gravel. Bedrock is either exposed at ground surface or encountered depths up to approximately 25 inches bgs (USACE 1998).

The bedrock of the New England Upland and Hudson Highlands is folded, faulted, and includes metamorphosed sediments that have been intruded by numerous plutonic masses (USACE 1998). The rock is resistant to erosion and forms rocky knobs on Iona Island that project 100 feet above the Hudson River, and hills that rise more than 1,000 feet within 0.5 miles of the island (Bear Mountain). Based on the bedrock geology map for the Lower Hudson, bedrock at Iona Island consists primarily of biotite-quartz-plagioclase paragneiss (Fisher et al. 1970).

2.5.2.3 Hydrology and Hydrogeology

Overburden groundwater at Iona Island is intermittent perched groundwater within the 3 feet of soil above bedrock. This groundwater is from precipitation and migrates to the Iona shorelines. Surface water from the Hudson River tidally inundates low-lying areas.

Surface water from the FUDS is considered representative of potential releases and was sampled during the RI. Samples did not contain detected concentrations of COCs. Groundwater was neither encountered nor sampled during the RI (USACE 2024).

2.5.2.4 Threatened and Endangered Species

Atlantic sturgeon (Acipenser oxyrhynchus) and shortnose sturgeon (Acipenser brevirostrum) are classified as Endangered by National Marine Fisheries Service and are protected in the State of New York (NOAA's National Marine Fisheries Service 2023a; NYSDEC and U.S. Department of Commerce 2019). These species of sturgeon live primarily in the ocean but migrate to coastal rivers for spawning. In New York, spawning and nursery grounds for juveniles are located in the Lower Hudson River, near Iona Island (Edinger et al. 2014). As adults, they will spend time at the fresh water/salt-water interface, which fluctuates near Iona Island. Sturgeon are known to shelter in deep holes (i.e., deep Hudson River channel) and, in their adult and juvenile life stages, foraging occurs in mucky substrate for crustaceans, worms, and mollusks (NOAA's National Marine Fisheries Service 2023b). Suitable foraging habitat would be expected in the estuaries surrounding Iona Island. These estuaries are near, but not necessarily in, the areas directly adjacent to the Former Dump Area.

2.6 CURRENT AND POTENTIAL FUTURE LAND AND WATER USES

2.6.1 Current Site Use

Iona Island is currently under the ownership of the PIPC and maintained by staff of Bear Mountain State Park. In 1965, when GSA conveyed the property to the PIPC, it was under a "restrictive clause" (park purposes only) (USACE 1995). Property access is limited to authorized employees of Bear Mountain State Park who use a few of the remaining buildings for storage, to researchers who work in the marsh areas, and to guided tour groups six to eight times per year between May

and October. Building 222 (Store House) is utilized by Bear Mountain State Park for shipping and receiving. Building 212 is in disrepair, but it has not been demolished due to concerns with asbestos. Public use of the island is limited to educational outings and history tours. The island has been historically used for camping, including by the Boy Scouts. Boating along the Hudson River is open to the public, and with no fencing along the shoreline of Iona Island, there is potential for recreational users of the Hudson River to access the island via the shoreline.

Land use surrounding Iona Island is recreational and military, with Bear Mountain State Park along the western shore of the Hudson River and Camp Smith Military Reservation along the eastern shore. The property is also surrounded by the Iona Island/Doodletown Bird Conservation Area (NYSDEC 2017). For the portions of the adjacent Bear Mountain State Park that are open to the public, recreational opportunities include hiking, boating, and bird watching. There is no public canoeing or kayaking allowed in the marshes surrounding Iona Island. Access to the marsh is limited to guided canoe and kayak trips.

Iona Island is part of the much larger Hudson River National Estuarine Research Reserve and Significant Coastal Fish and Wildlife Habitat Area, managed under New York's Coastal Management Program. The Iona Island Marsh was designated a National Natural Landmark in 1974 by the National Park Service.

2.6.2 Future Site Use

PIPC historically developed plans for construction of a recreational park, and while some stormwater sewers were partially installed, these plans were not fully executed. The past developer plans for constructing an environmental center/nature center were also not fully approved or implemented.

Anticipated passive future use for the property includes camping, kayaking, hiking, and bird watching. While there are no current construction plans, other than the possibility of converting existing buildings for use or constructing new storehouses, future construction of restrooms and a shower house for campers is possible (USACE 2024). Regulators have expressed interest in restoring the area between Iona Island and Round Island (location of the Former Dump Area) as a wetland with native wetland plant species (USACE 2024). Therefore, consideration of restoring the wetland with native wetland species was given high priority for this FUDS and was factored into the alternatives evaluation.

2.7 SUMMARY OF PROJECT RISKS

CERCLA requires a risk assessment for contaminants that may cause an unacceptable risk to human health or the environment. Based on the results of the RI, there was unacceptable risk from lead exposure to recreational users in the Former Dump Area and the Iona Island Hudson River shoreline sediment in its immediate vicinity. The Former Dump Area represents unacceptable risk to the federally endangered juvenile Atlantic sturgeon and the short-nosed sturgeon since value is placed on individual organisms for such species. The RI recommended that the Former Iona Naval Ammunition Depot FUDS proceed to an FS to evaluate the appropriate remedy to address these risks. The HHRA and ERA determined that there was no unacceptable risk for the remainder of Iona Island Naval Ammunition Depot FUDS.

The focus of this Summary of Site Risks section is to describe the remaining hazard at the FUDS, which is lead in soil and sediment.

2.7.1.1 Human Health Risk Assessment

The HHRA presented fully in the RI Report (USACE 2024) identified COPCs in each soil and sediment DU based on the 95UCL concentrations that exceeded EPA residential soil RSLs (EPA 2022). Chemicals that exceeded EPA RSLs were also compared to site-specific background concentrations through the use of permutation tests. Chemicals that were identified above RSLs and site-specific background concentrations were evaluated further in the HHRA. In soil, COPCs included mainly metals and PAHs. The PCB Aroclor 1260 was also identified as a COPC in soil within DU-18, which is located within AOC #16 – Area D (Former Dump Area). In sediment, select metals were identified as COPCs in each of the three sediment DUs. No COPCs were identified in surface water. Therefore, surface water was not evaluated further in the HHRA and no unacceptable risk concerns for human receptors exposed to property surface water were identified.

Potential receptors evaluated in the HHRA included park personnel, researcher, construction worker, recreational user (adult, adolescent, and child), adolescent trespasser, and camper/Boy Scout. Each receptor was evaluated for exposure within each soil DU. Additionally, park personnel, recreational users, and trespassers were evaluated for exposure within each sediment DU. The evaluation of analytical results for soil or sediment was performed on a DU-basis. The HHRA evaluated both carcinogenic risks and non-cancer hazards for all receptors' exposure to the soil and sediment DUs; however, this evaluation does not include lead. Lead was evaluated separately, as discussed below. Carcinogenic risks for all receptor exposures to the individual DUs were either below or within EPA's acceptable risk range of 10^{-6} to 10^{-4}. The non-cancer hazard index thresholds for all receptor exposures to individual DUs were below the acceptable threshold of 1.0, except the construction worker exposure to DU-13, DU-18, and the Former Dump Exposure Area. However, a breakdown by target organ did not reveal any target organs above the acceptable threshold of 1.0 for the construction worker exposure to DU-13, DU-18, and the Former Dump Exposure Area. Therefore, the HHRA did not reveal potential concerns for carcinogenic risks or non-cancer hazards for any of the receptor exposures to each DU.

Additionally, the HHRA noted that all potential property receptors may not remain within one DU because none of the DUs present an attractive area for any of the receptors to spend the majority of their time while on site. It is likely that all receptors may visit various areas of Iona Island during their visit. Therefore, the HHRA evaluated all potential receptors for exposure to two exposure areas: Iona Island Exposure Area and the Former Dump Area Exposure Area. These Exposure Areas were evaluated by combining the results for the soil DUs within these areas. For both the Iona Island and Former Dump Area Exposure Areas, the HHRA indicated all carcinogenic risks were either below or within EPA's acceptable risk range of 10^{-6} to 10^{-4}. The non-cancer hazard index thresholds were below the acceptable threshold of 1.0 for all receptors evaluated, except the construction worker exposure to the Former Dump Area Exposure Area. A breakdown by target organ did not reveal any target organs above the acceptable threshold of 1.0 for the construction worker exposure to the Former Dump Area Exposure Area. Therefore, the HHRA did not reveal potential concerns for carcinogenic risks or non-cancer hazards for any receptor's exposure to each exposure area.

Sample results (excluding lead) from the riprap-filled drainage swale and tidal wetland swale DUs on the tidal marsh side of Iona Island do not reveal adverse impacts from AOC #16 or unacceptable risk concerns for human receptors for all COCs evaluated. This evaluation did not include lead, which is discussed further below.

Lead was identified as a COPC in soil and sediment based on a comparison to EPA residential soil regional screening level in effect at the time the RI was written (400 milligrams per kilogram [mg/kg]). Lead was evaluated separately from the carcinogenic risks and non-cancer hazards through the use of EPA's adult lead model (ALM). To achieve a specific level of protectiveness, EPA has established that a typical (or hypothetical) child should not have an estimated risk of more than 5 percent exceeding the reference blood-lead level of 5 micrograms per deciliter (µg/dL) of lead. Results of the ALM for soil and sediment analytical results revealed greater than 5 percent of the population exceeded the reference blood-lead level of 5 µg/dL for the following receptors:

- Construction workers exposed to surface soil at DU-7 in the upland area, surface and subsurface soil at DU-17 and DU-18 covering the eastern portion of AOC #16 – Area D (Former Dump Area), and sediment from IHRS-DU-01 (Iona Island Hudson River shoreline adjacent to AOC #16 – Area D [Former Dump Area])

- Park personnel exposed to surface and subsurface soil at DU-17 and DU-18 and sediment within IHRS-DU-01

- Recreational users exposed to sediment within IHRS-DU-01

The HHRA determined that potential risk concerns associated with lead for the park personnel and construction workers are likely overestimated. It was noted that the Former Dump Area Exposure Area, which includes DU-17 and DU-18, is a marshy area that is covered with vegetation and subject to tidal influence that makes access difficult. The Former Dump Area was also identified as a future nature preserve/wetland area. No construction or other activities are expected in this area, and actual contact with this area is minimal and unlikely to result in human health concerns. Additionally, construction worker exposure represents exposures that are usually controlled using standard health and safety protocols and personal protective equipment (PPE). Potential lead risk concerns identified for the construction workers within DU-7, DU-17, DU-18, and the Former Dump Exposure Area were not significant and did not warrant further evaluation or risk management decisions within this FS.

Exposure of park personnel to one specific DU for an entire year is not an expected scenario. The park personnel are more likely to be exposed to environmental media over the entire island from activities such as grass mowing, property inspections, and general maintenance. For these reasons, exposure for this receptor is better represented by a mean concentration of the DUs across the property, which includes all DUs sampled (i.e., DU-1 through DU-7, DU-9 through DU-19, Iona Hudson River shoreline, riprap-filled drainage swale, and tidal wetland swale); this mean concentration does not include the areas of the property not sampled and likely overestimates the true mean concentration of COPCs evaluated in the HHRA. Potential unacceptable human health concerns were only identified for lead. Because the HHRA risk results were within acceptable levels for all other COPCs evaluated in the HHRA, the evaluation of a mean concentration across the property would still result in risks within acceptable levels. For lead, the mean soil

concentration across all DUs is 667 mg/kg, which reveals less than 5 percent of the population exceeds the reference blood-lead level of 5 µg/dL. The results of the ALM modeling for the mean lead concentration across all the DUs revealed no potential concerns for the park personnel exposure to lead based upon expected exposure. Therefore, the park personnel exposure to Iona Island did not warrant further evaluation or risk management decisions within the FS.

The recreational user (adult, youth, and child) exposure to lead in sediment from Iona Island Hudson River shoreline DU did reveal significant exceedances of the acceptable blood-lead threshold. Recreational users were assumed to contact sediment 1 day per week during the warmer months, approximately 31 weeks, which resulted in an exposure frequency of 31 days per year. Unlike the expected worker exposure, the recreational user is expected to spend a significant amount of time in this area. The area is a small sand and gravel beach that is exposed at low tide where recreational users may access the island by boat or kayak. Additionally, the area can be used for fishing. While sediments in this area are generally sandy with larger grain size that may reduce particulate adherence to skin, there is potential for contact. Sample results from the Iona Island Hudson River shoreline DU revealed potential transport of contaminants from AOC #16 (Former Dump Area) along the surface via overland runoff and erosion to shoreline sediments. As a result, there was unacceptable risk to the recreational user (adult, youth and child) exposed to the Iona Island Hudson River shoreline DU and the adjacent shoreline sediments. Additional evaluation and/or risk management decisions are warranted for the recreator in the FS.

2.7.1.2 Ecological Risk Assessment

The ERA, presented fully in the RI Report (USACE 2024), evaluated both terrestrial and aquatic receptors. After the completion of the SLERA, receptors potentially at risk were evaluated using a site-specific RSLERA.

Terrestrial Receptors

The terrestrial exposure areas were: (1) Iona Island Exposure Area; and (2) Former Dump Exposure Area, comprised of hydric soils. Representative terrestrial receptor categories included plants, soil invertebrates, herbivorous mammals (representative species meadow vole), insectivorous birds (representative species American robin), insectivorous mammals (representative species short-tailed shrew), carnivorous birds (representative species red tailed hawk), carnivorous mammals (representative species red fox), and herptiles.

None of these common categories of terrestrial receptors were found to be at risk in the Iona Island Exposure Area, which does not include the Former Dump Area.

Section 8.4.7.5 of the RI (USACE 2024) concluded that two federally listed species of bats (i.e., Indiana bat and northern long-eared bat) could be at risk in the Former Dump Exposure Area, based upon use of the shrew as a surrogate. The RSLERA acknowledged that the use of the shrew (ground dwelling mammalian insectivore) as a surrogate for the bat introduced conservative high bias to the risk estimate.

Further site-specific refinements for the two federally-listed species of bats included consideration of diet, home range, and preferred habitat. The shrew consumes ground dwelling insects in close

and continuous contact with contaminants in soil. It is expected to spend all of its time on-site, having a home range of approximately 0.07 to 0.17 acres (EPA 1993) and its preferred habitat is forested areas rather than marshy areas inundated twice daily with water, as is the case for the Former Dump Area. In the RI, modeling these three factors from the shrew for the bat conservatively biased the risk high. Both species of bats feed almost exclusively on flying insects (e.g., moths) with some gleaning (USFWS 2025a and 2025b), and have feeding home ranges from a few hundred acres to over 1,000 acres, depending upon the species and time of year (Burgess 2012). Therefore, both bat species are expected to spend only a fraction of their time feeding over the Former Dump Area. Further attenuation of the risk findings to account for site usage by the bat supports no further evaluation for the two federally endangered species of bats.

Section 8.4.7.5 of the RI (USACE 2024) concluded that two New York state–listed species of insectivorous birds (i.e., cerulean warbler and golden-winged warbler) could be at risk from COCs present in the Former Dump Exposure Area based upon using the robin as a surrogate.

The cerulean warbler has been sighted on both Iona Island and at Bear Mountain Park immediately adjacent to Iona Island (eBird 2025). Sightings of the cerulean warbler strongly supports the golden warbler's presence as warblers favor forested landscapes comprised of young forests and shrubland patches used for nesting that are interspersed among a diversity of other forest age-classes used to raise fledglings (U.S. Department of Agriculture 2025). Both areas on Iona Island and Round Island contain riparian areas that transition from aquatic areas to upland areas, adding further to the suitability of the habitat. These small birds (approximately 4.5 inches long and weighing 0.28 to 0.35 ounces) can have core areas of approximately 2.5 acres (Wunderle et al. 2024), making their use of the Dump Area probable, which is further supported by sightings. For these reasons, possible risk to warblers cannot be categorically excluded, whereas because of their status, value is placed upon a single bird. It was determined that additional evaluation and/or risk management decisions were warranted for terrestrial receptors in the FS.

Aquatic Receptors

The aquatic exposure areas were: (1) riprap-filled drainage swale, (2) tidal wetland swale; and (3) Iona Island Hudson shoreline. Representative aquatic receptor categories included plants, benthic invertebrates, zooplankton, demersal (bottom-feeding) fish, pelagic (water column) fish, herbivorous birds (representative species mallard duck), herbivorous mammals (representative species muskrat), insectivorous birds (representative species lesser scaup), piscivorous mammals (representative species river otter), piscivorous birds (representative species great blue heron), and herptiles.

No risks to common aquatic receptors were found in the riprap-filled drainage swale or the tidal wetland swale exposure areas. For the Iona Island Hudson shoreline sediment exposure area adjacent to the Former Dump Area, the SLERA showed that plants, benthic invertebrates, demersal fish, herptiles, and insectivorous birds were at risk from metals, driven primarily by lead. This risk from sediment extends to two species of federally listed endangered demersal fish (juvenile Atlantic sturgeon and juvenile short-nosed sturgeon).

The purpose of the RSLERA was to incorporate easily obtainable site-specific information to refine the ecological risk screening, so that fewer generic, conservative conclusions of ecological

risk could be made. The risk conclusions of the SLERA/RSLERA after these sub-tiers of evaluation showed that the contamination associated with unacceptable risks is confined to a small area of the property associated with the Former Dump Area, with a sharply defined lateral extent of contamination due to island topography and the Hudson River. In addition, a sharply defined vertical extent of contamination was also identified, attributable to bedrock at approximately 3 feet bgs based on test pitting and shoreline bathymetric data.

However, even with refinements, the RLSERA found unacceptable risk driven by lead due to the potential presence of federally listed endangered species of juvenile sturgeon in the Iona Island Hudson shoreline. Sturgeon spawn in areas with clean, large rubble, such as along windswept rocky shores of islands in the river; Iona Island is such a location. The habitat in which sturgeon prefer to spawn exists immediately in front of the Former Dump Area. While ongoing releases were unlikely to impact large adults, potential for adverse effects to critical life stages (i.e., eggs and newly emerged fry) cannot be categorically excluded because effects to a single individual is considered a significant adverse effect for species afforded special status. Sturgeon are federally listed species and included in an active and well monitored conservation program on the Hudson River. Although egg masses and fry were not observed directly, this does not preclude adults using the ideal rocky, scoured substrate in front of the Former Dump Area as a spawning area now or in the future.

It was determined that additional evaluation and/or risk management decisions were warranted for aquatic receptors in the FS.

2.8 REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are property-specific goals for protecting human health and the environment. RAOs include cleanup objectives that have been established based on the nature and extent of contamination, potential for human and environmental exposure, and ARARs. RAOs support the determination of protectiveness and effectiveness of remedial action alternatives.

The RAOs for the Iona Island Naval Ammunition Depot FUDS are as follows:

- Reduce the risk of ingestion/direct contact by current and anticipated future human receptors (recreational users) to COC (lead) above the PRG in contaminated soil in the Former Dump Area

- Reduce the risk of ingestion/direct contact by current and anticipated future human receptors (recreational users) to COC (lead) above the PRG in contaminated sediment along the Hudson River shoreline adjacent to the Former Dump Area.

- Prevent impacts to biota from ingestion/direct contact with COC (lead) above the PRG in contaminated soil of the Former Dump Area causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

- Prevent impacts to biota from ingestion/direct contact with Hudson River shoreline COC (lead) above the PRG in contaminated sediment in the vicinity of the Former

Dump Area causing toxicity or impacts from bioaccumulation through the aquatic food chain.

- Prevent migration of COC in soil (lead) above the PRG from the Former Dump Area to the adjacent Hudson River shoreline.

The remedial action selected in this ROD is necessary to protect human and ecological receptors from exposure to lead exceeding PRGs at the FUDS. PRGs are contaminant concentration levels that are based on readily available information such as risk-based doses, legal standards (ARARs), and guidance and advisories (to be considered [TBC] criteria). PRGs are in turn used to determine the feasibility of proposed remedial actions.

The PRG for lead in soil was based on review of the following TBC guidance and site-specific background levels:

- EPA Region 4 ecological screening value for lead in soil of 11 mg/kg, as presented in EPA Region 4 ERA Supplemental Guidance, Scientific Support Section Superfund Division EPA Region 4, March 2018 (EPA 2018)

- NYSDEC unrestricted use soil cleanup objective for lead of 63 mg/kg (representative of pre-disposal conditions) (NYSDEC 2006)

- NYSDEC protection of ecological resources soil cleanup objective for lead of 63 mg/kg (NYSDEC 2006)

- Site-specific background values for lead in soil. As presented in the RI, background ISM soil results for lead ranged from 33 to 94 mg/kg, with a 95UCL of 82.1 mg/kg (USACE 2024).

As determined in the FS (USACE 2026a), the site-specific background value for lead in soil was identified as 82.1 mg/kg. Consistent with site-specific background concentrations, a PRG of 82 mg/kg was selected for lead in soil.

The PRG for lead in sediment was based on review of the following TBC guidance and site-specific background levels, as no ARARs were identified:

- EPA Region 4 (March 2018) ecological screening value for sediment of 35.8 mg/kg (EPA 2018)

- NYSDEC Freshwater Sediment Guidance Values (NYSDEC 2014), which classify sediment as Class A (low risk to aquatic life <36 mg/kg), Class B (potential risk to aquatic life 36-130 mg/kg), or Class C (likely risk to aquatic life >130 mg/kg)

- Site-specific background values for lead in sediment; as presented in the RI, site-specific background ISM sediment results for lead ranged from 39 to 71 mg/kg, with a 95UCL of 67.4 mg/kg (USACE 2024)

- As determined in the FS (USACE 2026a), the site-specific background value for lead in sediment was identified as the site-specific 95UCL of 67.4 mg/kg. Consistent with site-specific background concentrations, a PRG of 67 mg/kg was selected for lead in sediment since the targeted removal of sediment lead concentrations greater than 67 mg/kg will result in protectiveness of human health and ecological receptors.

2.9 DESCRIPTION OF ALTERNATIVES

This section provides a summary of remedial alternatives assembled using technologies and process options that were screened and retained during the feasibility study process (USACE 2026a). The screening process considered implementability, effectiveness at meeting RAOs, and relative cost. The retained alternatives are inclusive of additional data gap "pre-design" sampling, remedial design, construction and startup, and operations and maintenance, as appropriate for each alternative. Remedial alternatives were developed and evaluated in the FS to address unacceptable risk posed by lead and to meet the remedial action objectives under current and reasonably anticipated future land use conditions.

2.9.1 Alternative 1 – No Action

The No Action alternative is evaluated to satisfy the NCP requirement of 40 CFR § 300.430(e)(6), which requires consideration of this alternative as a baseline against which other alternatives may be compared. The No Action alternative would involve leaving the Iona Island Naval Ammunition Depot FUDS in its current condition. Under this alternative, no remedial action will be taken, and media exceeding PRGs will be left "as is," without the implementation of any containment, removal, treatment, or other protective actions. This alternative does not provide for additional investigation and does not provide for any LUCs to reduce the potential for exposure.

2.9.2 Alternative 2 – Excavation and Off-Site Disposal of Contaminated Soil and Sediment as Hazardous Waste

Alternative 2 involves excavation and off-site disposal of soil and sediment exceeding PRGs and property restoration. Soil exceeding PRGs within the low-lying marsh area between Iona Island and Round Island (location of the Former Dump Area) and Hudson River shoreline sediment exceeding PRGs in its vicinity would be excavated and transported off-site for disposal based on waste characterization results, which for the purposes of this evaluation are assumed to be as hazardous waste[1]. The excavated area would be backfilled with clean wetland soil and re-planted with native vegetation such as broadleaf cattail. The removal of soil and sediment exceeding PRGs would demonstrate the attainment of RAOs and lead to site closeout.

[1] Per 40 CFR Chapter I Subchapter I Part 268 Subpart D § 268.42, soil that is delivered to the Subtitle C landfill would be required to meet the alternative land disposal requirements for lead or would require treatment by the disposal facility prior to final placement.

2.9.2.1 Remedy Components

The following actions are included in Alternative 2:

- Temporary cofferdams would be installed to allow for excavation of the Former Dump Area and shoreline sediments that are inundated with rising tides twice daily.
- Temporary site staging areas would be established outside the excavation area,
- Soil in the Former Dump Area and shoreline sediments would be excavated down to the top of bedrock, up to 3 feet bgs and transported to the staging area.
- Excavated soil and sediment would be characterized on-site and transported to an appropriate disposal facility, hazardous or non-hazardous, based on the waste characterization analytical results.
- The FUDS would be restored with clean soil from an off-site source prior to restoration with native wetland plant species.

2.9.2.2 Distinguishing Features of the Alternative

This alternative is based upon the assumption that excavated soil and sediment would be characterized as hazardous and would require disposal at a permitted hazardous waste landfill.

2.9.2.3 Expected Outcome of the Alternative

This alternative involves the removal of all soil and sediments exceeding PRGs. Because all impacted soil and sediment would be removed from the FUDS, there would be no remaining risk to human health and the environment, and no long-term monitoring or Five-Year Reviews would need to be conducted.

2.9.2.4 Key ARARs

There are no chemical-specific ARARs; however, there are two key ARARs, one location-specific and the second action-specific, identified for this Property:

- Location-Specific ARAR: Endangered Species Act 16 USC 1538(a)(1)(B) — Prohibits the take of any endangered species.
- Action-Specific ARAR: Clean Water Act– 40 CFR 230.10(a)— This statute, also referred to as “Section 404,” prohibits the discharge of dredged or fill material into waters of the United States if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem. Practicable alternatives include, but are not limited to, activities which do not involved a discharge of dredged or fill material into waters of the United States, and an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

2.9.3 Alternative 3 – Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste

Alternative 3 involves excavation of the same soil and sediment exceeding PRGs excavated under Alternative 2. This soil would then be chemically treated on-site to physically or chemically bind contaminants into the soil, rendering it non-hazardous (less than 5 mg/L for toxicity characteristic leaching procedure (TCLP) for lead). Off-site disposal of excavated and treated material as non-hazardous waste in a Subtitle D landfill would be followed by property restoration. The excavated area would be backfilled with clean wetland soil and re-planted with native vegetation such as broadleaf cattail. The removal of soil and sediment exceeding PRGs would demonstrate the attainment of RAOs and lead to site closeout.

2.9.3.1 Remedy Components

The following actions are included in Alternative 3:

- Temporary cofferdams would be installed to allow for excavation of the Former Dump Area and shoreline sediments that are inundated with rising tides twice daily.
- Temporary site staging and treatment areas would be established outside of the excavation area.
- Soil in the Former Dump Area and shoreline sediments would be excavated down to the top of bedrock, up to three ft bgs and transported to staging area.
- Excavated soil and sediment would be treated on-site to bind contaminants into the media until non-hazardous based on waste characterization sampling before being disposed of off-site at a non-hazardous waste disposal facility.
- The FUDS would be restored with clean soil from an off-site source prior to restoration with native wetland plant species.

2.9.3.2 Distinguishing Features of the Alternative

This alternative involves treatment of site soil and sediments to render them non-hazardous, allowing for lower disposal costs than Alternative 2.

2.9.3.3 Expected Outcome of the Alternative

- This alternative involves the removal of all soil and sediments exceeding PRGs. Because all impacted soil and sediment would be removed from the FUDS, there would be no remaining risk to human health and the environment, and no long-term monitoring or Five-Year Reviews would need to be conducted.

2.9.4 Alternative 4 – Capping of Contaminated Soil and Sediment Accompanied by Installation of a Permanent Vertical Barrier and Additional Land Use Controls

Alternative 4 involves the relocation of sediment from the Hudson River shoreline DU exceeding PRGs and capping of soil and relocated sediment with a minimum 3 feet of clean soil. The shoreline would be restored with sand and replanted with native wetland vegetation. A permanent concrete vertical barrier would be installed at a height that would not be overtopped during high tides inland from the Hudson River shoreline and adjacent to the low-lying marsh area between Iona Island and Round Island. The barrier would be keyed into bedrock and the hill slopes of Iona Island and Round Island. The vertical barriers would limit natural drainage of storm surges and precipitation and would require a drainage system that would be monitored. A pre-design investigation would be conducted to examine leaching potential of contaminants from the soil into the groundwater. Following installation of the vertical barrier, the soil cover/cap would be planted with native species consistent with the surrounding terrestrial vegetative communities. Additional LUCs would involve a combination of educational controls/signage and engineering controls (e.g., fence) to limit potential exposure routes to human health and ecological receptors.

CERCLA requires review of the selected remedial action no less than every five years if unacceptable conditions remain at the FUDS, such that the risks do not allow for unlimited use and unrestricted exposure. Therefore, CERCLA Five-Year Reviews would be required for Alternative 4.

2.9.4.1 Remedy Components

The following actions are included in Alternative 4:

- A pre-design investigation would be required to examine leaching potential of contaminants from the soil into the groundwater.
- Temporary cofferdams would be installed to allow for excavation of shoreline sediments and placement of a soil cover or cap over contaminated media in the Former Dump Area that is inundated with rising tides twice daily.
- Temporary site staging areas would be established outside the soil cover or cap area.
- Shoreline sediment would be relocated to the Former Dump Area. The shoreline would be restored with sand and replanted with native wetland vegetation.
- Permanent concrete vertical barriers would be installed inland from the Hudson River shoreline and adjacent to the low-lying marsh area between Iona Island and Round Island. The barriers would be constructed at a height that would not be overtopped during high tides and would be keyed into bedrock and the hill slopes of Iona Island and Round Island.
- The vertical barriers would limit natural drainage of storm surges and precipitation and would require a drainage system. The drainage system would require maintenance and monitoring, and water discharge from the drainage system would require monitoring.

- Fill material and a minimum 3-foot soil cover or cap would be placed over contaminated soil and relocated sediment within the Former Dump Area, to bring the finished surface to the height of the vertical barriers.

- The soil cover/cap would be planted with native species consistent with the surrounding terrestrial vegetative communities.

- Additional LUCs would involve a combination of educational controls/signage and engineering controls (e.g., fence) to limit potential exposure routes to human and ecological receptors.

  — A fine mesh fence would be installed and maintained along the perimeter of the low-lying area between Iona Island and Round Island and along the Hudson River shoreline in the vicinity of the Former Dump Area.

  — Signs would be installed along the fence, every 100 feet, as well as with literature boxes that would be installed at the land and water entrances. Signs and pamphlets would identify contaminated media and detail exposure risk.

  — Pamphlets would be replenished in literature boxes and updated as FUDS conditions change, as appropriate. Signs and literature boxes would be inspected annually and replaced as needed.

2.9.4.2 Distinguishing Features of the Alternative

This alternative contains all contaminated media on site to reduce risk to human and ecological receptors.

2.9.4.3 Expected Outcome of the Alternative

Under this alternative, soil containing lead exceeding PRGs would remain on site within a containment cell. Because impacted soil and sediment would remain on site, there would be long-term maintenance and monitoring to minimize risk to human health and the environment. Regular inspections identifying maintenance activities such as repairs to the barriers, soil cover or cap, fine mesh fence, and educational controls would be conducted. Pamphlets would need to be updated and replenished annually or as needed based on quarterly inspections. Five-Year Reviews would also be required.

2.10 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section discusses the evaluation criteria used to perform the comparative analysis of alternatives in the FS.

2.10.1 Criteria For Detailed Analysis of Alternatives

The NCP established nine evaluation criteria to address statutory requirements. The criteria fall into three categories: threshold criteria, primary balancing criteria, and modifying criteria. This section presents a summary of the FS evaluation of each potential remedial alternative based on

threshold and balancing criteria. Each alternative must achieve the threshold criteria to be eligible for selection as a remedy. Alternatives were then evaluated with respect to the primary balancing criteria. Modifying criteria (state or support agency acceptance and community acceptance) were evaluated after the public comment period on the Proposed Plan.

Threshold Criteria

- Overall Protection of Human Health and the Environment
- Compliance with ARARs

Primary Balancing Criteria

- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume (TMV) through Treatment
- Short-Term Effectiveness
- Implementability
  - Technical Feasibility
  - Administrative Feasibility
  - Availability of Materials and Services
- Cost

Modifying Criteria

- State Acceptance
- Community Acceptance

2.10.2 Comparison of Alternatives

Each alternative was compared against the nine NCP criteria to determine whether or not it met the statutory requirements necessary for further consideration. In addition, the alternatives were compared to each other relative to each criterion. **Table 2-1** shows a summary of the comparison of alternatives with respect to the threshold, primary balancing, and modifying criteria.

2.10.2.1 Threshold Criteria

Overall Protection of Human Health and the Environment

Alternative 1 does not achieve the RAOs for human and ecological receptors and is not protective of human health and the environment. Alternatives 2 and 3, achieve overall protection of human health and the environment through removal of the source area and contaminated media, thereby

rendering all exposure pathways incomplete and eliminating risk to human health and ecological receptors. Alternative 4 meets this criterion through capping and barrier installation, which eliminates risk to human health and ecological receptors.

Compliance with Applicable or Relevant and Appropriate Requirements

Alternative 1 does not trigger any ARARs because no action is being taken. Two ARARs were identified for Alternatives 2, 3, and 4. The Endangered Species Act (ESA), 16 USC 1538(a)(1)(B), prohibits the take of any endangered species, and the Clean Water Act (CWA), 40 CFR § 230.10(a), prohibits the discharge of dredged or fill material into waters of the United States if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem.

Alternatives 2, 3, and 4 will all be implemented to comply with the ESA. USACE will ensure no endangered species are impacted during excavation, backfill, and construction work.

For Alternatives 2, 3, and 4, the placement of clean fill material into the project location is a "discharge of fill material," and the project location, a wetland adjacent to the Hudson River, qualifies as waters of the U.S. Even though Alternatives 2 and 3 involve the discharge of fill material (clean soil as backfill) into waters of the United States (wetlands), they are compliant with the CWA because there is no practicable alternative to the discharge of fill material that would have less adverse impact on the aquatic ecosystem. After excavation of the contaminated media, the project area would be backfilled with material and replanted with native vegetation. There would be a temporal loss of wetland functions while the work is underway; however, Alternatives 2 and 3 would result in a net benefit to the aquatic ecosystem by eliminating an ongoing source of contamination. These alternatives would restore the wetlands by re-establishing the system's hydrology and native vegetative cover. Other alternatives, such as not placing any material into the excavated location or placing material that would not re-establish the location's wetland hydrology and native vegetation, would have more adverse impacts on the aquatic ecosystem. Therefore, Alternatives 2 and 3 are compliant with 40 CFR § 230.10(a). However, *assuming arguendo*, that Alternatives 2 and 3 do not comply with 40 CFR § 230.10(a), they meet the requirements of an ARAR waiver as discussed in further detail for Alternative 4.

Alternative 4 does not comply with 40 CFR 230.10(a), which prohibits the discharge of fill material into waters of the United States if there is a practicable alternative that would have less adverse impact on the aquatic ecosystem. Alternative 4 involves the discharge of fill material creating a cap over the contaminated material and a loss of wetlands. Alternatives 2 and 3, which are both practicable, have less adverse impact on the aquatic ecosystem and result in no permanent loss of wetlands. However, pursuant to 40 CFR 300.430(f)(1)(ii)(C)(2), an ARAR waiver is available for situations where compliance with an ARAR will cause greater risk to human health and the environment than noncompliance. For Alternative 4, compliance with 40 CFR 230.10(a) would result in no fill material being placed at the project location and a cap would not be constructed. Complying with the ARAR and not constructing the cap would result in greater risk to human health and the environment because the project location would remain exposed and the property would continue to pose unacceptable risk. Even though construction of a cap with clean fill material would result in a discharge of fill material into waters of the United States, there would still be an environmental benefit by removing exposure to the contaminated soils and sediment.

Therefore, compliance with 40 CFR § 230.10(a) would result in greater risks to human health and the environment than capping the contaminated soils and the USACE is waiving this ARAR pursuant to 40 CFR 300.430(f)(1)(ii)(C)(2).

2.10.2.2 Primary Balancing Criteria

Long-Term Effectiveness and Permanence

Alternative 1 is ineffective in the long term because unacceptable risk to human and ecological receptors is not addressed. Excavation and off-site disposal of contaminated soil and sediment would permanently reduce risks to human and ecological receptors because contaminants would be permanently removed from the FUDS. Therefore, Alternatives 2 and 3 are most effective in the long-term and permanent. Alternative 4 would effectively reduce unacceptable risk to human and ecological receptors through confinement under a soil cover. Ensuring the long-term effectiveness of this remedy would require extensive monitoring and maintenance, including cap repair and replacement due to erosion. Alternative 4 would be effective in the long-term but requires extensive monitoring and maintenance to address the risk remaining on-site.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative 1 involves no action and therefore, no treatment. Alternatives 2 and 4 do not involve treatment of contaminants; however, the mobility of contaminated soil and sediment is reduced because it is removed from the FUDS under Alternative 2 and capped under Alternative 4. Alternative 3, the Preferred Alternative, permanently reduces the TMV of contaminants. Upon removal, soil will be treated to chemically bind contaminants to the soil matrix, reducing the toxicity prior to off-site disposal.

Short-Term Effectiveness

Under Alternative 1, no remediation would be conducted. Therefore, no change in environmental impacts or potential exposures for on-site workers or the community would occur. However, contaminated media will remain, and potential risk to human and ecological receptors exposed to contaminated media will not be mitigated. Although no time is needed to implement this alternative, the RAOs will not be met. Alternatives 2 and 3 involve approximately six months of construction activities to remove and stage the contaminated media and pose some short-term risks to workers, but those risks can be minimized using best management practices and the use of appropriate PPE. Alternatives 2 and 3 pose minimal and short-term damage to the environment during construction through erosion which could release soil and sediment into the Hudson River. Potential risks would be minimized through the use of a temporary cofferdam (or equivalent construction water control) during construction as well as the use of best management practices and the use of appropriate PPE. Following removal, the entire area will be restored to wetlands with native vegetation at completion. Alternative 4 involves approximately nine months of construction activities that pose similar short-term risks to construction workers as the other alternatives. Alternative 4 results in greater environmental damage because the construction area will be capped rather than restored to a wetland.

Implementability

Alternative 1 is readily implementable because no action will be taken. Alternatives 2 and 3 are implementable because excavation and off-site disposal is a frequently used remediation approach, and excavation equipment is readily available. Off-site transportation and disposal options for hazardous and non-hazardous soils are also readily available. Alternative 3 is more challenging to implement than Alternative 2 due to staging and on-site treatment of excavated soil and sediment. Alternative 4 is the most challenging to implement due to the difficulty of installing and maintaining a vertical barrier and soil cap in a tidal area. The dynamic water-saturated nature of wetlands makes construction difficult and increases the risk of barrier failure from unstable soil, hydrostatic pressure, and changes in water flow.

Cost

In addition to the total cost for each alternative, **Table 2-1** includes the estimated capital, annual O&M costs, and the number of years over which the remedy cost estimate is projected. Based on the present-worth cost estimates for the alternatives, Alternative 2 is the most costly (estimated cost of $11,845,000), as it assumes excavation with off-site disposal of soil as hazardous waste. Alternative 4 is estimated to cost slightly less than Alternative 2 (estimated cost of $10,660,000) but has high annual O&M costs. The Preferred Alternative, Alternative 3, is the least costly (estimated cost of $9,867,000), as it includes excavation, ex-situ treatment, and off-site disposal of soil and sediment exceeding PRGs as non-hazardous waste. No costs are associated with Alternative 1 as no action is taken. The cost summaries can be found in Appendix B of the FS.

2.10.2.3 Modifying Criteria

State Acceptance

NYSDEC reviewed the remedial alternatives presented for the FUDS and supports USACE's selection of Alternative 3, Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste. Comments received from NYSDEC on the Proposed Plan are presented in detail in **Section 3** of this ROD. A copy of the NYSDEC letter documenting their concurrence is provided in **Appendix A**.

Community Acceptance

A public comment period for the FUDS Proposed Plan (USACE 2026b) was conducted from 23 April 2026 through 26 May 2026. This public comment period and a public meeting were announced through a notice placed in the *Cornwall Local/News of the Highlands* and Rockland County Times newspapers on 23 April 2026 (**Appendix B**). A public meeting was held on 7 May 2026. A transcript of the meeting is provided in **Appendix C**. Comments received from the public during the public meeting are addressed in the Responsiveness Summary.

Table 2-1. Comparative Analysis of Alternatives Summary

Criteria	Alternative 1: No action	Alternative 2: Excavation and off-site disposal of contaminated soil and sediment as hazardous waste	Alternative 3: Excavation, ex situ treatment, and off-site disposal of contaminated soil and sediment as non-hazardous waste	Alternative 4: Capping of Contaminated Soil and Sediment Accompanied by Installation of a Permanent Vertical Barrier and Additional LUCs
Overall Protection of Human Health and the Environment	Fail	Pass	Pass	Pass
Compliance With ARARs	N/A	Pass	Pass	Waiver*
Long-Term Effectiveness and Permanence	∇	Δ	Δ	∇
Reduction of Toxicity, Mobility, and Volume through Treatment	∇	∇	Δ	∇
Short-Term Effectiveness	∇	Δ	Δ	Δ
Implementability	Δ	Δ	Δ	Δ
Capital Cost	$0	$11,798, 000	$9,820,000	$7,757,000
Lifetime Long Term Monitoring Cost	$0	$47,135	$47,135	$2,902,758
Construction and Monitoring Time (years)	0	6	6	31
Total Cost	$0	$11,845,000	$9,867,000	$10,660,000
State Acceptance	N/A	N/A	Δ	N/A
Community Acceptance	N/A	N/A	Δ	N/A

Notes:
Δ = In comparison with other alternatives, it complies well with criteria.
♦ = In comparison with other alternatives, it partially complies with criteria.
∇ = In comparison with other alternatives, it does not comply as well with criteria.
Cost estimates are based upon 2024 dollars. Total Net Cost rounded to nearest $1,000.
* Waiver would depend on Alternatives 2 and 3 not being practicable.
ARAR = applicable or relevant and appropriate requirement
LUC = land use control
N/A = not applicable

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2.11 SELECTED REMEDY

The selected remedy for the FUDS is Alternative 3, Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste (**Figure 2-2**).

2.11.1 Summary of the Rationale for the Selected Remedy

As described in the FS (USACE 2026a) and identified in the Proposed Plan (USACE 2026b), Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste, is the selected remedy (Alternative 3). This alternative provides long-term effectiveness and permanence and is the only proposed alternative to provide reduction of TMV of contamination. The alternative is protective of human health and ecological receptors and meets ARARs (USACE 2026a). This alternative is also the lowest cost of the active remedial approaches, with limited long-term monitoring.

2.11.2 Detailed Description of the Selected Remedy

The selected remedy is Alternative 3, Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste (**Figure 2-2**). This alternative will require right-of-entry (ROE) and coordination with PIPC to identify site staging areas outside of but nearby the excavation areas. Once acceptable areas are identified, site preparation activities will include:

- Access road improvements
- Construction of appropriately sized stockpile, treatment, and decontamination pads
- Installation of temporary facilities and construction fencing for site security
- Installation of an appropriately sized cofferdam to prevent tidal inundation of the construction area
- Installation of erosion and sedimentation controls

Following site preparation activities, excavation equipment will be used to excavate sediment and soil, which will be transported to the treatment area. Material will be allowed to dewater by gravity, and will then be treated with the selected stabilization agent. Treated soil will be sampled for characterization and staged in segregated batches while awaiting analytical results. Upon receipt of analytical results and approval from an appropriate disposal facility, the material will be transported to the approved facility.

When excavation is complete, clean wetland soil and sand will be used to restore the Former Dump Area and shoreline, respectively. Soil will be placed, and native wetland plants will be used to restore the wetland areas. Staging, stockpile, treatment, and decontamination pads will be characterized prior to disposal at an appropriate facility. Seed will be used to restore the disturbed upland areas.

Following construction, wetland monitoring and mitigation of loss of newly re-established wetlands, if required, will be conducted annually for a minimum of 5 years, to ensure wetland health and growth.

2.11.3 Cost Estimate for the Selected Remedy

Total marked-up cost associated with the selected remedy for the Iona Island Naval Ammunition Depot FUDS is $9,867,000, including site preparation, excavation, and dewatering costs, ex situ treatment, waste transportation and disposal, backfill and replanting, and annual wetland inspection and mitigation for 5 years. The costs and detailed assumptions associated with implementation of the Selected Remedy are presented in Appendix B of the FS. The information in the cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 percent to -30 percent of the actual project cost.

2.11.4 Estimated Outcomes of Selected Remedy

The Selected Remedy, Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste, is expected to eliminate unacceptable risk to human health and the environment through the removal of soil and sediment with lead in exceedance of PRGs. Environmental and ecological benefits would include restoration of the sensitive wetland and aquatic ecosystems, and protection of endangered species and other wildlife populations. The community would benefit with enhanced human uses of ecological resources, as the Former Dump Area and shoreline will be available for recreational uses following completion of the Selected Remedy and achievement of the PRGs.

2.12 STATUTORY DETERMINATIONS

This section describes how the selected remedy satisfies the statutory requirements of CERCLA §121 (as required by NCP §300.430(f)(5)(ii)).

2.12.1 Overall Protection of Human Health and the Environment

The selected remedy is protective of human health and the environment. This alternative achieves the RAOs for all receptors. This alternative involves removal of the source area and contaminated media and eliminates unacceptable risk to human and ecological receptors.

2.12.2 Compliance with ARARs

The selected remedy will meet the ARAR requirements identified in **Table 2-2**.

2.12.3 Cost-Effectiveness

A cost-effective remedy in the Superfund program is one whose “costs are proportional to its overall effectiveness” (NCP §300.430(f)(1)(ii)(D)). The “overall effectiveness” of a remedial alternative is determined by evaluating the following three of the five balancing criteria: (1) long-

term effectiveness and permanence, (2) reduction in TMV through treatment, and (3) short-term effectiveness.

The estimated marked-up cost of the selected remedy is $9,870,000. The selected remedy (Alternative 3) is the most cost-effective alternative that achieves all three aforementioned criteria. Although Alternatives 1 and 4 are less expensive than Alternative 3, Alternative 1 does not achieve the RAOs, does not reduce TMV, and is not effective in the short term. Alternatives 2 and 4 do not reduce TMV through treatment, because no treatment is involved in either alternative. Alternative 2 is effective and permanent in the long-term, and would take less time to implement than Alternative 4. In order for Alternative 4 to be effective in the long term, it requires continued maintenance and monitoring.

2.12.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The USACE has determined that the selected remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. The selected remedy provides the best balance of trade-offs in terms of the five balancing criteria.

2.12.5 Preference for Treatment as a Principal Element

Under Alternative 3, the TMV of contaminants in soil and sediment would be permanently reduced through excavation, on-site treatment, and off-site disposal.

2.12.6 Five-Year Review Requirements

A five-year review is not required pursuant to CERCLA §121(c) and NCP §300.430(f)(5)(iii)(C) because the selected remedial action removes hazardous substances, pollutants, or contaminants and allows for unlimited use and unrestricted exposure.

2.13 DOCUMENTATION OF SIGNIFICANT CHANGES FROM THE PREFERRED ALTERNATIVE

There are no significant changes to the selected remedy presented in this ROD from the preferred alternative identified in the PP (USACE 2026b) for the Iona Island Naval Ammunition Depot FUDS that was provided to the public for review and comment and presented at the public meeting on 7 May 2026.

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Table 2-2. ARARs for Selected Remedy – Alternative 3, Excavation, Ex Situ Treatment, and Off-Site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste

Regulatory Authority	Requirement	Status	Requirement Description	Action to be taken to Attain ARAR
Chemical-Specific ARARs				
No chemical-specific ARARs were identified				
Location-Specific ARARs				
Federal	Clean Water Act 40 CFR § 230.10(a)	Applicable	Prohibits the discharge of dredged or fill material into waters of the United States if there is a practicable alternative that would have a less adverse impact on the aquatic ecosystem. The project area qualifies as a "Water of the United States.	This applies to the placement of clean fill material into the project location, which includes waters of the United States. The amount of clean fill would be a comparable volume of material to that which was removed and used for the purpose of restoration of the ecosystem. There is no practicable alternative that would have less adverse impacts on the aquatic ecosystem.
Action-Specific ARARs				
Federal	Endangered Species Act of 1973, 16 USC 1538(a)(1)(B)	Applicable	Prohibits the take of any endangered species.	These provisions will be complied with in regard to protecting the endangered Northern juvenile short-nose sturgeon and juvenile Atlantic sturgeon and its habitat.

Notes:
ARAR = applicable or relevant and appropriate requirement
CFR = Code of Federal Regulations
EPA = U.S. Environmental Protection Agency
USACE = U.S. Army Corps of Engineers
USC = U.S. Code

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3. RESPONSIVENESS SUMMARY

The public comment period extended for 33 days, from 23 April through 26 May 2026. A notice identifying the date and time of a public meeting, as well as the availability of the Proposed Plan, was published in the *News of the Highlands* and *Rockland County Times* on 23 April 2026. The public meeting was held to discuss the Proposed Plan on 7 May 2026 at 6 p.m. at the Holiday Inn Express at 1106 US-9W, Fort Montgomery, New York 10922. Representatives of USACE New England District, NYSDEC (regulator), a representative from PIPC (property owner), and EA (USACE New England District Contractor) attended. The meeting transcript is provided in **Appendix C** of this ROD. Oral comments were received at the end of the public meeting on 7 May 2026 and are included in this part along with USACE's responses. Verbal comments were received during the public meeting and transcribed by a court reporter. NYSDEC and NYSDOH provided written comments during the public comment period; these comments are included in this part along with USACE's responses. In instances where NYSDEC and NYSDOH made grammatical and typographical comments on the Proposed Plan, the corresponding language in the ROD was updated, as indicated in **Section 3.1.2**. The only written comments received during the public comment period were from NYSDEC and NYSDOH. NYSDEC has been involved in this project throughout the RI, FS, PP, and ROD.

3.1 STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES

USACE held a public hearing at the Holiday Inn Express at 1106 US-9W, Fort Montgomery, New York 10922 on 7 May 2026 to formally present the Proposed Plan for the FUDS and to receive comments. A 33-day public comment period for the Proposed Plan was conducted from 26 April to 26 May 2026. Comments were received from NYSDEC, NYSDOH, and representatives from the PIPC.

3.1.1 Comments Received During the Public Meeting 7 May 2026

Public Meeting Comment # 1 – Sankavi Sampath (NYSDEC)

Has thought been given to what the soil amendment is going to be?

USACE Response to Public Meeting Comment #1

There are a variety of commercial products that will chemically bind metals to the soil matrix; one such example is EnviroBlend, which is a phosphate-based material. Other options include cement kiln dust, which is magnesium-based, but essentially does the same thing. These amendments are mixed into soil at a specified concentration by mass, then tested to verify the material is non-hazardous.

Public Meeting Comment #2 – Sankavi Sampath (NYSDEC)

During the design phase and remedial action phase, will sampling be conducted?

USACE Response to Public Meeting Comment #2

Sampling will be conducted during the remedial action phase. This sampling will include investigation-derived waste and Toxicity Characteristic Leaching Procedure sampling prior to disposal. Sampling requirements will be included in the remedial design which will specify the quantity of samples per volume.

Public Meeting Comment #3 – John Swartwout (NYSDEC)

Will sampling be conducted related to determining the boundary of the excavation?

USACE Response to Public Meeting Comment #3

Yes. Confirmation sampling will be conducted following the excavation to the extent practicable, both vertically and horizontally.

Public Meeting Comment #4 – Sankavi Sampath (NYSDEC)

Is there going to be a written plan addressing how wildlife will be impacted during the remedial action?

USACE Response to Public Meeting Comment #4

Yes. The contractor that will perform the construction will need to submit plans including wildlife protection plans that will include erosion control plans to protect the aquatic ecosystem. They will identify sensitive and endangered animal species and protective systems that they will implement during construction including but not limited to noise and vibration monitoring.

Public Meeting Comment #5 – Sarita Wagh (NYSDOH)

Will the excavated material be treated on site? Where? How will it be treated and then removed from the site? Would the area be restricted to the public?

USACE Response to Public Meeting Comment #5

This will be detailed in the remedial design. In general, excavated soil would be brought to a staging area near but upland from the excavation area and allowed to drain. The soil will then be mixed with the selected amendment and sampled to confirm that the material can be disposed of off-site as non-hazardous. The volume of soil to be excavated and treated is small, so this activity would not take up a large area. Upon acceptance by a non-hazardous disposal facility, the soil will be loaded onto permitted trucks and transported to the facility. The treatment and excavation area will be restricted during construction, not only to protect people against exposure to contaminants but also to protect them against construction hazards such as heavy equipment. In addition, signs could be posted along the shoreline to prevent the public from accessing the FUDS from the water.

Public Meeting Comment #6 – John Swartwout (NYSDOH)

There are places along the Hudson River where people in kayaks can readily pull up onto a small beach and access the site. It might be a good idea to post signs along the beach area before the

construction begins to provide some advanced warning that there will be construction activity during the specified time period.

USACE Response to Public Meeting Comment #6

Yes, signs will be posted along the shore line in locations recommended by PIPC to notify the public of impending and current construction activities on the island.

Public Meeting Comment #7 – Ed McGowan (PIPC)

Is there potential that some of the site contaminants could have migrated through fissure systems in the bedrock, as has been the case for methyl tertiary butyl ether contamination from gas station sites?

USACE Response to Public Meeting Comment #7

The potential for migration of contaminants through the bedrock is very low for the Iona FUDS. Methyl tertiary butyl ether is much more mobile than metals and travels more readily through groundwater. PAHs are also heavy. At the Iona FUDS, brackish water is washing in and out with the fluctuating tides, so it would more likely be flushed from the FUDS to the river; however, surface water was sampled as part of the RI, for total and dissolved metals to see if contaminants were migrating to surface water. There were not any metals detected in the surface water, indicating that contaminants are not migrating.

3.1.2 NYSDEC and NYSDOH Comments Received During the Public Comment Period

NYSDEC and NYSDOH provided comments based on their review of the Proposed Plan (USACE 2026b) in an email on 22 May 2026. These comments and USACE responses are summarized below. There were no changes to the alternatives or the selected remedy. Applicable revisions were made to the ROD. The referenced correspondence is provided in **Appendix D.**

NYSDEC Comment #1

Final Proposed Plan, Page 6, Figure 3: Please specify what the red X-marks on the figure are supposed to represent in the figure's legend.

USACE Response to NYSDEC Comment #1

The red X-marks are sample locations from the Alion 2008 Site Inspection. The figure legend was revised to include the X-marks.

NYSDEC Comment #2

Final Proposed Plan, Page 12 of 23: There is a slight spelling error in the first line of the 'Reduction of Toxicity, Mobility, and Volume Through Treatment' subsection. It should be "Alternative 1," not "Alternatives 1."

USACE Response to NYSDEC Comment #2

The text in the ROD has been confirmed to be correct relative to this comment.

NYSDEC Comment #3

Final Proposed Plan, Page19 of 23: There is spelling error in the first sentence. It should be address not addresses.

USACE Response to NYSDEC Comment #3

The text in the ROD has been confirmed to be correct relative to this comment.

NYSDEC Comment #4

Final Proposed Plan, Section 7: Although NYSDEC concurs with the decision to not accept the State-proposed ARARs, we still ask that our request to consider the other metals besides lead in post-excavation and design-phase sampling be incorporated into the Proposed Plan.

Response to NYSDEC Comment #4

Sampling to be performed during the remedial action is not included in the Proposed Plan or ROD; however, it will be included in the remedial action work plan prepared by the remedial action contractor. Other metals besides lead are typically considered during waste characterization sampling, depending on disposal facility requirements. When the remedial action work plan is developed, NYSDEC will be able to comment.

NYSDEC Comment #5

Final Proposed Plan, Page 3 of 23: The statement that there are no plans to develop the site for recreational purposes in the Proposed Plan contradicts page 24 of the Feasibility Study, where potential future use for camping, kayaking, etc. are identified for the Site. Please amend the last sentence of the last paragraph of Section 3 of the Proposed Plan to reflect that outdoor recreation is being considered as an end use for the site.

Response to NYSDEC Comment #5

Although there are no current plans to redevelop the FUDS for recreational use, there is still the potential that the FUDS could be used for unauthorized recreational purposes in the future. Despite not being part of planned development, recreational use was a risk driver that was evaluated in the HHRA.

NYSDEC Comment #6

Final Proposed Plan, Page 10 of 23: Please change the language used in the last sentence of the last paragraph of Section 7 from 'maintaining' the wetland to 'restoring' it.

Response to NYSDEC Comment #6

The text in the ROD has been revised as noted.

NYSDOH Comment #7

Final Proposed Plan, Page 5 of 23: The Proposed Plan relates to "Hazardous, Toxic, and Radioactive Waste" (HTRW) areas of concern which we feel is misleading. If there is no radioactive waste on the site, please include a statement in the PRAP that there is no Radioactive Waste at the site. Please include information that the PRAP deals with metals as the major contaminants on the site.

Response to NYSDOH Comment #7

HTRW is the name of the program the FUDS is under. Following introduction of this program in the ROD in **Section 1.2**, the Assessment of the FUDS (**Section 1.3**) defines what site risks were identified based upon site use history. Site activities never included the use of any radionuclides.

Consequently, no revision has been made to the ROD.

NYSDOH Comment #8

Final Proposed Plan, Page 11 of 23: Please include details about the Ex-situ treatment of soils and chemicals that may be used in this process.

Response to NYSDOH Comment #8

There are a variety of commercial products that will chemically bind metals to the soil matrix, such as EnviroBlend, which is a phosphate-based material, or cement kiln dust, which is a magnesium-based material. The specific ex-situ treatment of soils and chemicals to be used in the remedy have not been decided yet. That will occur as part of the Remedial Design (RD) Phase. This phase focuses on developing the technical specifications necessary for implementing the selected cleanup remedies. The RD phase translates the selected remedy from the ROD into detailed engineering plans and specifications. This includes determining the technologies and methods that will be used to remediate the FUDS.

NYSDOH Comment #9

Final Proposed Plan, Page 11 of 23: Please include information about whether there would be a designated area on the site for Ex-situ treatment of the contaminated excavated soils and sediment.

Response to NYSDOH Comment #9

There will be a designated area on the FUDS for ex-situ treatment of contaminated excavated soils and sediment. Specifics of the remedy, including the location of the area for on-site ex-situ treatment of contaminated excavated soils and sediments will be included in the RD Phase of this project. Stakeholders, including NYSDEC and NYSDOH will be allowed to comment on the plans and specifications as they are developed.

3.2 TECHNICAL AND LEGAL ISSUES

The public participation requirements set out in the NCP at 40 CFR § 300.430(f)(3) have been met for the Iona Island Naval Ammunition Depot FUDS. There were no significant technical or legal issues raised in the process of developing this ROD.

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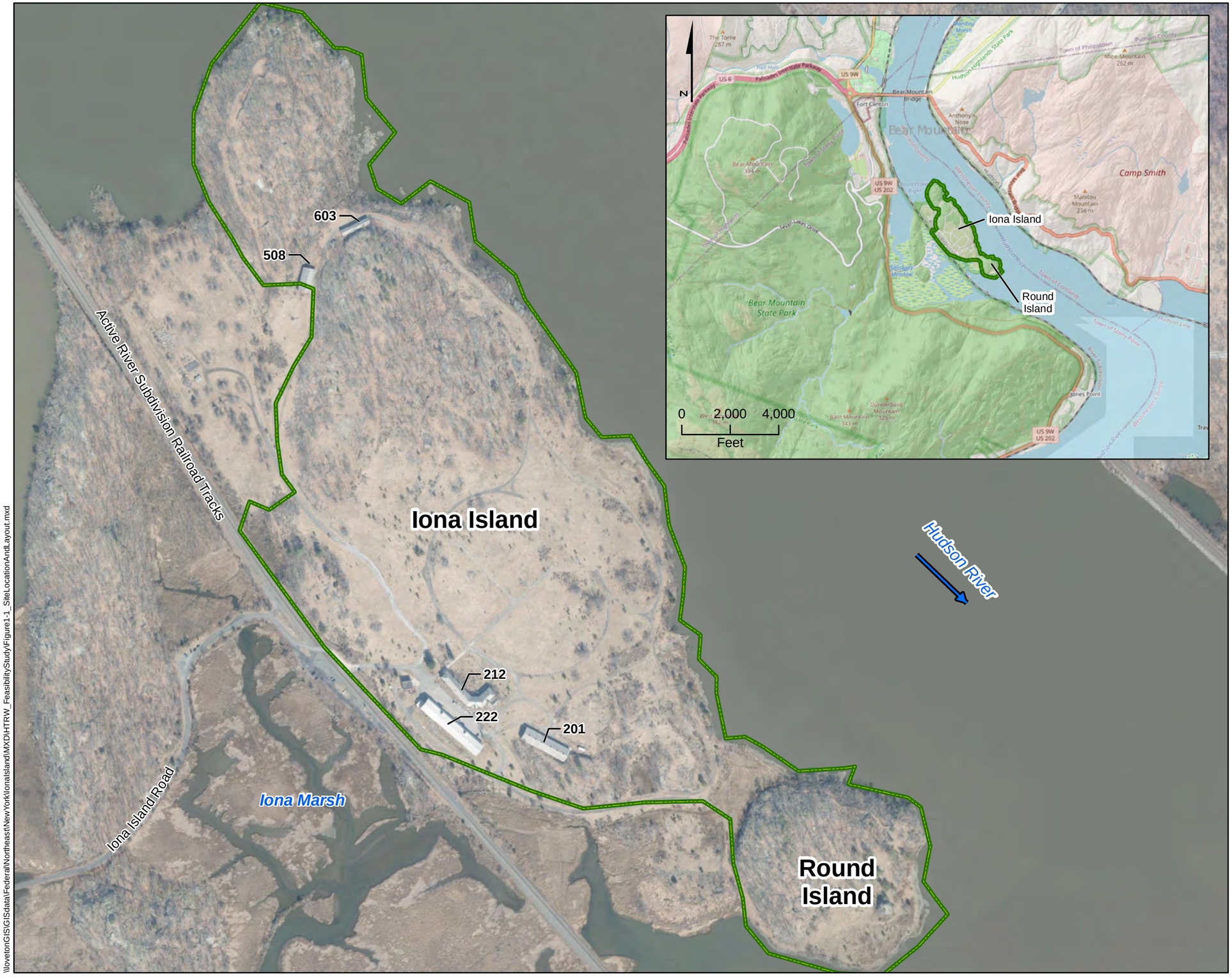
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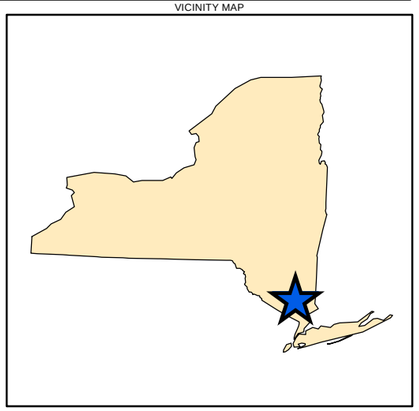
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Figures

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VICINITY MAP



Legend

- FUDS Boundary
- Surface Water Flow Direction

0 400 800
Feet
1 in = 400 feet

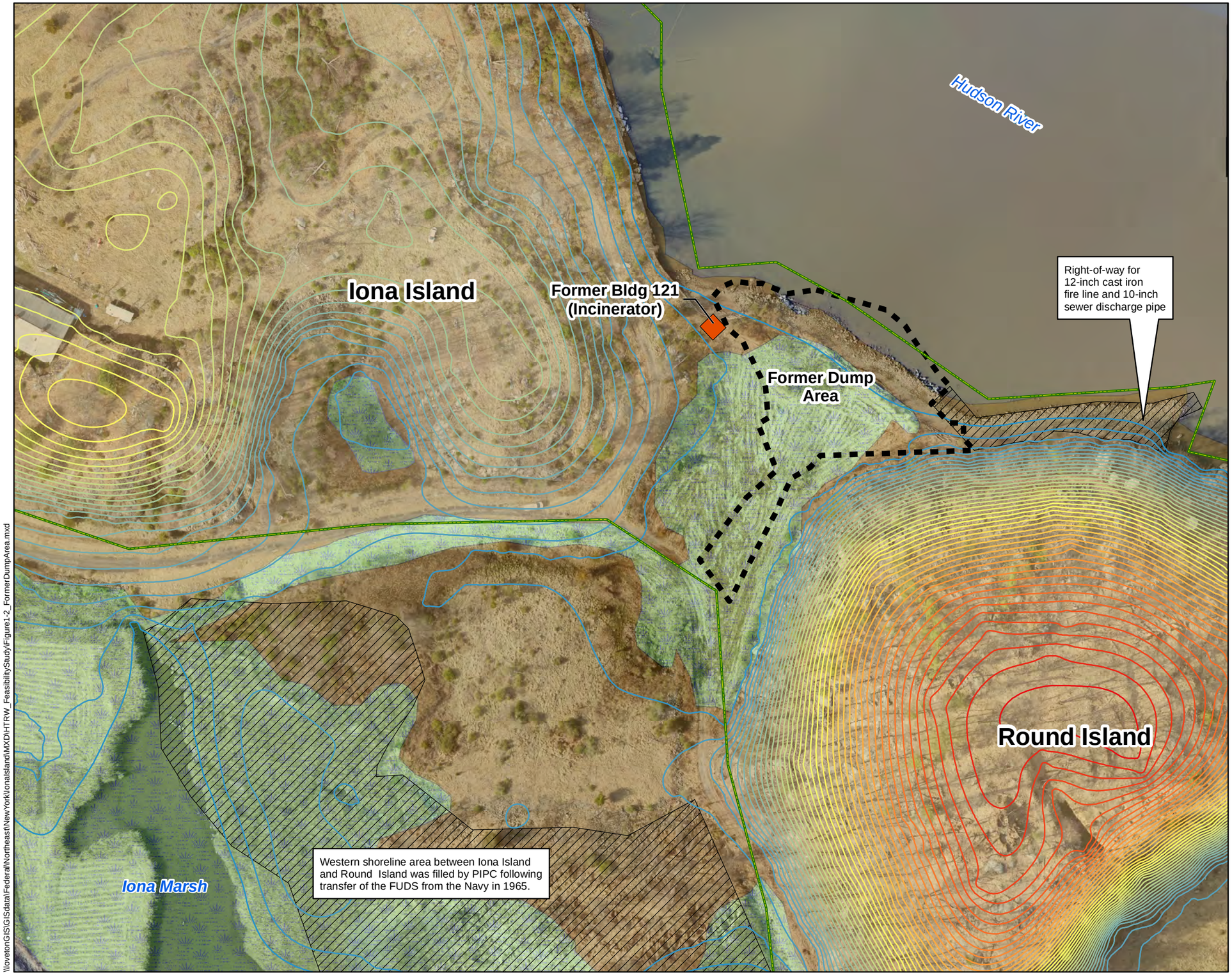
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FIGURE 1-1
Former Iona Island Naval Ammunition Depot FUDS Location and Layout

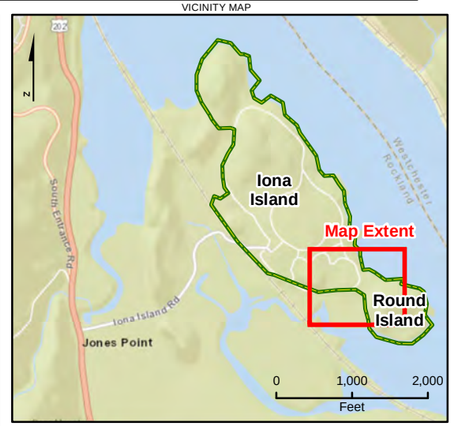
HAZARDOUS TOXIC AND RADIOACTIVE WASTE
RECORD OF DECISION

Source
Aerial: EA Engineering, Science, and Technology. April, 7 2020
Disturbed Ground/Fill Area and AOC Boundary: USAGC 2018
Upland and Marsh/Wetland: 2020 EA Shoreline Reconnaissance
Map Date: 7/18/2024

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VICINITY MAP



Legend

- FUDS Boundary
- Upland
- Marsh/Wetland
- Former Dump Area/Proposed Removal
- Former Bldg 121 Incinerator Disturbed
- Ground/Fill Area

2-Foot Topographic Contour Gradations

(Feet above mean sea level (amsl)

High : 84 ft amsl

Low : 0 ft amsl

0 100 200

Feet

1 in = 100 feet

N

FIGURE 1-2
Former Dump Area

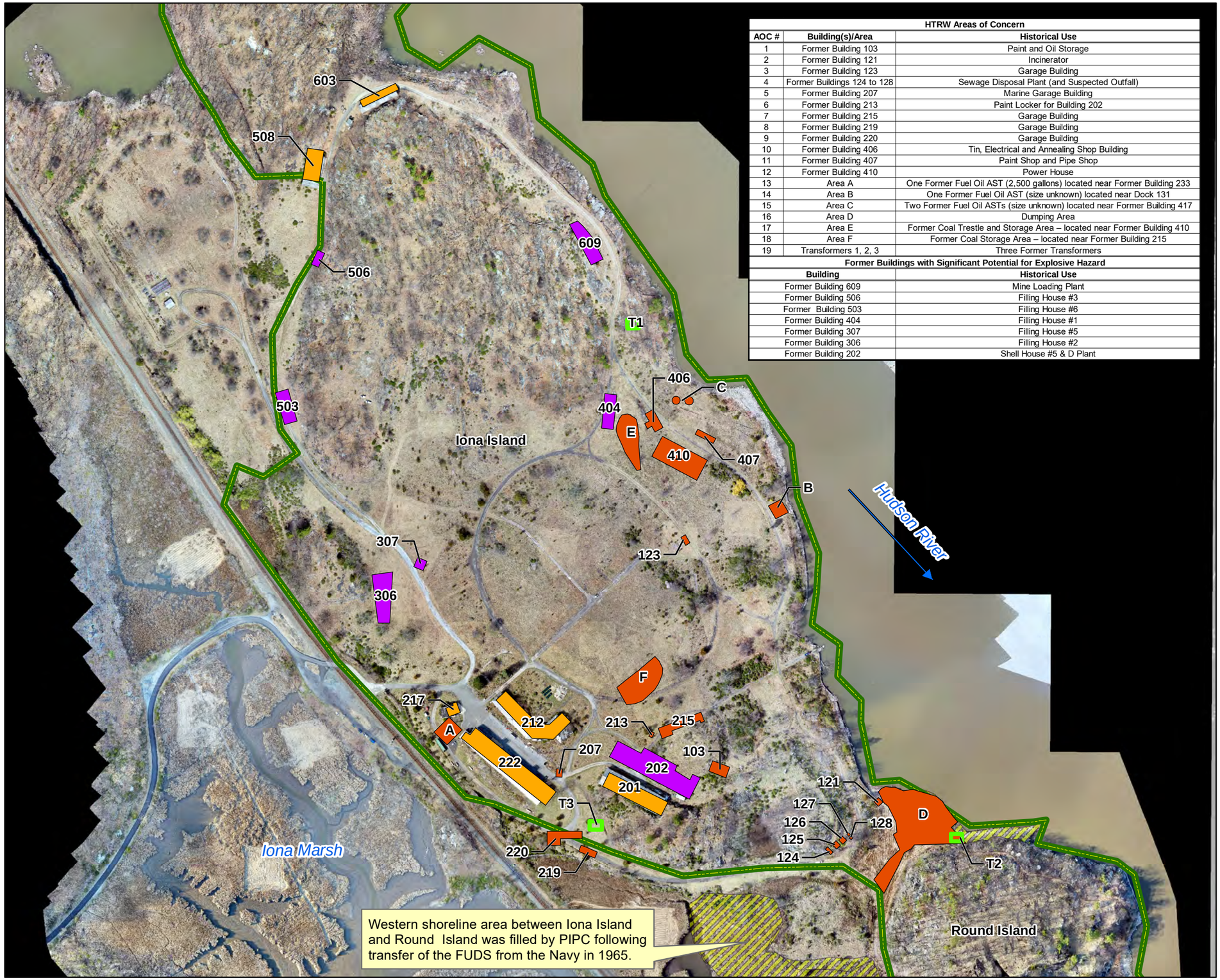
HAZARDOUS TOXIC AND RADIOACTIVE WASTE
RECORD OF DECISION

Source
Aerial: EA Engineering, Science, and Technology. April, 7 2020
Disturbed Ground/Fill Area and AOC Boundary: USAGC 2018
Upland and Marsh/Wetland: 2020 EA Shoreline Reconnaissance
Map Date: 7/18/2024

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HTRW Areas of Concern		
AOC #	**Building(s)/Area**	**Historical Use**
1	Former Building 103	Paint and Oil Storage
2	Former Building 121	Incinerator
3	Former Building 123	Garage Building
4	Former Buildings 124 to 128	Sewage Disposal Plant (and Suspected Outfall)
5	Former Building 207	Marine Garage Building
6	Former Building 213	Paint Locker for Building 202
7	Former Building 215	Garage Building
8	Former Building 219	Garage Building
9	Former Building 220	Garage Building
10	Former Building 406	Tin, Electrical and Annealing Shop Building
11	Former Building 407	Paint Shop and Pipe Shop
12	Former Building 410	Power House
13	Area A	One Former Fuel Oil AST (2,500 gallons) located near Former Building 233
14	Area B	One Former Fuel Oil AST (size unknown) located near Dock 131
15	Area C	Two Former Fuel Oil ASTs (size unknown) located near Former Building 417
16	Area D	Dumping Area
17	Area E	Former Coal Trestle and Storage Area – located near Former Building 410
18	Area F	Former Coal Storage Area – located near Former Building 215
19	Transformers 1, 2, 3	Three Former Transformers

Former Buildings with Significant Potential for Explosive Hazard	
Building	**Historical Use**
Former Building 609	Mine Loading Plant
Former Building 506	Filling House #3
Former Building 503	Filling House #6
Former Building 404	Filling House #1
Former Building 307	Filling House #5
Former Building 306	Filling House #2
Former Building 202	Shell House #5 & D Plant



VICINITY MAP



Legend

- FUDS Boundary
- HTRW Project Areas of Concern
- FormerTransformers
- Remaining Structure (Not FUDS Eligible)
- Former Buildings with Significant Potential for Explosive Hazard
- Disturbed Ground/Fill Area
- Surface Water Flow Direction

0 300 600
Feet
1 in = 300 ft

N

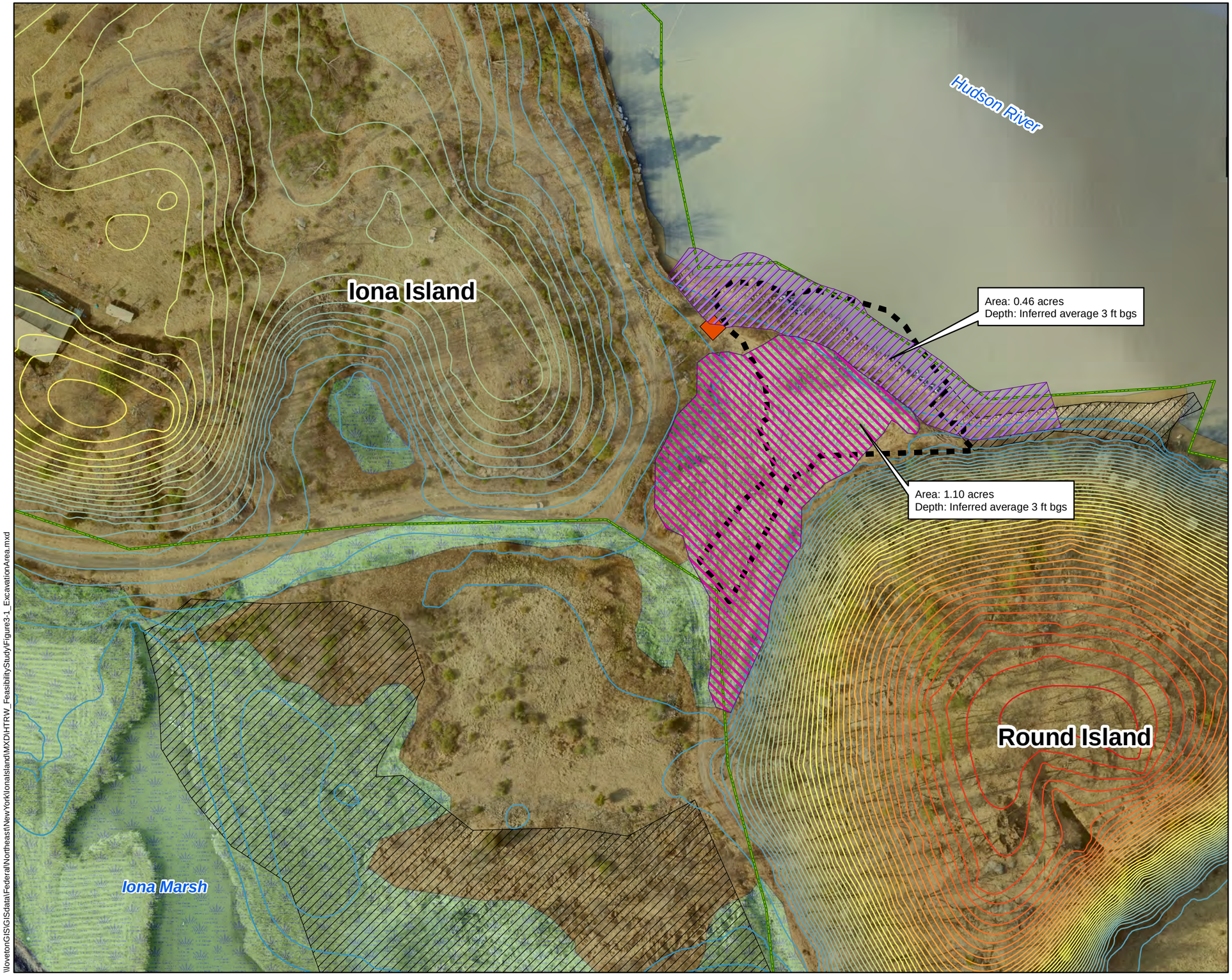
FIGURE **2-1**
H**azardous, Toxic, and Radioactive Waste** Project Areas of Concern

HAZARDOUS TOXIC AND RADIOACTIVE WASTE
RECORD OF DECISION

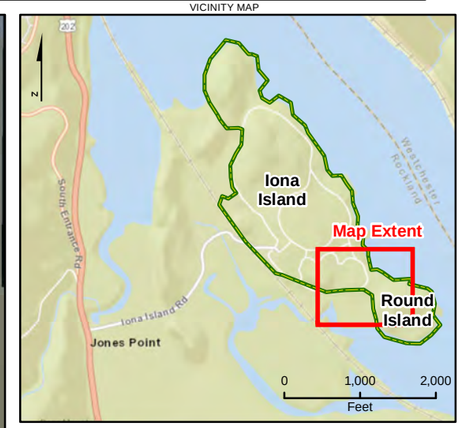
Source
Aerial: EA Engineering, Science, and Technology. April 7, 2020

Map Date: 1/11/2024

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VICINITY MAP



Legend

- FUDS Boundary
- Upland
- Marsh/Wetland
- Former Dump Area
- Former Bldg 121 Incinerator
- Disturbed Ground/Fill Area
- Extent of Lead-Impacted Soil
- Extent of Lead-Impacted Sediment

2-Foot Topographic Contour Gradations

(Feet above mean sea level (amsl)

- High : 84 ft amsl
- Low : 0 ft amsl

0 100 200
Feet

1 in = 100 feet

N

FIGURE **2-2**
Extent of Lead-Impacted Soil and Sediment **Removal Areas**

HAZARDOUS TOXIC AND RADIOACTIVE WASTE
RECORD OF DECISION

Source
Aerial: EA Engineering, Science, and Technology. April, 7 2020
Disturbed Ground/Fill Area and AOC Boundary: USAGC 2018
Upland and Marsh/Wetland: 2020 EA Shoreline Reconnaissance
Map Date: 8/2/2024

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Appendix A

NYSDEC Concurrence Letter

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Appendix B

Announcement of Public Notice

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The U.S. Army Corps of Engineers (USACE) is seeking Public Comment on the Proposed Plan (PP) for the Iona Island Naval Ammunition Depot Formerly Used Defense Site (FUDS), Stony Point, Rockland County, New York. The Proposed Plan identifies the Preferred Remedial Alternative and the rationale for the recommendation for the public to comment on it.

Iona Island is a 124-acre island located in the Hudson River near Bear Mountain State Park 5 miles south of Fort Montgomery, New York. The U.S. Navy used the site as an Ammunition Depot from 1900 to 1947. Activities included preparing, assembling, maintaining, inspecting, testing, and issuing ammunition; however, there was no manufacturing conducted on-site. The Remedial Investigation (RI) concluded that there is unacceptable risk for the Former Dump Area and Hudson River shoreline sediments in immediate vicinity to the Former Dump Area. The PP summarizes the RI and Feasibility Study and identifies the Preferred Remedial Alternative as excavation, on-site treatment, and off-site disposal of soils impacted by historical military use to protect human health and the environment from hazards.

The Public Comment Period extends from 23 April through 26 May 2026. A Public Meeting will be held on 7 May 2026 at Holiday Inn Express West Point-Fort Montgomery 1106 US-9W, Fort Montgomery, New York and will start at 6 p.m. The public is invited to provide feedback on the PP for the Iona Island FUDS and learn more information.

The PP and associated documents are available for public review online at https://www.nae.usace.army.mil/Missions/Projects-Topics/Iona-Island-FUDS/

The Project Information Repository is located at: Bear Mountain State Park Administration Building 3006 Seven Lakes Drive Tomkins Cove, NY 10986, Ed McGowan, Director (914) 382-6704

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Appendix C

Public Meeting Transcript

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U.S. ARMY CORPS OF ENGINEERS

PUBLIC COMMENT MEETING

IONA ISLAND

NAVAL AMMUNITION DEPOT

FORMERLY-USED DEFENSE SITE (FUDS)

MAY 7, 2026

6:03 P.M. (EST) TO 6:47 PM (EST)

Court Reporter: Teresa Santana, CSR

A P P E A R A N C E S

APPEARING FOR THE ARMY CORPS OF ENGINEERS:

ERIN KIRBY
Project Manager

SHEANDRA STERLING
Public Affairs

HEATHER SULLIVAN
Formerly-Used Defense Site Program Manager

APPEARING FOR THE EA CONTRACTORS:

TIM REESE
IVY HARVEY
MEGAN MILLER

Also present:

Sarita Wagh
John Swartwout
Sankavi Sampath
Ed McGowan

01:45PM MS. KIRBY: So thank you all for coming to
01:46PM the public meeting for the former Iona Island Naval
01:47PM Ammunition Depot, a Formerly Used Defense Site, which is
01:47PM known as FUDS, F-U-D-S. You guys know me. I'm Erin
01:48PM Kirby, the project manager and point-of-contact for the
01:48PM Army Corps of Engineers. This is Sheandra Sterling from
01:49PM the public affairs office. This is Heather Sullivan.
01:50PM She is the Formerly Used Defense Site program manager.
01:50PM And then our contractors from EA are Tim Reese and Ivy
01:50PM Harvey and Megan Miller. And then we've got Ed McGowan,
01:50PM excuse me, from the park. And then Sarita Wagh, from
01:51PM the Department of Health and John Swartwout and Sankavi
01:51PM Sampath --
01:51PM MS. SAMPATH: Yeah.
01:51PM MS. KIRBY: -- from DES, New Hampshire --
01:51PM or New York DES.
01:51PM MR. SWARTWOUT: DEC.
01:51PM MS. SAMPATH: DEC.
01:51PM MS. KIRBY: -- DEC. Okay. So tonight,
01:52PM we're going to discuss the environmental assessment of
01:52PM the site, including risks to human health and the
01:52PM environment associated with military operations at the
01:52PM Iona Island Naval Ammunition Depot, which from now on
01:52PM I'm just going to refer to it as Iona.
01:52PM We're also going to discuss the process we

used to develop appropriate plan of strategies for Iona. Okay. So, like I said, this evening, we're just going to walk through the regulatory process, the site and the history, the result of the investigation and what we recommend next. So you've had a bit of a preview from the site walk, but we'll go through it again.

Again, the project team is the Army Corps of Engineers, Baltimore District, the New England District. Then we've got EA science technology -- engineering science and technology, who are our contractors, the Palisades Interstate Park Commission, which are the property owners. And then we have New York State Department of Environmental Services and New York State Department of Health.

Okay. So why are we here today? During this presentation, again, we're going to discuss the regulatory framework, the history, results of the investigation. But also, just as importantly or if not most important, how you guys can comment on the project and our proposed plan.

Please be aware that the risk from possible presence of munitions and explosives of concern are munitions debris was evaluated as part of the Military Munitions Response Program that was concluded in February of 2023. But if you're interested in any of

01:55PM those documents, you can contact me or you can go on the
01:55PM administrative record and find those reports.
01:55PM Okay. So, first, a little background on
01:55PM how the site is being managed. It is being managed
01:56PM under the Defense Environmental Restoration Program
01:56PM Statute, which provides authorization to the DoD to
01:56PM perform and fund environmental actions in the Formerly
01:56PM Used Defense Site program in accordance with CERCLA of
01:56PM 1980. So CERCLA is an acronym for the Comprehensive
01:56PM Environmental Response Compensation and Liability Act,
01:56PM which is a federal law that provides a consistent
02:07PM approach for cleanup of sites across the nation.
02:07PM So there are multiple steps. There's site
02:07PM inspection and preliminary assessment. Then there's
02:07PM remedial investigation, which we initiated in 2018 for
02:07PM the purpose of collecting detailed information through
02:08PM field investigations to characterize site conditions.
02:08PM This included determining nature and extent of
02:08PM contamination. For example, how widespread the
02:08PM contamination is on surface water or other media and for
02:08PM evaluating risks to human health and the environment.
02:08PM We completed the remedial investigation in July 2024.
02:09PM The next step was the feasibility study,
02:09PM whose purpose is to screen and develop potential
02:09PM remedial alternatives, so that the appropriate

protective remedy can be selected to address DoD impacts identified in the remedial investigation. We recently completed the feasibility study in March 2026.

So now we're currently in the proposed plan stage of the project, which means that the field work has been completed and a risk assessment has been completed. But the proposed plan is going to summarize the remedial alternatives proposed for the project and specifies the preferred cleanup method known as the "preferred alternative".

Okay. So Iona, where we were visiting this afternoon, consists of 124 acres of land and marsh within Bear Mountain State Park on the east side of US 202, approximately 5 miles south of Fort Montgomery and Rockland County. Iona is an island located in the Hudson River, which has a deep channel that allowed large ships to come right up to the island for loading of equipment and supplies, which is why the Navy selected it as an ammunition depot.

Okay. So some pictures of the actual site and the site habitats, which are -- consist of terrestrial -- which is a land which you can see in the middle area, which is the former dump area. And then we have shoreline on the Hudson River, which I think is -- all three of the shorelines, just different sides. So

02:13PM 1 that's the sea wall on the far right. And then there's
02:13PM 2 the beach on the far left. And then on the bottom, if
02:13PM 3 you turn around, that's looking at another -- looking to
02:13PM 4 the south.
02:13PM 5 Okay. So site history, the Navy used the
02:13PM 6 island as an ammunition depot from 1900 to 1947, during
02:13PM 7 which the personnel specifically prepared, assembled,
02:13PM 8 maintained, inspected, tested and used ammunition.
02:14PM 9 However, there was no actual manufacture of ammunitions
02:14PM 10 on site. During World War I, almost all the depth
02:14PM 11 charge bombs and ammunition used in the Atlantic area
02:14PM 12 passed through Iona. After World War I from 1918 to
02:14PM 13 1940, Iona Island supplied ammunition of all calibers,
02:14PM 14 excuse me, to the fleet for service allowances, target
02:14PM 15 practice and reserve war requirements. Round Island,
02:14PM 16 the southernmost portion of the depot, was utilized by
02:14PM 17 the Navy for ammunition storage.
02:15PM 18 Between 1941 and 1945, Iona was used for
02:15PM 19 assembling naval ammunition for World War II. More than
02:15PM 20 2,000 Navy ships and another approximately 2,000
02:15PM 21 merchant ships received their ammunition from Iona
02:15PM 22 Island during that period. In addition, 77 bases, 500
02:15PM 23 shore stations and 700 foreign naval ships were serviced
02:15PM 24 with ammunition from Iona.
02:15PM 25 After World War II, use of Iona as an

ammunition depot became obsolete because of the lack of room to expand and accommodate new types of ammunition. Therefore, in 1947, the Navy decided to deactivate Iona.

So the current use, Iona is used by Bear Mountain State Park for offices, storage, conservation and research. Access to Iona is restricted to park staff, construction workers, researchers. However, there is the occasional trespasser. In and around Iona is home to diverse variety of plants, animals and fish that we need to protect. [Verbatim]

In 19 -- in October 1992 is the first time that the New York district performed an initial site walk of Iona and identified the potential impacts from historical DoD activities, including former above-ground storage tanks, coal storage locations, an incinerator and former buildings used as a garage, paint storage and a sewage treatment plant.

Then in 1995, the site was identified as a project in the Formerly-Used Defense Site Program. Subsequent to entering the FUDS program, in 1996 soil sampling was first conducted, which indicated impacts in soil from metals, semi-volatile organic compounds and polychlorinated biphenyls known as PCBs.

So this brings us to the current remedial investigation which was completed in 2024. Beginning in

02:19PM 2018, a total of 19 areas of concern were identified for further investigation based on the history of the buildings and the activities that were completed there. Areas of concern were such things as we just mentioned as the garage, buildings where explosives were stored, the former incinerator, transformers and marsh area between Iona and Round Island that is used as a dumping area. So the DoD footprint, if you can see, is outlined in green. And the 19 areas of concern on the figure are in orange and purple. The dump site is a low-lying area between Iona Island and Round Island, which is orange and labeled with a D.

Okay. So the remedial investigation was performed in two field iterations. The initial phase was in 2020. And then we completed our field work during phase II in 2022. During phase I, surficial and subsurface soil samples were collected in a grid pattern called "decision units" or DUs represented by the black and blue squares on the figure. A total of 32 DUs for a combined area of approximately 25 acres were sampled for soil. We also conducted a shoreline reconnaissance as part of the phase I investigation to identify the best places to sample surface water based on where contaminants might accumulate, based on how surface water drains. We looked at both the Hudson River and

02:22PM marsh sides of the island and identified sampling
02:22PM locations. So the picture on the bottom left is the
02:22PM picture of EA collecting soil samples from the site.
02:23PM Okay. So this is background soil sampling.
02:23PM The primary goal of the CERCLA program is to protect
02:23PM human health and the environment from current and
02:23PM potential threats posed by uncontrolled releases of
02:23PM hazardous substances, pollutants and contaminants.
02:23PM Contamination at a CERCLA site may originate from
02:23PM releases attributable to Iona as well as contamination
02:23PM that originates from other sources, including
02:23PM naturally-occurring and manmade sources not attributable
02:24PM to historical DoD activities.
02:24PM Background information is important because
02:24PM the CERCLA program does not clean up concentrations
02:24PM below natural or manmade background levels, which means
02:24PM that we are only required to clean up impacts from the
02:24PM historical DoD activities. For example, many compounds
02:24PM such as metals and semivolatile organic compounds can
02:24PM occur naturally, such as arsenic, which is a weathering
02:24PM product of granite.
02:24PM Therefore, we identified soil types on Iona
02:25PM Island and looked for the same or similar soil types
02:25PM outside of where soil could be impacted by historical
02:25PM DoD operations. We then collected soil samples from a

02:25PM 1 total of eight grids or DUs, including both surface and
02:25PM 2 subsurface samples outside of the footprint of the site,
02:25PM 3 to evaluate metals and semivolatile organic compound
02:25PM 4 concentration that reflect background concentrations.
02:25PM 5 Okay. So this figure zooms in on the areas
02:26PM 6 we focused on, both on the Hudson River and the marsh
02:26PM 7 sides of the island, where I was talking about where
02:26PM 8 surface water would flow and how we can collect samples
02:26PM 9 there. It shows the location of the dump area relative
02:26PM 10 to the Hudson River and the marsh area. The dump area
02:26PM 11 is at times underwater depending on tidal fluctuations
02:26PM 12 and the time of year, such as spring versus summer.
02:26PM 13 Okay. So based on the results of the 2020
02:26PM 14 phase I investigation, we encountered elevated
02:26PM 15 concentrations of metals and polycyclic aromatic
02:27PM 16 hydrocarbons, known as PAHs, in the dump area and the
02:27PM 17 adjacent Hudson River shoreline. This figure also shows
02:27PM 18 where we collected surface water and sediment samples in
02:27PM 19 the dump area and the Hudson River shoreline and the
02:27PM 20 marsh based on the shoreline reconnaissance. We
02:27PM 21 returned to the site in 2022 to collect additional soil
02:27PM 22 and sediment samples focusing on the dump area and the
02:28PM 23 adjacent Hudson River shoreline.
02:28PM 24 Okay. Because we're zeroing in on the dump
02:28PM 25 area, based on the phase I results, we needed to collect

02:28PM 1 background samples for sediment and surface waters as
02:28PM 2 part of our phase II or second iteration of field work.
02:28PM 3 So we located an island, Con Hook, up gradient of Iona
02:28PM 4 that had similar depositional and erosional features
02:28PM 5 with a marsh side and a Hudson River side of the island,
02:29PM 6 where we could collect sediments and surface water
02:29PM 7 samples that were not affected by historical DoD
02:29PM 8 activities.
02:29PM 9 So you can see on the map that that's marsh
02:29PM 10 side and then that's the Hudson River side. And then
02:29PM 11 the map where it shows where Con Hook Island is compared
02:29PM 12 to Iona Island. So those -- so, therefore, we collected
02:29PM 13 multiple discrete composite-soil samples from Con Hook
02:29PM 14 Island for metals and PAHs. This slide shows the
02:29PM 15 surface water and sediment samples collected at Con
02:29PM 16 Hook. You can see both the sides of the river, the
02:30PM 17 sediment samples and then the surface water are in
02:30PM 18 yellow.
02:30PM 19 Alright. So based on the phase II results,
02:30PM 20 soil and sediment are impacted by metals, PAHs and PCBs
02:30PM 21 from historic DoD activities within the dump area and
02:30PM 22 the adjacent Hudson River shoreline. We also
02:30PM 23 encountered ash deposits in the dump area while we were
02:30PM 24 test pitting, which you can see in the photo, that we
02:30PM 25 were able to have fingerprinted to determine that the

most -- that most likely the ash came from the former onsite incinerator. We were also able to conclude that the source of metals and PAHs in the dump area are the result of the ash.

Alright. So that brings us to our human-health risk assessment. Using our soil and sediment and surface water data, we evaluated the risk of exposure of these chemical compounds to park personnel, researchers, construction workers, recreational users and trespassers. The difference in the receptor categories involves the types of activities a person in each category would be performing and the amount of exposure expected for each category. For example, a construction worker might be digging in the impacted soil and be exposed the entire time they are working, whereas a recreational user, like a bird watcher, would be less likely to come into contact with the impacted soil and, if they did, for a much shorter interval.

So we specifically looked at possible lead impacts to adults and children, as lead is particularly toxic to humans. The conclusion of the human-health risk assessment is that potential human-health concerns were only identified for receptors' exposures within the former dump area and the Hudson River shoreline.

Specifically, potential human-health concerns were only identified for the construction worker and the recreational user due to lead. For the construction worker, these exposures could be controlled using standard health and safety protocols and personal protective equipment supporting the conclusions of no further evaluation or risk assessment for this receptor. However, additional intercession is needed to protect recreational users from exposure to lead in the dump area and the adjacent Hudson River shoreline. Therefore, the remedial investigation recommended a feasibility study to be completed to develop alternatives to mitigate these risks to recreational users.

At the same time, we collected -- we completed an ecological risk assessment to evaluate the risk to plants, animals and insects both terrestrial and aquatic specifies. We found, similar to the human-health risk assessment, that metals, PAHs, PCBs and explosive residue were present in soil or sediment in the dump area and adjacent to the Hudson River shoreline. However, no impacts were documented in the surface water.

So based on our sampling, there were no DoD activities affecting the environment from site surface

02:35PM 1 water. However in the dump area, soil exposure area,
02:36PM 2 plants, insects, mammals and birds that eat these
02:36PM 3 insects, reptiles and amphibians -- reptiles and
02:36PM 4 amphibians are potentially at risk from chromium,
02:36PM 5 copper, lead, mercury or zinc with the risk being driven
02:36PM 6 by avian, meaning bird, exposure to lead.
02:36PM 7 In the Hudson River shoreline sediments,
02:36PM 8 plants and animals that live on the riverbed, fish that
02:36PM 9 live and feed on or near the bottom of the river,
02:37PM 10 reptiles and amphibians and birds that eat insects are
02:37PM 11 potentially at risk from antimony, cadmium, copper,
02:37PM 12 lead, nickel, zinc with the risk being driven by
02:37PM 13 exposure to lead.
02:37PM 14 So there is particular -- there is
02:37PM 15 potential risk to two species of birds, which are New
02:37PM 16 York state listed species of special concern, the
02:38PM 17 cerulean warbler and the golden-winged warbler that you
02:38PM 18 can see on the left-hand side. There is also potential
02:38PM 19 risk to two species of endangered fish, the Atlantic
02:38PM 20 sturgeon and the short-nosed sturgeon. And those --
02:38PM 21 pictures of those animals are on the right.
02:38PM 22 So what we discovered based on the RI was
02:38PM 23 that there was ash discarded in the dump area from the
02:38PM 24 former onsite incinerator. The presence of ash
02:39PM 25 represents an ongoing source area for elevated metals

and PAH concentrations in sediment soil. Furthermore, the ash and metals and PAHs are collocated. The two areas where metals and PAHs exceed background and screening levels are the dump area and the adjacent Hudson River shoreline. As previously stated, surface water did not show exceedances of applicable screening levels. [Verbatim]

The remedial investigation concluded that the next step was to perform a feasibility study to evaluate how to remediate lead present in the dump area and the Hudson River shoreline. As part of the feasibility study, we developed a preliminary remediation goal for lead to determine the remedial actions to protect human health and the environment from the lead present in soil and sediment in the dump area. The impacted soil and sediments are transported from the dump area into a limited section of the Hudson River shoreline due to water flowing in and out of the marshish dump area. [Verbatim] The preliminary, excuse me, remediation goal for lead at Iona is 82 milligrams per kilogram.

As part of the feasibility study, we developed site-specific remedial-action objectives. Under CERCLA, remedial-action objectives are the cleanup levels for which we are required to clean the site up

02:41PM to, so there will be no impacts to human health and the environment. The remedial-action objectives for Iona are:

To reduce the risk of ingestion and direct contact by recreational users to lead above the preliminary remediation goal in the Hudson River shoreline and the dump area;

Another goal is to prevent impacts to fish and birds from ingestion and direct contact to lead above the preliminary remediation goal, again, in the dump area and the shoreline;

And, finally, prevent migration of lead and soil from the dump area to the Hudson River shoreline.

Alright. This figure is an aerial photograph of the location of the incinerator, the source of the ash and the source of the lead, relative to metals and the PAHs to the dump area in the Hudson River shoreline.

The feasibility study screened and evaluated potential remedial alternatives to address the elevated metals and PAHs due to DoD dumping of ash from the onsite incinerator in the low-lying area between Iona and Round Islands. We then selected a remedy that is cost effective, implementable and protective of human health and the environment. [Verbatim]

02:46PM In the feasibility study and described in the proposed plan, for your comment, we screened four alternative -- remedial alternatives.

Alternative 1 is no action, just to leave it as is.

Alternative 2 is excavation and offsite disposal of contaminated soil and sediment as hazardous waste.

Alternative 3, which is our preferred alternative, is excavation, ex-situ treatment and offsite disposal of contaminated soil and sediment as non-hazardous waste.

And alternative 4 is capping of the contaminated soil and sediment accompanied by a self-installation of a permanent vertical barrier and additional land-use controls.

So, as discussed earlier, CERCLA requires us to prepare our four remedial alternatives against nine criteria associated with cost effectiveness, implementability and how protective the remedy is of human health and the environment. [Verbatim] So, specifically, those nine criteria are:

Overall protection of human health and the environment;

Compliance with applicable and relevant and

02:48PM appropriate requirements;
02:48PM Long-term effectiveness and permanence;
02:48PM Reduction of toxicity, excuse me, mobility and volume through treatment;
02:48PM Short-term effectiveness;
02:48PM Implementability; [verbatim]
02:49PM Total cost;
02:49PM Capital cost;
02:49PM And annual -- possible annual operation and maintenance costs.
02:49PM So, as I mentioned, our preferred -- based on the feasibility study, the preferred -- the proposed plan, excuse me, recommends, as a preferred alternative, excavation, on-site treatment and then off-site disposal of the excavated soils and sediment as nonhazardous waste.
02:55PM So, essentially, we propose to excavate the ash deposits and the associated impacted soil and sediments from above the site-specific preliminary remediation goals for lead in the dump area and the adjacent Hudson River shoreline. We will then use chemical processes to bind the metals and PAHs in excavated soil and sediment. Next we'll take that excavated material of ash and impacted soil sediment offsite for disposal. And, finally, we will restore the

dump area and the adjacent Hudson River shoreline with clean soil and native plants such as the narrow-leaf cattail, which is shown here in the photo.

So we're taking public comment on the proposed plan from April 23rd to May 26th. All comments will be taken into consideration and a response for each comment will be prepared. After we finalize the proposed plan and incorporate all the applicable comments, we will then prepare the record of decision.

Okay. So ways you can provide us with your comments on the proposed plan, you can do it tonight verbally at the meeting; or you can fill out a comment form and e-mail or snail-mail it to myself or Sheandra by the May 26th deadline. The proposed plan and other historical documents are online at the website below and also physically can be reviewed at Bear Mountain State Park.

So on this slide is both Sheandra's and my contact information. My contact information is also on the website. And this presentation will be uploaded to the administrative record so you can view it, but you can also see our contact information.

So does anybody have any questions? Go ahead.

MS. SAMPATH: Has thought been given to

what the soil amendment is going to be?

MS. KIRBY: No, not that I'm aware of.

MR. REESE: What -- repeat the question. And can you say your name?

MS. KIRBY: Did you hear?

THE COURT REPORTER: I didn't hear the last part.

MS. SAMPATH: Right, Sankavi Sampath. Have you given any thought to what the soil amendment is going to be?

MR. REESE: Most likely, the soil amendment is going to be a commercial product called EnviroBlend, with a capital B, all one word, EnviroBlend. It's going to be a phospate-based material, comes in one-ton container bags. And it would just be mixed in at probably 2% per ton. And it would be mixed in and then tested to verify that the material is not hazardous -- go to a -- go to the local landfill.

MS. SAMPATH: Thanks.

MR. REESE: But the other material that you can use, you can go -- cement kiln dust is also -- is magnesium based, but they both basically do the same thing.

MS. KIRBY: And I would say, from the Corps side, as the non-engineer or chemist, that would be

something that we would come up with in the specs that we haven't done yet. We will certainly share that information with you when it's done. It's just that I (low audio) --

Anyone else?

MS. SAMPATH: Sankavi Sampath again. So during -- during the, I guess, design phase and remedial-action phase, will there be sampling conducted?

MS. KIRBY: Yes, definitely. So we didn't do any IDW sampling. We didn't do any TCLP sampling, so that definitely needs to be done to evaluate -- that would again -- we would probably propose that in our specs, how much sampling we needed. And it would depend on the volume. I forget how much was calculated that would need to come out. It's 1 for -- is it 500 cubic feet? I think is the rule of thumb, but I'm not sure. But, again, it would sort of depend. But we would write that up in the specs, how many samples that we inspected, so that there -- secure an understanding that we had managed the soil correctly. We were using the correct amendment, but also the correct concentration of the amendment and the correct (low audio) --

MR. SWARTWOUT: To follow up on that question, John Swartwout from DEC, in terms of sampling, any additional sampling that would be related to

03:11PM determining the -- say, the boundary of the area that
03:11PM needed to be excavated, are you confident that you have
03:11PM that boundary already set enough that you don't need any
03:11PM further samples around the edges of the area that you
03:11PM expect to excavate? And you're shaking your head yes.
03:11PM So --
03:11PM MS. KIRBY: Yeah, we --
03:11PM MR. SWARTWOUT: So -- then when you do,
03:11PM you're going to -- essentially, when you're ready to
03:11PM excavate, you will go out to where you currently have
03:11PM decided is the boundary and you will excavate that
03:12PM location. Will you look -- what kind of post-excavation
03:12PM sampling will you do at that boundary, then to confirm
03:12PM that, you know, the soil that's been left is below the
03:12PM criteria for, you know --
03:12PM MS. KIRBY: We'll do confirmation sampling
03:12PM after --
03:12PM (Speaking simultaneously)
03:12PM MS. KIRBY: Oh, absolutely, yeah. Yeah.
03:12PM We have -- we delineated it within the sampling grids,
03:12PM so it wasn't just free sampling, per se. So we'll have
03:12PM to just go out and do screen sampling, so that we can
03:12PM know exactly where it is.
03:12PM MR. SWARTWOUT: And that will be done post
03:12PM excavation?

03:12PM MS. KIRBY: Yeah. Yes, yes, absolutely.
03:12PM MR. REESE: Erin, if I could just add onto your answer. John, to help envision it, I would anticipate that we would be able to -- or the contractor would be able to excavate down to rock. And there really wouldn't be any soil left vertically.
03:13PM MR. SWARTWOUT: Okay.
03:13PM MR. REESE: And then, horizontally, to the north and to the south, you're going to get to the bedrock -- the exposed bedrock on Round Island and then to the exposed bedrock on Iona Island. The stopping point to the east -- or to the west, which would be the road that would go to Round Island --
03:13PM MR. SWARTWOUT: Okay.
03:13PM MR. REESE: -- that would have to be sampled.
03:13PM MR. SWARTWOUT: Okay.
03:13PM MR. REESE: And following your guidance, I think it's once every 200 feet --
03:13PM (Speaking simultaneously)
03:13PM MR. REESE: It's not a US -- an open-tank excavation, but there is a -- you have a rule of how much -- how many samples per linear foot of edge --
03:14PM MR. SWARTWOUT: Yeah, so --
03:14PM (Speaking simultaneously)

03:14PM MR. REESE: So there would be that. And then there would be along the water's edge, samples that would have to be collected.

03:14PM (Speaking simultaneously)

03:14PM MS. KIRBY: Yeah, yeah. And I should say that the reason why we know where bedrock is in the marsh area is, because when we were doing the test pitting and we saw the ash -- the deepest depth was 3 feet, which is why we have an idea. And that's the estimated -- it's shallower in some places, but we just estimated that it was 3 feet --

03:14PM MR. SWARTWOUT: So, for the most part, when you're close to that bedrock, you're going to be excavating until you hit the bedrock?

03:14PM MS. KIRBY: Oh, yeah. The intention is to scrape down to bedrock, yeah, and get all of the soil. So there wouldn't be anything to --

03:15PM MR. SWARTWOUT: So those areas, obviously, wouldn't need to be -- sampling?

03:15PM MS. KIRBY: No, but anywhere where we didn't land on bedrock, whether it was laterally or whether it was vertically, like you said along the shoreline, even west towards the marsh, we would delineate that with discreet sampling.

03:15PM MR. SWARTWOUT: And so along the shoreline

03:15PM itself, I mean, I know it -- we did get right down to
03:15PM the edge of it today. So I know that it -- it -- you're
03:15PM not talking about going more than probably several feet
03:16PM out into the river. You're not -- so I presume that you
03:16PM would take that out by a piece of equipment, you know,
03:16PM on the former marsh area and just sort of pulling --
03:16PM MR. REESE: Exactly, right in.
03:16PM MR. SWARTWOUT: -- pulling -- pulling it
03:16PM in.
03:16PM MR. REESE: Pulling it in, getting it to a
03:16PM little higher elevation.
03:16PM MR. SWARTWOUT: Yeah.
03:16PM MR. REESE: Let it gradually drain out and
03:16PM then treat it and then take it offsite. We do -- it was
03:16PM one of the latter slides that Erin showed. We did do
03:16PM quite a bit of sampling. I want to say it was discreet,
03:16PM if my memory bank is right, along the river's edge and
03:17PM along -- maybe not along the road that you can go on,
03:23PM but further to the west. There was sampling done there.
03:24PM MS. KIRBY: Yeah, and if you look at the
03:24PM shoreline reconnaissance, which I believe is an appendix
03:24PM to the RI report, and I could be mistaking, but I
03:24PM believe -- I think it is.
03:24PM MR. REESE: It is.
03:24PM MS. KIRBY: So what we do is, we had

somebody from EA go out during low tide and see. Because it does drop off quite steeply. But, you know, you can balance yourself in the water -- you can see -- the shorelines are -- so, obviously, that excavation will have to -- is low or when the -- excuse me, when the surface water is low.

MR. SWARTWOUT: Yeah, so like low tide?

MS. KIRBY: Yeah, exactly, exactly. We we'd have to sort of --

MR. SWARTWOUT: So is it a fairly-limited area where the sediment would be disturbed and -- and some of it removed?

MS. KIRBY: It should be -- again, in the RI, where we describe how far out -- where it drops, I think we had a -- map that's actually in the shoreline reconnaissance. We talk about it, I'm sure, in the RI report. I don't remember exactly how far it went out. But it was something that we also found in terms of the USO investigation too, where they were diving.

MR. SWARTWOUT: Right, right.

MS. KIRBY: And they just went down very, very steeply. So it was a very -- you know, very close to the island. There wasn't a whole lot of swath of the area. They had to check around the docks -- just precipitously dropped off.

03:25PM MR. SWARTWOUT: Thank you.

03:26PM MS. SAMPATH: Sankavi Sampath, again. So is there going to be a written plan addressing -- addressing how -- during the remedial activity, how -- as construction work is going on, how the wildlife is going to be impacted?

03:26PM MS. KIRBY: Yeah, absolutely. So they'll -- they'll owe us plans like erosion control. Depending on what types of animals are there, they will have to come up with monitoring systems in terms of noise and vibration. So once we understand what we have to protect and what the actual execution of the work is going to look like, then we'll have to do all of that too. So, you know, if there's a storm or something like that, you know, covering our materials with scrim, you know, putting in wattles or putting in culverts, different types of things to divert water around them, but also to protect the animals that will absolutely -- you know, acoustic bat recordings and things like that. So, again, that's not my specialty, but there will be a series of plans that the state will also have an opportunity to be able to review and comment on. So there will even be things like a traffic plan will be -- an accident-prevention plan. So there will be a sequence of plans that will address all of these

different things, including protection of the wildlife.

Go ahead, Sarita.

MS. WAGH: Sarita Wagh -- I have a question regarding the excavated soil that you mentioned. So is it going to be on site? And which area would it be? And how are you going to treat it there and then take it away from to the site?

MS. KIRBY: Again, that would probably be involved in the spec that will have to be written by the engineer. So I -- I don't know the specifics of that, but the thought would be, since it's a small area and it's not a large volume, is that we would probably have -- if we could treat it in -- that would be great, but we may have to dig it up and put a staging area, so that the water drains and it dries. And once it's dry -- and, you know, then we could mix in whatever the amendment is. And we would probably have to do that in shifts. So I don't know, you know, if you have a cofferdam or something like that, to where that would prevent the tides from coming in from the marsh and the water coming in from the Hudson River. But you would probably do it in grids and sections. And where it's not that deep, I don't know that you would need trench boxes, but you might need to, you know, segregate it as you were excavating. But I don't know the specific

details. But, again, that would be something that you guys -- when we're doing the design, we deal with a 35-percent design, a 65-percent design and a 90-percent design. And that's something that we would present to you guys at the stage. And you have an opportunity to review what the design is for the actual implementation. So you would be able to comment on that, if you had concerns -- so I don't know the specifics, but I do know that it would be --

MS. WAGH: I think it was regarding the same thing as like, would -- would that area be restricted to any -- separation? Like anybody would -- would anybody be able to go to that area? Would have access to that area?

MS. KIRBY: Well, they're not now and they certainly wouldn't when we're doing construction.

MS. WAGH: Okay.

MS. KIRBY: I mean, yeah, so we were actually talking about that today on the island. There are some operations for the park right there, where they do have a sign shop and a garage, I believe. So the idea would be that our operations and our trucks -- like I said, this would be in our traffic plan. We'd go around and would not interrupt their operations. But the other thing too that we need to take into

consideration would be, we have to work with all the state. We have to work with the park. And we have to work with the townspeople about the number of trucks that could come in and come out, what the hours would be and things like that too. So all of that would go into it, go into the specs. And we would tell our contractor, who we would eventually hire, you know, what their season could be, depending on what animals we might impact. And if things are going on, you know, during the school year or if they're plowing -- streets are posted that trucks can't come through them. So there would be a lot of considerations that we'd have to go into. But, no, we would restrict access to the areas, so that no one would be -- not just exposed to the impacted soil and sediments but also from any of the construction hazards just from heavy equipment and things like that. That answer your question?

MS. WAGH: Yeah.

MR. SWARTWOUT: To follow up on Sarita's question, John Swartwout again, out there looking at all those areas this afternoon, it seems like, you know, where that -- where that beach area is, that's going to be -- have sediment or have, you know, material moved from the beach area and the -- both on shore and just offshore. That does seem to be probably about the only

03:57PM 1 place along the Hudson-River side of the island, where
03:57PM 2 someone would say -- say, some people in kayaks or
03:57PM 3 whatever, or people in kayaks could readily pull up onto
03:57PM 4 a small beach and get out of their kayaks and sort of
03:57PM 5 look around. And being it's the same spot where the
03:57PM 6 construction's going to be, obviously, when there's a
03:57PM 7 bunch of workers there doing construction, people aren't
03:57PM 8 likely to try to pull in there at the same time it's
03:57PM 9 being excavated. But I'm thinking maybe -- maybe, you
03:58PM 10 know, at some time period in advance of the
03:58PM 11 construction -- obviously, besides making sure that the
03:58PM 12 town there is aware that that's going to happen through
03:58PM 13 a certain block period, it might be a good idea to
03:58PM 14 actually post a couple of signs along that sort of
03:58PM 15 section of the island's waterfront if it -- you know,
03:58PM 16 large enough that people, just sort of going along the
03:58PM 17 edge of the water, in things like kayaks or canoes, or
03:58PM 18 some kind -- small water craft, that could actually
03:58PM 19 otherwise pull up on that little beach. In case, it's
03:58PM 20 people that sort of go out there a lot during the
03:58PM 21 summer --
03:58PM 22 MS. KIRBY: Yeah, sure.
03:58PM 23 MR. SWARTWOUT: -- during the season, that
03:58PM 24 they might actually get some advanced warning, that "Oh,
03:58PM 25 okay. It's anticipated that during this time period,

there will be construction activity in -- along this shoreline. And boaters should not frequent the shoreline during the --"

MS. KIRBY: No, I agree. And --

MR. SWARTWOUT: Just some -- some kind of a --

(Speaking simultaneously)

MS. KIRBY: Yeah, I don't know what our rules and guidance are for the Corps of Engineers. But this is what my first --

(Speaking simultaneously)

MS. KIRBY: -- on the water, but we have done projects like this.

MR. SWARTWOUT: Or ask -- or ask the parks post some kind of signs. Because obviously --

MS. KIRBY: Well, we have a sign shop and that would be -- that would be our responsibility. You could certainly give us advice about where the best places are.

(Speaking simultaneously)

MR. MCGOWAN: -- the marsh currently has restricted access for boating. So there's really none right now. It used to have tours that the DEC -- yeah, but the marsh is closed to recreational boating. But that outside, you know, the river-facing portion,

04:00PM certainly someone could just happenstance come along -- that's a handy spot where --

MR. SWARTWOUT: Because the wall, you know, the seawall is basically --

MR. MCGOWAN: Yeah, that's one of the places where you could --

(Speaking simultaneously)

MS. KIRBY: Well, but if you guys had suggestions about where to place the signs -- because you would know the area better.

MR. MCGOWAN: We have signs at the two railroad trestles, where a boater would come underneath to access. There's signs there saying it's restricted access but not on that shoreline.

MS. KIRBY: We could definitely do that, yeah. Absolutely. I don't want to cut anybody off.

04:01PM MR. MCGOWAN: Like I just said, out of curiosity. So we have had -- given that we're all -- this area is all like preventing bedrock, a lot of fracture lines. And we have gas stations just up side -- like down the road that had MTBE contamination that traveled for miles. With that incinerator site being essentially on bedrock, is there -- is there potential that some of the contaminants could have migrated through fissure systems that would be just kind of

04:01PM undetectable, unless you happen to have a well and --
04:01PM MS. KIRBY: Yeah, yeah, so MTBE is much
04:01PM more -- more than metals do -- PAHs, which are heavier.
04:01PM And they are also -- to the sediment in the soil. But,
04:01PM also, the water there has a lot of washing out, coming
04:02PM back and forth and it's very brackish. So it's
04:02PM constantly being recharged. And it's constantly being
04:02PM cleaned. But we did sample for total metals and
04:02PM dissolved metals, which would be what would get into the
04:02PM groundwater. And we didn't see anything in surface
04:02PM water. So that would be the place we started, because
04:02PM that's just up against the actual material.
04:02PM MR. MCGOWAN: Yeah.
04:02PM MS. KIRBY: So if we had seen that, we
04:02PM would have carried on up there. We didn't see anything
04:02PM in surface water, so -- but good question.
04:02PM Alright. Well, if you don't have any
04:03PM questions now, you could always have questions later.
04:03PM You know how to get ahold of me. This is not your last
04:03PM opportunity. And -- you did tell me that you guys
04:03PM wanted to take the 26th? That's perfectly fine --
04:03PM because you need to have your internal meeting. But if
04:03PM you have questions before that or anything like that or
04:03PM if you're looking in the reports or you're looking for
04:03PM the reconnaissance -- shoreline reconnaissance or you're

looking for anything else that I've referenced here -- just let me know and I'll be able to direct you to where the information is. So please let me know.

So any comments that you have, like I said, we will address and we will incorporate into the proposed plan and acknowledge them. And we'll answer every single question.

So then I just appreciate everybody coming for the site walk. And I appreciate you guys coming out for the public meeting. And if you have any questions or concerns, you know where to find me.

Thank you very much.

(Meeting concluded)

REPORTER'S CERTIFICATE

THE STATE OF TEXAS)
THE STATE OF NEW YORK)

I, Teresa Santana, Certified Court Reporter in and for the State of Texas and New York, do hereby certify that the above and foregoing proceedings were taken before me at the time and place therein set forth;

That the testimony of the witnesses, the questions propounded, and all objections and or statements made at the time of the proceedings were recorded stenographically by me and were thereafter transcribed;

That the foregoing is a true and correct transcript of my shorthand notes so taken.

I further certify that I am not a relative or employee of any attorney of the parties, nor financially interested in the action.

SUBSCRIBED AND SWORN TO under my hand and seal of office on this the 18th day of May, 2026.

/S/TERESA SANTANA

Teresa Santana, Texas CSR 5589
Expiration Date: 10/31/2027
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Appendix D

NYSDEC Correspondence

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From:	Kirby, Erin M CIV USARMY CENAE (USA)
To:	Reese, Tim; Miller, Megan; Harvey, Ivy
Cc:	Mcswiggin, John T Jr CIV USARMY CENAE (USA); Montgomery, Cheryl R CIV USARMY CEERD-EL (USA)
Subject:	FW: Iona Island Naval Ammunition Depot FUDS
Date:	Tuesday, June 2, 2026 11:40:53 AM
Attachments:	IONA_HTRW_Draft_Final_PP_CommentMatrix - DEC and DOH.xlsx

Good Morning Tim,

Please see attached to this email NYSDEC and NYSDOH's comments on the Proposed Plan.

Thank you,

Erin Kirby, PG
Project Manager
Programs & Project Management Division
US Army Corps of Engineers
New England District
696 Virginia Road
Concord, Massachusetts 01742
978.318.8147

From: Sampath, Sankavi (DEC) <Sankavi.Sampath@dec.ny.gov>
Sent: Friday, May 22, 2026 1:51 PM
To: Kirby, Erin M CIV USARMY CENAE (USA) <Erin.Kirby@usace.army.mil>
Cc: Swartwout, John (DEC) <john.swartwout@dec.ny.gov>; Wagh, Sarita S (HEALTH) <Sarita.Wagh@health.ny.gov>
Subject: [Non-DoD Source] RE: Iona Island Naval Ammunition Depot FUDS

Hello Erin,

I hope you are doing well. Please see the attached matrix with comments from DEC and DOH.

Based on the internal discussion we had with our management, we have decided to defer to the ROD before we formally concur or reject the proposed remedy.

Please let me know if you have any questions. Thank you for your time.

From,

Sankavi Sampath, E. I. T. *(she/her/hers)*
Assistant Engineer

New York State Department of Environmental Conservation
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