



US Army Corps
of Engineers®

Proposed Plan Iona Island Naval Ammunition Depot FUDS

FUDS PROJECT NO. C02NY074402
STONY POINT, ROCKLAND COUNTY, NEW YORK



June 2026

1 Introduction

This **Proposed Plan** identifies the Preferred Remedial Alternative for the Iona Island Naval Ammunition Depot **Formerly Used Defense Site (FUDS)** and provides the rationale for this recommendation. The **U.S. Army Corps of Engineers (USACE)** proposes **Alternative 3 - Excavation, Ex-Situ Treatment, and Off-site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste** is necessary to protect human health and the environment from hazards associated with former military use at the Iona Island Naval Ammunition Depot FUDS, in support of the **Hazardous, Toxic, and Radioactive Waste (HTRW)** project (FUDS Project Number C02NY074402). Iona Island is located in Rockland County, New York. There were two active FUDS projects at Iona Island: C02NY074402, HTRW and C02NY074403, Military Munitions Response Program (MMRP). This Proposed Plan provides USACE's rationale for the selection of the preferred remedial alternative for the HTRW Iona Island Naval Ammunition Depot FUDS project, which is based on investigative actions that characterized the nature and extent of hazardous substances in environmental media attributable to historical **Department of Defense (DoD)** operations, and evaluated potential risks to human health and ecological receptors associated with HTRW and **munitions constituents (MC)** that require **remedial action**. MMRP Project Number C02NY074403 at Iona Island concluded in March 2023 that no action was necessary with respect to **munitions and explosives of concern (MEC)**.

USACE is issuing this Proposed Plan as part of its public participation responsibilities under the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** and Section 300.430 (f)(3) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** (40 Code of Federal Regulations [CFR] Part 300). This Proposed Plan summarizes information that can be found in greater detail in the HTRW Final **Remedial Investigation (RI)** Report (USACE 2024), HTRW Final **Feasibility Study**

(FS) Report (USACE 2026), and other documents contained in the **Administrative Record file** for this Site. This plan summarizes the following:

- Site Background (Section 2)
- Site Characteristics (Section 3)
- Previous Investigations (Section 4)
- HTRW RI Conclusions and Summary of Site Risks (Section 5)
- Scope and Role of Response (Section 6)
- Remedial Action Objectives (Section 7)
- Summary of Remedial Alternatives (Section 8)
- Evaluation of Alternatives (Section 9)
- Preferred Alternative (Section 10)
- Community Participation (Section 11)

A glossary defining terms (identified by **bold text**), as well as an acronym list and a document reference page, is included at the end of this Proposed Plan.

USACE is the lead agency for the DoD. The state regulatory agencies are the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH). The Palisades Interstate Park Commission (PIPC) is the property owner. USACE will make the final decision on the Preferred Alternative for the Iona Island Naval Ammunition Depot FUDS HTRW project after reviewing and considering all information submitted during the **public comment period**. USACE may modify the Preferred Alternative, or select another alternative based on new information or public comments. Therefore, public comment on the Proposed Plan is invited and encouraged. Information on how to participate in this decision-making process is presented below and in Section 11.

The Administrative Record file and other documents that support this Proposed Plan are available for review at the information repository or through the USACE-New England District website for the Iona Island FUDS (see Section 11).

Public Comments Are Requested**PUBLIC COMMENT PERIOD****23 April 2026 through 26 May 2026**

Written comments on this Proposed Plan may be submitted to USACE during the comment period. Comment letters must be postmarked no later than **26 May 2026**, and may be sent to Ms. Erin Kirby (USACE–New England District, Project Manager):

Erin Kirby, PG
USACE–New England District
696 Virginia Road
Concord, MA 01742
Phone: 978-318-8147
Erin.M.Kirby@usace.army.mil

PUBLIC MEETING**7 May 2026**

USACE will host an information meeting at **6 p.m.** at the Holiday Inn Express & Suites West Point-Fort Montgomery, 1106 US-9W, Fort Montgomery, New York to provide information and answer questions in an informal setting. This meeting will include a brief introduction and summary by USACE.

2 Site Background**Site Location**

The Iona Island Naval Ammunition Depot FUDS consists of approximately 124 acres of land and inland water. Iona Island is in Bear Mountain State Park on the east side of U.S. 202/Route 9W, 5 miles south of Fort Montgomery (Figure 1).

Site History

The U.S. Navy (Navy) used the site as an Ammunition Depot from 1900 to 1947. Activities included preparing, assembling, maintaining, inspecting, testing, and issuing ammunition. There was no manufacturing conducted on-site.

Prior to use by the military, Iona Island was utilized as a location for a resort hotel during the Civil War. There is no documented evidence available of past use of ordnance-related items prior to use by the military. The Navy purchased the site in 1900 for construction of the Iona Island Naval Ammunition Depot (USACE 1998).

In 1903, at least one 13-inch shell exploded between Shell Houses 3 and 4 (Former Buildings 210 and 209, respectively) on the site. The explosion destroyed Shell

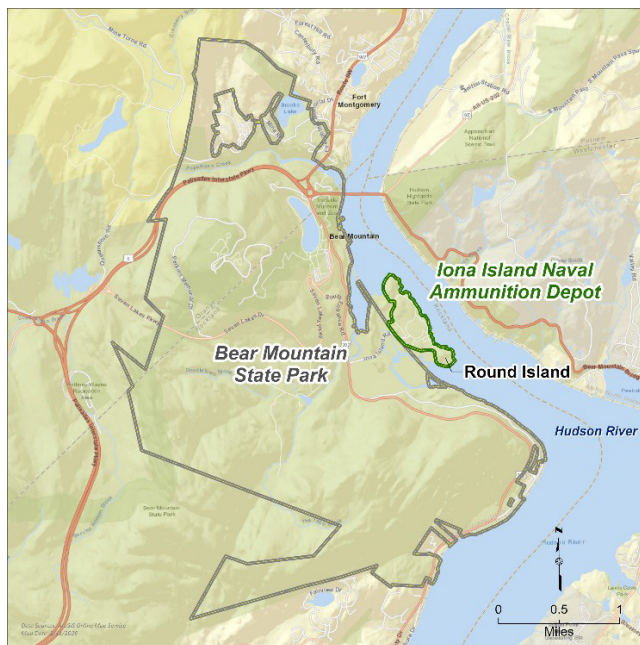


Figure 1. Iona Island Naval Ammunition Depot FUDS

Houses 3 and 4 and their contents, and damaged Shell Houses 1 and 2 (Former Buildings 115 and 116, respectively) (USACE 1998). Other munitions stored in the area during the time of the explosion included 1-pounders (i.e. 37-millimeter projectile), 6-pounders (i.e. 57-millimeter projectile), and 6-inch ammunition. The potential area of contamination resulting from the 1903 explosion was determined to be a 1,250-foot radius area centered on Shell Houses 3 and 4.

During World War I, almost all the depth charge bombs and ammunition used in the Atlantic area passed through Iona. After World War I, from 1918 to 1940, Iona Island supplied ammunition of all calibers to the fleet for service allowances, target practice, and reserve war requirements. Round Island, the southernmost portion of the depot, was utilized by the Navy for ammunition storage. The Navy filled in the area between Iona Island and Round Island to provide a connection between the two islands. A 0.85-acre Dump Site is first identified between Round Island and Iona Island on a 1930-dated U.S. Navy layout plan (U.S. Army Geospatial Center 2018).

Between 1941 and 1945, the major activity conducted on Iona Island was assembling naval ammunition for World War II. More than 2,300 Navy ships and 2,300 Merchant ships received their ammunition from Iona Island during World War II. In addition, 77 bases, 500 shore stations, and 700 foreign naval ships were serviced with ammunition from Iona Island Naval Ammunition Depot.

After World War II, use of the Island as an ammunition depot became obsolete due to lack of expansion room to

accommodate new types of ammunition. In 1947, the Navy decided to deactivate the Iona Island Naval Ammunition Depot.

By 1951, there were 146 buildings on the Island. The roads on the Island were in poor condition and most buildings had no natural or artificial lighting, heating, or other utilities; they were large, open warehouses with high ceilings and no partitions or separation of floors. Redevelopment for industrial or warehousing use would have required extensive renovation of buildings, clearance of structures, and construction of roads, parking lots, and new sewer system and utility lines.

The former depot was excecised by the Navy in 1957 and transferred to the General Services Administration. The General Services Administration conveyed the FUDS property to PIPC in 1965. Most buildings and structures were demolished and removed between November 1965 and December 1973. PIPC currently utilizes a portion of Iona Island as a storage facility; however, the property is closed to the public and use is restricted to park personnel only (i.e., research, supervised tours, and study groups).

For the HTRW aspects of the project, Iona Island Naval Ammunition Depot FUDS was divided into Areas of Concern (AOCs) with the exception of certain existing buildings which were determined to be not FUDS-eligible (**Figure 2**). These FUDS-eligible AOCs encompass the locations/footprints of former buildings/structures where contaminants related to the former buildings/structures and/or historical processes conducted during the site's commission as an ammunition depot may be present. Existing Buildings that are being used by PIPC are not FUDS-eligible for investigation.

3 Site Characteristics

Iona Island is a bedrock island of the Hudson River that has rocky terrain, with varying degrees of slopes. Elevations range from about 0 feet (National Geodetic Vertical Datum 1988 [NAVD88]) along the immediate shoreline to 84 feet (NAVD88) in the northern portion of the island. The bedrock of the New England Upland and Hudson Highlands is folded, faulted, and includes metamorphosed sediments (biotite-quartz-plagioclase paragneiss). The rock is resistant to erosion and forms rocky knobs on Iona Island.

Most of the land surface of Iona Island has been filled, built on, shaped, graded and/or paved (USACE 1998). Native soil remaining at Iona Island and the mainland is derived from glacial till and is shallow, acidic, and nutrient poor. Overburden at Iona Island is shallow with

bedrock encountered at the ground surface to depths of approximately 25 inches below ground surface. There are no surface water bodies or streams on the upland portion of the Island within the FUDS boundary; however, the shoreline areas of the Island and adjoining marshes are located within and are impacted by the Hudson River.

Groundwater at and near Iona Island is found in both overburden and underlying bedrock. Shallow groundwater (2 feet below ground surface) is likely influenced by the Hudson River. Groundwater and surface water at Iona Island are not used for domestic supply. The existing storehouse at Iona Island has a defunct water supply waterline. Bottled water is used for drinking water by site workers in the storehouse. A working bedrock well owned and used by Bear Mountain State Park provides non-potable water for sanitation facilities (i.e., toilet flushing). Groundwater was not considered to be a potentially complete pathway for Iona and was not sampled during the MMRP Site Inspection (Alion Science and Technology [Alion] 2008) or the RI (USACE 2024).

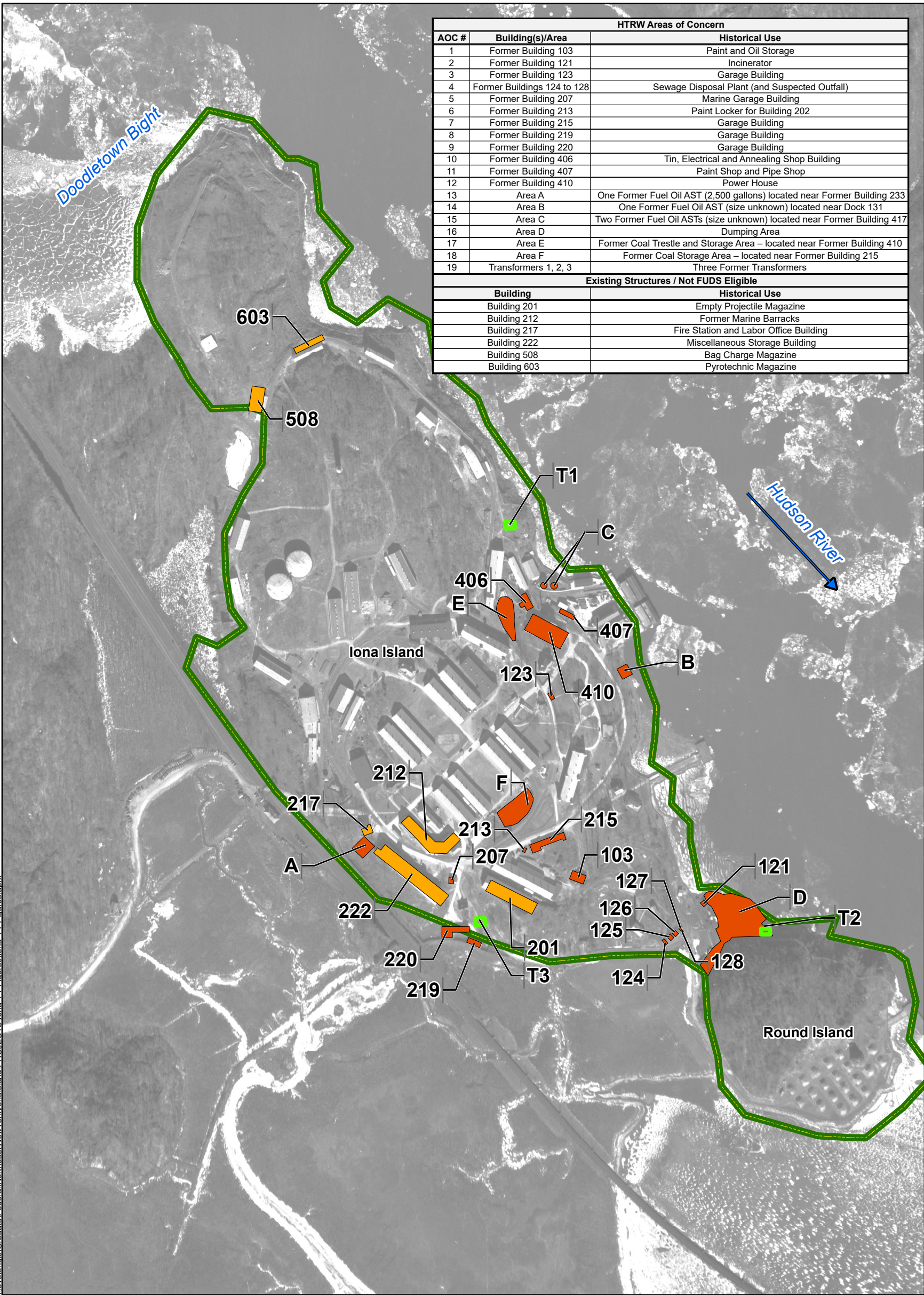
Iona Island is connected to the mainland by a narrow two-lane road off U.S. 202/Route 9W near Doodletown. The Island is accessed by crossing active River Subdivision (CSX Transportation) railroad tracks and entering through a locked gate. The southeastern part of the Island, once cut off by marshes, is known as Round Island. In the early 20th century, it was attached to the south end of Iona Island with fill.

The Iona Island Naval Ammunition Depot FUDS is currently under the administration of the PIPC and maintained by staff of Bear Mountain State Park. Site access is limited to authorized employees of Bear Mountain State Park who use a few of the remaining buildings for storage and to researchers who work in the marsh areas. 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. In addition, the Iona Island Marsh became a registered National Natural Landmark in 1971. The Island is also considered a bald eagle sanctuary (Levine 2011). There are no current plans to develop Iona Island for recreational purposes and no anticipated future use of the Island other than its current use as a conservation area.

4 Previous Investigations

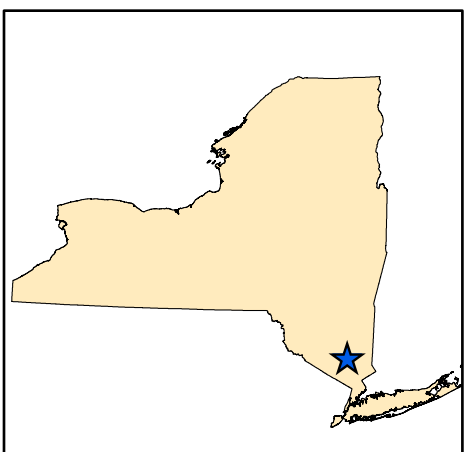
Initial Site Visit (USACE 1992)

USACE New York District performed an initial site visit on 30 October 1992. According to the Preliminary



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
Existing Structures / Not FUDS Eligible		
Building	Historical Use	
Building 201	Empty Projectile Magazine	
Building 212	Former Marine Barracks	
Building 217	Fire Station and Labor Office Building	
Building 222	Miscellaneous Storage Building	
Building 508	Bag Charge Magazine	
Building 603	Pyrotechnic Magazine	

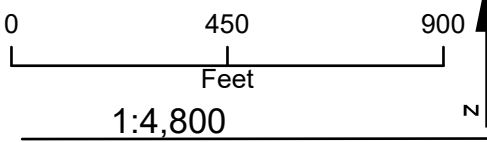
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- Legend**
- ★ Site Location
 - ▭ FUDS Boundary
 - ▭ HTRW Project Areas of Concern
 - ▭ Remaining Structure (Not FUDS Eligible)
 - ▭ Former Transformers

FIGURE 2
HTRW RI - AREAS
OF CONCERN

IONA ISLAND NAVAL
AMMUNITION DEPOT FUDS
ROCKLAND COUNTY, NY



Base map from 1943
Map Date: 10/03/2018
Projection: NAD 1883 State Plane
New York East FIPS 3101 (US Feet)

Assessment (USACE 1992), there was potential soil and groundwater contamination from (1) a fuel oil spill at a former aboveground storage tank, (2) coal storage, (3) a former dump area, (4) an incinerator, and (5) 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 site and are identified as “remaining structures (not FUDS eligible)” on **Figure 2**.

1996 Data Collection Activities (Greeley-Polhemus 1997)

USACE contractors (Greeley-Polhemus Group, Inc. and Smith Technology Corporation) conducted surface soil sampling in October 1996. Metals, explosives residues (primarily 2,4-dinitrotoluene [DNT] and 2,6-DNT), and polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) were detected in soil samples. Maximum concentrations of metals (barium, cadmium, total chromium, lead, mercury, and silver) were detected in the samples collected in the low-lying area between Iona and Round Islands near Former Building 121 (Incinerator) and within the footprint of the Former Dump Area.

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

2007 MMRP Site Inspection (SI) (Alion 2008)

USACE contractor (Alion Science and Technology Corporation and EA [subcontractor]) conducted a MMRP Site Inspection, which included on-site and background sampling of surface soil and sediment for MC (metals including antimony, copper, lead, nickel, and zinc, and explosives residues including 2,4,6-Trinitrotoluene [TNT]); 4-amino [AM]-2,6-DNT, 2-AM-6-DNT, 2,4-DNT, 2,6-DNT, 2-nitrotoluene, 3-nitrotoluene, 4-nitrotoluene, and nitroglycerin). Groundwater was not considered to be a potentially complete exposure pathway for Iona Island and groundwater sampling was not included in the MMRP Site Inspection (Alion 2007). A screening level **Human**

Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) were performed by comparing the 2007 MC results to applicable human health criteria (residential for soil, residential and industrial for sediment), ecological screening criteria, and background concentrations. Lead concentrations exceeded background concentrations and human health screening criteria. Antimony, copper, lead, nickel, and zinc concentrations exceeded background concentrations and associated ecological screening criteria. The Final Site Inspection Report recommended that an RI/feasibility study be performed based on the potential for risks to human health and ecological receptors from metals in surface soil and sediment (Alion 2008).

HTRW RI (USACE 2024)

A two-phased investigation approach was conducted as part of the HTRW RI to facilitate data collection, evaluation, and discussion.

Phase I was conducted to evaluate the presence/absence and/or nature and extent of hazardous substances in on-site soil within the FUDS boundary, evaluate the source-pathway-receptor interactions, and evaluate the subsequent risk to human and ecological receptors. Phase I field activities consisted of on-site and background soil sampling using **incremental sampling methodology (ISM)** and a shoreline reconnaissance along Iona Island to evaluate the source-pathway-receptor interactions. Decision units (DUs), which are areas of land about which a decision will be made as it relates to investigation or remediation, were established to address contamination originating from former buildings, the Former Dump Area, and former coal storage areas, and to further evaluate locations where elevated concentrations of contaminants were detected during previous investigations. DUs were sized to represent the smallest area for which human or ecological receptors may be exposed. Metals and PAHs were detected in upland surface soil (0 to 6 inches bgs) at concentrations higher than background. Metals and PAHs were also detected in wetland surface soil and subsurface soil down to 36 inches bgs throughout the Former Dump Area. The Phase I sampling locations and DUs are shown on (**Figure 3**).

The Phase II field investigation (**Figure 4**) was conducted to close data gaps identified after completion of Phase I and support development of the HHRA and ERA. Phase II field activities included on-site surface water and sediment sampling for **Target Analyte List metals** to evaluate the potential for inorganic constituents to impact the shoreline environment. Background surface water and sediment sampling were conducted to establish background concentrations for metals. In addition, Phase II included the collection of physical parameters in soil

and sediment to evaluate bioavailability of contaminants to ecological receptors. Groundwater was not encountered nor sampled during previous investigations or during field activities conducted during Phase I; therefore, groundwater sampling was not conducted during Phase II. Phase II analytical results indicated metals in the Dump Area and shoreline sediment were at concentrations above background concentrations, particularly along the Hudson River shoreline adjacent to the northeastern boundary of AOC #16 – Area D (Former Dump Area).

An HHRA and ERA (comprised of a screening level ecological risk assessment and refined screening level ecological risk assessment) were completed using Phase I and Phase II analytical data to evaluate whether FUDS-eligible site-related contaminants of potential concern and/or contaminants of potential ecological concern detected in on-site media affected by past DoD usage posed unacceptable risk to human health or ecological receptors.

Human Health Risk Assessment

The HHRA indicated that there were no exceedances of the acceptable cancer risk range for any receptors evaluated for any of the individual DUs, or the two exposure areas (Iona Island and the Former Dump Area) for exposure to soil or sediment. The non-cancer hazard index thresholds for site-related COCs were above the acceptable threshold of 1.0 for the construction worker exposure to DU-13, DU-18, and the Former Dump Exposure Area (**Figure 3**). As a result, separate non-cancer hazard index thresholds were determined based upon the target organ or endpoint for the construction worker exposure to these DUs and the Former Dump Exposure Area. The endpoint or effect-specific hazard index provides a more accurate indication of whether there is potential for a specific adverse health effect to occur. The assessment by target organ or effect for these DUs did not reveal any hazard index above the acceptable threshold of 1.0 for DU-13, DU-18, or the Former Dump Exposure Area. It is noted that the assessment of potential human health concerns for exposure to lead within soil and sediment was evaluated separately, as discussed in the following paragraph. Therefore, the HHRA did not reveal potential concerns for cancer risks or non-cancer hazards for any receptor's exposure to soil and sediment at the FUDS property.

Lead was evaluated separately from the cancer risks and non-cancer hazards. Lead was evaluated through the use of the U.S. Environmental Protection Agency (EPA) adult lead model (ALM). Lead was evaluated based upon the EPA threshold that a hypothetical child would have an estimated risk of no more than 5 percent exceeding the reference blood-lead level of 5 micrograms lead per

deciliter ($\mu\text{g}/\text{dL}$). Results of the ALM were above the acceptable threshold for the following receptors:

- The construction worker exposed to surface soil at DU-7, and surface and subsurface soil at DU-17 and DU-18, the Former Dump Area, and sediment from Iona Island Hudson River shoreline DU (**Figure 4**).
- Park personnel exposed to surface and subsurface soil at DU-17 and DU-18 and sediment within the Iona Island Hudson River shoreline DU.
- The recreational user exposed to sediment within the Iona Island Hudson River shoreline DU.

Therefore, potential human health concerns were only identified for receptors' exposures to lead within the Former Dump Area and the Hudson River Shoreline. Based upon these results, the HHRA performed further evaluation of potential receptors' expected exposures to the entire Iona Island. The HHRA noted that Park personnel will likely not remain within one DU. It is likely that the Park personnel will visit various areas of Iona Island during their visit and exposures would be across the entire site. Based upon this further evaluation, potential human health concerns were only identified for the construction worker and recreational user due to lead.

For the construction worker, these exposures can be controlled using standard health and safety protocols and personal protective equipment, supporting the conclusions of no further evaluation or risk management for this receptor. Further evaluation and risk management is required for the recreational user exposure to the Iona Island Hudson River shoreline DU.

Ecological Risk Assessment

In the Former Dump Area soil exposure area, plants, soil invertebrates, insectivorous mammals, insectivorous birds, and herptiles were potentially at risk from select metals (chromium, copper, lead, mercury, and/or zinc), with risk being driven by avian exposure to lead. This risk potentially extended to two federal/state-listed species of bats (i.e., Indiana bat and northern long-eared bat) and two species of insectivorous birds which are New York State listed species of special concern (i.e., cerulean warbler and golden-winged warbler). The cerulean warbler has been sighted on both Iona Island and at Bear Mountain Park immediately adjacent to Iona Island (eBird 2025).

In the Iona Island Hudson shoreline sediment exposure area, plants, benthic invertebrates, demersal fish, herptiles and insectivorous birds were potentially at risk from select metals (antimony, cadmium, copper, lead, nickel and zinc), with risk being driven by exposure to lead. This risk from sediment potentially extended to two species of endangered demersal fish (i.e., Atlantic sturgeon and short-nosed sturgeon).

These species of sturgeon live primarily in the ocean but migrate to coastal rivers for spawning, including the Lower Hudson River near Iona Island (Edinger et al. 2014). Though the presence of the sturgeon species has not been confirmed via biological surveys, it is probable that either species could be present at the Iona Island Hudson River Shoreline. Shortnose sturgeon spawn in the Hudson River using large rocky substrate (New York Heritage Program 2023), which is found at the littoral zone of the Iona Island Hudson River shoreline. Juvenile Atlantic sturgeon have been harvested near and south of Iona Island (Peterson et al. 2000; Sweka 2007) indicating they could also be present. Adult sturgeon are likely to be transient in nature and thus risks to that lifestage may be limited; however, juvenile sturgeon could be at risk due to lead in the sediment at Iona Island Hudson River Shoreline.



Phase II Iona Island Shoreline Survey (May 2022)



Phase I Incremental Sampling at DU-3 (April 2020)



Phase II HTRW DU-8 drums, pallets, debris (May 2022)

5 HTRW RI Conclusions and Summary of Site Risks

Based on the results of the RI, the HHRA showed that there is unacceptable risk in the Former Dump Area and the Iona Island Hudson River shoreline sediment in its immediate vicinity from lead to the construction worker and recreational user. The risk to the construction worker can be managed with personal protective equipment, health and safety plan and best management practices, however the risk to the recreational user cannot.

Due to exposure to the Former Dump Area soil and the Iona Island Hudson shoreline sediment the ERA found unacceptable risk to a variety of terrestrial and ecological receptors. The risk potentially extended to two federal/state-listed species of bats (i.e., Indiana bat and northern long-eared bat) and two species of insectivorous birds which are New York State listed species of special concern (i.e., cerulean warbler and golden-winged warbler), due to soil, as well as two species of endangered demersal fish (i.e., Atlantic sturgeon and short-nosed sturgeon) due to sediment. For these protected species, value is placed on individual receptors.

A response action is warranted to address risks to human health and ecological receptors. It is USACE's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this site, which may

present an imminent and substantial endangerment to public health or welfare.

6 Scope and Role of Response

The site was previously evaluated for MMRP and concluded that No Action was required. Risk to human health from MEC attributed to former DoD usage was evaluated as a part of the completed MMRP investigation and is not addressed in this Proposed Plan. The HTRW RI concluded that there is unacceptable risk for the Former Dump Area and Hudson River shoreline sediments in its immediate vicinity. The HTRW FS report fulfills the requirements for development and evaluation of remedial alternatives under CERCLA (USEPA 1988). USACE anticipates that this proposed remedial action will be the final action required at the Iona Island Naval Ammunition Depot FUDS.

7 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 Applicable or Relevant and Appropriate Requirements (ARARs). RAOs support the determination of protectiveness and effectiveness of remedial action alternatives.

Preliminary remediation goals (PRGs) are used to determine the feasibility of proposed remedial actions. PRGs are contaminant concentration levels that are based on readily available information such as risk-based doses, frequently used standards (e.g., ARARs), and guidance and advisories (i.e., to be considered [TBC] criteria). The PRG for lead in sediment is 67 mg/kg, and for lead in soil is 82 mg/kg; these PRGs are the site-specific background levels.

Though a number of metals including lead were found to pose risk to ecological receptors, risk to both human health and ecological receptors was driven due to exposure to lead. That is, the potential for risk due to lead is most certain as exposures to lead exceed risk-based levels for human health and ecological receptors with the highest magnitudes of exceedance. Elevated concentrations of other metals that may pose risk are co-located with high concentrations of lead. Therefore, lead is used as a proxy for the other metals that may pose risk to ecological receptors. The PRG for lead in sediment was based on the following TBC guidance and property-specific background levels because no ARARs were identified:

- EPA Region 4 (March 2018) ecological screening value

for sediment of 35.8 milligrams per kilogram (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).
- Property-specific background values for lead in sediment. As presented in the RI, property-specific lead background ISM sediment 95% upper confidence limit (UCL) was 67.4 mg/kg (USACE 2024).

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 user) to lead above the PRG in sediment in the Hudson River shoreline DU.
- Prevent impacts to biota from ingestion/direct contact with lead above the PRG in 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 lead above the PRG in sediment in the vicinity of the Former Dump Area causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
- Prevent migration of lead in soil above the PRG from the Former Dump Area to the adjacent Hudson River shoreline.

State regulators have expressed interest in restoring the Former Dump Area between Iona and Round Island as a wetland with native wetland plant species. While not an RAO, restoring the low-lying marsh area between Iona and Round Island as a wetland with native wetland plant species is considered a post-remediation objective for the Property.

8 Summary of Remedial 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 2025). The screening process considered implementability, effectiveness at meeting RAOs, and relative cost. The retained alternatives are inclusive of all elements of a specific alternative (e.g., additional data gap “pre-design” sampling, remedial design, construction and startup, and operations and maintenance). In assembling the retained technologies, development of the alternatives also considered factors such as land use scenarios, exposure scenarios, and accommodation of ARARs and

PRGs.

- Alternative 1—No Action
- Alternative 2—Excavation and off-site disposal of contaminated soil and sediment as hazardous waste
- Alternative 3—(Preferred Alternative) 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)

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 active or passive LUCs to reduce the potential for exposure.

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 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. The excavated area would be backfilled with clean wetland soil and re-planted with native vegetation such as narrow-leaf cattail. The removal of soil and sediment exceeding PRGs would demonstrate the attainment of RAOs and lead to site closeout.

Alternative 3 - (Preferred Alternative) 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, with on-site chemical treatment to

physically or chemically bind contaminants into the soil, rendering it non-hazardous, off-site disposal of excavated and treated material as non-hazardous waste, and property restoration. Following excavation, soil and sediment exceeding PRGs would be treated on-site to render it non-hazardous, and would then be transported to an appropriate off-site disposal facility. The excavated area would be backfilled with clean wetland soil and re-planted with native vegetation such as narrow-leaf cattail. The removal of soil and sediment exceeding PRGs would demonstrate the attainment of RAOs and lead to site closeout.

Alternative 4 - Capping of Contaminated Soil and Sediment Accompanied by Installation of a Permanent Vertical Barrier and Additional LUCs

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 and Round Islands. The barrier would be keyed into bedrock and the hill slopes of Iona and Round Islands. 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 site, such that the risks do not allow for unlimited use and unrestricted exposure. Therefore, CERCLA Five-Year Reviews would be required for Alternative 4.

9 Evaluation of Alternatives

This section presents an evaluation of the Remedial Alternatives based on nine criteria identified and defined in 40 CFR §300.430(e)(9)(iii) of the NCP. The objective of the evaluation of remedial alternatives is to explain the lead agency (USACE)'s rationale for

selecting the Preferred Alternative.

There are two threshold criteria that each alternative must meet: 1) overall protection of human health and the environment and (2) compliance with ARARs (or ARAR waiver). Alternatives are then evaluated with respect to the primary balancing criteria:

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost

The alternatives have been evaluated with respect to these criteria.

The final two criteria are modifying criteria (state acceptance and community acceptance), where the state regulatory agencies and the community may provide preferences or concerns about the alternatives. These last two criteria are evaluated after the public comment period on the Proposed Plan.

Overall Protection of Human Health and the Environment

Alternative 1 does not achieve the RAOs for human health and ecological receptors and is not protective of human health and the environment. Alternatives 2, 3, and 4 achieve overall protection of human health and the environment.

Compliance with ARARs

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 comply with the ESA's prohibition on the take of endangered species. Even though Alternatives 2 and 3 involve the discharge of fill material (clean soil as backfill) into waters of the United States (wetlands), it is 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. Alternatives 2 and 3 result in a temporal loss of wetland functions while the work is underway; however, these Alternatives result in a net benefit to the aquatic ecosystem by eliminating an ongoing source of contamination. Alternatives 2 and 3 restore the wetlands by re-establishing the system's hydrology and native vegetative cover. Alternative 4 involves the discharge of fill material to create 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. Therefore, Alternative 4 does not comply with 40 CFR 230.10(a). However, an ARAR waiver is available for situations where compliance with an ARAR will cause greater risk to human health and the environment than noncompliance. 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 risk to human health and the environment than capping the contaminated soils and the USACE is waiving this ARAR pursuant to 40 CFR 2372.300.430(f)(1)(ii)(C)(2).

Long-Term Effectiveness and Permanence

Alternative 1 is ineffective in the long term because unacceptable risk to human and ecological receptors is not addressed. Under Alternatives 2 and 3, excavation and off-site disposal of soil and sediment exceeding PRGs would permanently reduce risks to human and ecological receptors at the property. Alternative 4 is effective in the long term, but the remedy requires extensive monitoring and maintenance to ensure effectiveness of the cap system.

Reduction of Toxicity, Mobility, and Volume Through Treatment

Alternative 1 involves no action. Alternatives 2 and 4 do not involve treatment contaminants; however, the mobility of contaminated soil and sediment is reduced because it is removed from the site under Alternative 2 and capped under Alternative 4.

Alternative 3, the Preferred Alternative, permanently reduces the toxicity, mobility, and volume of contaminants through treatment prior to removal from the site.

Short-Term Effectiveness

Under Alternative 1, no remediation would be conducted, resulting in no change in environmental impacts or potential exposures for on-site workers or the community. Alternatives 2 and 3 involve approximately six months of construction activities to remove 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 personal protective equipment. Alternatives 2 and 3 pose minimal and short-term damage to the environment during construction, but 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. Alternative 2 and Alternative 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

Based on the present-worth cost estimates for the alternatives, Alternative 2 is the most costly (estimated cost of \$11.85 million), 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 \$10.66 million) but has high annual operation and monitoring costs. The Preferred Alternative, Alternative 3, is the least costly (estimated cost of \$9.87 million), 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. **Table 1** provides a summary of each criterion.

Table 1. Comparative Analysis Summary of Remedial Alternatives

Alternative 1: No Action	Alternative 2: Excavation and off-site disposal of contaminated soil and sediment as hazardous waste	Preferred Alternative 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
Total Cost (Net Present Worth)			
\$0	\$11,845,000	\$9,867,000	\$10,660,000
Capital Cost			
\$0	\$11,798,000	\$9,820,000	\$7,757,000
Annual O&M Costs¹			
\$0	\$10,000	\$10,000	\$130,000

Notes:

Δ = In comparison with other alternatives, it complies well with criteria.

∇ = In comparison with other alternatives, does not comply as well with criteria.

State and community acceptance are unknown at this time and will be evaluated at the end of the Proposed Plan public comment period.

Cost estimates are based upon 2024 dollars. All costs rounded to nearest \$1,000

¹ A 30-year time period was used to analyze Operation and Maintenance costs for all alternatives. Actual completion time could exceed 30 years, depending on the findings of recurring reviews.

10 Preferred Alternative

Alternative 3 – Excavation, Ex-Situ Treatment, and Off-site Disposal of Contaminated Soil and Sediment as Non-Hazardous Waste is the Preferred Alternative. This alternative provides the highest long-term effectiveness and is permanent, reduces the toxicity, mobility, and volume of contaminants through treatment, and is most effective in the short-term compared with the other alternatives. The Preferred Alternative also has the least costs.

Alternative 3 achieves all RAOs by removing and treating soil within the Former Dump Area and sediment along the Hudson River shoreline that exceed PRGs and permanently eliminates risk to human and ecological receptors.

Based on information currently available, USACE believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. USACE expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): (1) be protective of human health and the environment; (2) comply with ARARs; and (3) be cost-effective; (4) utilize permanent solutions to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element.

The Preferred Alternative presented in this Proposed Plan may be modified based on public comments and new information.

11 Community Participation

The Proposed Plan is issued to solicit comments from members of the public. USACE encourages the public to gain a more comprehensive understanding of the site and the activities that have been conducted there. USACE maintains the information repository and the administrative record for the Iona Island Naval Ammunition Depot FUDS. Detailed information about the previous studies and restoration activities can be found in the reports and documents contained in the information repository located at the address below.

Information Repository

The Information Repository can be found at:

Bear Mountain State Park Administration Building
3006 Seven Lakes Drive
Tomkins Cove, NY 10986

To make an appointment to review the Information Repository, please contact Ed McGowen at the Bear Mountain State Park Office at 845-382-6704.

Administrative Record

The Administrative Record can be found at:

<https://www.nae.usace.army.mil/Missions/Projects-Topics/Iona-Island-FUDS/>

Please send emailed or written comments to:

Email: Erin.kirby@usace.army.mil

Or

USACE–New England District Office
696 Virginia Road
Concord, MA 01742

Information regarding the Iona Island FUDS can also be found through the USACE–New England District website at:

<https://www.nae.usace.army.mil/Missions/Project-Topics/Iona-Island-FUDS/>.

Computers to access the website are located at:

Highland Falls Library
298 Main Street
Highland Falls, New York

In this Proposed Plan, USACE has identified and presented the remedial action alternative that best meets the requirements in the NCP § 300.430(f)(1) and (f)(2). The purpose of the Proposed Plan is to supplement the RI/FS and provide the public with a reasonable opportunity to comment on the Preferred Alternative for remedial action, as well as alternative plans under consideration, and to offer comments on the proposed remedial action at a site.

See below for details on the public comment period, and the public meeting. All interested parties are encouraged to attend the meeting to learn more about the Iona Island Naval Ammunition Depot FUDS from the project team members. The public meeting will also provide an additional opportunity to submit comments to USACE on the Proposed Plan.

The insert page may be used to provide comments to USACE, although the use of this form is not required. USACE will summarize and respond to comments in a responsiveness summary in the **Record of Decision (ROD)**.

Public Comment Period

23 April 2026 through 26 May 2026

Submit Written Comments

USACE will accept written comments on the Proposed Plan during the public comment period. To submit comments or obtain further information, please refer to the insert page.

Attend the Public Meeting

7 May 2026 at 6:00 p.m.

Holiday Inn Express & Suites West Point-Fort
Montgomery
1106 US-9W
Fort Montgomery, New York

USACE will hold a public meeting to explain the Proposed Plan. Written comments will be accepted during the public comment period, including at the meeting.

Contact Information

For further information on this Proposed Plan for Iona Island Naval Ammunition Depot FUDS, please contact:

Erin Kirby, PG
USACE–New England District
696 Virginia Road
Concord, MA 01742
Phone: 978-318-8147
Erin.Kirby@usace.army.mil

Public Affairs
USACE–New England District
696 Virginia Road
Concord, MA 01742
Phone: 978-318-8238
cenae-pa@usace.army.mil

Mark Your Calendar for the Public Comment Period

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USACE–New England District
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Concord, MA 01742
Phone: 978-318-8147
Erin.Kirby@usace.army.mil

Public Affairs
USACE–New England District
696 Virginia Road
Concord, MA 01742
Phone: 978-318-8238
cenaepa@usace.army.mil

Glossary

Administrative Record file: The documents that form the basis for the selection of a response action compiled and maintained by the lead agency.

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986.

Ecological Risk Assessment (ERA): An evaluation of the risk posed to the environment should remedial activities not be implemented.

Formerly Used Defense Site (FUDS): Facility or site which was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances or pollutants and contaminants, for which the Secretary of Defense shall carry out all response actions with respect to releases of hazardous substance from that facility or site.

Groundwater: Water in a saturated zone or stratum beneath the surface of land or water.

Hazardous Substance:

- Any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act (33 U.S. Code [U.S.C.] 1321 [b][2][A])
- Any element, compound, mixture, solution, or substance designated pursuant to section 9602 of CERCLA
- Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 U.S.C. 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act [42 U.S.C. 6901 et seq.] has been suspended by Act of Congress)
- Any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act (33 U.S.C. 1317 [a])
- Any hazardous air pollutant listed under section 112 of the Clean Air Act (42 U.S.C. 7412)
- Any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act (15 U.S.C. 2606).
- The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a

hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Hazardous, Toxic, and Radioactive Waste (HTRW): For USACE, it is any material listed as a "hazardous substance" under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq (CERCLA), except for dredged material not found in a CERCLA response site.

Human Health Risk Assessment (HHRA): An evaluation of the risk posed to human health should remedial activities not be implemented.

Incremental Sampling Methodology (ISM): A method used in the environmental field for taking samples of potentially contaminated soils for chemical analysis in a way that allows accurate characterization of contamination in soils at a site.

Information Repository: A collection of copies of all the information related to a response action (i.e., a remedial or removal action) that has been made available to the public established at or near the location of the response action. (40 CFR 300.430)

Military Munitions: All ammunition products and components produced or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes the following: confined gaseous, liquid, and solid propellants; explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives, and chemical warfare agents; chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components of any item specified herein. The term does not include wholly inert items; improvised explosive devices; and nuclear weapons, nuclear devices, or nuclear components, other than nonnuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed.

Military Munitions Response Program (MMRP): The DoD developed the MMRP in 2001 to address munitions-related concerns, including explosive safety, environmental, and health hazards from releases of

unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents found at locations other than operational ranges on active and Base Realignment and Closure installations and FUDS properties. The MMRP addresses non-operational range lands with suspected or known hazards from munitions and explosives of concern (MEC) which occurred prior to September 2002 but are not already included with an Installation Response Program site cleanup activity.

Munitions and Explosives of Concern (MEC): Specific categories of military munitions that may pose unique explosives safety risks, such as UXO, as defined in 10 U.S.C. 101(f)(5); discarded military munitions, as defined in 10 U.S.C. 2710(e)(2); or munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. 2710(e)(3), present in high enough concentrations to pose an explosive hazard.

Munitions Constituents (MC): Any materials originating from unexploded ordnance (UXO), discarded military munitions (DMM), or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Proposed Plan: In the first step in the remedy selection process, the lead agency identifies the alternative that best meets the requirements in the NCP §300.430(f)(1) and (f)(2) and presents that preferred alternative to the public in a proposed plan. The purpose of the Proposed Plan is to supplement the RI/FS and provide the public with a reasonable opportunity to comment on the preferred alternative for remedial action, as well as alternative plans under consideration, and to participate in the selection of remedial action at a site.

Public Comment Period: The time allowed for the members of an affected community to express views and concerns regarding an action proposed to be taken by USACE.

Receptors: Humans, animals, or plants that may be exposed to risks from contaminants related to a site.

Record of Decision: The Record of Decision documents the remedial action decisions at non-National Priorities List FUDS Properties. The Record of Decision shall address the following: Purpose, Site Risk, Remedial Alternatives, Public/Community Involvement, Declaration, and Approval and Signature. A Record of Decision for sites not covered by an interagency agreement or Federal facility agreement is still required to follow a CERCLA response. All Record of Decisions will be maintained in the FUDS Property/Project Administrative Record file.

Remedial Action: Action of the lead remedial agent that addresses a contaminant, hazard, receptor, or the

connection between the receptor and the hazard, which is taken to produce site conditions that present no significant risk to human health and the environment.

Remedial Action Objectives (RAO): Objectives of remedial actions that are developed based on contaminated media, contaminants of concern, potential receptors and exposure scenarios, human health and ecological risk assessment, and attainment of regulatory cleanup levels, if any exist.

Remedial Investigation (RI): A process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The RI emphasizes data collection and site characterization, and is generally performed concurrently and in an interactive fashion with the feasibility study. The RI includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives.

Site Inspection (SI): An on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the preliminary assessment and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate.

Target Analyte List Metals: A defined set of 23 metallic elements that laboratories test for in environmental samples. EPA's target analyte list includes aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

U.S. Army Corps of Engineers (USACE): A branch of the DoD with special expertise in carrying out CERCLA/National Contingency Plan investigations and response actions at Former DoD sites.

U.S. Department of Defense (DoD): An executive branch department of the federal government of the United States charged with coordinating and supervising all agencies and functions of the government concerned directly with national security and the United States Armed Forces.

Acronyms

µg/dL	Microgram(s) lead per deciliter
Alion	Alion Science and Technology
ALM	Adult lead model
AM	Amino
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of federal Regulations
COC	Contaminant of concern
DMM	Discarded military munitions
DNT	Dinitrotoluene
DoD	Department of Defense
DU	Decision Unit
EPA	U.S. Environmental Protection Agency
ERA	Ecological Risk Assessment
FUDS	Formerly Used Defense Site
HHRA	Human Health Risk Assessment
HTRW	Hazardous, Toxic, and Radioactive Waste
ISM	Incremental sampling methodology
LUC	Land use control
MC	Munitions constituents
MEC	Munitions and explosives of concern
mg/kg	Milligram(s) per kilogram
MMRP	Military Munitions Response Program
NAVD88	National Geodetic Vertical Datum 1988
Navy	U.S. Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PIPC	Palisades Interstate Park Commission
PRG	Preliminary Remediation Goal
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
SI	Site Inspection
TBC	To Be Considered
TNT	Trinitrotoluene
UCL	Upper confidence limit
USACE	U.S. Army Corps of Engineers
UXO	Unexploded ordnance

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