U.S. Army Corps of Engineers Proposes Plan and Requests Public Comments
Nantucket Beach Formerly Used Defense Site (FUDS)

Nantucket, Massachusetts October 2014

*Text in **bold italics** indicates that a word/phrase is included in the glossary at the end of this Proposed Plan.*

MARK YOUR CALENDAR!

The U.S. Army Corps of Engineers will hold a **public meeting** to explain the preferred remedial alternative and proposed plan. This will be an opportunity to ask questions.

Public Meeting

Date: Thursday, October 9th, 2014
Time: 6:30 p.m.
Place: Public Safety Facility
4 Fairgrounds Road
Nantucket, MA 02554

We invite questions and comments at the public meeting or in writing during the public comment period.

Public Comment Period
October 3rd – November 4th, 2014

Comments must be postmarked or e-mailed by midnight November 4th, 2014. You can comment orally at the meeting or in writing by mail or e-mail to:

Mr. Christopher G. Kane
Project Manager
Weston Solutions, Inc.
45 Constitution Ave., Suite 100
Concord, New Hampshire 03310
C.Kane@WestonSolutions.com

Comments are being solicited by Weston Solutions, Inc., on behalf of the U.S. Army Corps of Engineers.

Project Information Repository

This Proposed Plan is available in the project **information repository,** located at the **Nantucket Atheneum** public library. This repository contains technical reports and community outreach material prepared for the **Nantucket Beach FUDS.**

The United States (U.S.) Army Corps of Engineers (USACE) is proposing ***Land Use Controls*** (LUC) and long-term management (LTM) as the preferred alternative for the Nantucket Beach, Former Nantucket Ordnance Site, a.k.a. Tom Nevers Rocket Projectile Target; Tom Nevers Area, Formerly Used Defense Site (FUDS), Project Number D01MA045601, located on Nantucket Island, Massachusetts (see Figure 1). This FUDS will be referred to henceforth as the Nantucket Beach FUDS. The proposed remedial alternative is designed to protect people from coming into contact with ***munitions*** at the Aerial Rocket Range Target #1 ***Munitions Response Site*** (**MRS**).

The FUDS program addresses the potential explosives safety, health, and environmental issues resulting from past munitions use at former defense sites under the Department of Defense (DoD) *Military Munitions Response Program*, established by the U.S. Congress under the *Defense Environmental Restoration Program*. The FUDS program only applies to properties that transferred from DoD before October 17th, 1986. The first priority of USACE is the protection of human health, safety, and the environment. USACE is the lead agency for investigation/reporting and remedial decision-making at this MRS with regulatory support provided by the Massachusetts Department of Environmental Protection.

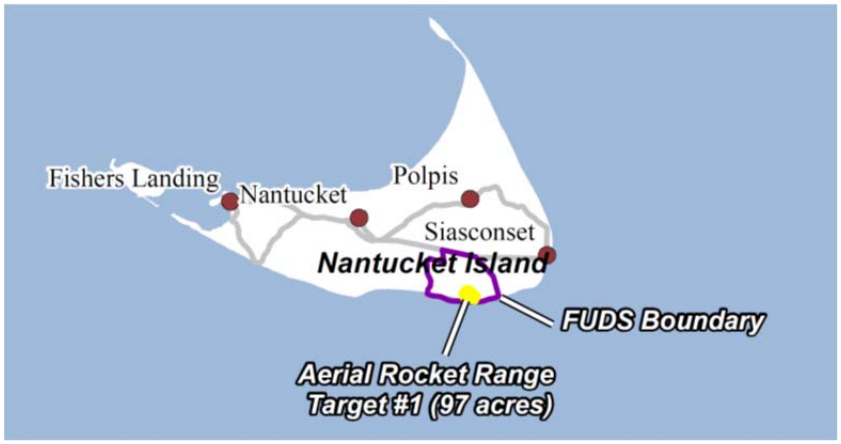

Figure 1 – FUDS Site Location

The FUDS program follows the requirements of the ***National Oil and Hazardous Substances Pollution Contingency Plan***[1] **(NCP)** and the ***Comprehensive Environmental Response, Compensation and Liability Act*** **(CERCLA)** of 1980 and its amendments of 1986. This ***Proposed Plan*** was prepared to satisfy the requirements of Section 117(a) of CERCLA and Section 300.430(f)(2) of the NCP and facilitate public participation in the remedy selection process.

[1] *Section 300.430(f)(1)(ii) and 300.430(f)(4)(i) of the NCP requires public participation in the process of approving a proposed decision document. This Proposed Plan summarizes the technical documents available in the project information repository located at the Nantucket Atheneum [1 India Road, Nantucket, Massachusetts, 02554].

A final remedy will be selected for the Aerial Rocket Range Target #1 MRS after considering all public comments. The public is also encouraged to review supporting technical documents and community outreach materials that are available in the project ***information repository***, located near the MRS at the Nantucket Atheneum. This project information repository provides copies of documentation included in the ***Administrative Record file*** for this MRS. The official Administrative Record file for the Aerial Rocket Range Target #1 Munitions Response Site is stored at the USACE, New England District located at 696 Virginia Road, Concord, Massachusetts 01742-2751, and is maintained by USACE. Following the public comment period on the Proposed Plan, the selected remedy will be announced in a local newspaper notice and the final ***decision document***.

This Proposed Plan describes the remedial alternatives considered and preferred alternative for the Aerial Rocket Range Target #1 MRS, and proposes no action for the Aerial Rocket Range Fan MRS. The public has until November 4th, 2014, to comment on the Proposed Plan. *See information in the box on page 1 to find out how your opinion can be heard*.

FUDS PROJECT BACKGROUND

The Nantucket Beach FUDS property is located in Nantucket County, Massachusetts and consists of 2,896 acres on the southeastern side of Nantucket Island in what is referred to as the Tom Nevers area. The FUDS was leased by the U.S. Government between September 1943 and 30 June 1946, and was used as a practice aerial rocket range. Training ceased on 1 September 1945. During historical training exercises, pilots fired air-to-ground rockets at three potential target sites (designated Target #1, Target #2, and Target #3) identified via historical records and imagery.

The aerial rocket range and a potential burial pit area located within the range were first identified via the Inventory Project Report prepared by USACE in July 1995, which was followed by the Archives Search Report and Archives Search Report Supplement prepared by USACE in September 1997 and 2009, respectively.

Following review of historical records, and initial field investigations conducted as part of the ***Site Inspection* (SI)** in 2011, the Aerial Rocket Range MRS was conservatively realigned under the FUDS program to include 5,157 acres of land and coastal water which encompassed all three potentially used targets and the potential burial pit area. The 2012 Nantucket Beach FUDS ***Remedial Investigation* (RI)** conducted in accordance with CERCLA identified no ***unexploded ordnance*** (**UXO)** or ***discarded military munition* (DMM),** which are considered ***munitions and explosives of concern* (MEC)**; however a significant amount of ***munitions debris* (MD)** consisting of partial and intact practice rockets and miscellaneous components were identified and removed during characterization in the vicinity of former Target #1. All items were determined to be ***material documented as safe* (MDAS)**.

Based on the results of the RI, the Aerial Rocket Range was delineated into two MRSs. The 97-acre Aerial Rocket Range Target #1 MRS is the area where MD was found (*see Figure 2 on page 3*).

The remaining acreage was identified separately as the Aerial Rocket Range Fan MRS and recommended for no action, since no MEC or MD was found in this area (*see Figure 3 on page 4*).

The Aerial Rocket Range Target #1 MRS includes parcels owned by private residents for seasonal in addition to full-time residential purposes, and portions of parcels owned by the Nantucket Conservation Foundation (NCF) that are undeveloped, or used for recreational purposes (e.g., walking/biking trail, beach access). There is no anticipated change in future land use.

The general landscape of the MRS is best described as gently rolling moorlands with low-lying vegetation (scrub oak) and sandplain grasslands, dunes, and beach. The elevation of the MRS property ranges from approximately 35 feet (ft) above mean sea level in the north and slopes toward sea level at the beach. A steep bluff (ranging from 5 ft to 20 ft tall) exists between the beach and the vegetated land boundary due to extensive and ongoing erosion.

There are several sensitive environments present within the MRS. The sensitive environments are located in the Massachusetts Coastal Zone and includes two types of ***wetlands***, including estuarine and marine wetlands and freshwater forested/shrub wetlands. Surface water runoff within the MRS flows toward the Atlantic Ocean; however, the soils throughout the MRS are well-drained, to excessively-drained ***outwash deposits***. The MRS provides habitat for a variety of plants and animals. Federally-listed threatened and endangered species, state-listed endangered species, state-listed threatened species, and state-listed special species of concern may be present within the MRS. Specific species of concern within the MRS include nesting Northern Harriers, and although nesting shorebirds (Piping Plovers, Roseate, and Least Terns) are species of concern local to the Island, the erosion along the coastline in the MRS does not provide amenable habitat for nesting shorebirds.

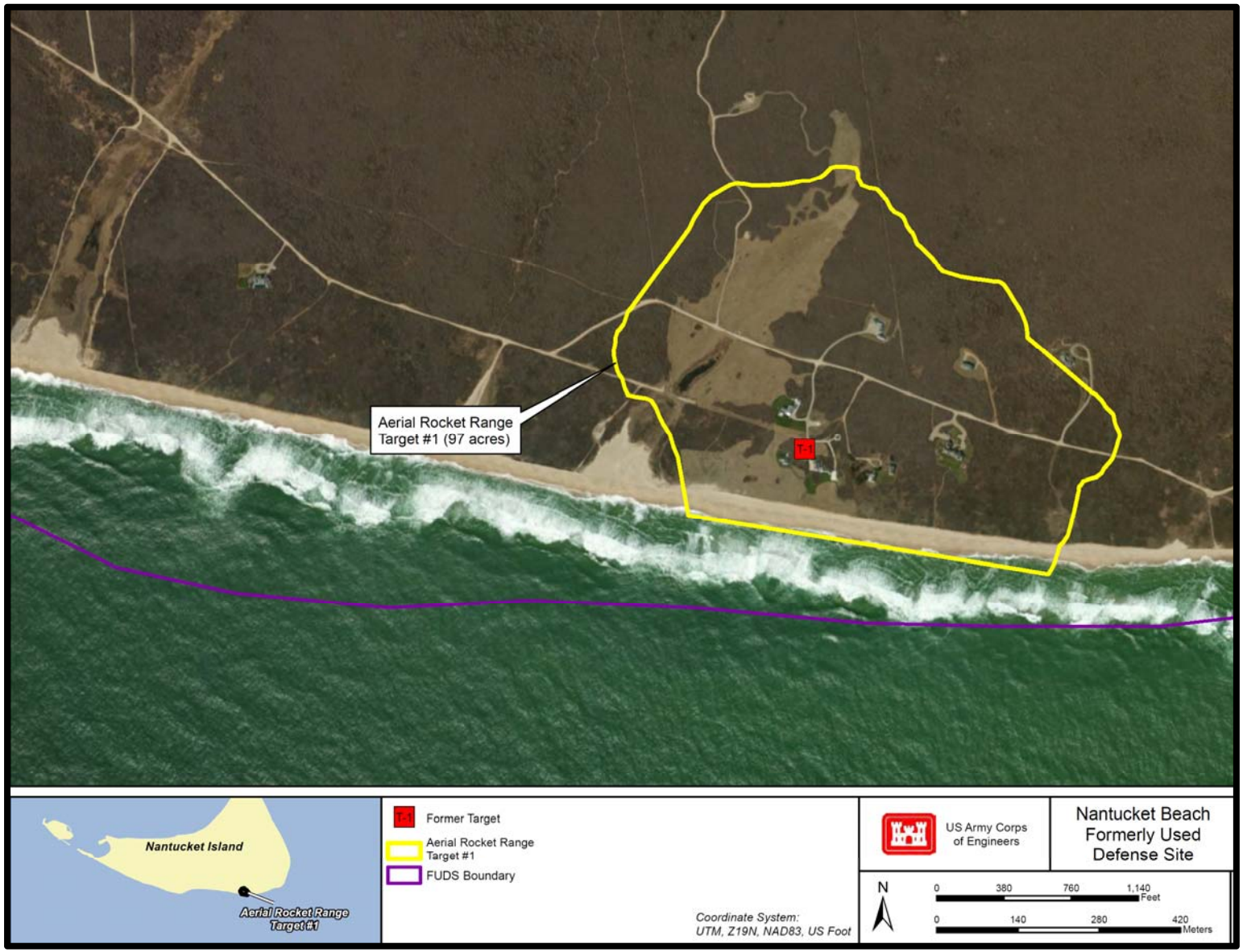

Figure 2 - Aerial Rocket Range Target #1
97-acre Munitions Response Site Boundary

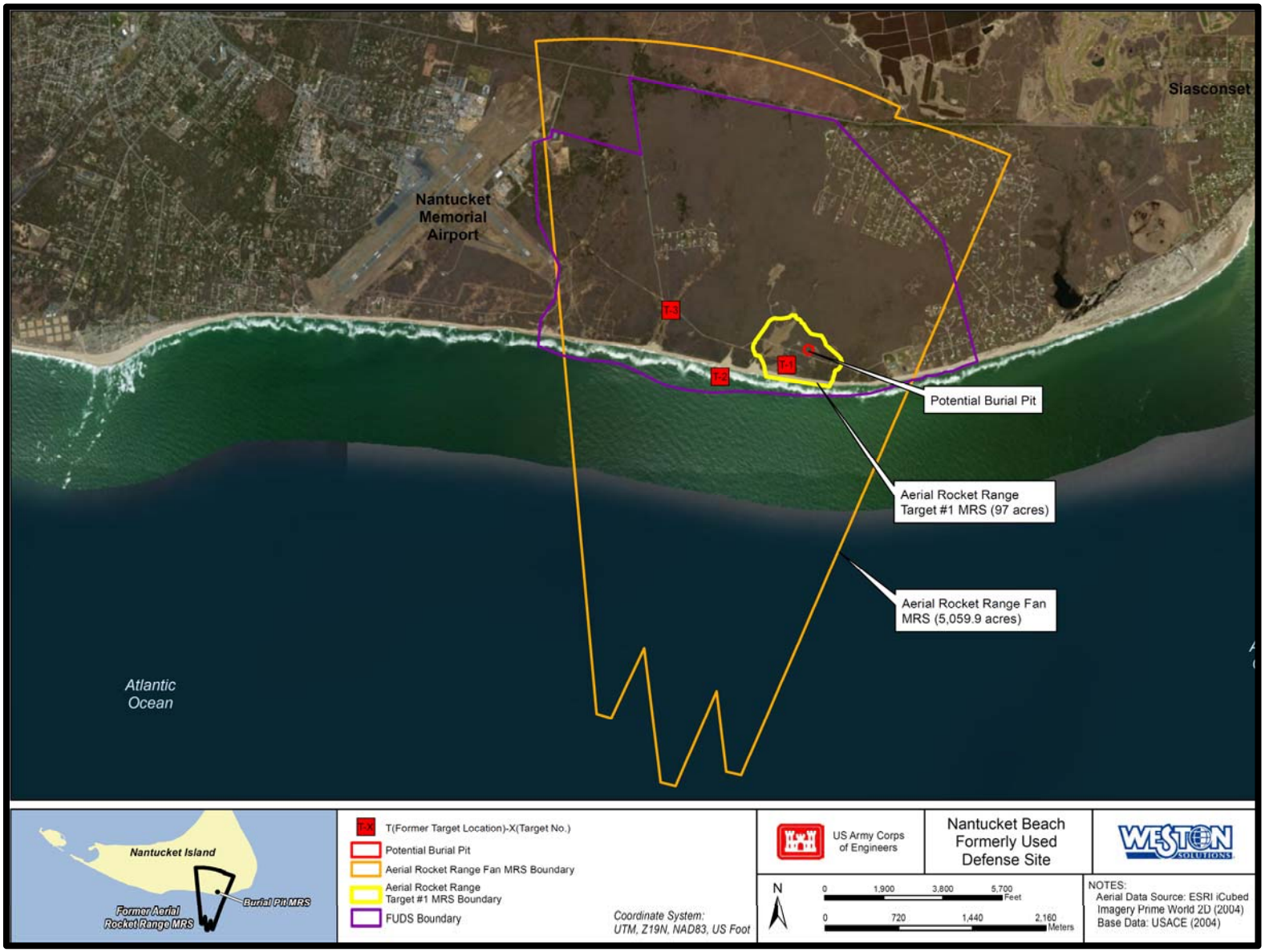

Figure 3 - Aerial Rocket Range Fan
5,059.9-acre Munitions Response Site Boundary

There is public water service on the island provided by Wannacomet Water Company, however, the residences closest to the former targets use private wells. The current Numerical Ranking System map for the MRS depicts the entire former property within a designated U.S. Environmental Protection Agency sole source aquifer, but it is not located within well head protection areas used as the Wannacomet Water Company's drinking water source.

The Massachusetts Historical Commission indicates that the entire Island of Nantucket is listed as a historic district in the National Register of Historic Places and is designated as a National Historic Landmark. The Island of Nantucket is archaeologically-sensitive and likely contains areas of cultural significance to the Wampanoag Tribe. However, no cultural or archeologically significant findings were documented within the MRS during the RI.

Nature and Extent of MEC Contamination

A total of 938 individual MDAS items were removed from the MRS during the RI field work conducted between June and August 2012. Historical reports of suspect ***high explosive*** munitions that had been previously found and detonated by the State Police Bomb Squad or Explosive Ordnance Disposal personnel within the MRS were not confirmed since no MEC was observed during the RI. Figure 2 (*on page 3*) depicts the MRS boundary line encompassing an area of 97 acres around the former Target #1 footprint, which captures the extent of MD delineated within the MRS during the RI. No MEC or MD was found beyond this boundary.

Following geophysical surveys using specialized metal-detection equipment, ***anomalies*** were selected for further investigation. At locations where anomalies were not visible at ground surface for inspection, excavation was performed until the source of the anomaly was discovered, inspected, and removed. Qualified ***UXO Technicians*** inspected each excavation using specialized detection equipment after MD removal to ensure that no additional anomalies were present and no further investigation was needed.

The average depth of recovered items was 2.5 ft, with a median depth of 3 ft based on the 938 practice rockets and miscellaneous components that were found and removed from the MRS. Only 3% of the total quantity of MD recovered was discovered at ground surface. The remaining MD that was discovered within the investigated portion of the MRS was primarily located within 4 ft of ground surface. At one intrusive investigation location, an MD item was found and removed from 8 ft below ground surface (bgs) before the location was cleared for further investigation. The items recovered included: 5-inch high velocity aircraft rockets (67 each); 3.5-inch forward firing aircraft rockets (302 each); 2.25-inch sub-caliber aircraft rockets (326 each); miscellaneous rocket components (242 each); and, one fragment determined to be present from prior demilitarization operations.

Sampling performed during the RI assessed ***munitions constituent*** **(MC)** concentrations in surface and subsurface soil associated with the highest densities of MD and groundwater from residential drinking water wells within the MRS. No perchlorate (sampled in groundwater only) or explosive chemicals were identified above project screening levels in soil or groundwater. Positive detections of metals in soil and groundwater were observed consistent with expected background concentrations.

Scope and Role of Response Action

This Proposed Plan addresses the remedial alternative selected by USACE to manage the risks that have been identified specifically at the Aerial Rocket Range Target #1 MRS. Based on the information and data collected for this MRS, USACE anticipates that this proposed remedial alternative will be the final ***remedial action*** needed at the Aerial Rocket Range Target #1 MRS. The role of this remedial action will be to manage the potential hazards identified to date by preventing or minimizing human interaction with munitions remaining at the MRS since they are indistinguishable by the public as to whether they are practice or high explosive. Following the RI in 2012, no action is recommended for the Aerial Rocket Range Fan MRS.

Summary of MRS Risks

Based on the results of the SI and RI, no UXO or DMM were identified at this MRS; however, a significant amount of MD was delineated during characterization in the vicinity of former Target #1. An ***explosive hazard*** is not anticipated to exist at AC-01/Target #1. An explosive hazard is the possibility that a MEC item will explode and potentially cause harm if handled or disturbed. Since no MEC were found during the SI or RI, the project team determined that a Munitions and Explosives of Concern Hazard Assessment could not be performed. Because the RI investigated only a percentage of the acreage within the MRS, it is still possible for MEC to be present at the MRS. It is however, statistically considered unlikely. The baseline risk assessment for MC did not identify a risk to potential human and ecological ***receptors*** from soil in contact with the highest densities of MD observed during the RI or groundwater assessed from residential drinking water wells located within the MRS.

Currently, the 97-acre Aerial Rocket Range Target #1 MRS boundary where MD has been confirmed to be present includes portions of parcels owned by private residents, or the NCF that is undeveloped and used for recreational purposes. Current residential activities and property maintenance by NCF may include surface and subsurface soil disturbance. Recreational use would typically involve foot and vehicle traffic, with limited intrusive activities (e.g., children digging in the sand).

Future construction activities may also be performed at Aerial Rocket Range Target #1 MRS, and construction workers might be at risk for coming in contact with munitions remaining on the ground or below the ground at this MRS. The preferred alternative identified in this Proposed Plan is necessary to protect public health and welfare from the munitions estimated to remain.

REMEDIAL ACTION OBJECTIVE

A ***Feasibility Study*** **(FS)** was prepared after the *RI Report* was completed in November 2013. A FS is a detailed analysis that develops viable remedial alternatives and examines the pros and cons of applying the alternatives to a specific MRS to achieve a desired ***remedial action objective*** **(RAO)**.

The RAO established for the Aerial Rocket Range Target #1 MRS is to reduce the probability of residents, NCF personnel, contractor/maintenance workers, visitors/trespassers, and recreational users handling munitions encountered during residential, construction/maintenance, and recreational activities performed at ground surface and in subsurface soil.

During RAO development, potential ***applicable or relevant and appropriate requirements*** (ARARs) were considered. Two ARARs were identified as appropriate for response actions that entail clearance of remaining munitions at the MRS, including: subpart X of the Resource Conservation and Recovery Act at 40 CFR 264.601/602/603, which establishes requirements for "miscellaneous units" used for MEC disposal; and, under the Federal Endangered Species Regulations at 16 U.S.C. §1538(a)(1), it is unlawful for any person to take a listed species.

SUMMARY OF REMEDIAL ALTERNATIVES

USACE considered six different alternatives for the Aerial Rocket Range Target #1 MRS. The alternatives were evaluated against seven of the nine criteria required by CERCLA and the NCP (*see criteria explanation in the adjacent box on this page*). Criteria 8 and 9 will be considered after the public comment period.

EXPLANATION OF THE NINE EVALUATION CRITERIA

CERCLA and the NCP [40 CFR 300.430(e)(9)(iii)(A)-(I)] requires the evaluation of each remedial alternative to address the following nine criteria :

Threshold Criteria - must be met or specifically waived

1. **Overall Protection of Human Health and the Environment** – Evaluates whether the alternative provides adequate protection and evaluates how risks are eliminated, reduced, or controlled through treatment, engineering controls, or local government controls.
2. **Compliance with Applicable or Relevant and Appropriate Requirements** – Evaluates whether the remedial alternative meets cleanup standards, standard of control, or other requirements related to the contaminant found in other federal and state environmental laws or regulations, or justifies any waivers.

Primary Balancing Criteria - forms the basis of comparison to identify a preferred alternative

3. **Long-Term Effectiveness and Permanence** – Considers any remaining risks after remedial action is complete and the ability of an alternative to maintain reliable protection of human health and the environment over time once remedial goals are met.
4. **Reduction of Toxicity, Mobility, or Volume through Treatment** – Evaluates the alternative's use of treatment to reduce the harmful effects of the contaminants, their ability to move in the environment, and the amount of contamination present.
5. **Short-Term Effectiveness** – Considers the time needed to remediate the site and the risks and short-term impacts the alternative may pose to workers, the community, and the environment until the remedial goals are met.
6. **Implementability** – The technical and administrative feasibility of implementing an alternative, including factors such as the relative availability of goods and resources.
7. **Cost** – Estimated capital, LTM and periodic costs as well as the present value of the alternative. (*Present value is the total cost of an alternative over time in terms of today's dollar value.*)

Modifying Criteria – considered in remedy selection

8. **State Acceptance** – Considers whether the state (Massachusetts) agrees with the analyses and recommendations as described in the proposed plan.
9. **Community Acceptance** – Considers whether the local community agrees with the analyses and proposed plan. The comments received on the preferred alternative are important indicators of community acceptance.

The six alternatives are summarized below. Figures that support the clearance alternatives are included on pages 9 through 11 following the summary of remedial alternatives.

Additional details are available in the *Feasibility Study Report for Nantucket Beach, Former Nantucket Ordnance Site, a.k.a. Tom Nevers Rocket Projectile Target; Tom Nevers Area, Formerly Used Defense Site (FUDS), Project Number D01MA045601*. The FS is provided for public information in the project information repository located at the Nantucket Atheneum in Nantucket, MA.

Alternative 1 - No Action — CERCLA requires that a "no action" alternative be evaluated for the purpose of comparison to the other proposed alternatives. This alternative means no action would be taken to locate, remove, and dispose of munitions. In addition, no public awareness or education training would be initiated with regard to the risk of munitions.

For the No Action alternative, it is assumed that no change to the current land use of the Aerial Rocket Range Target #1 MRS would occur. If it is determined that the potential exposure and hazards associated with the MRS are compatible with current and future development in the area, as well as the RAO, then the No Action alternative may be selected. There would be no ARARs associated with this alternative.

Capital Cost - $0
LTM Cost - $0
CERCLA-Required Review Cost - $0
Present Value Cost[2] (7% discount rate) - $0

Alternative 2 – Land Use Controls (LUCs) and Long-Term Management (LTM) (*Preferred Alternative*) — Alternative 2 would consist of the following LUC components to reduce the probability of humans from coming into contact with any munitions remaining at this MRS. LUCs that would be implemented are awareness components such as posting signs at public access locations, distribution of brochures that encompass the Army's educational message for explosives safety known as the 3Rs (i.e., recognize, retreat, and report – *see last page of this Proposed Plan for more information on the 3Rs*), fact sheets notifying the public of explosive hazards when encountering MEC, and an educational component to provide site-specific awareness training for the local community. Although legal mechanisms of control cannot be imposed by the federal government on the privately-owned parcels included within the MRS boundary, the implementation of a LUC alternative based on public awareness and education components would provide a means for USACE to coordinate an effort to reduce munitions handling by private residents, NCF personnel, contractor/maintenance personnel, and recreational users/visitors (i.e., unqualified/untrained ordnance personnel) through behavior modification.

Approximately 6 months was estimated to be needed to establish LUCs and achieve the RAO. Long-term management (LTM) of munitions left in-place would include LUC enforcement (i.e., updating/redistributing informational and educational materials) for 3 years, and maintenance of signs annually. During the LTM period under Alternative 2, USACE would provide on-call UXO support for 4 years to respond to munitions that are incidentally encountered at the MRS. Alternative 2 would comply with the identified ARARs.

As a separate requirement under CERCLA, Five-Year Reviews would be conducted because MEC may remain at the MRS not allowing for unlimited use and unrestricted exposure.

Unlimited use and unrestricted exposure will be considered reached if no MEC has been found at the MRS for at least 4 years after reaching response complete. No unacceptable risk would remain after that point. A Five-Year Review and close-out report will be issued and provided to the State of Massachusetts. For cost estimating purposes, it is assumed that LTM would be conducted over 4 years followed by a Five-Year Review.

Capital Cost - $40,349
LTM Cost - $163,597
CERCLA-Required Review Cost - $36,225
Present Value Cost (7% discount rate) - $206,000

Alternative 3 - Surface Clearance (25.7 acres) with LUCs and LTM — Alternative 3 includes surface clearance (25.7 acres) to address the beach, wetlands, NCF trails, and portions of residential properties where ground surface is accessible [excludes portions of the MRS with scrub oak and coastal shrubland vegetation and portions of the MRS previously cleared (*see Figure 4 on page 9)*]. This alternative would also include LUC components with LTM and Five-Year Reviews similar to Alternative 2. Approximately 6 months was estimated to be needed to perform clearance activities and establish LUCs to achieve the RAO. Alternative 3 would comply with the identified ARARs.

Capital Cost - $949,211
LTM Cost - $141,385
CERCLA-Required Review Cost - $36,225
Present Value Cost (7% discount rate) - $1,096,000

[2] Present Value costs are shown rounded to the nearest thousand dollars and represent the cost of the alternative over 5 years with an annual discount rate of 7%.

Alternative 4 – Surface (25.7 acres) and Subsurface Clearance to 4 ft (3 acres) with LUCs and LTM — Alternative 4 includes surface clearance per Alternative 3 with additional subsurface clearance to 4 ft bgs over 3 acres of residential properties in accessible areas to support future construction/maintenance activities (*see Figure 5 on page 10).*

This alternative would also include LUC components with LTM and Five-Year Reviews similar to Alternative 2. Approximately 12 months was estimated to be needed to perform clearance activities and establish LUCs to achieve the RAO. Alternative 4 would comply with the identified ARARs.

Capital Cost - $2,389,073
LTM Cost - $119,174
CERCLA-Required Review Cost - $36,225
Present Value Cost (7% discount rate) - $2,517,000

Alternative 5 – Surface (25.7 acres) and Subsurface Clearance (3 acres) with LUCs and LTM — Alternative 5 includes surface and subsurface clearance per Alternative 4 with additional subsurface clearance beyond 4 ft to approximately 10 ft bgs on residential properties in accessible areas to support future construction/maintenance activities (*see Figure 5 on page 10*).

This alternative would also include LUC components with LTM and Five-Year Reviews similar to Alternative 2. Approximately 18 months was estimated to be needed to perform clearance activities and establish LUCs to achieve the RAO. Alternative 5 would comply with the identified ARARs.

Capital Cost - $2,622,630
LTM Cost - $96,962
CERCLA-Required Review Cost - $36,225
Present Value Cost (7% discount rate) - $2,731,000

Alternative 6 – Surface and Subsurface Clearance (88.8 acres) — Alternative 6 includes surface and subsurface clearance to approximately 10 ft bgs over 88.8 acres within the boundaries of the MRS [excludes existing structures and roadways previously developed, and a section of the MRS that was previously cleared for munitions under a private contract (*see Figure 6 on page 11*)] to remove all munitions estimated to remain at the MRS and reduce the probability of human contact to the greatest extent possible.

Approximately 4 years was estimated to be needed to perform clearance activities. Alternative 6 is not expected to be able to comply with all of the identified ARARs, specifically 16 U.S.C. §1538(a)(1), due to the significant environmental impacts that would be expected during implementation and would require a waiver for this appropriate requirement. This alternative would not require LUCs and LTM, or Five-Year Reviews following removal of all munitions.

Capital Cost - $22,393,956
LTM Cost - $0
CERCLA-Required Review Cost - $0
Present Value Cost (7% discount rate) - $22,394,000

EVALUATION OF ALTERNATIVES

The six alternatives were evaluated against seven of the nine CERCLA/NCP evaluation criteria (*see box on page 6*) to identify a preferred alternative that meets the threshold criteria and is most favorable relative to the primary balancing criteria. The state and community acceptance criteria will be evaluated after public comments are received.

More detailed information about the evaluation of alternatives can be found in the FS report. The degree to which the considered alternatives meet the evaluation criteria is summarized beginning on page 12 and shown in the table on page 13.

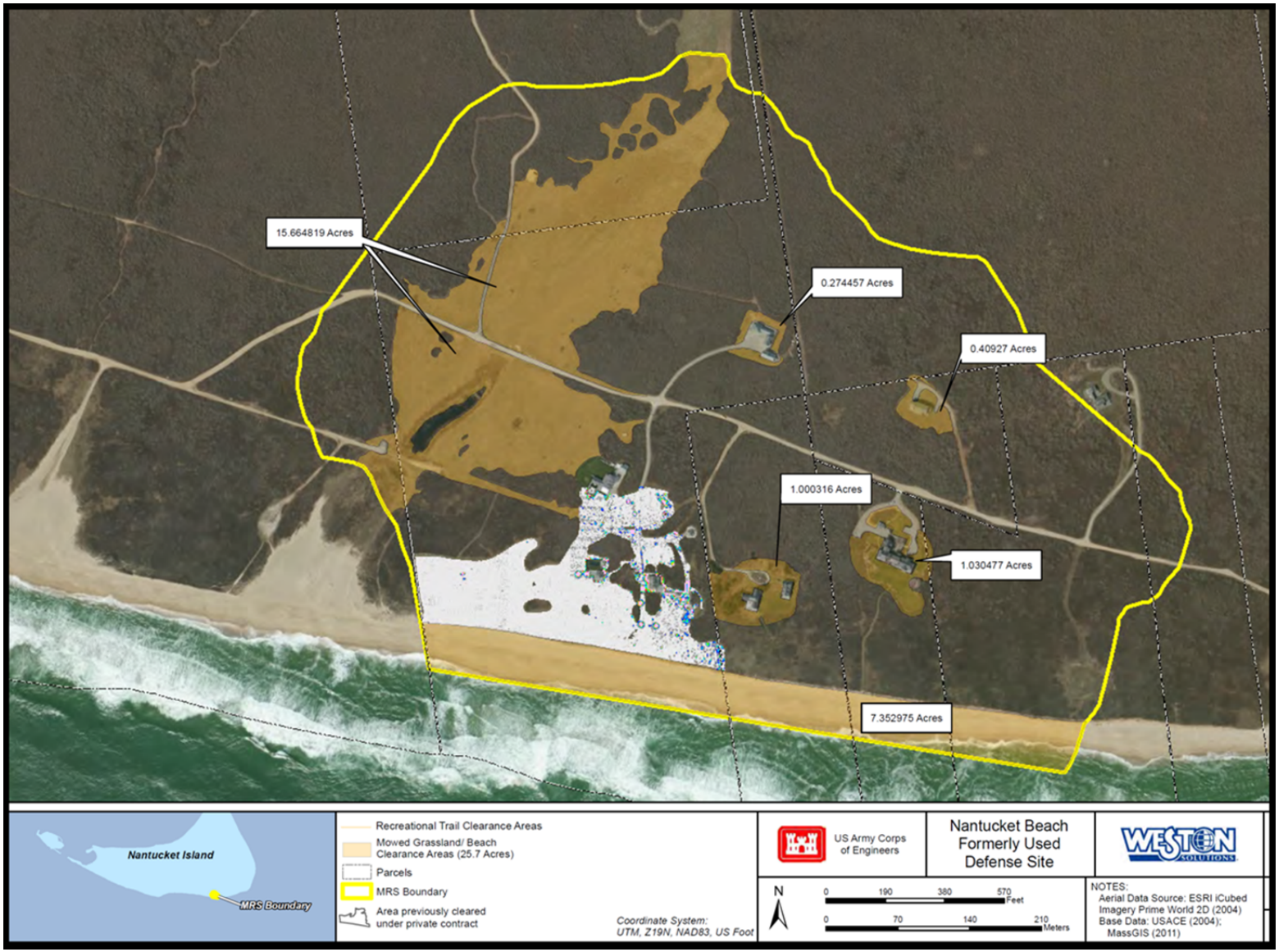

Figure 4 – Alternative 3 Surface Clearance Area

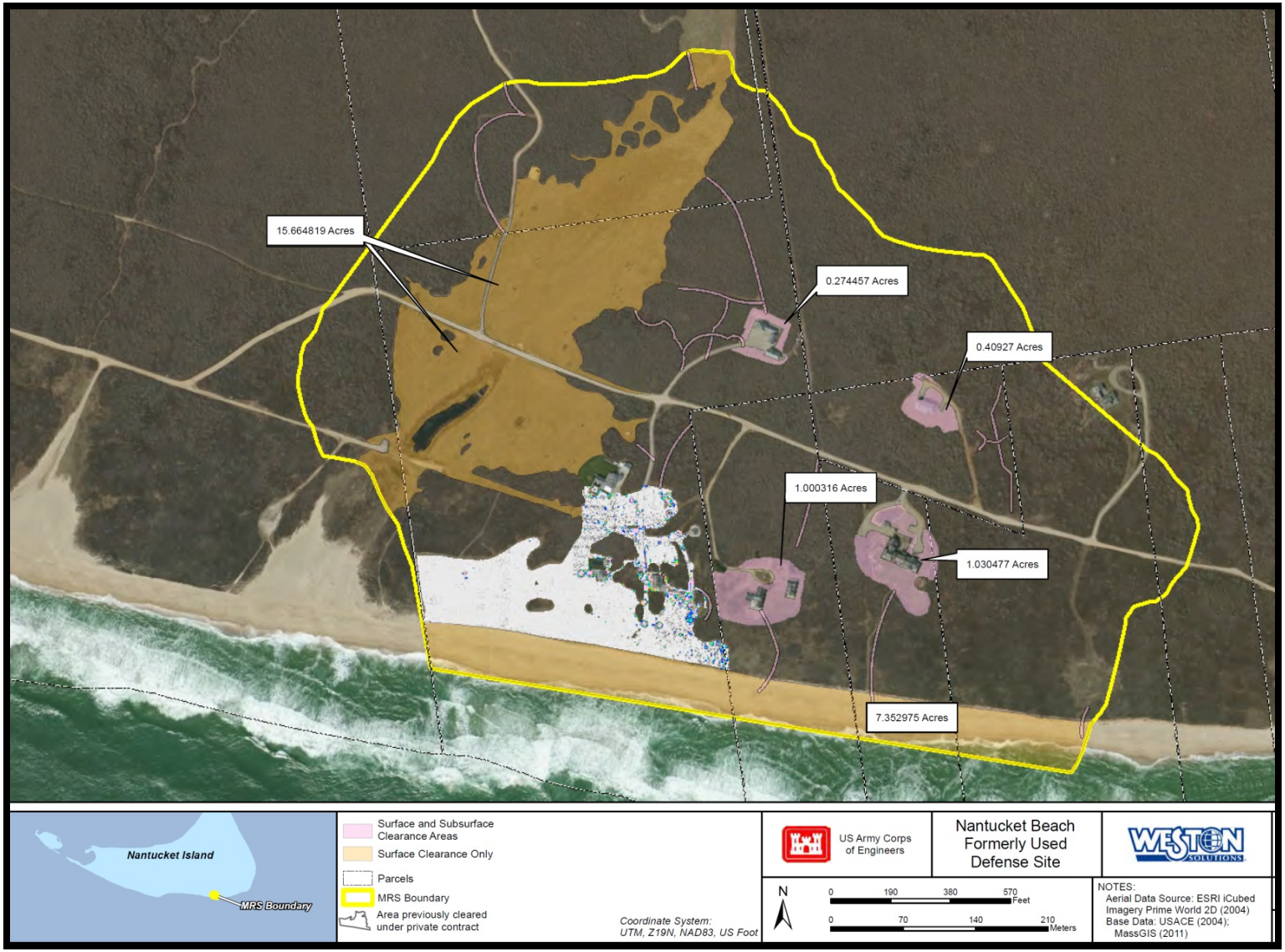

Figure 5 – Alternatives 4 and 5 Surface and Subsurface Clearance Area

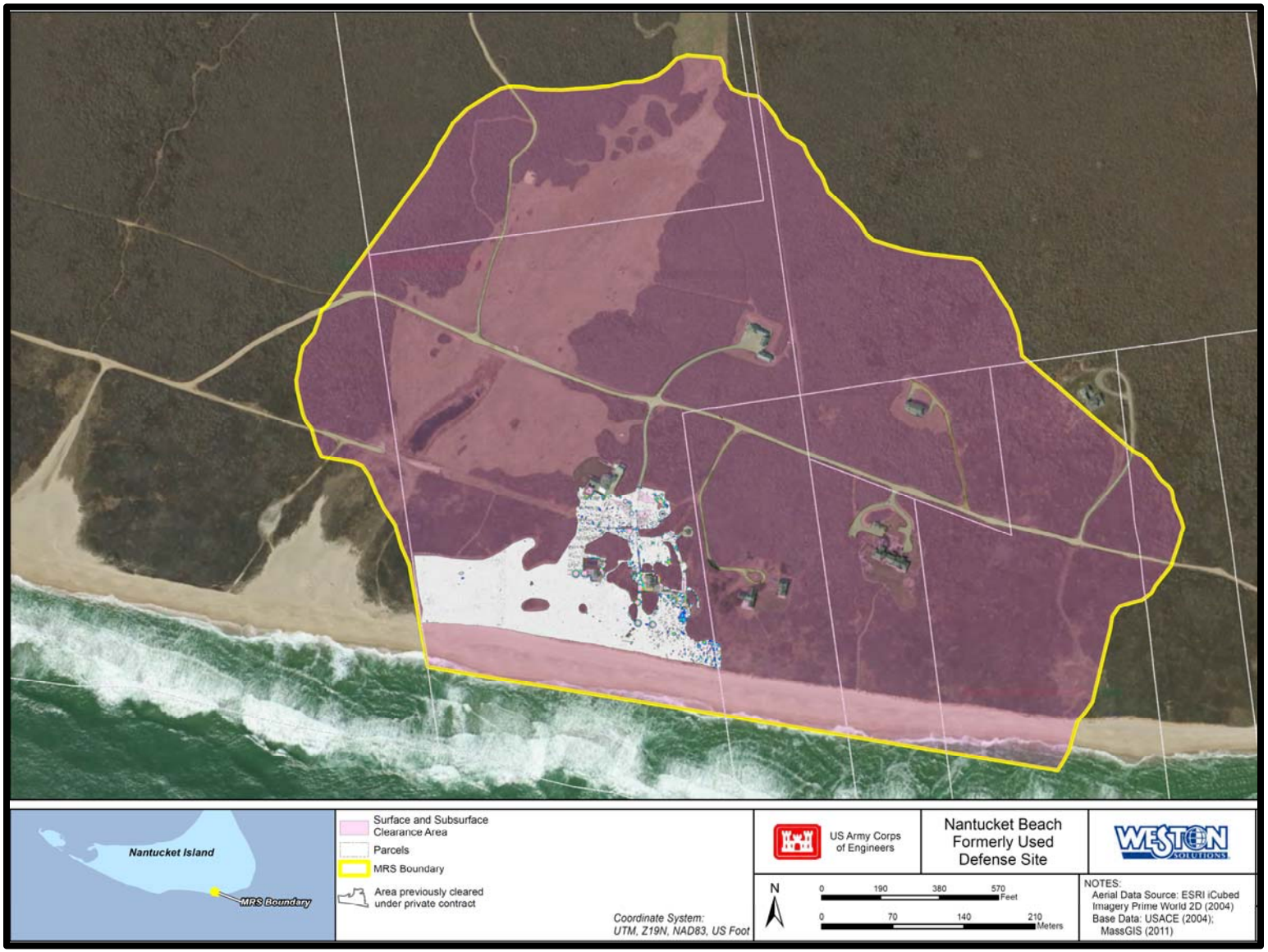

Figure 6 – Alternative 6 Surface and Subsurface Clearance Area

Threshold Criteria

Alternative 1 does not meet the threshold criterion of overall protectiveness. Alternative 2 includes managing risk through establishing LUCs that would be protective for the public who utilize Aerial Rocket Range Target #1 MRS, private landowners, and contractors performing maintenance or construction activities at the MRS. Alternatives 3, 4, and 5 would be protective because munitions would be partially cleared, and residual exposure would be controlled through LUCs similar to Alternative 2. However, during implementation environmental protection would be required to maintain short-term effectiveness due to vegetation removal and intrusive activities that would be performed. Although Alternative 6 would be protective of human health because remaining munitions would be removed to the greatest extent possible, it would not be protective of the environment.

The two ARARs identified would not be associated with Alternative 1 because no actions would be taken to clear remaining munitions at the MRS. Alternatives 2, 3, 4, and 5 would be implemented to comply with the identified ARARs. Alternative 6 would not comply with the ARAR, 16 U.S.C. §1538(a)(1) Endangered Species Act.

Primary Balancing Criteria

Alternative 1 is not effective or permanent. Alternative 2 is effective and permanent assuming the cooperation and active participation of the property owners. Surface clearance under Alternative 3 would be slightly more effective and permanent because some of the remaining munitions are likely located at ground surface. Although the subsurface clearance area contemplated as Alternative 4 is the same as that addressed under Alternative 5 (3 acres), Alternative 5 would be the more effective and permanent of the two options because the depth of clearance and total volume of munitions removed would be greater. Under Alternative 6, munitions would be removed permanently from within the MRS to the greatest extent possible making it the most effective and permanent alternative considered. Alternative 1 is ranked the lowest relative to the reduction of toxicity, mobility or volume (TMV) criterion as no actions would be taken. Alternative 2 LUC components may reduce the probability of human interaction/handling (i.e., mobility) through education to modify behavior even though no volume reduction would occur. Alternatives 3, 4, and 5 also partially meet the TMV criterion relative to the amount of clearance performed, while Alternative 6 would fully meet this criterion.

Approximately 6 months would be needed to establish LUCs and achieve the RAO under Alternative 2, which is the same time estimated needed for Alternative 3, including the addition of a surface clearance event. The time needed to implement Alternative 4 or 5 would be slightly longer, requiring 12 to 18 months to perform subsurface clearance with surface clearance and establish LUCs. Alternative 6 was estimated to require approximately 4 years to implement, which is significantly longer than the duration of time needed to implement the remaining alternatives considered.

During this time, short-term impacts to workers on-site would be increased in addition to the potential for impacts to the property owners and MRS users. Similarly, Alternative 6 would be the most technically difficult to implement with added administrative logistics based on approvals needed to manage environmental impacts during implementation. Specific activities, including awareness training for workers and use of protection procedures/mitigation techniques would be required to preserve natural resources. Although similar provisions would be required for Alternatives 3, 4, and 5, the effort would be lessened relative to the decreased amount of clearance designed under each alternative compared to Alternative 6. Alternative 1 would be easily implemented if approved by all stakeholders because it requires no actions be taken. The LUCs recommended as Alternative 2 could also be readily implemented because these activities pose no technical difficulties and the materials and services needed are readily available.

The total present value of each alternative is as follows (rounded to the nearest thousand dollars):

- Alternative 1 = $0
- Alternative 2 = $206,000
- Alternative 3 = $1,096,000
- Alternative 4 = $2,517,000
- Alternative 5 = $2,731,000
- Alternative 6 = $22,394,000

Thus, Alternative 2 meets the threshold criteria and most favorably meets the balancing criteria as compared to the remaining alternatives. Alternative 2 can be readily implemented and would be effective over the long-term compared to its cost, whereas Alternatives 3, 4, and 5 are all more difficult to implement and would incur a much greater cost for a slightly greater level of effectiveness over the long term. Both Alternative 1 and Alternative 6 do not meet the threshold criteria for selection.

EVALUATION OF REMEDIAL ALTERNATIVES

EVALUATION CRITERIA	ALTERNATIVE 1	**PREFERRED** ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5	ALTERNATIVE 6
1. OVERALL PROTECTION	■	●	●	●	●	■
2. COMPLIANCE WITH ARARS	●	●	●	●	●	■
3. LONG-TERM EFFECTIVENESS AND PERMANENCE	■	●	●	●	●	●
4. REDUCTION OF TMV	■	□	□	□	□	●
5. SHORT-TERM EFFECTIVENESS	●	●	□	□	□	■
6. IMPLEMENTABILITY	●	●	●	□	□	■
7. COST	$0	$206,000	$1,096,000	$2,517,000	$2,731,000	$22,394,000
8. STATE ACCEPTANCE	TBD	TBD	TBD	TBD	TBD	TBD
9. COMMUNITY ACCEPTANCE	TBD	TBD	TBD	TBD	TBD	TBD

●= Favorable ("meets" for threshold criteria)
□= Moderately favorable
■= Not favorable ("does not meet" for threshold criteria)
TBD = to be determined following the public comment period

PREFERRED ALTERNATIVE

Based on the information available, Alternative 2 – LUCs and LTM is the preferred alternative for the Aerial Rocket Range Target #1 MRS. This alternative provides the best balance of tradeoffs with respect to the evaluation criteria considered for remedy selection. Alternative 2 can be readily implemented to achieve the RAO in a cost-effective manner while providing overall protectiveness relative to the safe current and future use of this MRS, which is intended to remain residential or recreational. The preferred alternative is expected to satisfy the following statutory requirements under CERCLA §121(b): be protective of human health and the environment; comply with ARARs; be cost-effective; and be a permanent solution to the maximum extent practicable.

The NCP, at 40 CFR 300.430(f)(4)(ii), requires reviews no less than every 5 years in cases where a remedial action results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure. Because munitions will remain at the MRS following implementation of Alternative 2, a Five-Year Review will be conducted within 5 years after initiation of the remedial action to ensure that the remedy remains protective. Five-Year Reviews will continue to be conducted every 5 years until conditions are identified that allow for unlimited use and unrestricted exposure at the MRS.

Unlimited use and unrestricted exposure will be considered reached if no MEC has been found at the MRS for at least 4 years after reaching response complete. No unacceptable risk would remain after that point. A Five-Year Review and close-out report will be issued and provided to the State of Massachusetts.

The total present value cost estimated to administer LUC components and perform LTM over 4 years, with a Five-Year Review is $206,000 (rounded to nearest thousand).

Based on data collected through the RI, no action is recommended for the 5,059.9-acre Aerial Rocket Range Fan MRS.

COMMUNITY PARTICIPATION

USACE will evaluate the public's reaction to the preferred remedial alternative during the public meeting and public comment period before deciding on the final remedy. Based on new information or public comments received, USACE may modify the proposed remedial alternative or select another alternative outlined in this Proposed Plan. USACE encourages the public to review and comment on all of the remedial alternatives evaluated.

More technical details on the proposed remedial alternatives are available in the documents provided for the public in the project information repository located at the Nantucket Atheneum. USACE will respond in writing to comments in a responsiveness summary that will be part of the final decision document. Once finalized, USACE will announce the selected remedy in a local newspaper advertisement and will place a copy of the final decision document in the project information repository.

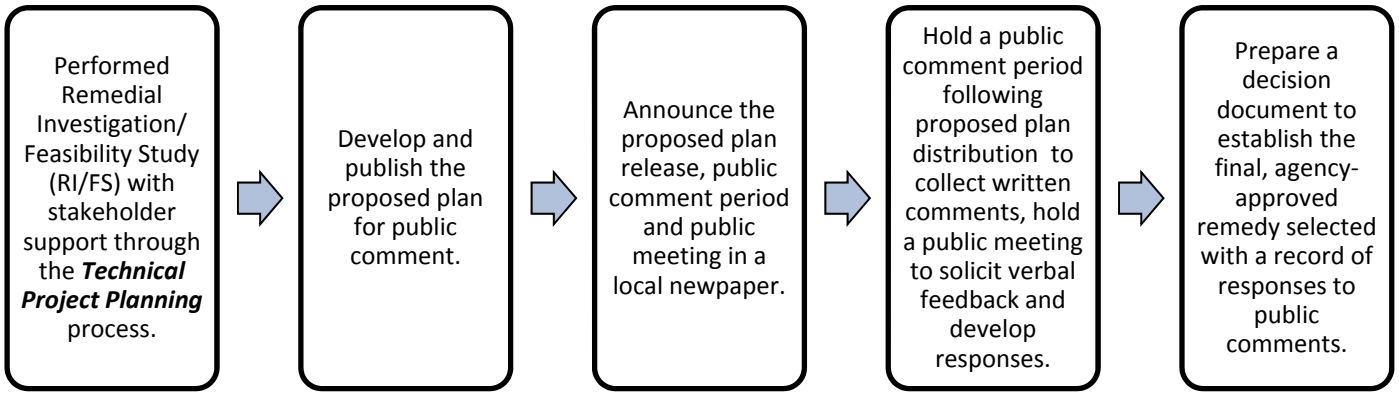

Figure 7 – The Decision Document Process

The U.S. Army proposes the preferred remedial alternative of

Alternative 2 – Land Use Controls for the Aerial Rocket Range Target #1 Munitions Response Site

[No Action for the Aerial Rocket Range Fan Munitions Response Site]

Nantucket Beach Formerly Used Defense Site (FUDS)

Nantucket, Massachusetts

Important public meeting scheduled for

October 9th, 2014

REFERENCES

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WESTON. 2014. Draft-*Final Feasibility Study Report for the Nantucket Beach, Former Nantucket Ordnance Site, A.K.A. Tom Nevers Rocket Projectile Target; Tom Nevers Area, Formerly Used Defense Site Project Number D01MA04561, Munitions Response Site 1, Munitions Response Site 2,* Prepared for the U.S. Army Corps of Engineers (USACE), Baltimore District, Baltimore, MD. April 2014.

PROPOSED PLAN

AERIAL ROCKET RANGE TARGET #1 MUNITIONS RESPONSE SITE NANTUCKET, MASSACHUSETTS

GLOSSARY FOR SPECIALIZED TERMS

Administrative Record file	The documents that form the basis for the selection of a response action compiled and maintained by the lead agency [40 CFR 800]. This file is to be available for public review and a copy maintained near the site (i.e., information repository). The official Administrative Record file for the Aerial Rocket Range Target #1 MRS is located at USACE, New England District, and is maintained by USACE.
Anomaly(ies)	Any item that is seen as a subsurface irregularity after geophysical investigation. This irregularity will deviate from the expected subsurface ferrous and non-ferrous material at a site (e.g., pipes, power lines). [EM 200-1-15]
Applicable or Relevant and Appropriate Requirements (ARARs)	*Applicable requirements* means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. [40 CFR 300] *Relevant and appropriate requirements* means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate. [40 CFR 300]
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	Commonly known as Superfund, this Act was enacted by Congress on December 11, 1980, and modified in 1986 by the ***Superfund Amendments and Reauthorization Act*** (SARA).
Decision Document (DD)	The Department of Defense has adopted the term Decision Document (DD) to refer to a legal public document, similar to a Record of Decision completed for National Priorities List sites, that: certifies that the remedy selection process was carried out in accordance with CERCLA and the NCP; provides a substantive summary of the technical rationale and background information in the Administrative Record file; provides information necessary in determining the conceptual engineering components to achieve the remedial action objective (RAO) established for a site; and serves as a key communication tool for the public that explains the identified hazards that the selected remedy will address and the rationale for remedy selection. The DD will be maintained in the Administrative Record file.
Discarded Military Munitions (DMM)	Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include UXO, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of, consistent with applicable environmental laws and regulations [10 USC 2710(e)(2)].

GLOSSARY OF TERMS (CONTINUED)

Explosive Hazard	A condition where danger exists because explosives are present that may react (e.g., detonate, deflagrate) in a mishap with potential unacceptable effects (e.g., death, injury, damage) to people, property, operational capability, or the environment. [Department of the Army Office of the Assistant Secretary Installations and Environment, Memorandum for the Assistant Chief of Staff For Installation Management, Subject: Munitions Response Terminology, 21 April 2005] The potential for an explosive safety hazard depends on the presence of three critical elements: a source (presence of MEC), a receptor or person, and an interaction between the source and the receptor (such as picking up the item or disturbing the item by digging). There is no explosive hazard if any one element is missing.
Feasibility Study (FS)	A study undertaken by the lead agency to develop and evaluate options for remedial action. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study. [40 CFR 300]
Formerly Used Defense Site (FUDS) Property	A FUDS is defined as a facility or site (property) that 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. By the Department of Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States. [ER 200-3-1]
High Explosive (HE)	A material that detonates at a speed that is faster than the speed of sound.
Information Repository (IR)	A repository, generally located at libraries or other publicly accessible locations in or near the community affect by the FUDS project, which contains accurate and up to date documents reflecting the on-going environmental restoration activities. [EP 1110-1-18] The project information repository is located at the Nantucket Atheneum [1 India Street, Nantucket, Massachusetts, 02554].
Land Use Controls (LUC)	Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property, to prevent or reduce risks to human health and the environment. Physical Mechanisms encompass a variety of engineered remedies to contain or reduce contamination and physical barriers to limit access to real property, such as fences or signs. The legal mechanisms used for LUCs are generally the same as those used for institutional controls as discussed in the NCP. [DODM 4715.20]

Military Munitions	All ammunition products and components produced or used by or for the U.S. DOD or the U.S. Armed Services for national defense and security, including military munitions under the control of the DOD, the U.S. Coast Guard, the U.S. DOE, and National Guard personnel. The term military munitions includes: confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries used by DOD components, 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 thereof. Military munitions do not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components thereof. However, the term does include non-nuclear components of nuclear devices, managed under DOE's nuclear weapons program after all required sanitization operations under the Atomic Energy Act of 1954, as amended, have been completed. (40 CFR 260.10).
Material Documented as Safe (MDAS)	Material potentially presenting an explosive hazard that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be material potentially presenting an explosive hazard.
Munitions and Explosives of Concern (MEC)	Specific categories of military munitions that may pose unique explosives safety risks, specifically composed of (a) unexploded ordnance, (b) discarded military munitions, or (c) munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard. [EM 200-1-15]
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. [10 U.S.C. 2710(e)(3)]
Munitions Debris (MD)	Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. *Department of the Army Office of the Assistant Secretary Installations and Environment, Memorandum for the Assistant Chief of Staff For Installation Management, Subject: Munitions Response Terminology, 21 April 2005.*.
Munitions Response Site (MRS)	A specific area on a defense site that is known or expected to contain munitions and that requires investigation to determine whether munitions or munitions constituents are present.
National Oil and Hazardous Substances Pollution Contingency Plan (NCP)	The plan revised pursuant to 42 USC 9605 and found at 40 CFR 300 that sets out the plan for hazardous substance remediation under CERCLA. [40 CFR 300].
Outwash Deposits	Deposit of sand and gravel carried by running water from the melting ice of a glacier and laid down in stratified deposits.
Proposed Plan (PP)	A document that presents a proposed remedial alternative, including rationale for selection, and requests public comments regarding the proposed alternative.
Receptor	Receptors include both humans and biota (plants or animals) that may come into contact with a hazardous substance, including munitions and munitions constituents, either directly (e.g., picking an item up) or indirectly (e.g., through ingestion).

Remedial Action	Those actions consistent with permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection using dikes, trenches, or ditches, clay cover, neutralization, cleanup of released hazardous substances and associated contaminated materials, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, onsite treatment or incineration, provision of alternative water supplies, and any monitoring reasonably required to assure that such actions protect the public health and welfare and the environment. [42 USC 9601].
Remedial Action Objective (RAO)	Objectives established for remedial actions to guide the development of remedial alternatives and focus the comparison of acceptable alternatives, if warranted. RAOs also assist in clarifying the goal of minimizing risk and achieving an acceptable level of protection for human health and the environment.
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. [40 CFR 300]
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. [40 CFR 300].
Superfund Amendments and Reauthorization Act (SARA)	In addition to certain free-standing provisions of law, it includes amendments to CERCLA, the Solid Waste Disposal Act, and the Internal Revenue Code. Among the free-standing provisions of law is Title III of SARA, also known as the "Emergency Planning and Community Right-to-Know Act of 1986" and Title IV of SARA, also known as the "Radon Gas and Indoor Air Quality Research Act of 1986." Title V of SARA amending the Internal Revenue Code is also known as the "Superfund Revenue Act of 1986." [40 CFR 300].
Technical Project Planning (TPP)	The TPP is a team-based, comprehensive, and systematic planning process for identifying project objectives and designing data collection program at MEC and hazardous/ toxic/ radioactive waste sites. There are four phases to the TPP process. Phase I involves identifying and becoming familiar with the project. Phase II involves evaluating existing project data, determining the data needed to make appropriate and supportable decisions, and identifying new methods for collecting that data. Phase III involves developing and documenting the field methods to be used. Phase IV involves finalizing and documenting the data collection alternatives and decisions, including documentation of the data quality objectives. For the Aerial Rocket Range Target #1 MRS, the TPP has included USACE and their contractor, the Town of Nantucket, the Massachusetts Department of Environmental Protection, and the property owners/representatives.
Unexploded Ordnance (UXO)	Includes military munitions that have been primed, fuzed, armed, or otherwise prepared for action; have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material; and remain unexploded either by malfunction, design, or any other cause. (10 USC 101(e)(5)(A) through (C) and 40 CFR 266.201).

UXO Technician	Personnel who are qualified for, and are filling Department of Labor, Service Contract Act, Directory of Occupations contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III (DDESB TP 18). [EM 200-1-15]
Wetland	Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

PROPOSED PLAN

AERIAL ROCKET RANGE TARGET #1 MUNITIONS RESPONSE SITE IN NANTUCKET, MASSACHUSETTS

USE THIS SPACE TO WRITE YOUR COMMENTS

Your comments on the Proposed Plan are important. Comments provided by the public are valuable in helping to select a final remedy for the site. You may use the space below to submit your comments for consideration. Please use additional paper if needed.

Your comments must be postmarked or e-mailed by midnight on November 4th, 2014.

Mail, or e-mail, your comments to:

Mr. Christopher G. Kane
Weston Solutions, Inc., Project Manager
45 Constitution Avenue, Suite 100
Concord, NH 03301
E-mail: C.Kane@WestonSolutions.com

Comments are being solicited by Weston Solutions, Inc., on behalf of the U.S. Army Corps of Engineers.

If you have any questions about the public comment process, please contact Ms. Carol A. Charette, U.S. Army Corps of Engineers, New England District, carol.a.charette@usace.army.mil (978) 318-8605.

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Name_____

Affiliation_____

Address_____

City, State, Zip_____

Follow the 3Rs

Recognize

Recognize when you may have encountered a munition.

Recognizing when you may have encountered a munition is the most important step in reducing the risk of injury or death. Munitions may be encountered on land or in the water. They may be easy or hard to identify.

To avoid risk of injury or death:

- Never move, touch, or disturb a munition or suspect munition.
- Be aware that munitions do not become safer with age, in fact, they may become more dangerous.
- Don't be tempted to take or keep a munition as a souvenir.

Munitions come in many sizes, shapes, and colors. Some may look like bullets or bombs while others look like pipes, small cans or even a car muffler. Whether whole or in parts, new or old, shiny or rusty, munitions can still explode.

2.25-inch sub-caliber aircraft rocket (SCAR)

Retreat

Do not touch, move, or disturb it; but carefully leave the area.

Avoid death or injury by recognizing that you may have encountered a munition and promptly retreating from the area.

If you encounter what you believe is a munition, do not touch, move, or disturb it. Instead, immediately and carefully leave the area by retracing your steps, leaving the same way you entered. Once safely away from the munition, mark the path (e.g., with a piece of clothing or global positioning system (GPS) coordinates) so response personnel can find the munition.

3.5-inch forward firing aircraft rocket (FFAR)

5-inch high velocity aircraft rocket (HVAR)

Report

Immediately notify the police.

Protect yourself, your family, your friends, and your community by immediately reporting munitions or suspected munitions to the police.

Help the police by providing as much information as possible about what you saw and where you saw it. This information will help the police and the military or civilian explosives ordnance disposal personnel find, evaluate, and address the situation.

If you believe you may have encountered a munition, call and report the following:

- The area where you encountered it.
- Its general description. Remember: do not approach, touch, move, or disturb it.
- When possible, provide:
  - Its estimated size
  - A photograph
  - Its shape
  - Any visible markings, including coloring

3Rs Explosives Safety Education Website

www.denix.osd.mil/uxosafety

CALL 911!