



# Decision Document Waikane Valley Impact Area

Kaneohe, Oahu, Hawaii  
February 2013

## 1 Declaration

### Site Name and Location

This Decision Document presents the Selected Remedy for Waikane Valley Impact Area (WVIA) Munitions Response Site (MRS) located in Waikane Valley, Kaneohe, Oahu, Hawaii. As a result of munitions and explosives of concern (MEC) remaining onsite from historical military activities, a Remedial Investigation and Feasibility Study (RI/FS) was conducted in 2010 to characterize the nature and extent of MEC and associated munitions constituents (MC).

### Statement of Basis and Purpose

The remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for the site. Information not specifically summarized in this Decision Document or its references but contained in the Administrative Record has been considered and is relevant to the selection of the remedy at WVIA. Thus, the Decision Document is based upon and relies upon the entire Administrative Record file in making the decision.

The Navy is the lead agency and provides funding for site cleanups at WVIA. The remedy set forth in this Decision Document has been selected by the Navy, Marine Corps Base (MCB) Hawaii, and Hawaii Department of Health (HDOH). HDOH, the lead regulatory agency, actively participated throughout the investigation process and, hence, has reviewed this Decision Document and the materials on which it is based and concurs with this Selected Remedy (Appendix B).

### Scope and Purpose of Selected Remedy

Human health and ecological risk assessments conducted during the RI resulted in a determination that risks to human health and the environment associated with MC were below regulatory threshold values or action levels. The selected remedy addresses potential MEC hazards over the entire 187-acre site.

### 1.1 Selected Remedy

#### Assessment of the Site

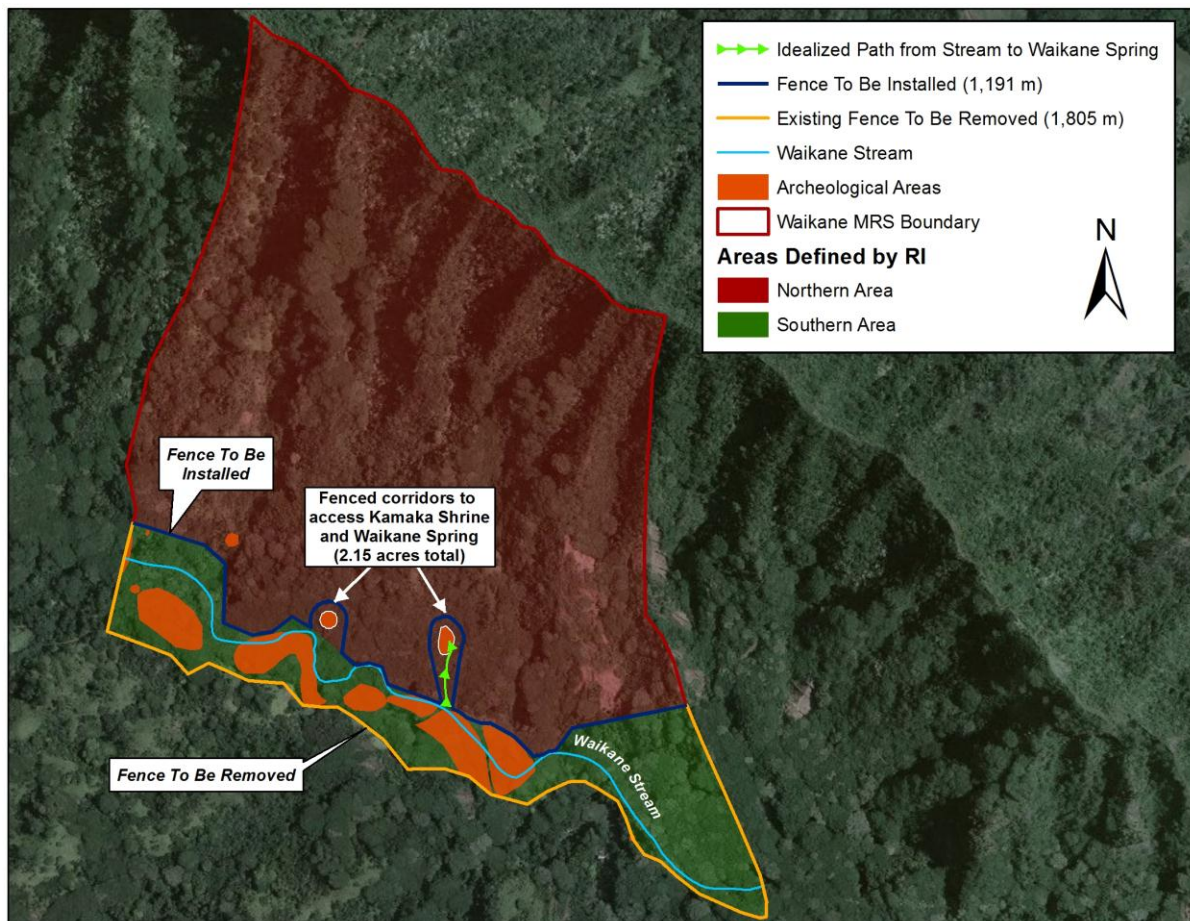
The WVIA has been investigated under the Munitions Response Program to determine what types of cleanup actions are needed to reduce risks from MEC or MC remaining from past training activities. MEC includes unexploded ordnance and other munitions items that may pose an explosive hazard, and MC are chemical components of munitions which may pose human health or ecological risks if left on the site. Previous investigations have identified the presence of MEC in the Northern Target Area, a potential for MEC in the Northern Non-Target Area, and a low potential for MEC in the Southern Area.

Following a feasibility study, the Northern Target and Northern Non-Target Areas were combined into a single Northern Area based on the similarity of response actions for the two areas.

The response action selected in this Decision Document is necessary to protect the public health, welfare, and the environment from residual explosive hazards at the site. The Selected Remedy for WVIA (see Figure 1-1) is:

- Surface clearance of accessible areas in the Southern Area and the Northern Area
- Subsurface clearance to a depth of 2 feet of a 10-foot wide buffer strip along the boundary separating the Southern and Northern Areas
- Removal of the existing fencing from the Southern Area and installation of new fencing along the north edge of the cleared buffer strip between the Southern and Northern Areas
- Subsurface clearance to a depth of 2 feet in the Southern Area in a 50-foot radius of any MEC found during the surface clearance
- Subsurface clearance to a depth of 2 feet of 50-foot wide corridors to and around the Kamaka Shrine and Waikane Spring, and the installation of fencing along and around these cleared areas, to allow free access to these sites from the Southern Area.
- Additional Land Use Controls, including notification letters to local landowners and an educational program to inform the community of risks and mitigation measures.

**Figure 1-1 Selected Remedy**



## Statutory Determinations

The Selected Remedy meets the statutory requirements and is protective of human health and the environment, complies with federal and state regulations that are applicable or relevant and appropriate to the remedial action, is cost-effective, utilizes permanent solutions to the maximum extent practicable, and satisfies the preference for treatment as a principle element of the remedy. Because this remedy will result in MEC remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted every 5 years after the initiation of the remedial action to ensure that the remedy is protective of human health and the environment.

### 1.2 Data Certification Checklist

The following information is included in the Decision Summary section of this Decision Document. Additional information can be found in the Administrative Record file.

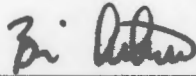
- MEC and MC and their respective concentrations (Section 2.3)
- Baseline risk represented by the MEC and MCs (Section 2.5)
- Cleanup levels established for MEC and the basis for these levels (Section 2.7)
- How MEC will be addressed (Section 2.8)
- Current and reasonably anticipated future land use assumptions (Section 2.4)
- Potential land and use that will be available at the site as a result of the Selected Remedy (Section 2.8.3)
- Estimated capital costs, annual operation and maintenance (O&M) costs, total present-worth costs, and number of years over which the remedy costs are projected (Section 2.8)
- Key factors that led to selecting the remedy (describing how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) (Section 2.9)

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### 1.3 Authorizing Signatures

This Decision Document presents the Selected Remedy at Waikane Valley Impact Area, located near Kaneohe, Oahu, State of Hawaii.

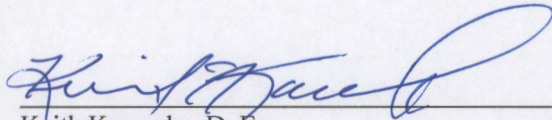
APPROVED:



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BRIAN ANNICHIARICO  
Colonel, U.S. Marine Corps  
Commanding Officer  
Marine Corps Base Hawaii

26 FEB 2013

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Date



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Keith Kawaoka, D. Env.  
Hazard Evaluation and Emergency Response Office Manager  
State of Hawaii Department of Health

2-5-13

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Date

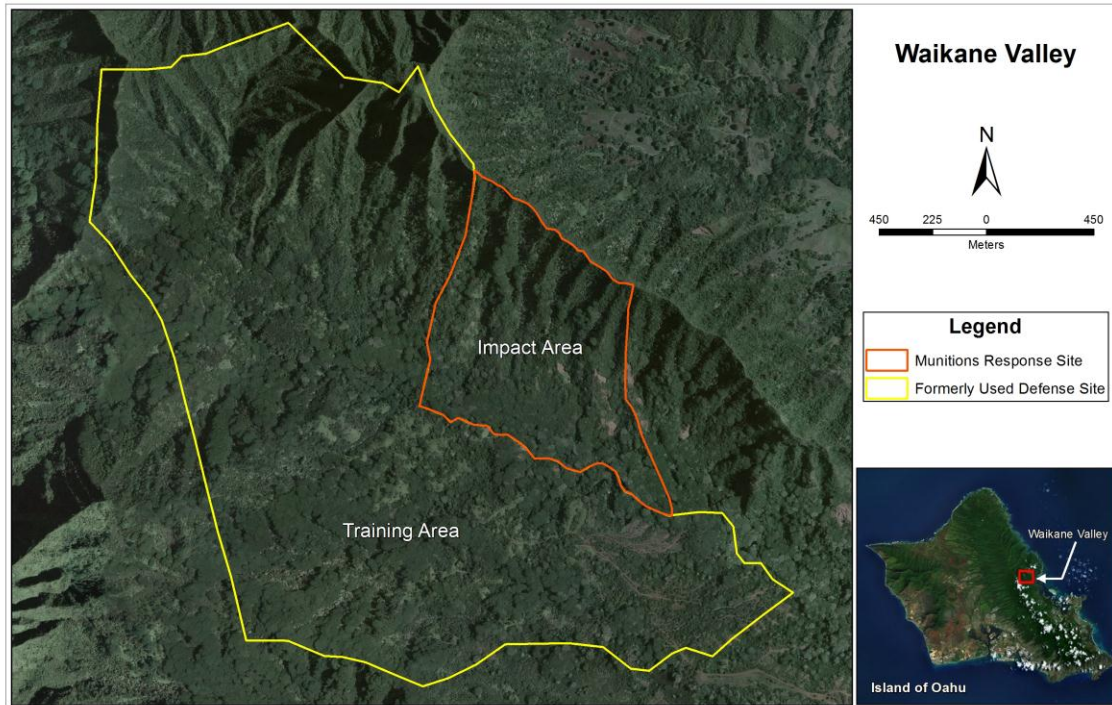
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## 2 Decision Summary

### 2.1 Site Description and History

WVIA is a 187-acre area located approximately 10 miles northwest of MCB Hawaii. It was once part of a 2,000-acre lease (see Figure 2-1) used for military jungle training and field maneuvers. The remaining acres fall under the Defense Environmental Restoration Program for Formerly Used Defense Sites and are not addressed in this Decision Document.

**Figure 2-1** Map of Waikane Valley Impact Area



WVIA's military history dates back to the early 1940s, when the U.S. Army leased over 2,000 acres in the Waiahole and Waikane Valleys between 1943 and 1953 for jungle training, small arms, artillery, and mortar firing, field maneuvers and a bombing range for air to ground ordnance delivery practice. The area was known as the Waiahole Training Area and managed by the U.S. Army as property of Fort Hase.

In 1944, four people were injured, two fatally, when a 60-millimeter (mm) mortar discovered in Waikane Valley accidentally detonated. Three children were injured in 1963, when a souvenir rifle grenade reportedly discovered in Waikane Valley exploded after it was thrown against a wall. There are no other reports of fatalities or injuries attributable to MEC discovered at Waikane Valley.

In 1953, the USMC leased 1,061 acres of the training area. Training consisted of small arms fire, 3.5-inch rockets, and possibly medium artillery fire. Live fire apparently stopped in the early 1960s. Because of fire hazards, incendiaries were prohibited and all ammunition in excess of 0.50 caliber was to be fired into the designated impact area.

The USMC conducted ordnance clearance sweeps in 1976. The 1976 clearance effort resulted in the removal of over 24,000 pounds of practice ordnance and fragments, including 42 items of UXO. The after action report stated that 187 acres of the WVIA can never be certified free of UXO because of

the ground cover and topography. The lease was terminated following the clearance effort in 1976 and the land was returned to the original owners who farmed and developed it.

In December 1983, heavy rain exposed ordnance on the property and Marine EOD removed a number of 3.5-inch rockets. In January 1984, Marines conducted a second clearance sweep and removed 480 3.5-inch rockets. In June 1984, an intensive ordnance clearance resulted in the removal of an additional 16,000 pounds of demilitarized practice ordnance and 190 items of UXO from the parcel. The after action report supported the conclusions of the 1976 report that the property could never be certified clear of ordnance.

In 1989, the government acquired title to the 187-acre ordnance contaminated area of the original WVIA because of safety concerns from the ordnance that was assumed to remain on the site after the previous clearance efforts. A perimeter chain-link fence was installed in 1992 and the area remains as government property. The area is currently controlled and maintained by MCB Hawaii. The project site is managed as an “other than operational range”, with access controlled with fencing and warning signs. Civilians may legally enter the property only if accompanied by EOD personnel.

## 2.2 Site Characteristics

Waikane Valley is located on windward Oahu approximately 10 miles (16 kilometers) northwest of MCB Hawaii. The project site is located in the interior of the forested Waikane Valley, which supports lush vegetation owing to an abundance of rainfall (See Photo 2-1). Waikane Valley was carved into the basalt of the Koolau Range through stream erosion. Some of the gravel and clay formed by weathering and erosion of the volcanic shield were deposited on valley floors. In addition, alluvium of marine origin accumulated in the valleys as the sea level rose during interglacial periods and fell during glacial periods. The project site extends along a steep gradient from 100 feet above mean sea level at the southern boundary to 1,400 feet above mean seal level along the northern boundary. Much of the project area has slopes exceeding 45 percent, with some steep vertical cliffs.

**Photo 2-1** – View from WVIA Northern Target Area





Waikane Stream is a perennial stream which traverses the project site along its southern border at approximately the 150-foot elevation level. Previous field investigations have confirmed that there are four culturally significant sites located within 220 yards of Waikane Stream. One of the sites is listed on the National Register of Historic Places and the other three sites are eligible for listing.

Approximately 52 acres of the southern portion of the project site were leased for agricultural purposes prior to land acquisition by the federal government. The State of Hawaii land use classification for this leased area was Agriculture. Roughly 17 acres of this leased area was farmed with edible crops. Five vacant living units existed within the leased area. The remaining 135 acres are lands designated by the State of Hawaii Land Use Commission as Conservation and were within the area designated as the Waiahole Forest Reserve.

### 2.3 Previous Investigations

An Investigation and Preliminary Range Assessment & Archives Search was conducted in 1998, and recommended further action based on historic data. Significant evidence of MEC and munitions documented as safe (MDAS) was discovered on the ground surface during the 2008 Site Inspection (SI). A total of 70 munitions potentially presenting an explosive hazard (MPPEH) were found, concentrated in the area now identified as the Northern Target Area. As a result of these discoveries, a Remedial Investigation (RI) was conducted in 2010.

During the 2010 RI, 21 MEC and 92 MPPEH were identified, concentrated in the Northern Target Area, almost all on the ground surface. Only two MPPEH were found subsurface, both less than 1 foot below ground surface (bgs). No MEC, MPPEH, or MDAS was found within Northern Non-Target Area, except for expended small arms projectiles found near what was identified as a small arms target.

The areas where MEC and MPPEH were found are characterized by steep slopes, erosion, and various degrees of vegetation densities. Storm water runoff and erosion in these areas may encourage limited migration of MEC from the upper elevations to lower locations, but there is no evidence that MEC has washed down to Waikane Stream. The entire length of the stream within WVIA boundaries was observed by UXO Technicians during the RI collection of sediment samples, and no evidence of MEC was observed near the stream.

During the SI and RI fieldwork, 2.92 acres in transects and grids were surveyed in the Southern Area with all-metals detectors. Additional undocumented acres were inspected by UXO Technicians during the RI fieldwork while traversing through this area. No MEC, MPPEH, or MDAS were observed in the Southern Area during the RI daily activities. Three MDAS were found south of the stream during the SI and removed during the RI. Based on their location and position they were likely carried out by trespassers from the Northern Target Area. Two items, 3.5-inch practice rockets, were found leaning against the fence along the access road. One item, a practice rifle grenade, was found leaning against a tree, next to an abandoned bus. None of these three items were embedded in the topsoil or vegetation, all were above the vegetation deadfall, and all pointed in a direction incompatible with impact from the firing area.

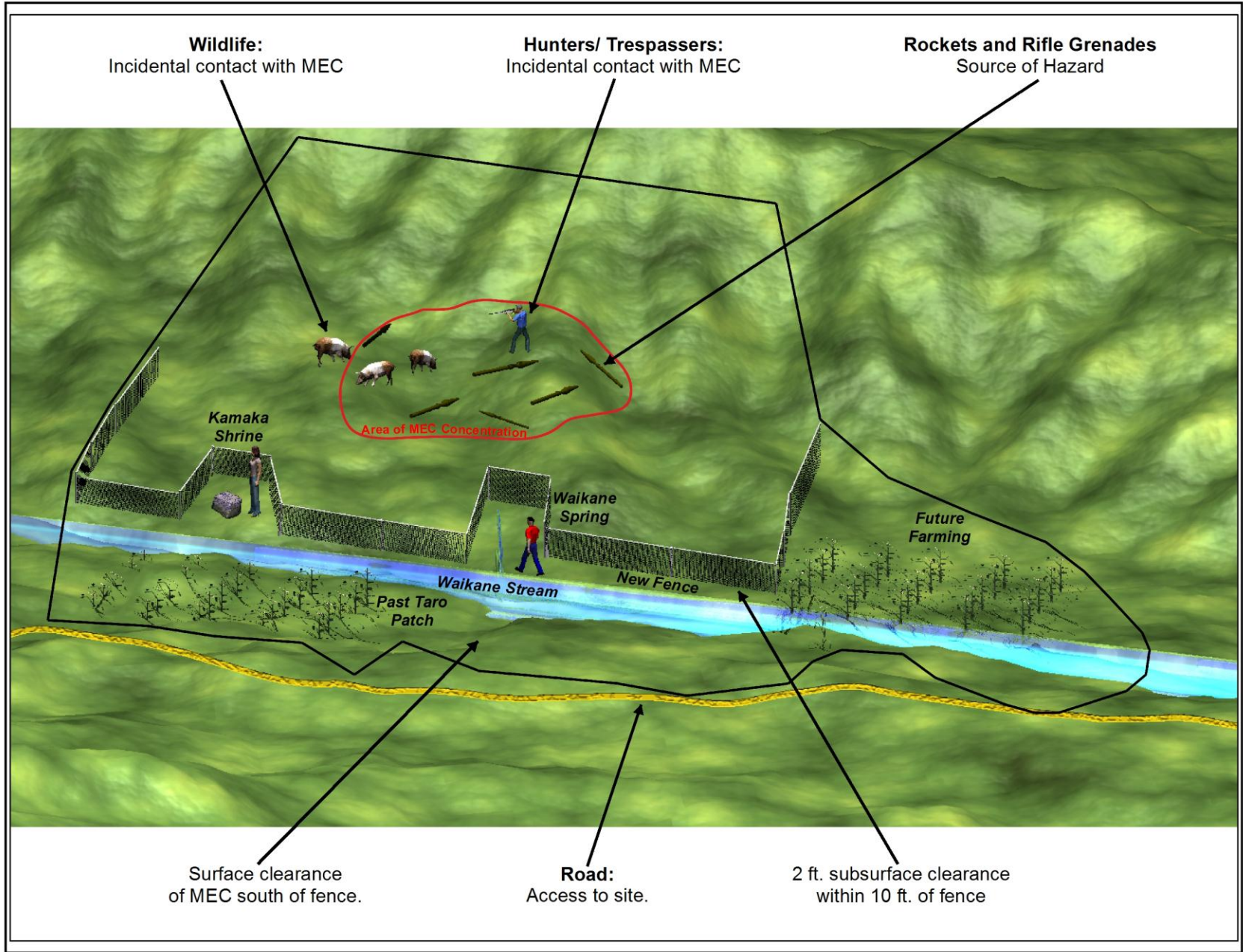
Based on distribution of munitions items found during previous investigations, accessibility, and current and future land use, WVIA was divided into three areas for the FS analysis:

The ***Southern Area*** contains most of the cultural features of Waikane Valley. There is no evidence of MEC in this area.

The ***Northern Non-Target Area*** includes the steepest slopes of WVIA, with field teams unable to investigate the majority of the area. The accessible portions contain minimal MEC, but the area still has potential for explosive hazards because it could not be investigated completely.

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Figure 2-2  
– Conceptual Site Model



The *Northern Target Area* contains the highest concentration of MEC and has the highest potential for explosive hazards. Most of the slopes in this area are also extremely steep.

## 2.4 Current and Potential Future Site and Resource Use

The conceptual site model shown at Figure 2-2 above focuses on future land use after the remedial action is complete. The land area within and near the Southern Area was previously used for taro farming and other agricultural uses. Some land area within the Northern Target Area was used for agricultural uses. Almost all of the Northern area is above the Forest Reserve line, including all of the Northern Non-Target area and the portion of the Northern Target Area not previously farmed. The land area surrounding the site is heavily vegetated and human activity throughout the site is infrequent. Boundary fences and signage will continue to prevent access to hazardous areas. The anticipated future land use in the Southern Area will continue to involve agricultural use. Trespassers continue to break through the fence or cut the gate locks to gain access to the Southern Area for boar hunting in the lower elevations of the site. Most of the Northern Area will remain as forest reserve, but the public will want access to Waikane Spring and Kamaka Shrine for cultural use.



Photo 2-2 Taro lo'i wall in Southern Area



Photo 2-3 Existing Signage

Boundary fences and signage will continue to prevent access to hazardous areas. The anticipated future land use in the Southern Area will continue to involve agricultural use. Trespassers continue to break through the fence or cut the gate locks to gain access to the Southern Area for boar hunting in the lower elevations of the site. Most of the Northern Area will remain as forest reserve, but the public will want access to Waikane Spring and Kamaka Shrine for cultural use.

## 2.5 Summary of Site Risks

Potential risks to human health and the environment were evaluated and documented in the RI Report. A MEC Hazard Assessment (MEC HA) was conducted to determine the human health and ecological risks associated with MEC at the site, and a Tier 2 Baseline Risk Assessment was conducted to determine the potential risks from MC.

### 2.5.1 MEC Risks

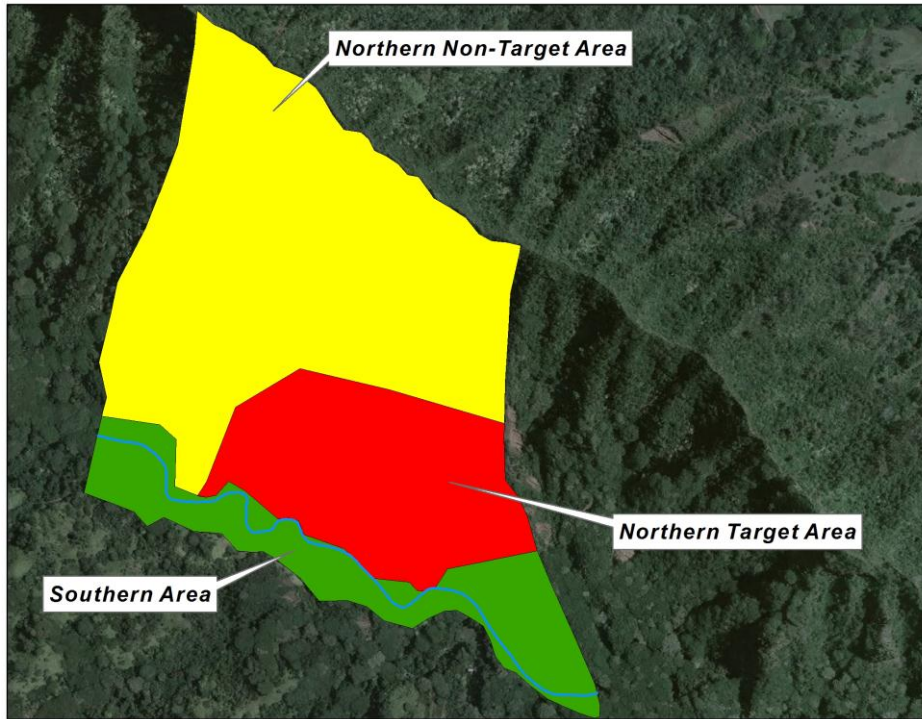
The MEC HA addressed the likelihood of exposure to MEC, the severity of the exposure, and the likelihood of detonation. It is important to note that exposure to MEC does not mean that an incident or injury will occur. A person would have to disturb the MEC item (e.g., apply heat, friction or shock to the item) to be exposed to actual explosive hazards.

The Northern Target Area, shown in red on Figure 2-3, has a high MEC risk. Almost all of the MEC was found in this area during previous investigations. Despite the surface clearance conducted during the RI, shoulder-fired grenades and rockets may still exist and may cause major injuries if detonated by an individual's actions.

Northern Non-Target Area, shown in yellow on Figure 2-3, has a moderate MEC risk. Most of this area was inaccessible during the previous investigations, but a few MPPEH items have been found and therefore MEC items may exist in the inaccessible areas.

The Southern Area, shown in green on Figure 2-3, has minimal risk because no MEC was found in the area. However, three MDAS items were found which had obviously been carried out of the Northern Target Area.

**Figure 2-3 MEC Risk Areas**



Depth of MEC is not expected to exceed 2 feet anywhere on WVIA for the following reasons:

- Only one MEC and one MPPEH were found during the RI fieldwork at approximately 1 inch bgs. Only MDAS was found deeper, ranging from 1 inch to 24 inches bgs.
- U.S. Army Engineer and Support Center, Huntsville (USAESCH) has calculated penetration depths of various munitions in several soil types based on weight and muzzle velocity of projectiles. See “*Penetration of Projectiles into Earth (An Analysis of UXO Clearance Depths at Ft. Ord)*” (USAESCH, Sep 1997). Table 2-1 below shows calculated penetration depths for the types of ordnance items found at WVIA. Field actions at Fort Ord showed that actual penetration depths were not nearly as deep as calculated penetrations. Since the soils on the slopes of WVIA are silty clay, penetration depths are predicted at much less than 2 feet bgs at WVIA targets. Table 2-1 also shows that all the ordnance items expected at WVIA are detectable to their maximum penetration depths, all of which are less than 2 feet bgs.

**Table 2-1** Penetration and Detection Depths at Waikane Valley

Ordnance Item	Depth of Penetration (ft)			Max Detection Depth (ft) (using magnetometer)
	Sand	Loam	Clay*	
Rifle Grenade, M9	0.1	0.2	0.2	1.7
2.36" Rocket	0.4	0.5	0.8	1.9
3.5" Rocket	0.8	1.1	1.7	3.2

\*Soil type on Waikane Valley slopes is silty clay.

### **2.5.2 MC Risks**

Soil and sediment samples were taken from around the site during the SI and the RI to determine if MC contamination was an issue at WVIA. Several samples exceeded the State of Hawaii action limits for lead. A Tier 2 Baseline Risk Assessment was conducted, consisting of a Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA).

The HHRA evaluated potential risks to future residential land users due to MC remaining on WVIA. Potential risks to human health were determined to be below regulatory threshold values or action levels.

The ERA evaluated potential risks to animals and the environment from MC remaining on WVIA. Based on soil and sediment sample analysis, the potential risks were determined to be within acceptable levels. Therefore, no further action is recommended at the WVIA with respect to MC.

### **2.5.3 Basis for Response Actions**

The basis for a response action under CERCLA exists due to the confirmation of MEC at known target areas, and the determination that more MEC exists or may exist at the sites. The MEC presents a risk to human safety and the surrounding environment.

## **2.6 Remedial Action Objectives**

The Remedial Action Objectives for the site are to prevent exposure to MEC through reduction of MEC hazards, and to support future agricultural, recreational, cultural, and forest reserve land use.

## **2.7 Description and Evaluation of Alternatives**

### **2.7.1 Description of Alternatives**

The remedial alternatives which were developed to address the MEC risks at WVIA are summarized in Table 2-2 below and detailed in the 2011 FS Report. The initial screening of technologies resulted in four remedial alternatives being retained for detailed comparative analysis. All alternatives include periodic inspections by MCB Hawaii to ensure the effectiveness of the remedy.

The “No Action” alternative involves no active response to remove any potential MEC present within the site. The current conditions at the WVIA would remain unchanged and the existing 6-foot chain-link fence that extends around the perimeter of the WVIA MRS up to approximately 600-700 feet elevation and the associated warning signs would remain in place. The “No Action” alternative is evaluated in order to provide a baseline for comparison of other response alternatives.

Table 2-2 Description of Remedial Alternatives

Alternative	Components	Details	Cost	
<b>Southern Area</b>				
<b>1 – No Action</b>	None	Current Fencing & Signage Maintenance	Total Cost	\$ 850,000
			Time Frame	30 years
<b>2 – Land Use Controls</b>	LUCs	Community education, notices, install fencing & signage	Total Cost	\$ 1,310,000
			Time Frame	30 years
<b>3 – Surface Removal &amp; LUCs</b>	Surface Removal LUCs	Systematic removal of MEC from surface on accessible land  LUCs to restrict access so that a potential exposure pathway is incomplete	Capital Cost	\$1,043,709
			Present worth (PW) monitoring	\$1,226,291
			Total Present Value	\$2,270,000
			Time Frame	1-5 years Surface Removal 30 years LUCs
<b>4 – Surface &amp; Subsurface Removal &amp; LUCs</b>	Surface & Subsurface Removal LUCs	Systematic removal of MEC from surface and to 2-foot depth on accessible land  LUCs to restrict access so that a potential exposure pathway is incomplete	Capital Cost	\$3,581,452
			PW Monitoring	\$1,478,548
			Total Present Value	\$5,060,000
			Time Frame	1-6 years Surface & Subsurface Removal 30 years LUCs
<b>Northern Target Area</b>				
<b>1 – No Action</b>	None	Current Fencing & Signage Maintenance	Total Cost	\$ 850,000
			Time Frame	30 years
<b>2 – Land Use Controls</b>	LUCs	Community education, notices, install fencing & signage	Total Cost	\$1,470,000
			Time Frame	30 years
<b>3 – Surface Removal &amp; LUCs</b>	Surface Removal LUCs	Systematic removal of MEC from surface on accessible land  LUCs to restrict access so that a potential exposure pathway is incomplete	Capital Cost	\$1,489,534
			PW monitoring	\$1,470,466
			Total Present Value	\$2,960,000
			Time Frame	1-5 years Surface Removal 30 years LUCs

Alternative	Components	Details	Cost	
<b>4 – Surface &amp; Subsurface Removal &amp; LUCs</b>	Surface & Subsurface Removal  LUCs	Systematic removal of MEC from surface and to 2-foot depth on accessible land  LUCs to restrict access so that a potential exposure pathway is incomplete	Capital Cost	\$3,652,479
			PW Monitoring	\$1,477,521
			Total Present Value	\$5,130,000
			Time Frame	1-6 years Surface & Subsurface Removal 30 years LUCs
<b>Northern Non-Target Area</b>				
<b>1 – No Action</b>	None	Current Fencing & Signage Maintenance	Total Cost	\$ 850,000
			Time Frame	30 years
<b>2 – Land Use Controls</b>	LUCs	Community education, notices, install fencing & signage	Total Cost	\$1,510,000
			Time Frame	30 years
<b>3 – Surface Removal &amp; LUCs</b>	Surface Removal  LUCs	Systematic removal of MEC from surface on accessible land  LUCs to restrict access so that a potential exposure pathway is incomplete	Capital Cost	\$ 823,828
			PW monitoring	\$1,476,172
			Total Present Value	\$2,300,000
			Time Frame	1-5 years Surface Removal 30 years LUCs
<b>4 – Surface &amp; Subsurface Removal &amp; LUCs</b>	Surface & Subsurface Removal  LUCs	Systematic removal of MEC from surface and to 2-foot depth on accessible land  LUCs to restrict access so that a potential exposure pathway is incomplete	Capital Cost	\$1,133,079
			PW Monitoring	\$1,476,921
			Total Present Value	\$2,610,000
			Time Frame	1-6 years Surface & Subsurface Removal 30 years LUCs

## 2.7.2 Comparative Analysis of Alternatives

A comparative analysis of alternatives with respect to the nine evaluation criteria was completed and is provided below. The detailed “Comparative Analysis of Alternatives” can be found in the FS Report.

### Threshold Criteria

All of the alternatives were first compared to threshold criteria, which must be met before an alternative can be evaluated further.

*Overall Protection of Human Health and the Environment.* All of the alternatives provide protection of human health and the environment. Even the No Action alternative is protective in that the current fence and signage deter access to the site to prevent potential exposure.

*Compliance with Applicable, Relevant, and Appropriate Requirements.* All of the alternatives comply with Applicable, Relevant and Appropriate Requirements.

### Primary Balancing Criteria

Once the alternatives were determined to meet threshold criteria, the balancing criteria were then applied, comparing the benefits and drawbacks of each alternative using a relative scoring system which includes five categories. The most favorable is scored “5” and least favorable is scored “1”. Table 2-3 below shows the results balancing criteria scoring for the three areas.

*Long-Term Effectiveness and Permanence.* Subsurface Clearance with LUCs scores highest in all three areas in long-term effectiveness and permanence because it minimizes surface and subsurface MEC. Surface Clearance ranks second highest. LUCs and No Action rank third and fourth, respectively.

*Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment.* Subsurface Clearance with LUCs scores highest for all three areas as it achieves the greatest reduction of MEC. Surface Clearance with LUCs scores second highest as it reduces surface MEC at all three sites. The LUC and No Action alternatives score as least desirable because they do not reduce toxicity, mobility, or volume.

*Short-Term Effectiveness.* The No Action and LUC alternatives score highest for all three areas because they require little time to implement, and have minimal adverse effect on the community and the environment. Surface Clearance with LUCs scores second highest as it reduces risk upon implementation, requires more time and effort to implement, and has some short-term adverse impacts on the community and the environment. Subsurface Clearance with LUCs scores lowest because in the short term it takes the longest time to implement and has the greatest short-term impacts on the community and the environment.

*Implementability.* The No Action alternative scores highest for all three areas in terms of implementability since it requires no resources. The LUC alternative scores second highest because it requires limited resources to implement. Surface Clearance with LUCs scores still lower since it requires specialized equipment and trained personnel whose work would be complicated by steep terrain and thick vegetation. Subsurface Clearance with LUCs scores lowest because it requires the most resources and is the most difficult to implement.

*Cost.* For all three areas, the No Action alternative scores highest because it is the least costly. The LUC alternative scores second highest, the Surface Clearance with LUCs alternative is third highest, and the Surface and Subsurface Clearance with LUCs alternative scores lowest because it is the most costly.



**Table 2-3** Summary of Primary Balancing Criteria Scores

Alternative	Long-Term Effectiveness	Reduction of Contaminants	Short-Term Effectiveness	Implementability	Cost	Overall
<b>Southern Area</b>						
LUCs	2	1	4	4	4	15
Surface Clearance w/LUCs	4	4	3	3	2	16
Surface & Subsurface Clearance w/LUCs	5	5	2	2	1	15
<b>Northern Non-Target Area</b>						
LUCs	2	1	4	4	4	15
Surface Clearance w/LUCs	4	4	3	3	2	16
Surface & Subsurface Clearance w/LUCs	5	5	2	2	1	15
<b>Northern Target Area</b>						
LUCs	2	1	4	4	4	15
Surface Clearance w/LUCs	4	4	2	3	2	15
Surface & Subsurface Clearance w/LUCs	5	5	1	1	1	13

### Modifying Criteria

*State Acceptance.* This criterion evaluates the technical and administrative issues and concerns that HDOH and other agencies or stakeholders may have regarding each of the alternatives. State/agency issues and concerns were addressed and incorporated into the Selected Remedy. HDOH has expressed support for and has concurred in the Selected Remedy.

*Community Acceptance.* This criterion evaluates the issues and concerns the public may have regarding each of the alternatives. Adjacent landowners include Kualoa Ranch and SMF Enterprises, Inc (which own undeveloped forest to the north, south, and west), the City and County of Honolulu (which have designated the area as the Waikane Nature Preserve) and the Roberts family (which owns a small parcel adjacent to the southern border of the project site). Non-contiguous coastal lands east of the site include a mix of residential and recreational properties.

Stakeholders provided input during Restoration Advisory Board meetings and provided comments during the public review periods for the draft Feasibility Study report and for the Proposed Plan. Stakeholder concerns were addressed and incorporated into the Selected Remedy. The community is likely to support the Selected Remedy as the most acceptable alternative for WVIA based on their previous comments.

## 2.8 Selected Remedy

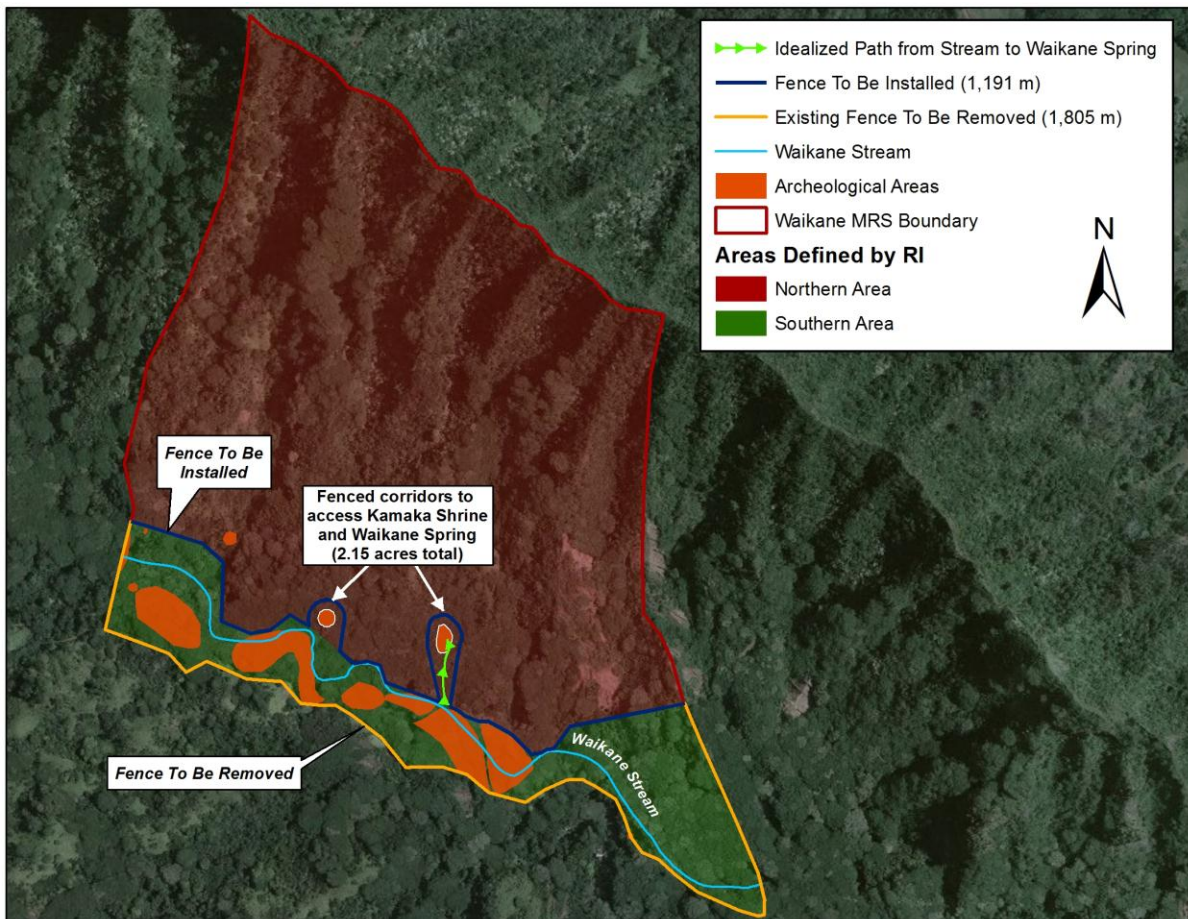
### 2.8.1 Rationale for Selected Remedy

Comparative analysis of the balancing criteria (see Table 2-3) showed that Surface Clearance with LUCs ranked highest of the alternatives for all three sites. However, public and HDOH comments indicated a preference to concentrate efforts in the Southern Area to provide unrestricted land use, and to provide unrestricted access to all of the significant cultural sites. Public comments also requested that surface clearance of the 2.9-acre accessible area within Northern Non-Target Area be reinstated as part of the overall remedy. These comments were instrumental in selecting the remedy that best satisfies the remedial action objectives (RAOs) for the WVIA MRS.

### 2.8.2 Description of the Selected Remedy

The Selected Remedy for WVIA is described below and shown in Figure 2-4. Note that for the selected remedy the Northern Target and Non-Target Areas are now considered together as the Northern Area.

**Figure 2-4** Selected Remedy



➤ **Southern Area Remedy**

Surface Clearance of Accessible Land with LUCs (30.5 acres). If any MEC item is discovered on the ground surface during the surface clearance, subsurface clearance to a maximum depth of 2 feet shall be conducted within a 50-foot radius from the MEC item. A 10-foot buffer strip shall be subsurface cleared along the boundary between the Southern Area and the Northern Area, and suitable fencing and signage shall be installed along the north side of the buffer strip. Clearance of the buffer strip is intended to detect MEC that may have migrated towards Waikane Stream from the target areas through soil erosion. Upon completion of the surface removal and the new boundary fence, the existing chain-link fence along the current boundaries of the Southern Area shall be removed.

This recommendation best meets the RAOs in the Southern Area by ensuring the reduction of MEC hazards, restoring the area to unrestricted land use, providing access to cultural sites, and preventing the migration of MEC into accessible areas.

➤ **Northern Area Remedy**

Surface Clearance of Accessible Land with LUCs (20.4 acres). Removal of MEC from the surface of all accessible areas of the Northern Area does not make the areas suitable for agricultural use, and these areas shall be restricted to forest reserve.

In addition, minimum 50-foot wide corridors (2.0 acres total) leading from Waikane Stream to Kamaka Shrine and Waikane Spring shall be separated from the Northern Area by a fence (See Figure 2-5). The remedial design team shall invite interested members of the RAB and the local community to accompany them as they lay out the corridor fence location. Fencing shall be set back far enough from the established trail to the cultural site so that the cultural practitioner is not distracted from the spiritual experience while traveling the corridor. Subsurface clearance shall be conducted along the corridors and around the two sites to the limits of the fencing. All detectable metallic anomalies within the corridors shall be excavated to determine their nature. The cleared corridors shall be freely accessed through the Southern Area, and shall be suitable for cultural and recreational use after completion of the remedial action. The Waikane Spring corridor shall center on the Spring's route to Waikane Stream, and shall not interrupt the flow of the stream.

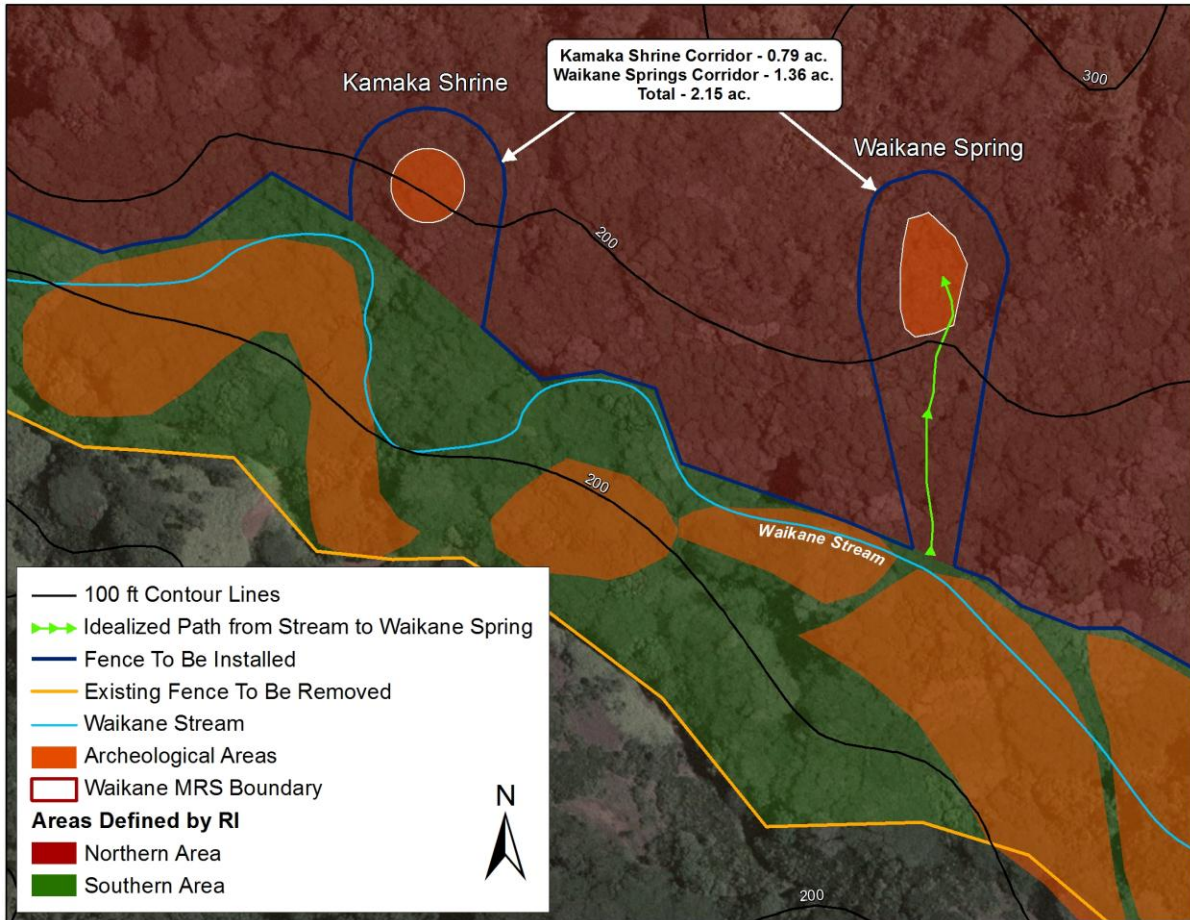
➤ **Land Use Controls**

Land Use Controls shall apply to the entire 187 acres and shall include: construction of the fence between Southern and Northern Areas; notification letters to the local landowners, and an educational program to inform the community of risks and mitigation measures. The public will be offered training in how to recognize ordnance items, retreat from the area, and report the find to local law enforcement officials, whose standard procedures require that they in turn contact military EOD for disposal of the item. The current fence bounding the Southern Area shall be removed after the clearance is completed in that area.

**2.8.3 Expected Outcomes of the Selected Remedy**

These alternatives taken together meet the RAOs by minimizing exposure to MEC, preventing migration of MEC to accessible areas, restoring the Southern Area to agricultural use and the Northern Area to forest reserve use, and providing access to all significant cultural sites. The Selected Remedy also best addresses the concerns of the community for future land use by providing the potential for unrestricted land use in the Southern Area, and providing free and safe access to sites of cultural significance in the Northern Area.

Figure 2-5 Close-up View of Corridors



Exposure to MEC in the Northern Area will be controlled through LUCs over a 30-year period. Remedy effectiveness will be evaluated through annual inspections to ensure that the fencing or signage is uncompromised and erosion has not exposed MEC causing potential migration of MEC to cleared areas. Breaks in the fence will be repaired to prevent unauthorized entry. Annual reports will be completed describing the inspection results, maintenance, evaluation of erosion and potential migration of MEC, and assessment of the effectiveness of the LUC.

#### 2.8.4 Statutory Determinations

Remedial actions must meet the statutory requirements of Section 121 of CERCLA and thereby achieve adequate protection of human health and the environment, comply with ARARs of both federal and state laws and regulations, be cost effective, and use, to the maximum extent practicable, permanent solutions and alternative treatment or resource recovery technologies. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, and/or mobility of hazardous waste as the principal element. The following discussion summarizes the statutory requirements that are met by the Selected Remedy.

##### ➤ Protection of Human Health and the Environment

The Selected Remedy is protective of human health and the environment through removal of MEC from accessible areas and through LUCs which alert and educate the public on the potential risks at the site.

➤ **Compliance with ARARs and To-Be-Considered Criteria**

Section 121(d) of CERCLA, as amended, specifies, in part, that remedial actions for cleanup of hazardous substances must comply with requirements and standards under federal or more stringent state environmental laws and regulations that are applicable or relevant and appropriate (i.e., ARARs) to the hazardous substances or particular circumstances at a site or obtain a waiver. See also 40 C.F.R. 300.430(f)(1)(ii)(B). ARARs include only federal and state environmental or facility citing laws/regulations and do not include occupational safety or worker protection requirements. Compliance with OSHA standards is required by 40 C.F.R. 300.150 and therefore the CERCLA requirement for compliance with or waiver of ARARs does not apply to OSHA standards. In addition to ARARs, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered for a particular release. The "to-be-considered" (TBC) category consists of advisories, criteria, or guidance that were developed by EPA, other federal agencies, or states that may be useful in developing CERCLA remedies. In accordance with 40 C.F.R. 300.400(g), Navy, and HDOH have identified the ARARs and TBCs for the selected remedy. Appendix A lists respectively the Chemical-, Location-, and Action-Specific ARARs/TBCs for the Selected Remedy. The Selected Remedy will meet all identified ARARs.

➤ **Cost Effectiveness**

The Selected Remedy is cost effective and represents a reasonable value for the funds to be spent. The following definition was used to determine cost-effectiveness, "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness" (NCP, 40 C.F.R. 300.430(f)(1)(ii) (D)). This analysis was accomplished by evaluating the overall effectiveness of those alternatives that satisfied the threshold criteria. The costs are proportional to overall effectiveness by achieving long-term effectiveness and permanence within a reasonable timeframe. Overall cost of **\$4,850,000** assumes that all three areas are addressed under a single contract.

➤ **Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable.**

The Selected Remedy represents the maximum practicable extent to which permanent solutions and removal technologies can be applied to WVIA. Because long-term effectiveness and permanence along with reduced toxicity and volume are achieved in the shortest timeframe with the Selected Remedy, the Navy, MCB Hawaii, and HDOH determined that the Selected Remedy provides the best balance of tradeoffs in terms of the balancing criteria, while also considering the statutory preference for treatment as a principal element and considering state and community acceptance.

➤ **Preference for Treatment as a Principal Element**

Because it will treat the source materials constituting principal threats by removing MEC from accessible areas, the Selected Remedy satisfies the statutory preference for treatment.

➤ **Five-Year Review Requirements**

This remedy will result in the potential for hazardous substances to remain in the Northern Area above levels that allow for unlimited use and unrestricted exposure; therefore in accordance with CERCLA Section 121(c) and the NCP at 40 CFR300.430 (f)(4)(ii) a statutory review will be conducted by the Navy within 5 years after initiation of remedial action to ensure that the remedy meets the RAOs. This review shall be conducted every five years thereafter by the lead agency in cooperation with the Marine Corps. If the remedy is determined as not having reached the intended land use; or is not protective of human health and the environment because, for example, LUCs have failed or treatment is unsuccessful; or if new technologies have surfaced that make an expanded clearance within the Northern Area feasible, then the lead agency in cooperation with the Marine Corps will reevaluate and, if feasible, undertake additional remedial action.

## 2.9 Community Participation

The Marine Corps provided information and solicited public input to the cleanup of the site through Restoration Advisory Board (RAB) meetings, public meetings, the information repositories for the site, and announcements published in the Honolulu Star Advertiser. RAB meetings continue to be held to provide an information exchange among community members, the Navy, MCB Hawaii, and HDOH. These meetings are open to the public and are held bi-annually. The Marine Corps and HDOH encourage the public to gain a better understanding of the site and the planned cleanup activities.

In accordance with Sections 113 and 117 of CERCLA, the Navy provided a public comment period from January 12, 2012, through February 13, 2012, for the Proposed Plan for WVIA. A public meeting to present the Proposed Plan was held on January 12, 2012, at the Waiahole Elementary School. Public notice of the meeting and availability of documents were placed in the Honolulu Star Advertiser on January 1, 2012.

Fact sheets, work plans, and reports concerning WVIA can be obtained on-line from the Waikane Valley RAB website or hard copies can be reviewed at the locations listed below:

**Website Address:** <http://www.mcbh.usmc.mil/g4/environ/WaikaneRAB.htm>

**Information Repository Locations:**

- Kaneohe Public Library, 45-829 Kamehameha Hwy., Kaneohe, HI 96744
- KEY Project, 47-200 Waihee Road, Kaneohe, HI 96744
- Hamilton Library, Hawaiian & Pacific Collection, 2550 McCarthy Mall, Honolulu, HI 96822

## 2.10 Documentation of Significant Changes

The boundary between Northern and Southern Area was shifted slightly based on revised cultural maps to ensure clear access to archaeological features from the Southern Area. Comments received from the public did not require significant change to the Preferred Alternative, but did lead to a widening of the corridors leading from the Southern Area to Kamaka Shrine and Waikane Springs. This widening adds one acre to the subsurface clearance acreage. Public comments also resulted in the addition of approximately 2.9 acres of accessible area in the former Northern Non-Target Area to the areas to be surface cleared. The aggregate changes added \$10,000 to the estimated cost, for a total present worth of \$4,850,000.

### 3. Responsiveness Summary

This Responsiveness Summary summarizes all comments for the Proposed Plan received from the HDOH and the public regarding the preferred remedy and general concerns related to the Site.

The public meeting to discuss the Proposed Plan was held on 12 January 2012 at the Waiahole Elementary School in the community of Waiahole on the island of Oahu. This Decision Document addresses all comments received during the 30-day comment period and public meeting (see responses to comments in Appendix B). A complete transcript of the public meeting is available in the Navy Administrative Record file located at:

Naval Facilities Engineering Command, Pacific  
258 Makalapa Drive, Suite 100  
Pearl Harbor, HI 96860-3134

#### 3.1 Stakeholder Comments and Lead Agency Responses

A written transcript of the public meeting conducted on 12 January 2012 was thoroughly reviewed by the Navy to prepare the Responsiveness Summary. Navy responses to the formal comments transcribed from the meeting and to the comments submitted after the meeting are presented in Appendix B of this Decision Document. The Navy, in coordination with HDOH, has selected the final remedy for the WVIA only after careful consideration of the public's comments on the Proposed Plan.

Participants in the public meeting included representatives of the Navy, MCB Hawaii, and RAB members. Approximately a dozen community members attended the meeting. Many of the questions presented were general inquiries and are documented in pages 6-37 of the public meeting transcript. The formal comments are documented in pages 38-59 of the transcript and presented in Appendix B.

The following comments resulted in amendment to the Preferred Alternative, which through this Decision Document becomes the Selected Alternative. The comments are referenced to the page number of the transcript of the January 12, 2012, public meeting. The comments are paraphrased because they often involved a lengthy discussion. The letters received during the comment period essentially reiterate the public meeting comments. Their issues are summarized in the following responses:

- **Mr. Byron Ho Comment, page 39:** I think the corridor to the historical sites should be widened to something less confining than the proposed 8 foot corridor which will take away from the intended cultural experience while visiting the sites.

**Response:** We have responded to the concern that an 8-foot corridor width is too restrictive, and interferes with the spiritual experience of the visitor to the two cultural sites within the Northern Area. Therefore we widened the corridors to 50 feet (as suggested by Mr. Henkin in his written comments), and added language to the Decision Document requiring the remedial design team to select the fence location in coordination with interested members of the RAB and the local community. This revision ensures that cultural practitioners are not inhibited by the chain-link fence and that they have complete access to water flowing from Waikane Spring to Waikane Stream.

- **Ms. Rapoza Comment, page 40:** The Waikane community is plagued with 4 x 4 all-terrain vehicle users cutting locks and breaking through fences to gain access to the areas adjacent to WVIA, where they tear up the terrain. How can the Marines help the community to block the ATV users from going into the area?

**Response:** The Marine Corps has no jurisdiction outside the WVIA fenceline. However, anyone breaking through fences and entering the WVIA without Marine Corps permission is considered as trespassing. The Marine Corps currently has a maintenance plan for the fence designed to prevent trespassing by repairing breaks and replacing locks. We ask for the public's help in alerting us to such trespassers now and in the future so that we can conduct repairs promptly and prosecute trespassers. When the new fence is installed north of Waikane Stream, we believe the trespassing will be less likely because of the sheer steepness of the slopes in that area. The Marine Corps would also appreciate input from the community on a new fence maintenance plan to incorporate any ideas on frequency/times of inspections or other ideas of deterrents to prevent further trespassing.

- **Mr. Kyle Kajihiro Comment, page 44:** I didn't understand that the accessible area within the Northern Non-Target Area had been dropped from the proposal. I would like to see that whatever is accessible in the northern areas are at least surface cleared.

**Response:** The approximately 2.9 acres within the Northern Non-Target Area have been added to the Selected Alternative.

- **Mr. David Henkin, page 49:** If new technologies and new approaches are developed that would make it possible to clear the currently inaccessible areas, there should be a clause in the Decision Document that reopens the process so that the areas can be considered for clearance for unrestricted use.

**Response:** The Decision Document already has provisions to conduct annual inspections and 5-year reviews to ensure that the Selected Remedy has been effective. Evaluation of new technologies is a part of the 5-year review process. Language is added to the 5-year review discussion to clarify that fact.

- **Mr. Byron Ho, page 54:** Does the public education portion of the proposed plan have to start when the process is done, or can it start sooner?

**Response:** The public education portion of the Selected Alternative can start earlier, as Department of Defense already has such programs available especially for education of children on how to Recognize, Retreat, and Report and findings of MEC. The Marine Corps will coordinate with the U.S. Army Corps of Engineers regarding their public education plans for the adjacent Waikane Valley Training Area, and together we will establish a training program as soon as possible for the local schools and community groups.

### 3.2. Technical and Legal Issues

Future land use status in the Southern Area would depend on whether the above remedial action reveals MEC in the area. If significant amounts of MEC are found during the remedial action, consideration shall be given to shifting the boundary to include MEC areas in the northern areas. If minimal or no MEC is found, application shall be made to Department of Defense to certify the land for unrestricted use. If unrestricted use cannot be obtained for the Southern Area, the Marine Corps shall re-evaluate land use options and select alternative actions which maximize land use objectives.

After the remedial action is complete, future non-DoD owners may occasionally find a MEC item on WVIA. The owners should be advised to contact the local law enforcement agency, which will in turn be responsible for notifying the Marine Corps EOD unit to respond to the find.



The Marine Corps strongly recommends the filing of deed notices for the properties within the site. Deed notices will minimize inadvertent exposure of future landowners and land users to any explosive hazards remaining at the Site by disclosing the former military use of the site and the results of site investigations.

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# Appendix A ARARs

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**TABLE A-1**  
 Potential Chemical-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
<b>Federal</b>					
Clean Air Act National Ambient Air Quality Standards (NAAQS)	42 USC 7409 40 CFR 50	Establishes numerical ambient air quality standards for carbon monoxide, nitrogen dioxide, particulate matter, ozone, sulfur dioxide, lead, and hydrogen sulfide	As ambient standards, the contribution, if any of remedial activities to meeting or exceeding the standards' concentrations versus the contributions of area or regional sources cannot be determined. The standards themselves do not apply to individual sources	Not an ARAR	
Regional Screening Levels	EPA User's Guide and Background Technical Document for EPA Region 9 Preliminary Remediation Goals Table	Provides conservative, risk-based, chemical-specific screening action levels designed to protect human and ecological receptors	Document not promulgated, but is a user's guide and technical reference which can be considered a TBC.	TBC	Risk evaluation has determined that no chemical risks exist at the site.
Sediments	NOAA Sediment Quality Guidelines	Guidelines for interpreting chemical data from sediment analyses	Document not promulgated, but is a technical reference which can be considered a TBC	TBC	Risk evaluation has determined that no chemical risks exist at the site.
Sediments	EPA Region III Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmarks	Developed to be used to evaluate Superfund sampling data. Provides chemical-specific benchmark values to protect ecological receptors in freshwater sediments	Document not promulgated, but is a technical reference which can be considered a TBC	TBC	Risk evaluation has determined that no chemical risks exist at the site.

**TABLE A-1**  
 Potential Chemical-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
<b>State</b>					
Air Quality	Hawai'i Administrative Rules (HAR) Title 11, Chapter 59: Ambient Air Quality Standards	Establishes numerical ambient air quality standards for carbon monoxide, nitrogen dioxide, particulate matter, ozone, sulfur dioxide, lead, and hydrogen sulfide.	As ambient standards, the contribution, if any of remedial activities to meeting or exceeding the standards' concentrations versus the contributions of area or regional sources cannot be determined. The standards themselves do not apply to individual sources	Not an ARAR	
Water Quality	HAR Title 11, Chapter 54: Water Quality Standard	Establishes a series of classifications and water quality standards for surface water and groundwater used to protect the public health or welfare and enhance water quality.	Surface water bodies are present and the underlying aquifer is considered a potential drinking water source.	ARAR	Site activities will be conducted in a manner that is protective of surface water and groundwater.
Environmental Action Levels	HDOH Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 1 and Volume 2: Background Documentation for the Development of Tier 1 Environmental Screening Levels, Appendix 1	Provides chemical-specific environmental screening criteria and action levels designed to protect human and ecological receptors	Document is not promulgated, but is a user's guide and technical reference which can be considered a TBC	TBC	

**TABLE A-2**  
 Potential Location-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
<b>Federal</b>					
Clean Water Act (CWA)	33 USC 1251 et seq. 40 CFR 100-149	Establishes standards governing all untreated waters including marine, coastal, estuarine, fresh surface water, and groundwater.  Establishes the program, framework and federal water quality standards. Additional substantive and potentially more stringent requirements/criteria will be established via State statutes and regulations.  Waters are present within the site.		ARAR	Any MEC response action at this site will minimize impacts on surface water and groundwater.
CWA (Section 404)	33 USC 1251 et seq. 40 CFR 230 33 CFR 323	Requires a permit from the Army for construction activities in wetlands and alternative analysis to ensure selection of the least damaging practical alternative.	Consists of non-substantive procedural requirements.	Not an ARAR	No wetlands have been identified at the site.
Protection of Wetlands	Executive Order 11990	Restricts federal activities when alterations of wetlands may occur.		Not an ARAR	No wetlands have been identified at the site.

**TABLE A-2**  
 Potential Location-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Floodplain Management	Executive Order 11988	Restricts activities within the 100-year floodplain.	Floodplains associated with Waikane Stream are present at the site.	ARAR	MEC response alternatives do not involve alteration of Waikane Stream.
Native American Graves Protection and Repatriation Regulations	43 CFR 10.4 (c) and (d)	Requires consultation with Native Hawaiian organization to determine disposition of objects discovered.	Applicable if human remains are found during the remedial action.	ARAR	If human remains are found, proper disposition will be coordinated.
National Historic Preservation Act	16 USC 470 36 CFR 800	Provides for the recovery and preservation of historical and archaeological significant artifacts.	Various culturally significant sites exist within the MRS, including a site listed on the National Register of Historic Places.	ARAR	Archaeological monitoring would be conducted during remedial actions to prevent disturbance and possible discovery of significant archaeological artifacts.
Protection of Archaeological Resources	43 CFR 7.4 (a), 7.5 (b)(1)	Requires protection of archaeological resources if discovered.	Applicable if remedial activities uncover or disturb cultural resources. Various culturally significant sites are known to exist within the MRS.	ARAR	May not excavate, remove, damage, or otherwise alter or deface such resource unless by permit or exception.



TABLE A-2

Potential Location-Specific ARARs and TBCs

*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Endangered Species Act	16 USC 1531-1543	Prohibits actions that jeopardize the continued existence of any listed species, results in the destruction or adverse modification of designated critical habitat of such species, or results in a "taking" of any listed species.	Applicable if listed species or critical habitat is identified. No federally listed threatened or endangered plant or animal species are known to exist on site. Though typical nesting habitat for the threatened Newell's Shearwater was found on a portion of the site, there are no known nesting colonies of this species on Oahu	ARAR	If listed species are identified, appropriate mitigative measures will be implemented.
Migratory Bird Treaty Act	16 USC 703-712	Prohibits the taking, possessing, buying, selling, or bartering of any migratory bird, including feathers or other parts, nest eggs, or products, except as allowed by regulations.	Migratory birds are known to pass over the area, although no nesting habitats are believed to exist on site.	ARAR	
Fish & Wildlife Coordination Act	16 USC 661 et seq.	Provides that Federal agencies should consult with appropriate agency to develop protective measures for affected fish and wildlife.	The statute sections do not define a specific standard of control or a substantive requirement, criterion or limitation.	Not an ARAR	
Magnuson-Stevens Fishery Conservation and Management Act (1996)	16 USC 1851 et seq.	Requires project activities to minimize adverse effects on fish habitat.	Location-specific	ARAR	Activities will be managed to minimize adverse effects to fish, habitat, and water quality.

**TABLE A-2**  
 Potential Location-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Bald and Golden Eagle Protection Act	16 USC 668-668(d)	Requires project activities to protect and preserve eagle habitat.	Bald and golden eagles are not found in Hawai'i.	Not an ARAR	
Coastal Zones	16 USC 1456(c) 15 CFR 930.30 - 33, 36(a), 39(b-d)	Requires federal actions or activities conducted within or affecting a coastal zone be consistent with the State's coastal program. Coastal zone management objectives include the protection of valuable coastal ecosystems from disruption and minimizing adverse impacts on all coastal ecosystems. Where national defense or other over-riding national interests are concerned, they must at least be consistent "to the maximum extent practicable."	The MRS is not located within the coastal zone.	Not an ARAR	
Marine Mammal Protection Act	16 USC 1361 50 CFR 12	Requires project activities to protect marine mammals.	The site is not in a coastal zone and does not encompass marine waters.	Not an ARAR	
<b>State</b>					
Burial Sites and Human Remains	HAR Title 13, Chapter 300: Rules of Practice and Procedure Relating to Burial Sites and Human Remains	Governs practice and procedure relating to the proper care and protection of burial sites/human skeletal remains fifty years or older	Applicable if human remains are found during the remedial action.	ARAR	

TABLE A-2

Potential Location-Specific ARARs and TBCs

Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Historic Preservation	Hawaii Revised Statutes (HRS) Chapter 6E.	Requires action to be taken to locate, identify, evaluate, and protect cultural resources.	Several culturally significant sites were found within the MRS during previous investigations.	ARAR	Statute suspended until 30 June 2016 by Governor's Proclamation dated 14 June 2011.
Protection of Caves	HRS Chapter 6D	Protects caves and contents	Applicable if cave(s) discovered during site clearing activities. Caves are not expected within the areas where remedial actions would be conducted.	TBC	Statute suspended until 30 June 2016 by Governor's Proclamation dated 14 June 2011.
Endangered Species	HRS Title 12, Chapter 195D-4 HAR Title 13, Chapter 124	Prohibits any taking, transport or commerce in designated species. Further outlines conservation programs that mandate continued research on listed species.	Applicable if listed species or critical habitat is identified. No federally listed threatened or endangered plant or animal species are known to exist on site. Though typical nesting habitat for the threatened Newell's Shearwater was found on a portion of the site, there are no known nesting colonies of this species on Oahu	TBC	Statute suspended until 30 June 2016 by Governor's Proclamation dated 14 June 2011.
Forest Reservations, Water Development, Zoning	HRS Chapter 183.	Regulates activities in forested land and watersheds.	Forested lands and surface water (Waikane Stream) are found on site.	Not an ARAR	Statute suspended until 30 June 2016 by Governor's Proclamation dated 14 June 2011.

**TABLE A-2**  
 Potential Location-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Coastal Zones	HRS Title 13, Chapter 205A: Coastal Zone Management.	Provides for the protection of coastal resources.	The MRS is not located within the coastal zone.	Not an ARAR	Statute suspended until 30 June 2016 by Governor's Proclamation dated 14 June 2011.

**TABLE A-3**  
 Potential Action-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
<b>Federal</b>					
RCRA Subpart M (Military Munitions Rule)	62 Federal Register 6622 40 CFR 266 Subpart M	Identifies when military munitions become a solid waste, and, if these wastes are hazardous, the management standards that apply.	This is a procedural requirement, and does not provide site-specific criteria.	TBC	Substantive requirements for managing recovered munitions will be implemented during remedial actions.
Open Burning/Open Detonation (Treatment) of Waste Explosives	40 CFR 265.370 and 265.382 (Subpart X)	Requirements for treatment of explosives through burning	Applies to the treatment of explosives through burning or detonation. Open burning/open detonation is considered "treatment in miscellaneous units." This is a procedural requirement, and does not provide site-specific criteria.	TBC	Substantive requirement, such as those pertaining to required separation distances will be implemented during the remedial action.

**TABLE A-3**  
 Potential Action-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Explosives Storage	27 CFR 555 Subpart K 40 CFR 264 Subpart EE	Provides standards for the storage of explosive materials.	Provides specific requirements for storing explosive materials that may be pertinent to MEC response actions. This is a procedural requirement, and does not provide site-specific criteria.	TBC	Substantive requirements for storage of explosives (as appropriate) will be implemented during the remedial action.
Hazardous Waste Management	42 USC 6921 et seq. 40CFR 261 (especially 261.23), 262, 264, 266, 268	Provides for processes and procedures for identifying and managing solid and hazardous wastes	Applicable to characterization of solid waste and management of hazardous waste generated during the remedial action.  This is a procedural requirement, and does not provide site-specific criteria.	Not an ARAR	Any waste produced during the remedial action will be characterized.
Oil Pollution Prevention	40 CFR 112	Governs storage of oil or fuels in amounts greater than 1320 gallons, if stored in containers 55 gallons or larger	Includes substantive requirements pertaining to containers storing fuels in amounts greater than 1320 gallons. The regulation includes non-substantive requirements (e.g., preparation of plans) that are not required to met.	TBC	If oil is used in the cited quantity during the remediation to fuel generators or for other uses, then the design and management requirements of this rule would apply.
Transportation	49 CFR Parts 100-199, specifically Part 107 Subpart G; Parts 171, 172.101, 700, and 704, and 173	Regulates transport of hazardous substances, including explosives and other MEC. Provides packaging, marking and labeling, handling, and training requirements.	Applicable if hazardous materials are transported on site. This is a procedural requirement, and does not provide site-specific criteria.	Not an ARAR	Transportation of MEC for off-site disposal will be conducted in accordance with applicable regulations.

**TABLE A-3**  
 Potential Action-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Ammunition and Explosives Safety Standards	Department of the Navy OP5, "Ammunition and Explosives Ashore"; NOSSAINT 8020.15C, "Explosives Safety Review, Oversight, and Verification of Munitions Responses"	Set explosives safety standards to protect human health and the environment.	Not promulgated; provide specific requirements for managing munitions and explosives that pertain to MEC response actions.	TBC	Specific requirements for safe removal and management of MEC must be adhered to.
Detonation-in-Place	HNC-ED-CS-98-7, "Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions"	Identifies specific criteria for the use of sandbag mitigation during intentional detonations of MEC.	Provides specific technical requirements that may be pertinent to MEC disposal.	TBC	If sandbag mitigation is deemed appropriate during MEC disposal, the specific requirements contained herein must be adhered to.
Explosives Storage	Bureau of Alcohol, Tobacco, and Firearms Publication 5400.7, "Federal Explosives Laws and Regulations" 40 CFR 264 Subpart EE	Provides standards for the storage of explosive materials.	Provides specific requirements for storing explosive materials that may be pertinent to MEC response actions.	TBC	If explosives and/or MEC are stored on-site during the remedial action, the specific requirements contained herein will be adhered to.
Material Potentially Presenting an Explosives Hazard	DoD Instruction 4140.62, "Management and Disposition of Material Potentially Presenting an Explosive Hazard (MPPEH)"	Identifies procedures for inspecting and certifying the safety status of material potentially presenting an explosive hazard	Provides specific technical requirements pertinent to managing MPPEH during MEC response actions.	TBC	MPPEH generated during the remedial action will be managed in accordance with the procedures identified herein.

**TABLE A-3**  
 Potential Action-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
	DoD Manual 6055.09-M, <i>DoD Ammunition and Explosives Safety Standards</i> , February 29, 2008. Administratively Reissued August 4, 2010.	Provides protection criteria to minimize serious injury, loss of life, and damage to property from military munitions and MEC (e.g., explosives safety quantity distances).	Applies to the selection of remedial alternatives for the site.	TBC	Remedial activities will be implemented in accordance with the explosives safety measures contained herein.
Navy Environmental Guidance	OPNAVINST 5090.1C, "Navy Environmental and Natural Resources Program Manual"	Navy guidance manual on environmental and natural resources operations.	TBC for operations that may affect the environment or natural resources.	TBC	
<b>State</b>					
Fugitive Dust	HRS Title 19, Chapter 342B-11 and 34 HAR Title 11, Chapter 60.1-33: Air Pollution Control	Requires mitigation of fugitive dust visible beyond the property line through implementation of best practical operation or treatment.	Applies to dust produced during vegetation and munitions clearing activities.	ARAR	
Waters of the State	HAR Title 12, Chapter 174C HRS § 342D-50	Provides for the protection and improvement of the quality of waters of the state and to provide that no substance be discharged into such waters without first receiving the necessary treatment or other corrective action. Designates both surface and groundwater.	Applicable to any actions taken during the remedial action that may result in discharges to surface water or groundwater.	ARAR	

**TABLE A-3**  
 Potential Action-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Storm water	HAR Title 11, Chapter 55	Defines effluent limitations and other requirements for construction activities that would normally require NPDES permitting by virtue of disturbing more than 1 acre of land.	Stormwater discharge requirements are applicable due to the size of the area proposed to be disturbed in some of the remedial alternatives.	ARAR	
Storm water	HAR Title 11, Chapter 55, Appendix C: NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity	Specifies development of an erosion and sediment control plan, plans for minimizing discharge and erosion during and after construction, and other general provisions including best management practices, storm water controls, and monitoring.	An NPDES permit is not required for on-site activities; however, the requirements and best management practices associated with this general permit are relevant and appropriate for some of the proposed remedial alternatives and should be adhered to. The requirements for state waters with total maximum daily loads (TMDL) do not apply because TMDLs have not been established for Waikane Stream.	ARAR	



TABLE A-3

Potential Action-Specific ARARs and TBCs

Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Grading, Excavation, Clearing, and Grubbing	HRS Title 12, Chapter 180C, Soil Erosion and Sediment Control Revised Ordinances of Honolulu (ROH) Chapter 14, Sections 13-16	Regulates grading, excavation, clearing, and grubbing activities for management of soil erosion and sediment control	All grading, excavation, clearing, and grubbing activities need to be conducted in accordance with these requirements. One aspect of this is the erosion control plan. HRS Title 12, Chapter 180C exempts federal lands from applicability under this statute, but the Honolulu regulation is nevertheless considered relevant and appropriate.	ARAR	
Hazardous Waste Management	HRS Title 19, Chapter 342J: Hazardous Waste HAR Title 11, Chapters 260-266, 268, 270, 271, 28	Regulates waste management in Hawai'i.	Applicable to characterization of solid waste and management of hazardous waste generated during the remedial action.	ARAR	Any waste produced during the remedial action must be characterized. Other requirements are applicable if hazardous wastes are produced during the remedial action.
Transportation of Hazardous Materials	HRS Title 17, Chapter 286, Part XII: Transportation of Hazardous Materials	Regulates transport of hazardous substances in Hawai'i.	Applicable to any hazardous materials transported on-site during the remedial action.	ARAR	Transport of hazardous materials will be conducted in compliance with applicable regulations.

**TABLE A-3**  
 Potential Action-Specific ARARs and TBCs  
*Feasibility Study, Waikane Valley Impact Area Munitions Response Site, Kaneohe, Oahu, Hawaii*

Requirement	Citation	Description	Analysis	ARAR/TBC Determination	Comments
Litter Control	HAR Title 11, Chapter 68: Litter Control	Regulates handling of litter in Hawaii	Applicable to solid waste/litter generated during the remedial action.	ARAR	Any refuse produced during the remedial action must be properly disposed of in litter bags or receptacles.
Noise	HRS Title 19, Chapter 342F-30 HAR Title 11, Chapter 46: Noise Pollution Control	Defines maximum permissible sound levels to provide for the prevention, control and abatement of noise pollution from stationary noise sources and equipment related to agricultural, construction, and industrial activities.	Applicable to noise produced by detonation-in-place of MEC detected during any surface and/or subsurface clearing activities.	ARAR	

## **Appendix B HDOH and Public Comments**

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Contains:

Concurrence letter from HDOH

Responses to Comments from 12 January 2012 Public Meeting

Responses to Written Comments from David Henkin

Responses to Written Comments from Kyle Kajihiro

Response to Written Comments from the Kamaka Family

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**Concurrence letter from HDOH**

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**Responses to Comments from 12 January 2012 Public Meeting  
Excerpted from Meeting Minutes**

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Comment No.	Section No.	Comment
		<b>GENERAL COMMENTS</b>
1	Page 38, line 5	MR. KAUHANE: On the site history 1943, 1953, 1976, I'd like to see those documents posted. And then 1989, the United States government acquired title to 187 acres, I'd like to see that document posted also.
Response: The requested documents are posted on the Waikane Valley website referenced in Section 2.9 of the Decision Document.		
2	Page 38, line 12	MR. HO: I think -- the corridor to the historical site, I would say it's kind of like the feeling of you're going to prison camp or something with the fences so close. So I think the corridor should be widened to an acceptable width. To me it's like -- you're going to religious and you're going like you're going to a prison camp or something. So I think what Dave's comment was that you're not going to get the comfort feeling of you're going to someplace that is your worship place or your sacred place, you're going to visit prison or something. So -- my comment is you should consider widening it to a more reasonable -- to get rid of that feeling of being confined.
Response: We have responded to the concern that an 8-foot corridor width is too restrictive, and interferes with the spiritual experience of the visitor to the two cultural sites within the Northern Area. Therefore we widened the corridors to 50 feet (as suggested by Mr. Henkin in his written comments), and added language to the Decision Document requiring the remedial design team to select the fence location in coordination with interested members of the RAB and the local community. This revision ensures that cultural practitioners are not inhibited by the chain-link fence and that they have complete access to water flowing from Waikane Spring to Waikane Stream.		
3	Page 40, line 23	Ms.Rapoza: So my point, -- trying to get to it is, what kind of solutions can the Marines help us in the community to block these 4X4 (All-Terrain Vehicles) people going in? The first thing is, is to get main control of that gate. And apparently, from what I hear, is the 4X4 people is either cutting the lock or they're breaking the gate just so that it stays open, because the city has a hard time with, I guess, putting out to where they -- I guess they have to put in some kind of thing to get a new lock or whatever and it's just taking too long. In the meantime, that place is being torn up. Our riverbeds are screwed up. So like when there's big rains, who knows if there's landslides that's going -- coming down, going into the river and people are going in and out. That's my concern is people going in without permission and there's nobody to tell them that they can't go in.
Response: The Marine Corps has no jurisdiction outside the WVIA fenceline. However, anyone breaking through fences and entering the WVIA without Marine Corps permission is considered as trespassing. The Marine Corps currently has a maintenance plan for the fence designed to prevent trespassing by repairing breaks and replacing locks. We ask for the public's help in alerting us to such trespassers now and in the future so that we can conduct repairs promptly and prosecute trespassers. When the new fence is installed North of Waikane Stream, we believe the trespassing will be less likely because of the sheer steepness of the slopes in that area. The Marine Corps would also appreciate input from the community on a new fence maintenance plan to incorporate any ideas on frequency/times of inspections or other ideas of deterrents to prevent further trespassing.		

Comment No.	Section No.	Comment
4	Page 41, line 19	<p>MR. ZWENG: Just a quick thing, just to add to Penny's comments. On your gate which is shown on that map, the fence, the yellow line, if you go to the west, and you see where it turns up and then it goes north, so at that corner you have a gate 50 meters makai, and there's a lock on it, but it's been broken since June or July. And I know I talked to Major Sally Hannan and she was going to communicate that to the Marines. So there's a place where, you know, regardless of whether they have a fence or not, anybody can just -- the gate's wide open. There's a road that goes through there. It's completely unsecured.</p>
Response: See response to comment #3.		
5	Page 42, line 8	<p>MR. KAUHANE: Backing up sister, too, there's supposed to be an ordinance, HPD is supposed to be fining. Any four-wheel vehicle that is found up there is supposed to be confiscated, and there's supposed to do -- I mean, where it goes to court and be fined for that at the same time. So in other words, if that could be enforced or have something to the fact that they start enforcing the trespassing that are there, we would be grateful. Because I don't know if you've ever been up to that road going up, there are very culturally significant plants right now that are found no other place on the island that is there. Okay. And that could be destroyed too. We haven't had a chance to get up there. We got the gate. We talked to the brother that lives right across, even he asked for help, even he was complaining that, hey, too many people going up inside. He was the one trying to stop them with his own tractor, okay. So the people up there are being really terrorized as far as the people going in and out and nothing being enforced, if it's supposed to be a closed off place. People are there. The motor bikes are really tearing up the whole place, too. It's a very cultural, sacred area that we haven't even addressed yet. So I just wanted to say that comment on behalf of sister.</p>
Response: See response to comment #3.		
6	Page 43, line 16	<p>MR. KAJIHIRO: I didn't understand that the proposal to do the accessible areas in the non-target northern area was now dropped from this proposal. So I would like to see that whatever is accessible in the northern areas are at least, you know, done to the surface clearance level. And thank you for including the subsurface response in the southern area. I think that that's a very important aspect of this plan that we can actually potentially open it up. I would concur with Byron's comment that the corridor, getting access to these sites be wider. I'm not sure what sort of psychologically would make sense to feel open, but I think that maybe that could be done in some sort of a consultation to -- I've never seen this area, so I don't know what it actually looks like, but thank you for also including that in the subsurface clearance zone. I think that's also a positive change in this plan.</p>
Response: The approximately 2.9 acres within the Northern Non-Target Area have been added to the Selected Alternative.		

Comment No.	Section No.	Comment
7	Page 44, line 24	<p>MR. KAUHANE: What I was going to suggest is that if we have a wooden pole and a rail, that would be -- again, for practitioners, okay, having to go there, if we have hukilau, maybe somebody has a barrel up there, maybe somebody has something to do that's culturally significant to the Hawaiian people and they can't get out to that area. Hawaiians don't lock things up. Kupuna respect for the place that they have when they go there.</p> <p>So culturally that would not -- a six-foot fence would not be sitting right even with the kupunas that are buried there and are at the area. So maybe if it was like a little, you know, two-foot stick coming up and a rail going across and it's like a handrail going down, then it's not closed off, because we're going to be ruining the aspect of enjoying nature as it is by putting the fence there. I understand that it's a secured area, there may be munitions there, but after the cleanup it's supposed to be accessible, according to what I understand. And according to the comment you made at the last meeting, if they can spend 5 million doing this, hello, they put it there, okay. So it should be -- we should be able to walk on the land, even in those areas right there which are very low -- I mean, the impact area right up to where the pond is and where the site is, it's not that heavy, how would you say, munition, according to the map I have in front of me. And as far as the cleanup is concerned, even if from what they had said that was the munitions were fueled with, put it that way, how much was in there, it wasn't supposed to penetrate the ground three, four feet. So it should be very accessible and it should be very clean by the time you folks are done.</p>
Response: See response to Comment #2.		
8	Page 46, line 24	<p>MR. ZWENG: I guess I'd throw out a possibility whereby given the sensitive nature of the corridor, and I agree with Byron, you know, having this chain-link fence makes it look like a prison. You know, you might consider a concept whereby you have a lower fence, maybe stone wall, something that's more attractive to the eye, do a little wider cleanup beyond the corridor. I don't know if it's 50 or 100 feet, but some distance X, and then where you visibly -- where you can't really see beyond that, you put up your more permanent, sort of keep-people-out-type barrier.</p> <p>So in a sense there almost could be two sets of barriers, where there's sort of an immediate one where people understand, oh, I'm not supposed to go beyond this, but I look at it and it's not this chain-link, you know, prison type of barrier. But there is something that's much more substantial beyond that that's sort of out of sight. So that way both parties in a sense achieve that. So I just throw that out as a suggestion.</p>
Response: See Response to Comment #2.		

Comment No.	Section No.	Comment
9	Page 47, line 21	<p>MR. KAUHANE: Saying that, that's assuming this is public lands.</p> <p>MR. ZWENG: I'm not making any assumption.</p> <p>MR. KAUHANE: No, no, no. I'm saying -- by you saying put up a fence this tall to keep people out, you're putting into my head this is public lands. This is private lands, okay. Now I just wanted to go there because of how you're saying, well, we'll construct this fence to keep people out. We're talking about private lands here. That's why I asked to see the documents on the acquiring of the lands for the lease.</p>
Response: See response to Comment #2.		
10	Page 48, line 11	<p>MS. RAPOZA: Well, for me, if you're trying to keep people out to keep them safe, yeah, put 'em up high, that's how I feel. Because right now our generation, not my generation but the generation under me, they don't give a rat's behind. All their main concern is to get up there and four-wheel drive. That's how it is. I live there. I talk to the people. They got no respect. We tell them what they're doing up here, they tell me why, it's none of your business, it's not your land we're going on. So the thing is, is that if the military is putting up fence to keep everybody out to keep 'em safe, hey, that's what they gotta do till they clean up. That's how I feel.</p>
Response: See response to Comment #2.		
11	Page 49, line 1	<p>MR. HENKIN: I have a few. So first I would like to recognize and express appreciation to the Marines for the emphasis on clearing surface and, if need be, subsurface in the southern area in order to open up those 30-some acres to unrestricted use, if it's possible to do that, and they keeping that goal in mind. Those low lying areas near the stream historically have been used for agriculture, have been used for cultural practice. You have the water of the stream. And so I really appreciate that the intent here is in these flatter, more accessible areas to actually -- if one day that fence line -- if in 2016 that fence line moves mauka on the other side of the stream and that area then becomes accessible and the possibility for dialogue about return of that land to culturally appropriate civilian use, that's wonderful. And I appreciate the effort that's gone into that and I personally strongly support that aspect of the proposal.</p>
Response: Thank you for understanding that we have given our best efforts to make as much land as possible available for public use.		

Comment No.	Section No.	Comment
12	Page 49, line 20	<p>MR. HENKIN: With respect to the Kamaka Shrine and the spring, I defer to the family, I defer to the cultural practitioners as far as what is appropriate culturally in terms of the alteration of the surrounding landscape and the extent to which having these large barriers to prevent people from going to areas that are not as thoroughly cleared, to the extent that that would cause a cultural harm, a cultural insult. But based on my personal experience in working with various groups, it's very important to keep in mind that it's not only the narrowly defined limits of the cultural site as an archeologist would see it, but it's the culture context in the landscape where the site finds itself that is very important.</p> <p>And with reference to figure 3-1 of the feasibility study report, it's fortunate that we have an opportunity that both sites are located in areas where the slope is less than 30 degrees. And in fact, fairly substantial areas around both of the core sites are that way, which means that it should be feasible to clear a broad swath, rather than a narrow, eight-foot corridor, in order to create this more open feeling, more natural setting and less intrusive on the practice.</p> <p>I like the idea that was suggested of having a couple of tiers, a lower wall, something that is more natural. I still wouldn't personally like something that's only eight feet wide. It doesn't allow much in terms of cultural procession or large groups to access these sites easily. If you look at the size of this room, it's about maybe 40 feet wide, you could get pretty much out of people's immediate consciousness by having a cleared area, subsurface.</p> <p>The intent in this area is not necessarily for any subsurface activity in terms of digging. It's primarily walking to get to the area. So at least the Army's experience in Makua is that as long as the ground is subsurface cleared to a foot or two, unrestricted access can be allowed. And so in previous meetings you looked at subsurface clearing all of the accessible lands within the northern target area. Here we're talking about a very small subset of that, but if clearing that allows for appropriate cultural use to be resumed and this lack of -- it's not just visual blight but it's cultural blight on this land of these very sacred sites, I think it's a good investment and one that frankly the military owes the people of this area, because these decisions need to be made in the context of the promise that was made to the family that the lands would be cleaned and returned, and that should inform what is feasible and what investment is necessary. (continued below)</p>

Comment No.	Section No.	Comment
		<p>So we're talking about a subset of the lands being open for use, but we need to make sure that that cultural landscape is not harmed. And I would encourage the family, I would encourage other cultural practitioners to use this comment period to help define how that access can be designed in a way that would not prevent cultural practice from happening in an uninterrupted way. And I would encourage the Marines to invite cultural practitioners to walk the land with the Marine Corps during the time in which you're making your decision so that there may well be -- and I was on the site visit to these sites, and at some point you get to some steep slopes or you get to some drop offs and it might just be visually you're just not going to notice as much where the walls and fencing would be. So I would encourage that strongly.</p> <p>Kyle raised an issue with respect to not only the spring itself but the uninterrupted flow of the water from the spring to the stream. And the answer that I heard was that the intent was that the eight-foot wide corridor would encompass that flow of water. Not being on the site, it's hard for me to visualize how you could both have access and the stream-spring connection within that eight-foot corridor, but in any event, I hope that that landscape is broadened so that that connection between spring and stream is maintained and is accessible for cultural use.</p>

Response: See response to Comment #2.

13	Page 53, line 1	<p>MR. HENKIN: With respect to the future, the proposal is to have a maintenance period going forward and I strongly support that. I think the continued involvement of the military in order to make sure that areas that have been opened up remain accessible in the event that munitions or other hazards are encountered is key. But, you know, the question --we're making a decision in 2012 based on technology that's available in 2012, and so I strongly support Byron's suggestion that in the future with respect to the lands that have not been cleared to a level that would allow unrestricted access, if new technologies and new approaches are developed and become feasible, that there be a reopener in the decision document for the military to take on the responsibility of continuing to clear the land to the level feasible and reopening the same type of process that we've been involved in to get community input to make sure that those areas that are essential to the community to be opened up are opened up when it's possible to do that.</p>
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Response: The Decision Document already has provisions to conduct annual inspections and 5-year reviews to ensure that the Selected Remedy has been effective. Evaluation of new technologies is a part of the 5-year review process. Language is added to the 5-year review discussion to clarify that fact.

Comment No.	Section No.	Comment
14	Page 53, line 21	So overall, I'm very supportive of the plan. To the extent that the goal is to open up areas, I do think that there are modifications that should be made to make sure that not only the narrowly defined sites are clear but that the cultural landscape is freed from the current encumbrance. And also, as I mentioned, in the future a reopener if we can clear more areas of this valley, which, again, I think all of the decisions about the future of the valley need to be taken with the promise that was made to the family in mind, that the land would be cleared and returned. And that's an ongoing obligation, I think, that we, the people of the United States, have to this family and the people of this area.
Response: See Response to Comment #13.		
15	Page 54, line 11	MR. HO: There was one thing that Lance mentioned about the education, once the process is done. Is it just when it's completed or is it prior to -- is it going to be ongoing from the start of the cleanup through the, you know, restoring all of that and to the availability of access to it, or is it going to be just when everything is done, the education or the communication to the public? Other than us, right, there's going to be a general, right, communication to the public?
Response: The public education portion of the Selected Alternative can start earlier, as Department of Defense already has such programs available especially for education of children on how to Recognize, Retreat, and Report and findings of MEC. The Marine Corps will coordinate with the U.S. Army Corps of Engineers regarding their public education plans for the adjacent Waikane Valley Training Area, and together we will establish a training program as soon as possible for the local schools and community groups.		

Comment No.	Section No.	Comment
	Page 57, line 1	<p>MR. WOLFGRAMM: On this topic I would say, we're dealing with a site that's the core of Hawaiian culture. Waikane sits right in the Kumulipo, so it behooves those of us who are living now to be worthy of the conspiracy of the Hawaiian ancestors. We are just the concurrent face of whomever we come from, but for the Hawaiians, Waikane is the soul.</p> <p>So having said that, may I suggest this, all right, what we doing about -- what we're dealing with here is a spiritual center. That's why -- what Waikane stands for. So my suggestion is that we, at the very beginning, decide to build a sacred space. We're human, but we have the ability to create sacred and unrestricted. In the Hawaiian paradigm, and all the Pacific people, it's tapunoa, that duality, right? We have a Phallic Rock down here called Nanahoa based upon that duality of sacred and secular. That place is related to Waikane. Kanehoalani is right over there. Did you know that down here at the end of this road is where Kane the god was born? Do you know that? That's what we're dealing with.</p> <p>So we're talking about Waikane. And you know that Waiahole is right here and Waikane is right there when you look at the front of this road here, they're all kind of -- all I'm saying is that as we proceed forward on this site in Waikane, we open a sacred space. Why? So we can be human. So we can hear the spirit speak on that space. Then you're going to hear the poetry come out, the poetry that was created by people other than us who are now living. Because we're human, all right? But if we don't do that, if we don't do this, this is what I'm telling you about, being equal to the site, Waikane, we're all plumbers, that's all we are. We're nothing. We're part of eternity, which has no spirit. The poetry is right there inside the land. All we need to do is be brave enough to be human so that the poetry can come forth. So the voice of the land can speak. It's already here, people. The people are here.</p> <p>I am so happy to be here tonight because I got to hear what I heard, and I recognize an institution that possibly has become enlightened. And I just want you to say -- I just want to say that I think we're on the right path and I think we can do our little bit. I look forward to the day when I come here for the next meeting with all my eleven children are over here, because they're all born and raised here in Waiahole. And when my kids' grandchildren come home from college, they're all going to come here because they see themselves as part of the Waiahole spread all over the place, right? Where do you come from? Waiahole. Because the land is not real estate. The land has a story and we need to hear the people speak and the land speak. I just thank you people for doing your part and for our neighbors who take the time to come here. It's been a long time to get to this, to talk, it's been a long trip, but we're on the right path. That's all the comment I have to say. I'm happy.</p>

Response: Mahalo, Mr. Wolfgramm. We have absorbed your message on the spiritual importance of the space and are giving our best efforts to achieve those needs while also achieving the objective of public safety.



**Responses to Written Comments from David Henkin  
Submitted to Marine Corps on January 22, 2012**

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Comment No.	Section No.	Comment
		<b>GENERAL COMMENTS</b>
1	General	<p>At the RAB's January 12 meeting, I provided oral comments setting forth my views on the proposed plan for clean-up of the Waikane Valley Impact Area (WVIA). Per the Marines' request, I am summarizing those comments in writing.</p> <p>Overall, I appreciate the efforts the Marines have made to respond to the community's desire to clean up the WVIA adequately to permit the land to return to culturally appropriate and productive civilian use. It is vital for decisions about the future of the WVIA to be made in the context of the promise that the military made long ago to the Kamaka family that the land would be cleaned and returned. To the extent technically feasible, the military should honor its promise.</p>
<p>Response: Thank you for recognizing our earnest efforts to respond. Before any decision regarding future land ownership can be made, we must complete the remedial action. The WVIA project team's goal has been to eliminate explosive hazards from as much of the site as possible given technological and safety constraints. Meeting this goal will provide the most options for future land use, including the best potential for transfer of portions of the WVIA to the community. The final decision regarding land transfer will be made by the Department of the Navy after the environmental restoration process is complete for the WVIA.</p>		
2	General	<p>I strongly support the proposed course of action for the southern portion of the WVIA, which seeks to ensure that this area is available for unrestricted use, including agricultural and residential use, as well as cultural practice. Clearing this area and moving the fence to the north of Waikane Stream would be most welcome.</p>
<p>Response: Thank you for understanding that we have given our best efforts to make as much land as possible available for public use.</p>		
3	General	<p>With respect to the Waikane Spring and Kamaka family shrine, I appreciate the Marines' understanding that providing unrestricted access to these sacred sites is vital. As discussed at the RAB meeting, however, the proposal to clear only an 8-foot wide path, bounded on either side by 6-foot high fences, would not provide culturally appropriate access. Rather, it would feel like those approaching the sacred sites are headed to prison.</p>
<p>Response: We have responded to the concern that an 8-foot corridor width is too restrictive, and interferes with the spiritual experience of the visitor to the two cultural sites within the Northern Area. Therefore we widened the corridors to 50 feet, and added language to the Decision Document requiring the remedial design team to select the fence location in coordination with interested members of the RAB and the local community. This revision ensures that cultural practitioners are not inhibited by the chain-link fence and that they have complete access to water flowing from Waikane Spring to Waikane Stream.</p>		

Comment No.	Section No.	Comment
4	General	In planning access to the Waikane Spring and Kamaka family shrine, the Marines need to be sensitive to the adverse effect on the cultural landscape associated with the chain-link fence barriers. A much wider path to each site must be cleared (50 feet or wider), so that the fences are imperceptible to cultural practitioners approaching the sites. In addition, the Marines need to ensure that the water flowing from the Waikane Spring to Waikane Stream is completely accessible to cultural practitioners. Fortunately, the land leading to the spring and shrine from Waikane Spring is not too steep (less than 30 degrees), permitting wider paths to be cleared.
Response: See response to Comment #3.		
5	General	To ensure that the fences flanking the paths to the spring and shrine are not visually obtrusive and do not preclude access to culturally significant areas, before finalizing the clean-up plan, the Marines should conduct a site visit with representatives of the Kamaka family and other cultural practitioners. Together, the site visit participants can flag the alignments for barrier fences that will not disrupt the cultural landscape.
Response: See response to Comment #3.		
6	General	Finally, my understanding is that the clean-up plan is based on assessments of the level of clean-up that is feasible given current technology. In the future, new techniques may be developed that would allow more of the WVIA to be cleared for unrestricted access. In light of the military's promise to the Kamaka family that the land would be cleared and returned, the plan should contain a reopener provision to provide for greater clean-up in the future when new technologies are available.
Response: The Decision Document already has provisions to conduct annual inspections and 5-year reviews to ensure that the Selected Remedy has been effective. Evaluation of new technologies is a part of the 5-year review process. Language is added to the 5-year review discussion to clarify that fact.		
7	General	Mahalo for your consideration of these comments. Please feel free to contact me should you wish to discuss them.  Aloha, David Henkin Community Co-Chair, Waikane Valley RAB”
Response: Mahalo for your capable and conscientious leadership of the RAB.		

**Responses to Written Comments from Kyle Kajihiro  
Submitted to Marine Corps on February 12, 2012**

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Comment No.	Section No.	Comment
		<b>GENERAL COMMENTS</b>
1	General	<p>Aloha Randall, David and Captain George Thank you for incorporating the community's comments on the Remedial Investigation into the draft Feasibility Study. Here are my comments on the draft Feasibility Study.</p> <p>In the Southern Area, I support the proposed treatment to clean up the land to a level that would allow unrestricted use.</p>
Response: Thank you for taking the time to review the Proposed Plan.		
2	General	<p>Thank you for incorporating the access corridors to the Kamaka Family Shrine and Waikane Spring. However, as several of us remarked in the RAB meeting, the six-foot chain link fence and eight-foot wide pathway is too narrow and too restrictive. I urge you to widen the area to be cleared and move the fence further away, so that it will not be obtrusive to cultural practice.</p>
Response: Thank you for understanding that we have given our best efforts to make as much land as possible available for public use.		
3	General	<p>In order to determine exactly how much to clear and how the fence should be designed, I believe that we need feedback from cultural practitioners after having the chance to visually survey the area. Before finalizing the cleanup plan, please organize a site visit and cultural access to the Kamaka Shrine and Waikane Spring for members of the Kamaka family, cultural practitioners and interested RAB members. This site visit will enable us to provide more informed recommendations on the height, width and design of the access corridor to the cultural sites.</p>
Response: We have responded to the concern that an 8-foot corridor width is too restrictive, and interferes with the spiritual experience of the visitor to the two cultural sites within the Northern Area. Therefore we widened the corridors to 50 feet (as suggested by Mr. Henkin in his written comments), and added language to the Decision Document requiring the remedial design team to select the fence location in coordination with interested members of the RAB and the local community. This revision ensures that cultural practitioners are not inhibited by the chain-link fence and that they have complete access to water flowing from Waikane Spring to Waikane Stream. A site visit will be scheduled during the planning stage of the cleanup, to include interested members of the RAB and the local community.		
4	General	<p>I also request that all the accessible areas in the northern target and non-target areas (less than 30 degree slope) be surface swept for munitions, as described in the original remedial investigation.</p>
Response: The approximately 2.9 acres within the Northern Non-Target Area have been added to the Selected Alternative.		

Comment No.	Section No.	Comment
5	General	Finally, I request that the feasibility study include periodic reviews of chosen remedies and a provision for the Marines to conduct additional removal actions in the future when better detection and removal technologies become available.
Response: The Decision Document already has provisions to conduct annual inspections and 5-year reviews to ensure that the Selected Remedy has been effective. Evaluation of new technologies is a part of the 5-year review process. Language is added to the 5-year review discussion to clarify that fact.		
6	General	Mahalo. Sincerely, Kyle Kajihiro
Response: Mahalo for your interest in this important project.		



**Response to Written Comments from the Kamaka Family  
Submitted to Marine Corps on February 13, 2012**

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Comment No.	Section No.	Comment
		<b>GENERAL COMMENTS</b>
1	General	<p>Aloha Mr. Hu, Captain George and Mr. Henkin</p> <p>While the Kamaka family maintains that the Waikane land was unjustly acquired by the military and that it must all be cleaned up returned in good condition as originally promised, we appreciate that the Marine Corps has made a good faith effort to incorporate our concerns into the revised feasibility study.</p>
Response: Thank you for your understanding that we have given our best efforts to make as much land as possible available for public use.		
2	General	<p>We support the plan for cleaning up the southern area to a level that would allow unrestricted use of the prime farm land and lo'i areas.</p> <p>We also appreciate that the plan was revised to include clearance of access corridors to the Kamaka Family Shrine and Waikane Spring, but, as several people noted at the last RAB meeting, an 8-foot wide path bounded by a 6-foot high fence would "feel like a prison." There were never fences to any historical/ native Hawaiian sites of religious interest or cultural practice. A fence is unacceptable. No-one should be up on the property due to the fact that it is "Private Property", belonging the Kamaka Family, as stated in Land Grant No.464, which the Kamaka family till this day still holds the deed .</p>
Response: We have responded to the concern that an 8-foot corridor width is too restrictive, and interferes with the spiritual experience of the visitor to the two cultural sites within the Northern Area. Therefore we widened the corridors to 50 feet (as suggested by Mr. Henkin in his written comments), and added language to the Decision Document requiring the remedial design team to select the fence location in coordination with interested members of the RAB and the local community. This revision ensures that cultural practitioners are not inhibited by the chain-link fence and that they have complete access to water flowing from Waikane Spring to Waikane Stream.		
3	General	.The Kamaka family requests that before finalizing the cleanup plan, please schedule a site visit to the areas and cultural sites of the Kamaka Shrine and Waikane Spring area for members of the Kamaka family, as stated in the original lease of the property. This site visit will enable us to provide more information and provide further input to the return of the Kamaka property.
Response: See response to Comment 2. A site visit will be scheduled during the planning stage of the cleanup, to include interested members of the RAB and the local community.		
4	General	We also request that all the accessible areas in the northern target and non-target areas (less than 30 degree slope) be surface swept for munitions, as in the original remedial investigation recommendations stated in the RAB meetings.
Response: The approximately 2.9 acres within the Northern Non-Target Area have been added to the Selected Alternative.		

Comment No.	Section No.	Comment
5	General	<p>Lastly, please include a provision that requires the military to be contacted for future finds that maybe removed, without the commendation of our land with is in complete violation of the contract between the military and the Kamaka family.</p> <p>Response: Land use controls state that future finds would be reported to local law enforcement officials. Their standing operating procedures require that they in turn contact military EOD for disposal of the item. This process would not involve a condemnation of the property once it has been returned to the public.</p>
6	General	<p>Mahalo for your consideration.</p> <p>Sincerely,                      Raymond Kamaka (successor, person representative of Land Grant 464), &amp; Stanley Kamaka, (Konohiki of waiahole /Waikane Lands)</p> <p>Response: Mahalo for taking the time to review this important document.</p>

# Appendix C

## Acronyms and Abbreviations

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# Acronyms and Abbreviations

ARAR	Applicable or Relevant and Appropriate Requirement
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	<i>Code of Federal Regulations</i>
DoD	Department of Defense
EOD	Explosive Ordnance Disposal
EP	engineer pamphlet
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
HAR	Hawaii Administrative Rule
HDOH	State of Hawaii Department of Health
LUC	land use control
MC	munitions constituents
MCB	Marine Corps Base
MEC	munitions and explosives of concern
MDAS	Materials Documented as Safe
MEC HA	MEC hazard assessment
MPPEH	material potentially presenting an explosive hazard
MRS	munitions response site
NCP	National Contingency Plan
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
RAO	remedial action objectives
RI	remedial investigation
SI	site investigation
TBC	to be considered
U.S.	United States
USAESCH	U.S. Engineering and Support Center, Huntsville
USMC	U.S. Marine Corps
UXO	unexploded ordnance
WVIA	Waikane Valley Impact Area

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