Final
Record of Decision
Track 2
Bureau of Land Management Area B and Munitions Response Site 16

Former Fort Ord, California

March 9, 2017

United States Department of the Army
Base Realignment and Closure (BRAC)
Former Fort Ord, California

Contents

1. DECLARATION 1

1.1. Site Name and Location 1
1.2. Basis and Purpose 2
1.3. Site Assessment 2
1.4. Description of the Selected Remedy 2
1.5. Statutory Determination 4
1.6. ROD Data Certification Checklist 5
1.7. Authorizing Signatures and Support Agency Acceptance of the Selected Remedy 6

2. DECISION SUMMARY 10

2.1. Site Description 10
2.2. Site History 10
2.3. Enforcement and Regulatory History 11
2.4. Community Participation 12
2.5. Scope and Role of Response Action 12
2.6. Site Characteristics 14
2.7. BLM Area B and MRS-16 RI/FS Background 14
2.8. BLM Area B and MRS-16 Remedial Investigation Summary 15
2.9. Current and Potential Future Land and Resource Uses 17
2.10. Summary of Site Risks 18
2.11. Remedial Action Objectives 19
2.12. Description of Alternatives 19
2.12.1. Description of Remedial Alternative Components 20
2.12.2. Description of Remedial Alternatives 24
2.12.3. Comparison of Remedial Alternatives 26
2.13. Principal Threat Wastes 29
2.14. Selected Remedies 29
2.14.1. Summary of the Rationale for the Selected Remedies 29
2.14.2. Description of the Selected Remedy 30
2.14.3. Overview of Remedial Action Implementation 31
2.14.4. Land Use Control Implementation Strategy 32
2.14.5. Summary of the Estimated Remedy Costs 34
2.14.6. Expected Outcomes of Selected Remedy 34
2.15. Statutory Determinations 35
2.16. Documentation of Significant Changes from Preferred Alternative of Proposed Plan 36

3. RESPONSIVENESS SUMMARY 37

3.1. Overview 37
3.2. Background on Community Involvement 37
3.3. Summary of Comments Received During the Public Comment Period and Department of the Army Responses 38

4. REFERENCES 44

TABLES

1 Summary of Remedial Alternatives Evaluation
2 Applicable or Relevant and Appropriate Requirements (ARARs)
3 Summary of Selected Remedy Cost

FIGURES

1 BLM Area B and MRS-16 Location Map
2 Fort Ord National Monument and Property Transfer Status
3 Munitions Responses Conducted to Date (East)
4 Munitions Responses Conducted to Date (North)
5 BLM Area B Sub-Areas and MRS-16
6 Selected Alternatives

APPENDIX

A Glossary of Military Munitions Response Program Terms

1. DECLARATION

1.1. Site Name and Location

The former Fort Ord is located in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Figure 1). The U.S. Environmental Protection Agency (EPA) identification number for Fort Ord is CA7210020676. This Record of Decision (ROD) addresses military munitions that may, upon being encountered and evaluated by qualified personnel, be determined to be Munitions and Explosives of Concern (MEC), specifically unexploded ordnance (UXO) and discarded military munitions (DMM), that potentially remain in an area called Bureau of Land Management (BLM) Area B, and Munitions Response Site 16 (MRS-16). These areas were evaluated as one of the Track 2 Munitions Response (MR) Remedial Investigation/Feasibility Study (RI/FS) sites at the former Fort Ord Army Base in Monterey County, California (Figure 1). Track 2 sites are areas at the former Fort Ord where MEC was determined to be present and a munitions response has been conducted.

Since 1917, military units (e.g., cavalry, field artillery, and infantry) used portions of the former Fort Ord for training (e.g., maneuvers, live-fire) and other purposes. Because the military conducted munitions-related activities (e.g., live-fire training) on the facility, MEC may be present on parts of the former Fort Ord. The types of munitions used at the former Fort Ord included: artillery and mortar projectiles, rockets, guided missiles, rifle and hand grenades, practice land mines, pyrotechnics, bombs, and demolition materials. For the purposes of the Fort Ord munitions responses being conducted under the Military Munitions Response Program (MMRP) and this ROD, MEC does not include small arms ammunition (.50 caliber and below). A Glossary of MMRP Terms is provided in Appendix A.

BLM Area B (Figure 2), which consists of approximately 1,597 acres, is located north and east of the Impact Area Munitions Response Area (MRA) and is comprised of several Munition Response Sites (MRSs) and lands in-between the MRSs. MRS-16, which consists of approximately 81 acres, is bounded by BLM Area B to the north and the Impact Area MRA to the south (Figure 2).

The United States Department of the Army (Army) transferred the majority of the property within BLM Area B to the United States Department of the Interior's BLM in 1996 for use as a habitat reserve. The Army plans to transfer the remainder of BLM Area B and MRS-16 to BLM. Established trails and roads in BLM Area B are currently accessible to the public for recreational use. The completion of munitions responses and the provision of explosives safety information and education have allowed recreational uses to be conducted safely.

In April 2012, the President of the United States designated the current and future BLM lands at the former Fort Ord as the Fort Ord National Monument (The White House, 2012). Based on the review of historical uses, BLM Area B and MRS-16 were identified as areas where historical training included munitions-related activities. The Army conducted *Final, Track 2 Munitions Response Remedial Investigation /Feasibility Study, BLM Area B and MRS-16, Former Fort Ord, California* (BLM Area B and MRS-16 RI/FS; Gilbane, 2014, 2015a, and 2015b) to evaluate remedial alternatives to address potential risk to future land users from MEC that may be present.

The Army completed an interim remedial action that included subsurface removal of munitions at MRS-16 in accordance with *Final Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A and Site OE-16, Former Fort Ord, California* (Interim Action ROD; Army, 2002). *Final MRS-16 Munitions and Explosives of Concern Remedial Action Report, Former Fort Ord, California* (Interim Action RA Report; Shaw, 2009) discusses the subsequent evaluation that identified the potential for residual risk from MEC that may be present. The Army evaluated remedial alternatives

to address the potential residual risks present in MRS-16 as part of the RI/FS and, with EPA, selected the final remedy outlined in this ROD.

BLM Area B and MRS-16 are entirely within the Natural Resource Management Area (NRMA) described in the *Installation-Wide Multispecies Habitat Management Plan (HMP) for Former Fort Ord, California* (HMP; USACE, 1997). This area is designated as a habitat reserve in the Fort Ord Reuse Authority (FORA) *Fort Ord Reuse Plan* (FORA, 1997). The dominant vegetation community is the Central Maritime Chaparral (CMC). This plant community is host to several State- and Federal-threatened or endangered species, and other rare species. The HMP, as modified or updated, describes special land-use controls and habitat monitoring requirements for target species within the habitat reserve and development areas that apply to both the Army's environmental cleanup actions and BLM's land management under future uses.

1.2. Basis and Purpose

This decision document presents the selected remedial action for MEC that may remain in BLM Area B and MRS-16.

The remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendment and Reauthorization Act (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information and reports contained in the Administrative Record for the former Fort Ord.

This decision is undertaken pursuant to the President's authority under CERCLA Section 104, as delegated to the Army in accordance with Executive Order 12580, and in compliance with the process set out in CERCLA Section 120. The selection of the remedy is authorized pursuant to CERCLA Section 104, and the selected remedy will be carried out in accordance with CERCLA Section 121.

The Army and the EPA have jointly selected the remedy. The California Environmental Protection Agency, as represented by the Department of Toxic Substances Control (Cal/EPA DTSC), has had an opportunity to review and comment on the ROD.

1.3. Site Assessment

This ROD addresses hazardous substances and pollutants or contaminants which may pose a threat to human health or the environment. Some MEC items found and detonated on the property in the past were a Resource Conservation and Recovery Act (RCRA) reactive waste and thus a CERCLA hazardous substance. Therefore, MEC items discovered on the property in the future will likewise be addressed as such pursuant to CERCLA unless the Army determines that an item is not a hazardous substance by making a waste specific determination based on testing or knowledge consistent with RCRA.

1.4. Description of the Selected Remedy

The selected remedy described in this ROD addresses explosive safety risks to human health and the environment from MEC that may be present at BLM Area B and MRS-16. Based on years of site experience, the potential presence of MEC in BLM Area B and MRS-16 does not appear to be a concern in terms of explosive safety risks to ecological receptors. Potential human health and ecological risks related to soil contamination from the use of small arms ammunition and former operational ranges on the property have been evaluated under the Basewide Range Assessment program that recommended "No Further Action." The selected remedy will address explosives safety risks posed to human health and welfare by munitions, which upon evaluation by technically-qualified personnel may be determined to be

MEC (i.e., UXO or DMM), that may remain present in portions of BLM Area B where a munitions response have not been conducted. Recovered munitions and munitions debris will be evaluated by technically-qualified personnel and, if determined to pose an explosive hazard (i.e., munitions determined to be MEC or munitions debris that is documented as an explosive hazard [MDEH]), will be treated as MEC.

The Army and EPA have selected the following remedy for the areas indicated below:

- Land Use Controls (LUCs) at MRS-16 and at BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6; and
- Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs to be implemented in BLM Area B sub-areas B-2A and B-3.

The Army and EPA selected these alternatives because they will achieve both risk reduction through surface removal, and subsurface removal in select areas, of MEC that may be present in sub-areas B-2A and B-3, and risk management through implementation of LUCs throughout. The selected alternatives best balance the risk reduction and associated environmental impacts in supporting the anticipated future use of the site as a habitat reserve and National Monument.

The selected remedies include the following components:

Alternative 2 – LUCs in MRS-16 and BLM Area B Sub-Areas B-1, B-2, B-3A, B-4, B-5, and B-6. The selected remedy includes:

- Public education. Such education will be based upon the Army's 3Rs (Recognize, Retreat, Report) Explosives Safety Education Program and include the provision of 3Rs educational materials in brochures and at kiosks, and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage or other engineering controls, where warranted;
- Munitions recognition and safety training for people who conduct ground-disturbing or intrusive activities;
- Provision of construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and
- The prohibition against uses of the property that are inconsistent with the HMP, including but not limited to residential, school, and commercial/industrial development.

Alternative 3 – Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs for BLM Area B Sub-Areas B-2A and B-3. The selected remedy includes:

- Vegetation clearance using prescribed burning, and/or manual and mechanical cutting, depending on vegetation type and removal requirement, to allow munitions response workers to conduct removal activities safely;
- Technology-aided surface removal of munitions and detonation (with engineering controls) of munitions determined to be MEC;
- Digital geophysical mapping (DGM) in surface removal areas to provide a record of remaining anomalies to assist BLM in planning future ground-disturbing or intrusive (subsurface) activities (areas inaccessible to DGM equipment will be documented);
- Subsurface removal in selected areas (estimated to be 10 percent of acreage) that were identified in coordination with BLM to address the risk associated with specific reuse;

- Implementation of LUCs (e.g., public education, munitions recognition and safety training, construction support, and prohibition against inconsistent uses, as described in Alternative 2); and
- Post-remediation habitat monitoring (HMP species and habitat data collection, management, evaluation, and reporting).

Where necessary, vegetation will be cleared using either prescribed burning, and/or manual and mechanical cutting methods, as appropriate for the specific area. The *Evaluation of Vegetation Clearance Methods Technical Memorandum, Ordnance and Explosives Remedial Investigation/ Feasibility Study, Former Fort Ord, California* (Vegetation Clearance Technical Memorandum; Harding ESE, 2002) evaluated several vegetation clearance methods that may be applicable in CMC and Coastal Scrub communities. It also identified prescribed burning as the method readily available for use in these communities. Other vegetation clearance methods were evaluated. However, their use is only allowable on a limited basis, or require further study. Cutting of CMC has not been proven to support successful recovery of this rare habitat. The Army has used manual and mechanical cutting for the following reasons:

- To create primary, secondary, and tertiary containment lines in preparation for prescribed burns;
- When burning could not be conducted safely; the area lacks existing fuel breaks and access roads; or when areas require further evaluation due to extreme terrain; and
- When areas have high vegetation moisture content or did not burn or burned incompletely during a prescribed burn.

The Army will generally limit manual and mechanical vegetation cutting to 50 acres or less of CMC within each MEC removal site in areas designated in the HMP as habitat reserve; development with reserve areas or development with restrictions; habitat corridor; or habitat corridor with development allowances (United States Fish and Wildlife Service [USFWS], 2015). Manual and mechanical cutting are allowed for vegetation other than CMC and Coastal Scrub. The required mastication in CMC within BLM Area B has been coordinated with USFWS (USFWS, 2015).

The major elements of prescribed burning include:

- Coordination with the local air district;
- Preparation of a burn plan that outlines the objectives of the burn, the burn area, and the range of environmental conditions under which the burn will be conducted; the workforce and equipment resources required to ignite, manage, and contain the fire; and communication procedures;
- Site preparation, including establishment and maintenance of containment lines;
- Conducting the burn within the range of environmental conditions established in the burn prescription; and
- Follow-up operations to ensure that the fire is fully contained within the containment lines.

1.5. Statutory Determination

The selected remedies to address explosives safety risks posed by MEC potentially present at BLM Area B and MRS-16 are protective of human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and are cost effective. The principal threat in BLM Area B and MRS-16 has been and will be addressed using permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable, satisfying the statutory preference for treatment as a principal element (i.e., reducing the

toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).

Removal and remedial actions have been conducted in portions of BLM Area B and MRS-16, and additional munitions responses will be implemented in accordance with this ROD. These response actions have and will result in reduction of MEC. However, uncertainty remains regarding the potential presence of MEC and associated encounters with MEC during reuse. Therefore, LUCs are included in the selected remedy to allow for the management of the habitat reserve as described in the HMP and additional requirements, and to support safe reuse activities as part of the Fort Ord National Monument managed by BLM (e.g., habitat monitoring, invasive species control, prescribed burning, associated fire management activities, and public access).

Because MEC may remain at the site under the selected remedy, a statutory review will be conducted within five years after initiation of the remedial action to ensure the remedy is or will be protective of human health and the environment regarding explosives safety risks posed by MEC that may be present. The next five-year review will occur in 2017.

1.6. ROD Data Certification Checklist

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

- Types of MEC identified during previous munitions responses at BLM Area B and MRS-16 (Section 2.8).
- Current and reasonably anticipated future land use assumptions used in the risk assessment and ROD (Section 2.9).
- The current "Overall MEC Risk Scores" estimated in the Risk Assessment (Section 2.10).
- The remedial action objectives for addressing the current site risks estimated in the Risk Assessment (Section 2.11).
- How source materials constituting principal threats are addressed (Section 2.13).
- Potential land use that will be available at the site as a result of the selected remedy (Section 2.14).
- Estimated capital, annual operations and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected (Section 2.14.5).
- Key factor(s) that led to selection of the remedy (Sections 2.14.1 and 2.15).

1.7. Authorizing Signatures and Support Agency Acceptance of the Selected Remedy

Record of Decision
Track 2 BLM Area B and MRS-16
Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Track 2 BLM Area B and MRS-16, former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

GWEN BINGHAM
Lieutenant General, GS
Assistant Chief of Staff
for Installation Management
Headquarters, Department of the Army

3 May 17
Date

Record of Decision
Track 2 BLM Area B and MRS-16
Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Track 2 BLM Area B and MRS-16, former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

EUGENE COLLINS, SES
Deputy Assistant Secretary of the Army
for Environment, Safety and Occupational Health
Headquarters, Department of the Army

20170503
Date

Record of Decision
Track 2 BLM Area B and MRS-16
Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Track 2 BLM Area B and MRS-16, former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

William K. Collins

William K. Collins
BRAC Environmental Coordinator
Fort Ord BRAC Office
U.S. Department of the Army

3-10-2017

Date

Record of Decision
Track 2 BLM Area B and MRS-16
Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Track 2 BLM Area B and MRS-16, former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

Angeles Herrera
Assistant Director
Federal Facilities and Site Cleanup Branch
U.S. Environmental Protection Agency
Region IX

29 March, 2017
Date

Record of Decision
Track 2 BLM Area B and MRS-16
Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Track 2 BLM Area B and MRS-16, former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

The State of California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on the Record of Decision (ROD) and our concerns were addressed.

Charlie Ridenour
Branch Chief
Cleanup Program - Sacramento Office
Department of Toxic Substances Control
California Environmental Protection Agency

4/5/17
Date

2. DECISION SUMMARY

2.1. Site Description

The former Fort Ord is located near Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Figure 1). The former Army base consists of approximately 28,000 acres of land next to Monterey Bay and the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. State Route 1 passes through the western portion of former Fort Ord, separating the beachfront from the rest of the base. Laguna Seca Recreation Area, Toro Park, and Highway 68 border former Fort Ord to the south and southeast, respectively, as well as several small communities such as Toro Park Estates and San Benancio. Additional information about the site is provided below:

- EPA Identification Number: CA7210020676;
- Lead Agency: Army;
- Lead Oversight Agency: EPA;
- Support Agency: DTSC;
- Source of Cleanup Monies: Army;
- Site Type: Former Military Installation.

2.2. Site History

Since 1917, portions of the former Fort Ord were used by Army cavalry, field artillery, and infantry units for maneuvers, target ranges, and other purposes. Fort Ord served primarily as a training and staging facility for infantry and cavalry troops. From 1947 to 1974, Fort Ord was a basic training center. The 7th Infantry Division was activated at Fort Ord in October 1974, and occupied Fort Ord until base closure in 1994. Fort Ord was selected in 1991 for decommissioning, but troop reallocation was not completed until 1993, and Fort Ord was officially closed in September 1994. Site visits, historical and archival investigations, investigations for military munitions, and removal and remedial actions, have been performed and documented in preparation for transfer and reuse of the former Fort Ord property. The Army will continue to retain a portion of former Fort Ord property as the Ord Military Community and U.S. Army Reserve Center, and Army personnel continues to operate portions of the former Fort Ord. The Army has identified the remainder of Fort Ord for transfer to federal, state, and local government agencies and other organizations for reuse. Since closure in September 1994, Fort Ord has been subjected to the reuse process, with portions of the installation transferred for reuse. A large portion of the Inland Training Ranges was assigned to the BLM. Other areas on the installation have been or will be transferred by economic development conveyance, public benefit conveyance, negotiated sale or other means.

The Army conducted munitions-related activities (e.g., live-fire training, demilitarization) involving different types of conventional military munitions (e.g., artillery and mortar projectiles, rockets and guided missiles, rifle and hand grenades, practice land mines, pyrotechnics, bombs, demolition materials) at Fort Ord. Because of these activities, MEC, specifically UXO and DMM, have been encountered and are known or suspected to remain present at sites throughout the former Fort Ord. Appendix A provides a glossary of MMRP-related terms.

2.3. Enforcement and Regulatory History

The Army is the responsible party and lead agency for investigating, reporting, making cleanup decisions, and implementing cleanup actions at the former Fort Ord under CERCLA. The reuse of the former Fort Ord following base closure increases the possibility of the public encountering military munitions. Munitions responses (e.g., investigation, removal) began after the Base Realignment and Closure (BRAC) decision to close Fort Ord.

Fort Ord was listed on the National Priority List of Superfund sites in February 1990 due to evidence of contaminated soil and groundwater. The Army, EPA, DTSC (formerly the Department of Health Services or DHS), and the Regional Water Quality Control Board (RWQCB) signed the Fort Ord Federal Facility Agreement (FFA) in July 1990. The FFA established schedules for performing remedial investigations and feasibility studies and requires that remedial actions be completed as expeditiously as possible. In November 1998, the Army agreed to evaluate military munitions at former Fort Ord in an Ordnance and Explosives RI/FS (basewide OE RI/FS)—now termed the basewide MR RI/FS—consistent with CERCLA. In April 2000, the Army, EPA, and DTSC signed an agreement to perform required munitions responses at the former Fort Ord subject to the provisions of the Fort Ord FFA.

The basewide MR RI/FS program reviews and evaluates past munitions responses and recommends future response actions necessary to protect human health and the environment from the potential explosives safety risks posed by MEC that may be present based on the property's proposed reuses. The *Fort Ord Reuse Plan* (FORA, 1997) and its updates identify the proposed reuses. Potential human health and ecological risks related to soil contamination that may exist from the use of operational live-fire ranges have been evaluated under the Basewide Range Assessment program. This evaluation recommended "No Further Action." No further soil investigation is required for MRS-16 under the *Final Record of Decision Amendment, Site 39 Inland Ranges, Former Fort Ord, California* (Site 39 ROD Amendment; Army, 2009).

The Army has prepared or will prepare basewide MR RI/FS documents in cooperation with the EPA and DTSC in accordance with the FFA. These documents are made available for public review and comment, and placed in the Administrative Record.

The Army has conducted munitions responses (e.g., investigation, removal) at identified MRSs. Data about the type of military munitions used and relative risk at each MRS has been used to support the basewide MR RI/FS program. The Army is performing its activities pursuant to the President's authority under CERCLA Section 104, as delegated to the Army in accordance with Executive Order 12580 and in compliance with the process set out in CERCLA Section 120.

The munitions responses the Army conducts at the former Fort Ord are components of the Army's basewide efforts to promote explosives safety based on Fort Ord's history as a military base. These efforts include: (a) five-year reviews and reporting; (b) deed or property transfer documentation or letter of transfer notices; (c) MEC incident reporting (reports of munitions encounters); (d) munitions recognition and safety training (consistent with the Army's 3Rs Explosives Safety Education Program); (e) school education; and (f) community involvement.

The basewide MR RI/FS program is organized as a "tracking" process whereby sites with similar characteristics are grouped to expedite cleanup, reuse, and/or transfer, based on current knowledge. A site or area is assigned to a specific "track" (i.e., Track 0, 1, 2, or 3) according to the level of military munitions usage, munitions responses (e.g., investigation, removal) conducted to date, as described in the *Draft Final Ordnance and Explosives Remedial Investigation/Feasibility Study Work Plan, Former Fort Ord, California* (OE RI/FS Work Plan; USACE, 2000).

- Track 0 areas at the former Fort Ord are not suspected of having been used for military munitions-related activities and there is no evidence to indicate the presence of MEC.
- Track 1 sites were suspected to have been used for military munitions-related activities (i.e., training), but based on the results of a remedial investigation, no further action is required.
- Track 2 sites are areas where MEC have been encountered and a removal has been conducted.
- Track 3 sites are areas: (a) where MEC is known or suspected to exist, but investigations are either not yet completed or need to be initiated; or (b) that may be identified in the future as a Track 3 site.

BLM Area B and MRS-16 were evaluated as Track 2 sites because munitions responses have been performed.

An interim remedial action was previously completed at MRS-16 in accordance with the Interim Action ROD (Army, 2002). This ROD selects the final remedy BLM Area B as well as for MRS-16.

2.4. Community Participation

The *Final, Track 2 Munitions Response RI/FS, BLM Area B and MRS-16, Former Fort Ord, California* (BLM Area B and MRS-16 RI/FS; Gilbane, 2014) was published on August 25, 2014. The report was subsequently updated on March 23, 2015 (Gilbane, 2015a) and on May 6, 2015 (Gilbane, 2015b). The Proposed Plan for BLM Area B and MRS-16 was made available for a 30-day public comment period from April 8, 2015 to May 8, 2015. The Proposed Plan presented the preferred alternatives of Alternative 2 (LUCs) and Alternative 3 (Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs) for portions of these areas.

The preferred alternatives are being selected as the final remedies in this ROD. The Proposed Plan also summarized information in the BLM Area B and MRS-16 RI/FS and other supporting documents in the Administrative Record. These documents were made available to the public at the Administrative Record and www.fortordcleanup.com. The Administrative Record and Information Repositories are located at:

- Fort Ord Administrative Record, Building 4463, Gigling Road, Room 101, Ord Military Community, California. (www.fortordcleanup.com)
- California State University Monterey Bay (CSUMB) Tanimura and Antle Family Memorial Library, 100 Campus Center, Seaside, California
- Seaside Branch Library, 550 Harcourt Avenue, Seaside, California

The notice of the availability of the Proposed Plan was published in the Monterey County Herald and the Salinas Californian on April 7, 2015. The public comment period was held from April 8, 2015 to May 8, 2015. In addition, a public meeting was held on April 15, 2015 to present the Proposed Plan to a broader community audience. At this meeting, representatives from the Army, EPA, and DTSC were present, and the public had the opportunity to submit written and oral comments about the Proposed Plan. The Army's response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD.

2.5. Scope and Role of Response Action

This ROD addresses the planned munitions responses for managing the potential risk to future land users from MEC that may be present at BLM Area B and MRS-16, as described in the BLM Area B and MRS-16 RI/FS (Gilbane, 2015b). The planned munitions responses for BLM Area B and MRS-16 will

be the final remedy for protection of human health and the environment from the explosives safety risks posed by MEC that may be present. The goal is to support the designated use of the property as a habitat reserve with public access as part of the Fort Ord National Monument.

MRS-16 was previously evaluated in the Interim Action ROD (Army, 2002). The Interim Action ROD selected interim remedial actions for three areas including MRS-16, consisting of vegetation clearance by prescribed burning, surface and subsurface removal, and detonation of MEC[1] using engineering controls. An interim remedial action, which was performed at MRS-16 following a prescribed burn in October 2006, was completed in June 2008. The Army conducted a subsurface removal to the depth of detection (detected anomalies were intrusively investigated or resolved) per the original work plan, with the exception of an approximately 5-acre area in the western portion of MRS-16 (referred to as the "saturated area").

The interim remedial action for MRS-16 and the post-remediation risk assessment are described in the Interim Action RA Report (Shaw, 2009). The "saturated area" is considered safe for its intended reuse because a surface removal has been conducted. However, because MEC may remain present in the subsurface, the Interim Action RA Report recommended institutional controls to be implemented for MRS-16, including construction support for intrusive activities. The Track 2 RI/FS for BLM Area B and MRS-16 included an evaluation of remedial alternatives for MRS-16. The remedy selected in this ROD is consistent with objectives of the interim action taken at MRS-16, and serves as the final remedy for MRS-16.

The Basewide Range Assessment and the Site 39 program evaluated the potential for soil contamination at the former Fort Ord. As described in *Final Comprehensive Basewide Range Assessment Report, Former Fort Ord, California, Revision 2* (MACTEC/Shaw, 2012), BLM Area B and MRS-16 were found to require no further action for potential chemicals of concern (COCs) to include munitions constituents (MC) (metals and explosive compounds) in soil associated with the former operational range uses.

Two separate remedial alternatives will be implemented within BLM Area B and MRS-16 to address the potential explosives safety risks posed by MEC that may be present (Figure 6).

- Remedial Alternative 2 – LUCs is the selected remedy for MRS-16 and for BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6.
- Remedial Alternative 3 – Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs, will be implemented in BLM Area B sub-areas B-2A and B-3.

The LUC implementation plan will describe in detail the LUCs selected as part of the remedy. The LUC implementation plan will be a component of the Remedial Design/Remedial Action Work Plan (RD/RA WP). Remedial actions include technology-aided surface removal, and subsurface removals in

[1] During the interim remedial action at MRS-16, recovered munitions items were evaluated; material documented as safe (MDAS) was inspected and certified as free of explosive hazard prior to disposal or recycling as munitions debris (MD). Material documented as an explosive hazard (MDEH), including MEC, was subjected to detonation.

certain portions (e.g., proposed roads, fuel breaks, trails, and habitat restoration sites) to reduce the potential risk from MEC that may be present to allow for their proposed reuse needs.

From an explosives safety perspective, the implementation of the selected remedy will allow for BLM Area B's and MRS-16's safe reuse and management for their intended purposes (i.e., as a habitat reserve and part of the Fort Ord National Monument). In addition, the selected remedy will allow the general goal of the HMP to promote preservation, enhancement, and restoration of habitat and populations of HMP species to be met in a manner that supports the *Fort Ord Reuse Plan* (FORA, 1997).

2.6. Site Characteristics

BLM Area B, which consists of approximately 1,597 acres, is located north and east of the Impact Area MRA (Figure 2). BLM Area B is comprised of several MRSs and lands in-between the MRSs. MRS-16, which consists of approximately 81 acres, is bounded by BLM Area B to the north and the Impact Area MRA to the south (Figure 2).

BLM Area B and MRS-16 are primarily undeveloped land in the inland portions of the former Fort Ord. These areas will be left in their natural state, with the exception of some existing support facilities (e.g., access roads, observation towers, targets, trenches, bunkers, fighting positions, bivouac areas) that were associated with training that occurred while Fort Ord was an active installation. Developed areas near BLM Area B and MRS-16 include the BLM Headquarters (renamed "Work Center" in 2016).

The topography of BLM Area B and MRS-16 consists of low rolling hills dominated by CMC. The vegetation also includes oak woodland, grassland, and wetland areas. These areas support a diverse biological community that includes floral and faunal species considered rare, threatened, endangered, or of special concern or status. The floral and faunal species of concern are subject to various levels of protection under federal, state, and local laws and regulations.

Munitions responses performed to date at BLM Area B and MRS-16 (Figures 3 and 4) have indicated historical use for various close combat and weapons use training purposes, including use of machine guns, mortars, grenades, and shoulder-launched projectiles.

2.7. BLM Area B and MRS-16 RI/FS Background

The BLM Area B and MRS-16 were evaluated for the potential presence of MEC. This section provides background information on BLM Area B and MRS-16. Numerous munitions responses were conducted in BLM Area B and MRS-16 prior to the development of the RI/FS, with the focus on addressing explosives safety. Section 2.8 presents a summary of the munitions responses and the site evaluations for the sub-areas presented in the BLM Area B and MRS-16 RI/FS (Gilbane, 2015b).

Scope of Previous Munitions Responses

The Army identified several MRSs during the archive search process and subsequently investigated each MRS. Depending on the types of military training that occurred and munitions-related activities that occurred, field investigations included visual site walks, sampling or transect investigations. The Army used hand-held magnetometers or digital geophysical instruments during these investigations. The munitions responses conducted within BLM Area B and MRS-16 (Figures 3 and 4) focused on explosives safety. The Army implemented quality control (QC) and quality assurance (QA) procedures during munitions responses.

Portions of BLM Area B were investigated over the course of several munitions responses. Sampling activities and site walks were conducted throughout the MRSs in BLM Area B. Surface removal of

munitions was conducted within the eastern portion of BLM Area B in a majority of MRS-12, MRS-21, and MRS-14D (and portions of MRS-14B and 14E) and within MRS-10A in the northern portion of BLM Area B. Subsurface removal to a depth of four feet was conducted in MRS-14D, portions of MRS-21, and on roads in MRS-10A. Subsurface removal to a depth of three feet was conducted along a trail that connects MRS-10A and MRS-19. Subsurface removal to a depth of one foot was conducted in the northern and southeastern portions of MRS-10A and in MRS-12, and on a trail in MRS-21. All recovered MEC was destroyed during these investigations.

Interim remedial action was conducted at MRS-16 in 2006-2008 as part of the remedial action specified in the Interim Action ROD (Army, 2002). The interim remedial action included vegetation clearance by prescribed burning, surface and subsurface removal, and detonation of MEC using engineering controls. Results of the remedial action, including post-remediation risk assessment, are described in the Interim Action RA Report (Shaw, 2009).

Site Evaluations

Available data (e.g., archival investigation and removal data) for BLM Area B was reviewed and evaluated during the RI (Gilbane, 2015b). Munitions responses performed to date have identified historical use of BLM Area B and MRS-16 for various live-fire close combat and weapons training purposes.

Where munitions responses were performed, detected anomalies within the established removal depths were investigated or resolved. Recovered munitions and munitions debris were evaluated and munitions determined to be MEC and munitions debris determined to be MDEH were destroyed on site by detonation. QC and QA procedures were implemented. Review of the available literature, site walks, and sampling results indicate that it is possible for munitions that may, upon evaluation, be determined to be MEC, to remain present on the surface or in the subsurface within the vegetated portions of BLM Area B where munitions responses have not been conducted. Roads and trails have been subjected to munitions responses, including surface removal. Public access is authorized only on designated roads and trails. Based on the current understanding of the site, it is not likely that people who use the designated roads and trails (that are authorized for public use) will encounter a MEC.

Review of the site investigation data resulted in the determination that the data are usable for conducting a Risk Assessment and FS.

2.8. BLM Area B and MRS-16 Remedial Investigation Summary

To evaluate the potential presence of MEC, BLM Area B was subdivided into eight sub-areas (Figure 5) based on historic training uses and the quality, types, and depths to which previous munitions responses were conducted in each area.

Sub-area B-1, which is approximately 110 acres in the northwestern portion of BLM Area B, includes the northern portion of MRS-56. Live-fire training in the MRS-56 portion may have included the use of machine guns, rifle grenades, smoke grenades, and shoulder-launched projectiles. Sub-area B-1 has been traversed by visual and technology-aided site walk investigations and transects using digital geophysical instruments. These site walks, while extensive, were largely limited to existing trails. Intrusive investigation of anomalies based on transect data was conducted, and munitions debris (MD) items were found. Of the munitions-related items previously recovered and evaluated in sub-area B-1, only one (a ground illumination signal) was determined to be MEC.

Sub-area B-2, which is approximately 143 acres, includes the southern portion of MRS-10B. Training activities in sub-area B-2 included bivouac and maneuver training. Interview results provided in

the Archives Search Report (ASR) indicated that firing points for shoulder launched projectiles and rifle grenades may have been located in sub-area B-2; however, there was no physical evidence that this training occurred in sub-area B-2. After prescribed burn, SiteStats/GridStats sampling (an investigation of anomalies) was conducted within sub-area B-2. During this investigation, two munitions that were evaluated and determined to be MEC (one grenade fuze and one pyrotechnic) were encountered and removed. MEC was not encountered during site walks conducted within sub-area B-2. However, in 2000, the BLM encountered a grenade fuze that was evaluated and determined to be MEC (UXO). The three MEC items found in sub-area B-2 were determined to be pyrotechnic or practice items. This is consistent with the use of this area for bivouac and maneuver training. In 2011 and 2012, BLM conducted habitat restoration in 12 acres with no incidental munitions reported.

Sub-area B-2A, which is approximately 74 acres, includes MRS-19, MRS-48, and a portion of MRS-10B. Hand grenade training was reported to have taken place in MRS-19. Hand grenade and rifle grenade training occurred in MRS-48. During sampling (investigation of anomalies in selected grids) conducted in MRS-19 and SiteStats/GridStats sampling (investigation of anomalies) in MRS-48, several munitions were encountered and evaluated. Of these, ten were determined to be MEC. (Four of the MEC were noted as Insufficient Data [ISD][2] items.) In addition, two of the munitions encountered in the southern portion of sub-area B-2A (within MRS-10B) were determined to be MEC (one of which was ISD.) The MEC items recovered from sub-area B-2A consisted mostly of hand grenades (fragmentation), rifle grenades (smoke), and illumination-related items. Additionally, MD from 4.2-inch white phosphorous mortars was encountered in MRS-48.

Sub-area B-3, which is approximately 718 acres, includes MRS-09, MRSs-27G and 27H, MRS-53BLM, MRS-41, MRS-54, the southern portion of MRS-56, and the northern portion of MRS-58. Sampling (investigation of anomalies in selected grids) was conducted in MRS-09 and MRS-53BLM. MEC removed from adjacent areas west (in the Parker Flats MRA), east (in MRS-10A), and northeast (in the Future East Garrison MRA) of sub-area B-3 indicate a potential presence of MEC in sub-area B-3; however, the potential density is unknown because of limited data. Visual and technology-aided site walks were conducted along trails, existing roads, and paths. Investigations in sub-area B-3 resulted in recovery of munitions that were encountered, evaluated and determined to be MEC: two items (60mm high explosive [HE] mortar and 81mm practice mortar) during sampling at MRS-09; a 37mm projectile during sampling in MRS-53BLM; and a 2.36-inch rocket (high explosive anti-tank [HEAT], M6) during the site assessment. Investigation activities conducted in sub-area B-3 were limited because of lack of historical evidence of training activities in the sub-area. Additionally, dense vegetation limited site walks to accessible areas. Thus, they do not represent statistically-based transects or grid layouts, and the items found during these investigations may not represent the density of MEC potentially present.

Sub-area B-3A, which is approximately 62 acres, consists of the southern portion of MRS-58. Interviews conducted during preparation of the ASR indicated this area may have been used as a target area for live-fire for shoulder-launched projectiles and rifle grenades, but munitions of that type were not encountered. This sub-area was traversed by visual and technology-aided site walk investigations. MEC was not encountered within sub-area B-3A.

[2] Based on the review of the database, if sufficient data is unavailable to definitively confirm an item as explosive (MEC) or inert (MD), it is categorized as ISD. ISD items are conservatively evaluated as MEC in the RI/FS.

Sub-area B-4, which is approximately 345 acres, consists of MRS-10A and the northern portion of MRS-10B where a removal action was conducted. A 1945 training map identifies MRS-10A to be within "Combat Range 2." The majority of sub-area B-4 is within the Known Distance Range that has been described as having an "advancement line" associated with the firing of mortars along with the advancement of troops. A surface removal was conducted in the southern portion of MRS-10A. A subsurface removal to one foot depth was conducted in the northern portions of MRS-10A and MRS-10B, and the southeastern portion of MRS-10A. More than 400 munitions were recovered that were determined to be MEC. Most of these items were 60mm (practice, illumination, and HE), 81mm (practice and HE), and 3-inch Stokes (practice) mortar projectiles.

Sub-area B-5, which is approximately 43 acres, consists of MRS-12 and MRS-21. According to interviews conducted during the ASR, MRS-12 was "used as a firing point and target area for mortar projectiles, rifle grenades, and shoulder-launched projectiles." In addition to sampling, a surface removal and a subsurface removal to a depth of one foot were conducted in MRS-12. MRS-21 was identified in the ASR as potentially being a "dumping ground" for munitions. A subsurface removal to a depth of four feet was conducted over the western portion of MRS-21. A surface removal up to the edge of Mudhen Lake at its lowest level, and a subsurface removal to one-foot depth along trails over the eastern portion of MRS-21, were conducted. During these response actions 66 munitions that were determined to be MEC were encountered and removed from MRS-21. Within MRS-21, multiple munitions such as flares and fuzes were found at single locations on the surface. At MRS-12, 27 munitions that were encountered, evaluated and determined to be MEC were removed. These munitions included smoke hand grenades, a white phosphorus rifle grenade, and flares and illumination munitions.

Sub-area B-6, which is approximately 100 acres, consists of MRS-14D. Live-fire training with 14.5mm and 22mm subcaliber munitions was conducted at this MRS. Munitions responses included sampling (investigation of anomalies in selected grids), a surface removal, and a subsurface removal to a depth of four feet. The removal action included expansion grids to the south and east into MRSs-14B and 14E. These expansion grids are included in sub-area B-6. Approximately 24,000 munitions, the bulk of which were 14.5mm and 22mm subcaliber items, were recovered, evaluated and determined to be MEC. An additional 20,000 items that were removed are considered ISD.

MRS-16 is located south of and contiguous with BLM Area B. The site was initially identified as a World War II era rocket range and a "bazooka practice" area. Practice and HEAT rockets and rifle grenades were used in the 1940s and possibly 1950s. The site was later used for a portion of time as an anti-armor training area. An interim remedial action was conducted at MRS-16 between December 2006 and June 2008 based on an Interim Action ROD (Army, 2002). A subsurface removal to the depth of instrument detection was completed as planned, with the exception of an approximately 5-acre area in the western portion of MRS-16 referred to as the "saturated area." A subsurface removal using analog detection technology was conducted on a portion of this area, and several trenches were excavated to further investigate the area. Based on the findings of the interim remedial action in the "saturated area," subsurface MEC could remain present. At the completion of the interim action, LUCs were recommended for the "saturated area."

2.9. Current and Potential Future Land and Resource Uses

The *Fort Ord Reuse Plan* (FORA, 1997) identified land use categories for the former Fort Ord. The categories included development of public, commercial, and residential areas and open space, recreation, and habitat management. Designated development and habitat reserve areas are also identified in the HMP (USACE, 1997). The *Assessment, East Garrison and Parker Flats Land Use Modifications* (Zander, 2002) and the Revised Attachment A – HMP map (April, 2005) present the revised boundaries of the habitat reserve areas. The HMP, as modified or updated, describes special land-use controls and

habitat monitoring requirements for target species within the habitat reserve and development areas that apply to Army's environmental cleanup actions and land management under future uses. Post-disposal (after the Army transfers the property) management guidelines are outlined in the HMP for the NRMA, which includes BLM Area B and MRS-16. The management guidelines include habitat restoration, enhancement and monitoring, access control, prescribed burning, and an allowance for development-oriented use in as much as two percent of the area. In addition, BLM has identified recreational access (non-motorized) on established routes to be an important component of the current and future uses of BLM-managed public lands at the former Fort Ord.

In 2012, current and future BLM lands at the former Fort Ord, including BLM Area B and MRS-16, were designated as the Fort Ord National Monument (Figure 2). Presidential Proclamation 8803 states, "The protection of the Fort Ord area will maintain its historical and cultural significance, attract tourists and recreationalists from near and far, and enhance its unique natural resources, for the enjoyment of all Americans." In addition, the proclamation safeguards the use of the Fort Ord National Monument by stating that "All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, leasing, or other disposition under the public lands laws, including withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing other than by exchange that furthers the protective purposes of the monument" (The White House, 2012).

The majority of the property within BLM Area B was transferred to BLM in 1996 as a habitat reserve (Figure 2) as described in a Memorandum of Understanding (Army, 1995) and a Letter of Transfer from the Army to the Department of the Interior (Army, 1996). Established trails and roads in BLM Area B are currently accessible to the public for recreational use. These uses have been supported safely with past and current measures, including munitions responses and public explosives safety information and education. The Army and BLM have and will continue to coordinate actions to promote the 3Rs explosives safety (e.g., use of signage, notices, reports of munitions encounters, and munitions recognition and safety training) on an ongoing basis. Reporting of suspected munitions items discovered on federal property is implemented according to the procedure described in Section 4.3.2 of the *Munitions Response Site Security Program* (Army, 2016).

2.10. Summary of Site Risks

Based on the current understanding of the site, it is not likely that people who use the designated roads and trails (that are authorized for public use) will encounter MEC. The potential presence of MEC in the vegetated areas and associated risks is the focus of the risk assessment for BLM Area B. The BLM Area B Risk Assessment (Section 4.0, Gilbane, 2015b) utilized the *Fort Ord Ordnance and Explosives Risk Assessment Protocol* (Malcolm Pirnie, 2002), which was developed to estimate the risk to future land users from MEC. This Protocol states explosive safety risk in terms of "Overall MEC Risk Scores." Overall MEC Risk Scores were estimated for each of the BLM sub-areas, except those for which insufficient applicable data existed (sub-areas B-1, B-3 and B-3A).

The Risk Assessment results are based on three key factors (MEC Hazard Type, Accessibility, and Exposure) that were assigned reuse-specific values and weighed in importance. These factors were used to develop an Overall MEC Risk Score for each potential receptor as follows:

Overall MEC Risk Score	A	B	C	D	E
	Lowest	Low	Medium	High	Highest

Overall MEC Risk Scores were developed based on the anticipated site uses and activities that could create potential MEC exposure. In general, undeveloped areas within BLM Area B and MRS-16 will be maintained in their natural state and types of activities that will be conducted include:

- Route, road, and trail management and maintenance;
- Habitat enhancement (including prescribed burns, control of noxious weeds, and restoration);
- Fuel break construction and management;
- Use of administrative areas;
- Habitat monitoring and educational programs;
- Species-specific monitoring; and
- Recreational access on established routes.

The types of activities listed above include both "surface receptors" (e.g., recreational users, firefighters performing prescribed burns, and workers conducting habitat monitoring or invasive weed control); and "subsurface receptors" performing intrusive work (e.g., habitat restoration, trail maintenance, and construction). The risk assessment identified an Overall MEC Risk Score of "D" to "E" for surface receptors and a score of "E" for subsurface receptors in sub-areas for which there was sufficient data to complete the evaluation.

The response actions selected in this ROD are necessary to protect the public health or welfare from the potential presence of MEC. The potential presence of MEC in BLM Area B and MRS-16 does not appear to be a concern in terms of explosive safety risks to ecological receptors.

2.11. Remedial Action Objectives

The primary remedial action objective (RAO) for BLM Area B and MRS-16 is to support the designated use of the property as a habitat reserve as described in the HMP with public access as part of the Fort Ord National Monument. The ROD does not address risks to plants and animals from explosive hazards.

Based on this RAO, the Army intends to (a) treat the principal threats (i.e., conduct remedial actions to address the potential presence of MEC) and (b) incorporate institutional controls (herein referred to as LUCs) as part of the remedy to manage risks from MEC that may remain present.

2.12. Description of Alternatives

Remedial alternatives for BLM Area B and MRS-16 were evaluated in the BLM Area B and MRS-16 FS (Gilbane, 2015b). The four remedial alternatives developed to address the risk from MEC for future land users identified in the BLM Area B and MRS-16 Risk Assessment (Gilbane, 2015b) at BLM Area B and MRS-16 are:

- Alternative 1: No Further Action
- Alternative 2: LUCs
- Alternative 3: Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs
- Alternative 4: Subsurface Removal.

Long-Term Management Measures that will be implemented as part of the LUC implementation for BLM Area B and MRS-16 include a land transfer document that outlines land use restrictions, and a requirement for both annual monitoring and five-year review reporting. The costs associated with

implementing these measures for the entire BLM Area B and MRS-16 over a period of 30 years are approximately $410,000.

Components of the remedial alternatives are summarized in Section 2.12.1. The remedial alternatives are described in further detail in Section 2.12.2, and a comparison of the remedial alternatives based on EPA's evaluation criteria (EPA, 1989) is summarized in Section 2.12.3.

2.12.1. Description of Remedial Alternative Components

Both MEC removal and LUCs were considered in developing the remedial alternatives. The primary components of the remedial alternatives are described below.

MEC Removal. MEC Removal includes the following components:

- Vegetation Clearance involves preparing the site by clearing vegetation to provide visibility of the ground surface for munitions response workers to conduct removal activities safely.
- Remedial Action involves using the best available and most appropriate detection and removal technologies and procedures to detect and investigate selected anomalies, and remove surface or subsurface munitions items, to remove MEC. Digital geophysical mapping (DGM) may be conducted in surface removal areas. Recovered munitions and munitions debris will be evaluated by technically-qualified personnel and if determined by evaluation to be MEC or MDEH will be subjected to detonation. Post-remediation habitat monitoring would be required.

Vegetation Clearance

Because BLM Area B and MRS-16 are densely vegetated, vegetation clearance to provide visibility of munitions potentially on the surface is required for the safety of munitions response workers.

The Vegetation Clearance Technical Memorandum (Harding ESE, 2002) evaluated several vegetation clearance methods that may be applicable in CMC and Coastal Scrub communities. Based on this evaluation, prescribed burning was identified as the most suitable method that was readily available for use in these communities. Cutting of CMC has not been proven to support successful recovery of this rare habitat. However, the use of other vegetation clearance methods may be allowable on a limited basis after further study.

The Army has used manual and mechanical cutting to create primary, secondary, and tertiary containment lines in preparation for prescribed burns, and when prescribed burns cannot be safely conducted. Manual and mechanical cutting may be used when the size of the area is too small or lacks existing fuel breaks and access roads; when areas have high vegetation moisture content or did not burn or burned incompletely during a prescribed burn; or when areas require further evaluation due to extreme terrain. The Army generally limits manual and mechanical vegetation cutting to 50 acres or less of CMC within each removal site in areas designated in the HMP as habitat reserve; development with reserve areas or development with restrictions; habitat corridor; or habitat corridor with development allowances (USFWS, 2015). Manual and mechanical cutting are allowed for vegetation other than CMC and Coastal Scrub. The required mastication in CMC within BLM Area B has been coordinated with USFWS (USFWS, 2015).

<u>Manual and Mechanical Cutting</u>

Manual methods consist of clearing vegetation using hand tools and chain saws. Mechanical methods use larger equipment, such as a brush hog or tractor accessorized zerriest (TAZ). In most cases, standing vegetation is cut at the base or pruned sufficiently to allow for access and improved visibility under the

canopies of trees and shrubs prior to the conduct of munitions responses. Grasses, small shrubs, and non-woody materials are typically cut off at the base. Larger shrubs are typically pruned, with the main stems cut to a height that allows crews to access the area safely to conduct the required munitions responses. Trees are normally left in place with lower branches less than four inches in diameter removed to support the conduct of operations. Cut material, which is typically chipped, may be removed or left on the site.

Prescribed Burning

The major elements of prescribed burning include:

- Coordination with the local air district;
- Preparation of a burn plan that outlines the objectives of the burn, the burn area, and the range of environmental conditions under which the burn will be conducted; the workforce and equipment resources required to ignite, manage and contain the fire; and communication procedures;
- Site preparation, including establishment and maintenance of containment lines;
- Conducting the burn within the range of environmental conditions established in the burn prescription; and
- Follow-up operations to ensure that the fire is fully contained.

Factors considered when establishing a burn area include current fuel breaks, topography, slope, direction of the slope, fuel type, fuel loading, fire behavior, and the proximity of interface between wildland areas and urban development. The actual size and configuration of burn areas would be determined by the Army fire department. While minding explosives safety and other technical and practical considerations, the fire department would determine the best parameters to minimize the size and duration of each burn, maintain control of the burn, minimize smoke impacts, and execute the burn within the narrow meteorological window. Proposed burn areas, containment lines, and supporting rationale will be described in site-specific implementation work plans that the Army will make available for regulatory and public review.

The Army will provide public notification of planned prescribed burns. A prescribed burn will be started only when conditions meeting burn prescription conditions are confirmed. Mobilization of fire management personnel and equipment and public notification will occur when optimum burn conditions are reasonably expected. Multiple burn events may be conducted over a period of several days. Because a burn will only be conducted upon confirmation of optimum burn conditions, it is not possible to schedule a burn on a specific date. Through community notification, the public will be advised of reasonable precautions (e.g., staying indoors with doors and windows closed, limiting outdoor activity) that can be taken to minimize exposure to smoke from a prescribed burn.

Remedial Actions

Once the vegetation has been cleared, the remedial actions will be implemented.

Technology-Aided Surface Removal

Use of this method removes UXO and DMM from the surface (i.e., the top of the soil layer). The detection process is primarily performed visually, but is augmented by technology aids (e.g., hand-held magnetometers or metal detectors) because vegetation, the weathering of UXO or DMM, or other factors make visual detection difficult. QC and QA measures will be implemented. Recovered munitions, including debris, are evaluated by technically-qualified personnel and, if determined by evaluation to be MEC or MDEH, are subjected to detonation.

Subsurface Removal

Use of this method identifies geophysical anomalies, and evaluates, selects and intrusively investigates anomalies, to remove from subsurface munitions that could be MEC. Recovered munitions and munitions debris will be evaluated by technically-qualified personnel and if determined by evaluation to be MEC or MDEH will be subjected to detonation.

The best available and appropriate geophysical detection equipment will be used based on site conditions. Throughout the removal process QC/QA procedures will be implemented. Subsurface removal depths will be determined based on: (a) the types of munitions known or suspected to be present; (b) the typical depth at which such munitions may be encountered; and (c) the capabilities of the geophysical detection equipment.

Various technologies will be considered when determining the best geophysical method in support of the subsurface removal for BLM Area B and MRS-16. The technologies and associated processes to be considered include Schonstedt magnetometer, Geonics EM61MK2 cart system, the MetalMapper EMI system, and the TEMTADS 2x2 system. Other processes (e.g., the use of advanced geophysical classification process), may be considered as they become available for field use.

Detonation of Recovered MEC and MDEH

The safest and most expeditious methods of detonation will be used. Department of Defense Explosives Safety Board (DDESB)-approved procedures will be used. Procedures will be described in DDESB-approved explosives safety submission and the implementation work plans. When possible, recovered MEC and MDEH will be destroyed by detonation on the day encountered. If an item cannot be detonated on the day encountered, it will be secured until a detonation can be scheduled.

Digital Geophysical Mapping

Upon completion of a technology-aided surface removal, the Army will perform DGM using the best available and appropriate technology to locate and record anomalies. A map of the anomalies will be included in the after-action report for consideration in land-management decision making.

To conduct DGM, manual and mechanical cutting of vegetation may be necessary to provide for the safety of personnel conducting the survey and allow use of digital geophysical equipment. Site conditions (e.g., difficult terrain) may prevent a digital survey from being conducted in certain areas. These areas will be documented in the after-action report.

Post-Remediation Habitat Monitoring

The HMP requires that habitat monitoring be conducted following MEC remedial action to assess the recovery of HMP species. Baseline monitoring will be conducted in each area where remedial action to address munitions is planned. Follow-up monitoring will then be conducted per the Vegetation Monitoring Plan and Wetland Monitoring and Restoration Plan (Burleson, 2006, 2009, 2015) for: (a) HMP annual plants; (b) HMP shrubs; and (c) wetland species. The results of the monitoring will be documented in annual reports submitted to USFWS and California Department of Fish and Wildlife (CDFW).

LUCs. LUCs for BLM Area B and MRS-16 are described below:

- Public education including the provision of 3Rs explosives safety education materials in brochures and at kiosks; and presented during public presentations and safety briefings;

- Munitions recognition and safety training for people who conduct ground-disturbing or intrusive activities;
- Construction support by UXO-qualified personnel will be provided upon request for ground-disturbing or intrusive activities; and
- Prohibition against uses of the property that are inconsistent with the HMP.

Public Education Measures

Public education measures will inform people who use the land (e.g., recreational users) about the historical military training uses of the areas, response actions conducted, the potential for MEC to be present, and actions to take should they encounter a suspected munitions item. Public education measures will be based upon the Army's 3Rs (Recognize, Retreat, Report) of Explosives Safety Education Program. Public education measures include the provision of 3Rs explosives safety education materials in brochures and at kiosks; and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage or other engineering controls, where warranted.

The *Munitions Response Site Security Program* (Army, 2016) and periodic updates provide information about site security measures being implemented and maintained at various sites within the former Fort Ord. The site security program is modified as necessary due to changes in the nearby human populations or to reflect the status of munitions responses. Public education materials will be updated as needed to reflect the current site security status.

For BLM Area B and MRS-16, the following public education measures may be applicable:

- Public education through established or new kiosks to provide information regarding the history and status of cleanup actions in BLM Area B and MRS-16.
- Publication of a brochure that describes the military's previous use of the property and the access management guidelines (e.g., staying on designated trails or roads, no camping, and no digging) for recreational users including actions to take if a suspected munitions item is encountered.
- Engineering controls (e.g., signs and trail markings) that encourage adherence to access management guidelines.

The LUC implementation plan will describe the public education measures. At each five-year review, the Army or Army's representatives will assess the status of the measures and document recommendations or modifications to the program.

Munitions Recognition and Safety Training

Personnel involved in conducting ground-disturbing or intrusive activities will be required to attend munitions recognition and safety training to increase their awareness of and ability to recognize a munition. Prior to planned intrusive activities, BLM will be required to arrange for the munitions recognition and safety training to be provided to workers who will perform ground-disturbing or intrusive activities.

The two UXO-qualified personnel provided for long-term support of BLM activities in the *Record of Decision, Impact Area Munitions Response Area, Track 3 Munitions Response Site, Former Fort Ord, California* (Impact Area MRA ROD; Army, 2008) will be available to provide the training. The LUC implementation plan will describe this training. At each five-year review, the Army or Army's

representatives will assess the status of the training program and document recommendations or modifications to the program.

Construction Support/UXO-Qualified Personnel Support

UXO-qualified personnel will provide construction support during ground-disturbing or intrusive activities to mitigate the risks to workers conducting ground-disturbing or intrusive activities.

Construction support must be requested during a project's planning stages prior to the start of intrusive activities. UXO-qualified personnel will monitor ground-disturbance or intrusive activities for the potential presence of munitions. If evidence of a munition is encountered during such activities, the activity will cease. The MRS Security Program includes a process for reporting such encounters to an appropriate local law enforcement agency (Army, 2016). The local law enforcement agency will request support of an explosives or munitions emergency from an explosive ordnance disposal (EOD) unit who will be dispatched to evaluate and remove the item. The two UXO-qualified personnel provided for long-term support of BLM activities in the Impact Area MRA ROD (Army, 2008) will be available to provide an initial assessment of a munition encountered to determine whether EOD support is required.

Information on suspected munitions that is discovered during construction monitoring will be reported by the Army under the annual monitoring program. The monitoring results will be included in a five-year review report. The LUC implementation plan will describe the mechanism for BLM to request the construction support, and how the support will be provided.

At the time of each five-year review, the Army or Army's representatives will assess the status of the construction monitoring program and document any recommendations or modifications to the program as described in the LUC implementation plan.

Prohibition against Inconsistent Uses

Uses of the property that are inconsistent with the HMP (e.g., residential, school, and commercial/ industrial development) will be prohibited.

2.12.2. Description of Remedial Alternatives

The four remedial alternatives developed for BLM Area B and MRS-16 are:

- Alternative 1: No Further Action
- Alternative 2: LUCs
- Alternative 3: Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs
- Alternative 4: Subsurface Removal.

Alternative 1: No Further Action

This alternative assumes no further action would be taken to address MEC. This alternative is provided as a baseline for comparison to the other remedial alternatives as required under CERCLA and the NCP.

Alternative 2: LUCs

This alternative includes:

- Public education. Such education will be based upon the Army's 3Rs Explosives Safety Education Program and include the provision of 3Rs educational materials in brochures and kiosks, and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage or other engineering controls, where warranted;
- Munitions recognition and safety training for people who conduct ground-disturbing or intrusive activities;
- The provision of construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and
- Prohibition against uses of the property that are inconsistent with the HMP, including but not limited to residential, school, and commercial/industrial development.

Long-Term Management Measures that will be implemented as part of the LUC implementation for BLM Area B and MRS-16 include a land transfer document that outlines land use restrictions and a requirement for both annual monitoring and five-year review reporting.

Alternative 3: Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs

This alternative includes:

- Vegetation clearance using prescribed burning, and/or manual and mechanical cutting, depending on vegetation type and removal requirements, to allow munitions response workers to conduct removal activities safely.
- Technology-aided surface removal and detonation (with engineering controls) of MEC.
- DGM in surface removal areas to provide a record of remaining anomalies to assist BLM in planning future ground-disturbing or intrusive (subsurface) activities (areas inaccessible to DGM equipment will be documented).
- Subsurface removal in selected areas (estimated to be 10 percent of acreage) that were identified in coordination with BLM to address the risk associated with specific reuse.
- Implementation of LUCs (e.g., public education, munitions recognition and safety training, construction support, and prohibition against inconsistent uses, as described in Alternative 2).
- Post-remediation habitat monitoring (HMP species and habitat data collection, management, evaluation, and reporting).

A safety exclusion zone will be established during vegetation clearance and certain munitions response activities to protect the public from inadvertent and intentional detonations. Subsurface removal will be conducted in certain portions (e.g., proposed roads, fuel breaks, trails, and habitat restoration sites) to reduce the potential risk to allow for their proposed reuse needs. The Army expects to conduct subsurface removal in approximately 10 percent of the area.

Upon completion of a technology-aided surface removal, the Army will perform a DGM using the best available and appropriate technology to locate and record anomalies. A map of the anomalies will be included in the after-action report that can be available for consideration in land-management decision making.

The Army will review the data from the surface removal and DGM, and submit a Technical Memorandum to EPA and DTSC. The Technical Memorandum will provide an evaluation of the work

completed to date and, if necessary, recommend subsurface removals based on the results of the evaluation. Factors to be considered when determining whether additional remedial actions are necessary include (a) the types and amounts of MEC recovered during the technology-aided surface removal; and (b) reasonably anticipated or known reuse activities that will occur. If the Army does not recommend additional remedial actions, it will document the recommendation and its rationale in the Technical Memorandum.

Each Technical Memorandum will be an addendum to the site-specific work plan. The Army will coordinate each Technical Memorandum with BLM at the time of its preparation. Technical Memorandums will be provided for regulatory agency (EPA and DTSC) review. These memorandums are subject to EPA approval in consultation with DTSC. To avoid impacts to rare, threatened and endangered species, the completion and agency-approval of the Technical Memorandum will be expedited. This should allow additional required actions to be completed before the next growing season. These Technical Memorandums and associated correspondence will be included in the Administrative Record.

The LUCs described in Alternative 2 will be implemented after completion of remedial actions.

Alternative 4: Subsurface Removal

This alternative assumes a complete subsurface removal will be conducted throughout selected sub-areas. Subsurface removal will include the following components:

- Vegetation clearance using prescribed burning, and/or manual and mechanical cutting, depending on vegetation type and removal requirements, to allow munitions response workers to conduct removal activities safely.
- Surface and subsurface removal using the best available and appropriate detection technologies.
- Post-remediation habitat monitoring and restoration as required (HMP species and habitat data collection, management, evaluation, and reporting).

2.12.3. Comparison of Remedial Alternatives

This section compares the remedial alternatives in terms of how well each alternative satisfies the requirements of Section 121 of CERCLA. The evaluation and comparison of remedial alternatives for each of the BLM Area B sub-areas and MRS-16 are summarized in Table 1.

- Overall Protection of Human Health and the Environment: Alternative 1 would not be protective of human health in sub-areas where munitions responses were not previously conducted because it takes no further action to address the risks posed by MEC that may be present to the receptors assumed in the Risk Assessment. Alternative 2 would be protective of human health by reducing potential receptor risk by implementing and maintaining LUCs.

  In sub-areas B-1, B-2, and B-3A, MEC are not expected to be present on the surface. At a minimum, Alternative 3 would be protective of human health by reducing the uncertainty about potential presence of MEC.

  In sub-areas B-2A and B-3, MEC is suspected to be present on the surface. Alternative 3 would be protective of human health by combining the removal of potential surface MEC, and subsurface MEC in select areas, and the use of LUCs. Alternative 3 would have a positive effect on the environment for sub-areas where a prescribed burn is conducted.

In sub-areas B-4 and B-5, surface and subsurface removals in portions of the sub-areas have previously been conducted. Alternative 3 would be protective of human health in sub-areas B-4 and B-5, if MEC remains present in select areas of the subsurface or within Mudhen Lake. Alternative 3 is not applicable for sub-area B-6 or MRS-16 because surface removal has been completed.

Alternative 4 would provide the greatest level of protection for human health because it would remove MEC on the surface and from the subsurface, thereby mitigating the risks to receptors to the greatest degree.

- Compliance with Applicable or Relevant and Appropriate Requirements: Alternatives 1 and 2 do not have ARARs. Alternatives 3 and 4 would be implemented in compliance with potential ARARs identified in the FS.
- Short-Term Effectiveness: Alternative 1 would not be effective in the short term because no further action would be taken to mitigate the risks from MEC that may be present. Alternative 2 would be effective in the short term by implementing LUCs for BLM Area B sub-areas and MRS-16. Alternatives 3 and 4 would be effective in the short term by mitigating the risk posed by MEC that may be present. Workers and the community would be protected during implementation of remediation field work including vegetation clearance. Alternative 3 would include LUCs to protect the public and site workers from MEC that may be present. Alternative 4 would remove MEC that may be present.
- Long-Term Effectiveness and Permanence: Alternative 1 would not provide long-term effectiveness or permanence because no further action would be taken. Alternatives 2 and 3 would provide long-term effectiveness and permanence during reuse because LUCs would be implemented to mitigate the risks posed by MEC that may be present. Alternative 4 would provide long-term effectiveness and permanence during reuse because potentially remaining MEC would effectively be removed.

  For sub-areas B-1, B-2, B-2A, B-3, B-3A, B-4, and B-5, Alternative 3 would provide a greater degree of protection because surface MEC, and subsurface MEC in select areas, at the site would be removed, thereby reducing the potential for an encounter. Alternative 3 would include LUCs to protect the public and site workers from potential encounters with MEC in the future. Alternative 3 is not applicable for sub-area B-6 and MRS-16 because surface removals have been completed.

  Alternative 4 would provide the greatest degree of long-term effectiveness and permanence for each sub-area and MRS-16 because it would remove detected MEC from both the surface and the subsurface, providing the greatest risk reduction and facilitating reuse of the area as a habitat reserve.

- Reduction of Toxicity, Mobility, or Volume through Treatment: Alternatives 1 and 2 would not provide further reduction of these parameters because no action would be taken to remove MEC that may be present. Alternatives 3 and 4 would provide varying degrees of reduction through removal of detected MEC.

  For sub-areas B-1, B-2, B-2A, B-3, and B-3A, under Alternative 3, surface MEC would be removed, and detected subsurface MEC would be removed from within selected areas (approximately 10 percent). For sub-area B-4, Alternative 3 would remove detected subsurface MEC in select portions of the sub-area. For sub-area B-5, Alternative 3 would remove detected MEC, if MEC is present, from the bottom of Mudhen Lake, and detected subsurface MEC from select portions of the sub-area. Alternative 3 is not applicable for sub-area B-6 and MRS-16.

  Under Alternative 4, detected MEC would be removed from the entire area. For sub-areas B-1, B-2, B-2A, B-3, and B-3A, Alternative 4 would remove surface and detected subsurface MEC. For sub-areas B-4 and B-6, Alternative 4 would remove detected subsurface MEC that may remain after the previously completed removals. For sub-area B-5, Alternative 4 would include removal of detected

MEC, if present, from the bottom and subsurface of Mudhen Lake. Alternative 4 for MRS-16 would excavate the "saturated area" and remove MEC that may remain in the subsurface of the excavation.

- Implementability: Alternative 1 is easily implemented. However, because the approvals necessary to take no action are not expected to be provided, it would not be administratively feasible to implement.

  Alternative 2 would be administratively and technically feasible to implement because the necessary approvals for LUCs could be obtained and the necessary services, equipment, and skilled workers (UXO-qualified personnel and other personnel) to provide required support (UXO-qualified personnel) or implement munitions recognition and safety training, public education, and land use restrictions are readily available. Alternatives 3 and 4 would both be implementable from an administrative perspective, because the necessary approvals to implement remedial actions to both reduce the risks for planned reuses and allow for management of habitat reserve under the HMP, could be obtained. The necessary services, equipment, and skilled workers to implement these alternatives are also readily available. For Alternatives 3 and 4, where used, DGM may be limited in technical implementability because of the presence of difficult terrain and issues with tree cover that make an area inaccessible for DGM equipment. Alternative 4 would require a higher level of effort to implement from a technical perspective, because it involves a complete subsurface investigation.

- Cost Effectiveness: The No Further Action Alternative has no costs associated with its implementation. Of the other remedial alternatives, Alternative 2 has the lowest total estimated cost associated with its implementation for each sub-area of BLM Area B and MRS-16. Alternative 3 has a total estimated cost associated with implementation which is in between the total estimated costs for implementation of Alternatives 2 and 4. Alternative 4 has the highest total estimated cost associated with its implementation. Cost estimates for the four remedial alternatives are provided in Table 1. Long-Term Management Measures costs are $410,000 for BLM Area B and MRS-16.

- Regulatory Acceptance: Alternative 1 is not acceptable to the regulatory agencies because it does not take action to mitigate the risks from MEC that may be present. For sub-areas B-2A and B-3, Alternative 2 may be acceptable to the regulatory agencies because it takes action in the short- and long-term. Although it does not mitigate fully the potential of an encounter with MEC that may be present on the surface and in the subsurface, it provides protection for human health and the environment. For the remaining BLM Area B sub-areas and MRS-16, Alternative 2 is acceptable to the regulatory agencies because it takes action both in the short- and long-term to manage the potential for an encounter with MEC that may be present on the surface or within the subsurface, and it provides protection for human health and the environment. Alternatives 3 and 4 are acceptable to the regulatory agencies because they take varying degrees of action both in the short- and long-term to mitigate the risk associated with MEC that may be present on the surface and in the subsurface, and they provide protection for human health and the environment.

- Community Acceptance: Alternative 1 is not acceptable to the community because it does not take action to mitigate the risk associated with MEC that may be present. Alternative 2 is acceptable to the community because it takes action in the short- and long-term to mitigate the potential for an encounter with MEC that may be present, and provides protection for human health and the environment without disturbing recreational use of the property. Alternatives 3 and 4 are acceptable to some community members because each alternative takes action to a varying degree both in the short- and long-term to mitigate the risks associated with MEC that may be present on the surface and in the subsurface, and provides for protection of human health and the environment. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

2.13. Principal Threat Wastes

The source materials that may constitute the principal threats at BLM Area B and MRS-16 are MEC that may be present on the surface and in the subsurface. The principal threats will be addressed in BLM Area B sub-areas B-2A and B-3 by the conduct of surface removal throughout these areas, and subsurface removal in selected areas to support reuse. Recovered munitions will be evaluated by UXO-qualified personnel to determine whether they pose an explosive hazard. Upon determination, MEC and MDEH will be destroyed by detonation. Collectively, these actions will reduce the risks to human health and the environment regarding explosive safety risks posed by MEC that may be present.

The principal threats have been addressed by conducting removal and remedial actions. Munitions responses were previously conducted within BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6, and MRS-16. Subsurface removal will not be conducted throughout all of BLM Area B and MRS-16. Therefore, LUCs will be implemented to manage the risks from MEC that may remain present after the completion of the selected remedial action.

The selected remedial alternatives will address the threat through implementing:

- Technology-aided surface removal in BLM Area B sub-areas B-2A and B-3, and detonation of recovered MEC and MDEH using engineering controls.
- Subsurface removal (intrusive investigation of subsurface anomalies) in selected areas of BLM Area B sub-areas B-2A and B-3 to support reuse. (The Army estimates that a subsurface removal will be conducted in approximately 10 percent of BLM Area B sub-areas B-2A and B-3.)
- LUCs throughout BLM Area B and MRS-16 (public education, munitions recognition and safety training, construction support during reuse activities, and prohibition against inconsistent uses).

2.14. Selected Remedies

2.14.1. Summary of the Rationale for the Selected Remedies

Each alternative developed for BLM Area B and MRS-16 was assessed against the nine EPA evaluation criteria as described in Table 1.

The remedy that best meets the nine EPA evaluation criteria for MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6 is Alternative 2 – LUCs. Limited evidence of MEC was found during previous investigations in BLM Area B sub-areas B-1, B-2 and B-3A. While unlikely, there is a possibility that MEC remain present in vegetated areas away from the roads and trails. Surface and/or subsurface removals were conducted in MRS-16 and BLM Area B sub-areas B-4, B-5, and B-6, significantly reducing the potential for encounter with MEC.

The remedy that best meets the nine EPA evaluation criteria for BLM Area B sub-areas B-2A and B-3 is Alternative 3 – Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs. Available data from previous investigations indicate the possibility for MEC to remain present in BLM Area B sub-areas B-2A and B-3 in vegetated areas away from the roads and trails.

These remedies were selected because they will be protective of human health from explosives safety risks posed by MEC that may remain present for all anticipated future land users. These remedies will be effective in the short-term and in the long-term by removing, or mitigating the potential for an encounter by future users with, MEC that may remain present. The remedy for MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6 will be administratively feasible to implement and is cost effective. The remedy for BLM Area B sub-areas B-2A and B-3 will require a high level of effort to implement, a

moderate level of effort to administer over time, and it is cost effective. These remedies can be implemented in a manner that complies with ARARs listed in Table 2. Additionally, LUCs will be implemented in a manner consistent with Federal and State guidance.

These alternatives best balance the risk reduction and associated environmental impacts in supporting the anticipated future use of the site as a habitat reserve.

The Army and the EPA have jointly selected the remedy. The DTSC has had an opportunity to review and comment on the ROD.

Community acceptance is discussed in the Responsiveness Summary (Section 3). The selected remedies are further described below.

2.14.2. Description of the Selected Remedy

Alternative 2 – LUCs is the selected remedy for MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6. The selected remedy includes:

- Public education. Such education will be based upon the Army's 3Rs Explosives Safety Education Program and include the provision of 3Rs educational materials in brochures and at kiosks, and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage or other engineering controls, where warranted;
- Munitions recognition and safety training for people who conduct ground-disturbing or intrusive activities;
- The provision of construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and
- Prohibition against uses of the property that are inconsistent with the HMP, including but not limited to residential, school, and commercial/industrial development.

Alternative 3 – Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs is the selected remedy for BLM Area B sub-areas B-2A and B-3. The selected remedy includes:

- Vegetation clearance using prescribed burning, and/or mechanical and manual cutting, depending on vegetation type and removal requirements, to allow munitions response workers to conduct removal activities safely.
- Technology-aided surface removal and detonation (with engineering controls) of MEC.
- DGM in surface removal areas to provide a record of remaining anomalies to assist BLM in planning future ground-disturbance or intrusive (subsurface) activities (areas inaccessible to DGM equipment will be documented).
- Subsurface removal in selected areas (estimated to be 10 percent of acreage) that were identified in coordination with BLM to address the risk associated with specific reuse.
- Implementation of LUCs (e.g., public education, munitions recognition and safety training, construction support for reuse activities, and prohibition against inconsistent uses, as described in Alternative 2).

- Post-remediation habitat monitoring within areas where a subsurface removal or other disturbances (e.g., mechanical clearance of vegetation) were conducted (HMP species and habitat data collection, management, evaluation, and reporting).

Where necessary, vegetation clearance will be implemented using prescribed burning, and/or manual and mechanical cutting methods, as appropriate for the specific area. Prescribed burning is the primary method of vegetation clearance in habitat reserve areas containing CMC. Although cutting of CMC has not been proven to support the successful recovery of this rare habitat, manual and mechanical cutting methods may be used with some limitations.

The Army will generally limit manual and mechanical vegetation cutting to 50 acres or less of CMC within each removal site in areas designated in the HMP as habitat reserve; development with reserve areas or development with restrictions; habitat corridor; or habitat corridor with development allowances (USFWS, 2015). Manual and mechanical cutting are allowed for vegetation other than CMC and Coastal Scrub. The required mastication in CMC within BLM Area B has been coordinated with USFWS (USFWS, 2015).

The major elements of prescribed burning include:

- Coordination with the local air district;
- Preparation of a burn plan that outlines the objectives of the burn, the burn area, and the range of environmental conditions under which the burn will be conducted; the workforce and equipment resources required to ignite, manage, and contain the fire; and communication procedures;
- Site preparation, including establishment and maintenance of containment lines;
- Conducting the burn within the range of environmental conditions established in the burn prescription; and
- Follow-up operations to ensure that the fire is fully contained.

2.14.3. Overview of Remedial Action Implementation

Site-specific work plans will be developed for each phase of work, outlining: (a) vegetation clearance methods (prescribed burning and/or mechanical and manual cutting); (b) methodologies for surface removal, and for subsurface removal in selected areas; (c) evaluations of recovered munitions; (d) destruction of MEC and MDEH by detonations; and (e) habitat monitoring protocols.

Site-specific work plans for the remedial action are considered primary documents under the FFA, and will be made available for regulatory agency (EPA and DTSC) and public review. The Army will coordinate the site-specific work plans with BLM at the time of the plan's preparation. Subsurface removal areas will be identified in the site-specific work plans or identified in technical memorandums.

Following vegetation clearance, technology-aided surface removal will be conducted. A DGM will be conducted in surface removal areas to provide a record of remaining anomalies to assist BLM in planning future activities. The Army will review the data from the surface removal and DGM, and submit a Technical Memorandum to EPA and DTSC. The Technical Memorandum will provide an evaluation of the work completed to date and, if necessary, recommend subsurface removals based on the results of the evaluation.

Factors that will be considered when determining whether additional remedial actions are necessary include (a) the types and amounts of MEC recovered during the technology-aided surface removal; and (b) reasonably anticipated or known reuse activities that will occur. If the Army does not recommend

additional remedial actions, it will document the recommendation and its rationale in the Technical Memorandum.

Each Technical Memorandum will be an addendum to the site-specific work plan. The Army will coordinate each Technical Memorandum with BLM at the time of its preparation. Technical Memorandums will be provided for regulatory agency (EPA and DTSC) review. These memorandums are subject to EPA approval in consultation with DTSC. To avoid impacts to rare, threatened, and endangered species, the completion and agency-approval of the Technical Memorandum will be expedited. This should allow additional required actions to be completed before the next growing season. These Technical Memorandums and associated correspondence will be included in the Administrative Record.

Pursuant to Section 8.3 of the FFA, within 21 days of issuance of this ROD, the Army will submit to EPA and DTSC proposed deadlines for submitting the RD/RA WP. The RD/RA WP will be subject to EPA and DTSC review in accordance with the FFA and will include implementation and maintenance actions, and periodic inspections.

2.14.4. Land Use Control Implementation Strategy

The performance objectives for the LUCs that are selected as part of the remedy are the following:

- Public education: Such education will be based upon the Army's 3Rs Explosives Safety Education Program and include the provision of 3Rs educational materials in brochures and at kiosks, and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage or other engineering controls, where warranted.

  The performance objectives are: (a) to ensure that public land users are informed of the potential for MEC to be present and actions that should be taken if a suspected munitions item is encountered, and (b) to ensure that public land users report discovery of suspected MEC items to the appropriate authority.

- Munitions recognition and safety training: Munitions recognition and safety training will be required for people who conduct ground-disturbing or intrusive activities.

  The performance objectives are: (a) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, and (b) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering suspected MEC and report to the appropriate authority.

- Construction support: The provision of construction support by UXO-qualified personnel will be required for ground-disturbing or intrusive activities.

  The performance objective is to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately.

- Prohibited Reuses and Activities or Restrictions: The property transfer document will include the following land use or activity restrictions

  - Prohibit unauthorized public access;
  - Prohibit ground disturbing or intrusive activities outside of specified areas, unless construction support is provided by UXO-qualified personnel; and

- Prohibit uses of the property that are inconsistent with the HMP (e.g., residential, school and commercial/industrial development).

The performance objective is to ensure that the restrictions remain in place until they are changed with the concurrence of the Army and EPA in consultation with DTSC.

LUCs will be maintained until the Army, EPA, and DTSC concur that the site is protective of human health and the environment from the explosives safety risks posed by MEC that may remain present without a need for LUCs. This decision will be based on:

1) Post-remediation site evaluation incorporating new information (e.g., geophysical mapping); or
2) Where removal to depth has adequately addressed the potential of MEC remaining in the subsurface.

Under CERCLA, the Army is ultimately responsible for the implementation, maintenance, enforcement, and reporting of remedial LUCs, although all or part of such responsibilities may be transferred to another party (e.g., BLM) with the EPA's approval after consultation with DTSC. The Army will retain ultimate responsibility for remedy integrity.

The LUC implementation plan will describe in detail the LUC components of the selected remedy. The LUC implementation plan will be a component of the RD/RA WP and will be considered as a primary document. The Army will coordinate the development of the LUC implementation plan with BLM.

The LUC implementation plan will:

- Outline the processes for implementing the LUCs selected as part of the remedy;
- Identify procedures for responding to and coordinating response actions to unexpected circumstances (e.g., future discoveries of munitions that are MEC); and
- Outline the process for transferring applicable remaining property to BLM.

Changes to the LUCs that are made after submission of the LUC implementation plan will be made in consultation with EPA and DTSC. Such changes will be documented in FFA primary documents. The selected LUCs may be modified in the future based on the five-year reviews or the results of remedial actions with regulatory approval.

The LUC implementation plan will also address Long-Term Management Measures to be performed by the Army that will include the following:

- Property Transfer Documentation
- Annual Monitoring
- Five-Year Review Reporting

Property Transfer Documentation:

The Army will provide a property transfer document that: (a) informs BLM of the selected remedy, including land use or activity restrictions; (b) describes the munitions responses conducted on the property; (c) outlines appropriate procedures to be followed should suspected MEC be encountered; and (d) establishes BLM's obligations to maintain and enforce the land use and activity restrictions selected as part of the remedy. The Army previously transferred portions of BLM Area B to the Department of Interior, BLM, as documented in a Letter of Transfer dated 18 October 1996. The property transfer documentation will reiterate the information specified in the previous Letter of Transfer and establish the

land use restrictions for previously and subsequently transferred property within BLM Area B and MRS-16 regarding the risks associated with MEC that may remain present. The property transfer documentation will also indicate that:

- Specified designated reuses that are approved at the time the Army transfers the property, and that BLM must maintain.
- The potential risks associated with MEC that may be present can significantly increase if changes are made to the designated and approved uses.

Annual Monitoring and Reporting:

The Army will monitor BLM Area B and MRS-16 on an annual basis. The Army will collect information about and report on each MEC encounter that is unrelated to active removal activities and changes in site conditions that could increase the possibility of encountering MEC. The Army will report results of the annual monitoring to EPA and DTSC on a yearly basis. If MEC are encountered during use, the Army will notify EPA and DTSC as soon as practicable. If, as a result of these reviews, the Army proposes a modification of the remedy, the Army will submit the proposal to EPA and DTSC under the FFA.

Five-Year Review Reporting:

The Army will conduct five-year reviews, under CERCLA Section 121(c) and the Fort Ord FFA, as part of the Fort Ord five-year review process. The five-year review will evaluate the protectiveness of the selected remedy. If, upon review, the Army recommends any modification of the remedy, the Army will submit the proposal to EPA and DTSC under the FFA. The next five-year review will occur in 2017.

2.14.5. Summary of the Estimated Remedy Costs

For those alternatives whose life-cycle is indeterminate or exceeds 30 years, for the purposes of evaluating and comparing alternatives as specified in EPA's RI/FS Guidance (EPA, 1989), a period of 30 years is used for estimating long-term operations and maintenance (O&M) costs. For BLM Area B and MRS-16, the life cycle is indeterminate; therefore, long-term O&M costs were estimated over a period of 30 years. The total estimated 30-year Net Present Value cost of the remedy for BLM Area B and MRS-16 is approximately $24,167,000. The total cost for Long-Term Management Measures is approximately $410,000. The overall total cost is $24,577,000. Long-term O&M costs are based on the Federal Program estimating guidelines provided in OSWER Directive 9355.0-75 for estimating remedial alternative costs in Circular No. A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, Appendix C, President's Federal Office of Management and Budget (OMB, January 2013; updated yearly). A detailed, activity-based breakdown of the estimated costs associated with implementing and maintaining the remedy is provided in the BLM Area B and MRS-16 FS (Section 5 and Appendix E, Gilbane, 2015b).

2.14.6. Expected Outcomes of Selected Remedy

The expected outcomes of Remedial Alternative 2 in MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5 and B-6 will be protection of human health and the environment from the explosives safety risks posed by MEC that may remain present through implementation of LUCs that will be maintained during long-term reuse. The expected outcomes of Remedial Alternative 3 in BLM Area B sub-areas B-2A and B-3 will be protection of human health and the environment through implementation of: (a) Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas; and (b) LUCs that will be maintained during long-term reuse. The implementation of the selected remedies will allow

for safe reuse and management of BLM Area B and MRS-16 as habitat reserve, as described in the HMP and as part of the Fort Ord National Monument. This is in keeping with a general goal of the HMP to promote preservation, enhancement, and restoration of habitat and populations of HMP species on habitat reserve properties on the former Fort Ord.

2.15. Statutory Determinations

The selected remedy satisfies the requirements of Section 121 of CERCLA:

- Protection of Human Health and the Environment: The selected remedies provide protection for both human health and the environment regarding explosives safety risks posed by MEC that may remain present through implementation of: (a) conduct of a surface removal, and subsurface removal in selected areas to support planned reuse, in BLM Area B sub-areas B-2A and B-3, and (b) LUCs that apply to BLM Area B and MRS-16 to mitigate the risk from MEC that potentially remain present.
- Compliance with Applicable or Relevant and Appropriate Requirements: The selected remedies will be implemented in a manner that complies with ARARs. Land Use Controls will be implemented in a manner consistent with Federal and State guidance.
- Cost Effectiveness: The selected remedies are a cost-effective solution for reducing risks to human health and the environment regarding explosives safety risks posed by MEC that may remain present. The net present value of the total estimated costs for implementation of each remedial alternative are summarized in Table 1 (in addition to Long-Term Management Measures costs of $410,000 for the entire BLM Area B and MRS-16).
    - *Alternative 1* - The No Further Action alternative has no costs associated with its implementation
    - *Alternative 2* - LUCs is approximately $1,010,000 for the MRS-16 and BLM Area B.
    - *Alternative 3* - Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs is estimated to be approximately $37,652,000 for BLM Area B (except for sub-area B-6). Alternative 3 is not applicable to BLM Area B sub-area B-6 and MRS-16.
    - *Alternative 4* - Subsurface Removal is estimated to be approximately $71,726,000 for MRS-16 and BLM Area B.
    - *The Selected Remedy* - The selected remedy of Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs (Alternative 3) in BLM Area B sub-areas B-2A and B-3, and LUCs (Alternative 2) in MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6, is estimated to be approximately $24,167,000. The overall total cost is $24,577,000 including $410,000 for the Long-Term Management Measures. Table 3 provides a summary of the cost for the selected remedy.
- Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable: Conduct of surface removal, and subsurface removal in selected areas to support reuse, in BLM Area B sub-areas B-2A and B-3, utilize permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. Limited evidence of presence of MEC was found during previous investigations in BLM Area B sub-areas B-1, B-2 and B-3A. There is a possibility that munitions that could, upon evaluation, be determined to be MEC, remain present in the vegetated areas away from the roads and trails, but exposure is unlikely. Surface and subsurface removals were conducted in MRS-16 and BLM Area B sub-areas B-4, B-5, and B-6. These removal and remedial actions significantly reduced the potential for an encounter with MEC. LUCs will be implemented throughout BLM Area B and MRS-16 to manage the remaining risk.

- Preference for Treatment as a Principal Element: The principal threats at BLM Area B sub-area B-2A and B-3 will be treated (i.e., remediation will be completed), satisfying the statutory preference for treatment as a principal element (i.e., reducing the toxicity, mobility, or volume of explosive hazard as a principal element through treatment). The potential principal threats have been addressed by conducting munitions responses within BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6, and MRS-16.
- Five-Year Review Requirements: Because MEC may remain present at the site after implementation of the selected remedies, a statutory review will be conducted as part of the Fort Ord five-year review process to ensure the remedy is, or will be, protective of human health and the environment from the explosives safety risks posed by MEC that may be present. The purpose of a five-year review is to gather updated information, evaluate the condition of the site, and determine if the site remains safe from MEC or environmental contaminants that might be left at the site. The next five-year review will occur in 2017.

2.16. Documentation of Significant Changes from Preferred Alternative of Proposed Plan

As described in Section 2.4., the Proposed Plan for BLM Area B and MRS-16 was released for a 30-day public comment period from April 8, 2015 to May 8, 2015. A public meeting was held on April 15, 2015. This Proposed Plan identified the preferred remedial alternatives for BLM Area B and MRS-16, which have been selected as the final remedies in this ROD. Comments collected over the 30-day public comment period between April 8, 2015 and May 8, 2015 did not identify significant changes to the conclusions or procedures outlined in the BLM Area B and MRS-16 Proposed Plan.

3. RESPONSIVENESS SUMMARY

This Responsiveness Summary is organized as follows:

Section 3.1. Overview

Section 3.2. Background on Community Involvement

Section 3.3. Summary of Comments Received During the Public Comment Period and Department of the Army Responses

(A) Prescribed Burning for Vegetation Clearance

(B) Overall Community Concerns

(C) Technical Issues

(D) Agency Comments

3.1. Overview

In the final RI/FS and the Proposed Plan, following preferred alternatives were identified: Remedial Alternative 2 – LUCs for MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6; and Remedial Alternative 3 – Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs for BLM Area B sub-areas B-2A and B-3. Public comments received regarding the Proposed Plan are summarized below and discussed in greater detail in Section 3.3.

Public comments were received from several community members, including two community organizations – the Fort Ord Community Advisory Group and Fort Ord Recreation Trails and Friends (FORT Friends). The Army also received comments from BLM.

On the basis of written and oral comments received on the Army's Proposed Plan, the community generally concurred with the plan and provided comments regarding the following issues:

- Some commenters expressed concerns about the use of prescribed burns for vegetation clearance because of the potential adverse impact of these burns.
- There were several community involvement comments including (a) a request for notification when the work plan is available, (b) lack of community awareness and lack of transparency in this process, (c) offers to further communicate to community members the status of the work once it is underway; and (d) interest in having access to the property during remedy implementation.
- There were comments regarding technical aspects of the RI/FS and remedial alternatives.
- BLM had specific comments regarding future work for trail development, habitat restoration and access management.

3.2. Background on Community Involvement

The Army is committed to providing opportunities for community participation in decisions regarding the MR RI/FS program that includes the BLM Area B and MRS-16 Proposed Plan and ROD. The Army holds events to provide opportunities for public interaction, public information sessions at local community events, tours of remediation sites, and presentations on specific cleanup activities.

The Army maintains publicly accessible document repositories, including the Administrative Record and information repositories, and a website that includes digital versions of documents, event calendars,

and contacts for additional site information. Documentation of community involvement activities is included in the Community Relations Plan (Army, 2013) that is updated periodically.

Focused community involvement regarding the Proposed Plan for BLM Area B and MRS-16 has most recently involved the public's review of the Army's Proposed Plan for the site. The notice of the availability of the Proposed Plan for public review and comment was published in the Monterey County Herald and the Salinas Californian on April 7, 2015. A 30-day public comment period on the Proposed Plan was held from April 8, 2015 through May 8, 2015. In addition, a public meeting was held on April 15, 2015 to present the Proposed Plan to a broader community audience. At this meeting, representatives from the Army, EPA, and DTSC were present, and the public had the opportunity to submit written and oral comments about the Proposed Plan. The responsiveness summary responds to written comments received during the public comment period as well as oral comments expressed during the public meeting conducted on April 15, 2015.

3.3. Summary of Comments Received During the Public Comment Period and Department of the Army Responses

Comments received during BLM Area B and MRS-16 Proposed Plan public comment period, and Army responses, are summarized below according to the topics identified in Section 3.1: A. Prescribed Burn for Vegetation Clearance; B. Overall Community Concerns; C. Technical Issues; and D. Agency Comments.

A. Prescribed Burning for Vegetation Clearance:

A.1. Comments expressed concerns about the safety and necessity of prescribed burns for vegetation clearance. Some commenters suggested the use of sheep and goats to graze the areas instead of prescribed burning.

Response: The Army recognizes there are public concerns regarding prescribed burning and munitions responses being conducted adjacent to populated areas, and that munitions response activities may have impacts on people at the former Fort Ord and in surrounding communities. The Army strives to balance these concerns with the need to conduct the remedial actions to reduce the explosives safety risks posed by MEC that may remain present. The implementation of the selected remedy will support the safe reuse and proper management of the BLM Area B and MRS-16 as habitat reserve and as part of the Fort Ord National Monument.

Prescribed burning has been implemented extensively in support of munitions responses at the former Fort Ord, including as part of the remedial actions in the Impact Area. Prescribed burns in BLM Area B will be planned and executed in a similar manner that incorporates best industry practices and precautionary measures to contain the burns within their intended boundaries. A prescribed burn will be executed only when optimum burn conditions are imminent and other requirements (such as the availability of necessary equipment and resources, including contingency resources) are met. The Army will provide public notification of planned prescribed burns. A safety exclusion zone will be established during prescribed burn operations to further protect the public.

Based on the detailed evaluation of BLM Area B and MRS-16 in the RI/FS, approximately half of the areas were identified as needing a MEC removal (sub-areas B-2A and B-3). To provide safe access for workers to conduct MEC removal, vegetation clearance is required as a first step. These sub-areas are within a designated habitat reserve areas containing Central Maritime Chaparral (CMC) that supports a diverse biological community that includes rare, threatened, and endangered species that are subject to various levels of protection under federal, state, and local laws and regulations.

Methods of vegetation clearance for different plant communities at the former Fort Ord have been evaluated. The *Evaluation of Vegetation Clearance Methods Technical Memorandum, Ordnance and Explosives Remedial Investigation/Feasibility Study, Former Fort Ord, California* (Vegetation Clearance Technical Memorandum; Harding ESE, 2002) identified prescribed burning as the most suitable method that was readily available for use within habitat reserve containing CMC. Manual and mechanical cutting are allowed for up to 50 acres of unburned CMC within each sub-area of BLM Area B. Cutting of CMC has not been proven to support successful recovery of this rare habitat. The Army has used manual and mechanical cutting to create primary, secondary, and tertiary containment lines in preparation for prescribed burns; when burning could not be safely conducted, the area lacks existing fuel breaks and access roads, or when areas require further evaluation due to extreme terrain; and when areas have high vegetation moisture content or did not burn or burned incompletely during a prescribed burn (USFWS, 2015).

While prescribed burning is a preferred method of vegetation clearance, the areas that will be burned have been reduced. As described in the RI/FS, because of the size of the area vegetation clearance in sub-area B-2A will be accomplished by manual and mechanical cutting. Within sub-area B-3, prescribed burns will be conducted where suitable containment lines can be established. Vegetation will be cut in portions of sub-area B-3 where burning is not feasible.

Animal grazing was evaluated in the Vegetation Clearance Technical Memorandum. It was found to be ineffective for CMC because of low production rates (several months to graze 100 acres), preference by the animals for palatable vegetation, and not providing good visibility of the ground surface to allow the safe removal of munitions. Animal grazing was found to be hard to implement in areas where animals and handlers could encounter MEC. Based on the biological opinions issued by U.S. Fish and Wildlife Service, animal grazing is not currently approved in habitat reserve areas containing CMC for use to support munitions response at the former Fort Ord.

A.2. A commenter is opposed to remediation by burning considering the high cost and hazards to humans and wildlife.

Response: Prescribed burns will be conducted to provide safe access for munitions response workers to conduct removal actions. It is not being used as a method of MEC removal. The Army recognizes there are public concerns that prescribed burning and MEC removal may have impacts on people and wildlife. The Army strives to balance these concerns with the need to conduct the remedial actions to reduce the explosives safety risks posed by MEC that may be present. As described in response to comment A.1, prescribed burns will be planned and executed in a manner that incorporates best industry practices and precautionary measures to contain the burns within their intended boundaries. A prescribed burn will be executed only when optimum burn conditions are imminent and other requirements (such as the availability of necessary equipment and resources, including contingency resources) are met. The Army will provide public notification of planned prescribed burns. A safety exclusion zone will be established during prescribed burn operations to further protect the public.

Central Maritime Chaparral plant communities have evolved to be dependent on periodic fires. They not only recover, but also flourish, from the burns, providing an opportunity for the greatest diversity of native plants to grow. Therefore, burning will have beneficial impacts to rare, threatened, and endangered plant species. Wildlife resources have adapted to periodic fires within chaparral habitat and benefit from the temporary changes to their habitat.

B. Overall Community Concerns:

B.1. There was a specific request for a notification when the draft work plan is available and an opportunity for comment on the work plan prior to remedy implementation.

Response: The Army recognizes the interests of the recreational users provided in the comments to the Proposed Plan. As described in the RI/FS, a safety exclusion zone will be established during vegetation clearance and MEC removal to protect the public, and temporary closures of roads and trails are anticipated. The Army intends to work with BLM to plan and implement appropriate public access management measures to accomplish the remedial action in a safe manner. At the former Fort Ord, draft remedial action work plans are made available to the public at the same time as the regulatory agency reviews. The work plan will be posted on www.fortordcleanup.com for review by any interested community members.

B.2. There were comments that noted the requirement for cleanup work in this specific area and associated temporary trail closures were not anticipated by the recreational community. The general public will be surprised and confused when trails are "taken back" after three years of use following the designation of the area as a national monument. Another commenter noted this cleanup process is not transparent and needs to be explained in a more comprehensive report.

Response: The Army has solicited public comments and input and responded to the comments throughout the public review and comment periods on the BLM Area B and MRS-16 RI/FS and Proposed Plan. The Army held a public comment meeting as part of its public participation responsibilities under Section 117(a) of CERCLA or Superfund and Section 300.430(f)(2) of the NCP. In addition, the Army has mailed out newsletters and the Proposed Plan that provide information on the proposed cleanup, and has published notices of the meeting in local newspapers and on the Fort Ord Environmental Cleanup Website www.fortordcleanup.com, including email notifications of information availability when it was posted on the web site.

Additional public input opportunities were also provided as follows:

- Fort Ord Environmental Cleanup Community Involvement Mobile Workshops provided information on BLM Area B and MRS-16. These workshops were held on August 23, 2014, February 21, 2015, July 18, 2015, February 27, 2016 and July 16, 2016. The public was provided the opportunity to discuss various aspects of the cleanup program with technical staff, Army representatives and regulatory agencies. This area was also highlighted when the bus tour drove past the area.
- The Former Fort Ord Cleanup Annual Report, included an article specific to BLM Area B and MRS-16 and was mailed in July 2014 to citizens living in the postal regions of Monterey, Seaside, Del Rey Oaks, Marina, and unincorporated areas of south Salinas (including Spreckels) (approximately 50,000 copies mailed). Subsequent annual reports that included updated information about BLM Area B and MRS-16 were mailed to 65,000 homes and businesses in the Monterey Bay – Salinas Valley communities in October 2015 and August 2016.
- Community Involvement Mobile Workshops in the form of a guided Nature Walk inside the Impact Area were held on May 17, 2014, May 9, 2015 and May 7, 2016, and addressed cleanup in this area.
- Technical Review Committee meetings held on July 16, 2013 and August 26, 2014 provided information on the RI/FS for this area. Updated information about BLM Area B and MRS-16 was provided during subsequent Technical Review Committee meetings held on July 21, 2015 and July 19, 2016.
- Several presentations specific to BLM Area B and MRS-16 were provided at the request of community members. These included a January 22, 2014 presentation to the Fort Ord User's group of 20 participants as well as presentations to FORT Friends on November 13, 2014, March 12, 2015, and September 8, 2016. The cleanup was also highlighted during a tour for faculty and staff at York School on November 17, 2014 and during a presentation on August 12, 2016. The BLM Area B was

also highlighted during tours for the Naval Postgraduate School on September 1, and November 22, 2016 as well as a tour for Notre Dame High School on November 30, 2016.

- An information booth at the Monterey County Fair on August 29, 2014 provided BLM area B and MRS-16 cleanup information to Fair participants. Updated information about BLM Area B and MRS-16 was provided during subsequent Monterey County Fair events on September 4, 2015 and September 2, 2016.
- An information booth at the Sea Otter Classic on April 16 through 19, 2015, provided information about BLM Area B and MRS-16 Proposed Plan and public comment period to visitors. Updated information about BLM Area B and MRS-16 was provided during subsequent Sea Otter Classic event on April 14 through 17, 2016. Information booths with BLM Area B information were also hosted by the Army at the Marina Equestrian Center Veteran's celebration on November 12, 2016.
- Small community group meetings with Marina in Motion (February 25, 2015) and California State University Monterey Bay faculty and staff (March 27, 2015 and October 5, 2016) also focused on this specific cleanup. A tour of the BLM Area B was provided to California State University Monterey Bay law enforcement and emergency services officials on October 11, 2016.
- The Army participated in the January 22, 2015 Fort Ord Trails Symposium to address questions regarding cleanup and access in this area.
- The Army participated in National Public Lands Day at the Fort Ord National Monument on October 23, 2016 with an information booth that emphasized cleanup in the BLM Area B location.

As described in the Proposed Plan, community acceptance, along with State acceptance, is one of the two modifying criteria amongst EPA's nine CERCLA evaluation criteria. Community acceptance is gauged using available public input and comments on the Proposed Plan. The Army acknowledges some members of the community may not accept the Proposed Plan; however, many members of the public accept it and recognize the need for the remedial action to address risks posed by MEC that may remain in BLM Area B and MRS-16.

It should be noted the creation of the Fort Ord National Monument does not affect the Army's responsibility to conduct munitions response within the boundaries of the monument and to take other measures for environmental remediation, monitoring, security, safety, or emergency preparedness purposes. This is clearly stated in the presidential proclamation for the establishment of the Fort Ord National Monument.

B.3. A suggestion was made that organizations dedicated to recreational use of the Fort Ord trails can supplement the Army's outreach program to disseminate trail access information during cleanup.

Response: The Army welcomes community engagement among the property users to share information about the remedial action. The Army will work with the regulatory agencies and BLM to develop a plan for effective public education and outreach specific to the remedial action in BLM Area B and MRS-16. Remedial action work plans will be posted on www.fortordcleanup.com and be accessible by any interested community members. The Army welcomes public input and feedback throughout the cleanup process.

B.4. Several comments were made that the Army consider the recreational community's request for maximizing access during remedy implementation, such as providing paths that connect parts of the national monument, to the extent feasible.

Response: The Army recognizes the interests of the recreational users provided in the comments to the Proposed Plan. As described in the RI/FS, a safety exclusion zone will be established during vegetation clearance and MEC removal to protect the public, and temporary closures of roads and trails are anticipated. The Army intends to work with BLM to plan and implement appropriate public access management to accomplish the remedial action in a safe manner. Remedial action work plans will be posted on www.fortordcleanup.co and be accessible by any interested community members. The Army welcomes public input and feedback throughout the cleanup process.

B.5. Several members of the public supported the overall approach to the BLM Area B proposed remedial action because safety is a priority, especially with the property being used as a recreational area. Several comments were made that the proposed remedial action in preparation for reuse of land at the former Fort Ord will benefit the recreational public and ecological resources, and the proposed cleanup approach is sound and will be protective of the community as well as the environment.

Response: The Army is committed to conducting the selected remedy within BLM Area B and MRS-16 to support the safe use of the property as a recreational area and habitat reserve, which is a critical component of the overall reuse of the former Fort Ord lands.

C. Technical Issues:

C.1. Comments suggested Alternative 3 that includes prescribed burns was too expensive and time consuming, and suggested that the current management controls are sufficient to ensure the safety of recreational users.

Response: The Army strives to balance cost and implementability concerns with the need to conduct MEC removal to reduce the explosives safety risks posed by MEC that may be present. Remedial alternatives were evaluated and compared based on EPA's nine CERCLA evaluation criteria. This evaluation and comparison was done for each of the BLM Area B sub-areas and for MRS-16 in the Feasibility Study portion of the RI/FS.

Based on the detailed evaluation of BLM Area B and MRS-16 in the RI/FS, approximately half of the areas were identified as needing a MEC removal (sub-areas B-2A and B-3). Multiple MEC items were found and removed during previous investigations in sub-area B-2A, and there is a possibility that MEC remain present in the vegetated areas away from the roads and trails. While previous investigations in sub-area B-3 did not result in many MEC items, cumulative information from the investigations within the area as well as MEC removals in adjacent areas indicate the possibility that MEC may be present in the vegetated areas away from the roads and trails. For these sub-areas Alternative 2 could be protective of human health, however, the degree of uncertainty about potential presence of MEC in the vegetated areas led to the recommendation for an alternative that includes MEC removals (Alternative 3). Alternative 3 is more cost effective and shorter in duration than Alternative 4.

C.2. Comments were made regarding historical uses of sub-areas within BLM Area B. The Proposed Plan includes areas indicated on historical maps as "The Combat Ranges," "Advancement Line," and "Explosive Disposal Area." A comment was made that sampling investigation is insufficient for characterizing booby traps and land mine training. The commenter suggested bivouac areas were used for warfare training involving the use of explosives and burial pits.

Response: Historical uses of the areas of BLM Area B and MRS-16 are described in the RI/FS and a summary description for each sub-area is provided in the Proposed Plan. As described in these documents, BLM Area B sub-area B-4 includes a portion of an area that was described in historical documents as "Combat Range 2" and Known Distance Range with an "advancement line" associated with firing of mortars along with the advancement of troops. As further described in the RI/FS and the Proposed Plan, removal actions have been conducted in sub-area B-4.

The RI/FS describes that in the vicinity of MRS-9, Range 50 is shown in a historical map indicating it may have been used as a munitions disposal area. The RI/FS also described MRS-9 was identified as a mine and booby trap training area. Sampling was conducted in MRS-9 as well as site walks in and out of the site. This area is part of sub-area B-3 where a MEC removal will be conducted under Alternative 3.

Bivouac areas at Fort Ord were used for overnight training and field exercises. Several training areas identified in historical documents as bivouac areas are present in BLM Area B and MRS-16. The RI/FS provides a general description of bivouac area use. Normally, only blank cartridges, simulators, pyrotechnics, and smoke items were allowed to be stored near bivouac areas. Field storage of demolition materials and small arms ammunition (other than blanks) was allowed if permission is obtained. Burial of munitions items could have occurred but was not authorized.

D. Agency Comments:

D.1. BLM had specific comments regarding future work for trail development, habitat restoration and access management. About one half of the land included within the Proposed Plan is currently administered by the Army, and the other half was transferred to the BLM in 1996. All regions are part of the Fort Ord National Monument that was designated on April 20, 2012.

Much of the area encompassed by B-3 was heavily disturbed during previous military training and there is a tremendous amount of stabilization and restoration that is needed to achieve the goals of the HMP. During development of work plans for these regions, the BLM will delineate old roads, gullies and other features that are in need of stabilization and restoration. Subsurface disturbance by heavy equipment and personnel will be needed to stabilize and restore these areas. Furthermore, several authorized trails that cross this region are in need of reroutes to reduce erosion and provide more enjoyable connections to other recreation trails. The BLM will work with the Army and others on the relocation of these transportation features that will also require subsurface disturbance.

The smaller area encompassed by B-2A contains a significant amount of former hardstand and gully areas that have been restored. Trail 62 and a short segment of Trail 61 also cross through this area. These trails carefully wind their way through a stand of maritime chaparral. The BLM recommends that the brush adjacent to these trails be retained as much as possible so that the twisting character of the trail is retained. If brush is cut along the entire length of these trails, it will be difficult to reestablish the character of the trail.

Finally, the BLM has recently enacted an interim leash restriction across the monument in an effort to keep visitors (and their pets) on the authorized trail networks and outside munitions response sites. Keeping visitors on the authorized trail networks will be even more important during the course of the planned remediation when vegetation will be removed that will expose open ground to the recreating public. Once cutting and/or burning occurs, the open ground within B-3 and B-2A is likely to contain MEC over the surface. The BLM will work with the Army and regulators on ways to keep visitors safe during the cleanup activities, and will strive to minimize impacts to the recreating public.

Response: The Army will coordinate with BLM and the regulatory agencies to develop site-specific work plans and coordinate the remedial action in a manner that supports the management of the property by BLM. As part of the selected remedy, subsurface removal will be conducted in those areas that specifically support the reuse, such as habitat restoration areas identified by BLM. The Army will work with BLM to accommodate work that is needed to comply with the HMP, as well as plan and implement appropriate public access management during the remedial activities.

4. REFERENCES

Burleson Consulting, Inc. (Burleson), 2006. *Draft Wetlands Restoration Plan, Former Fort Ord, California*. September. [BW-2453]

Burleson, 2009. *Protocol for Conducting Vegetation Monitoring in Compliance with the Installation-Wide Multispecies Habitat Management Plan at Former Fort Ord*. March. [BW-2454A]

Burleson, 2015. *Revisions of Protocol for Conducting Vegetation Monitoring in Compliance with the Installation-Wide Multispecies Habitat Management Plan at Former Fort Ord*. April. [BW-2745]

Fort Ord Reuse Authority (FORA), 1997. *Fort Ord Reuse Plan*.

Harding ESE, 2001. *Technical Memorandum, Air Emissions from Incidental Ordnance Detonation During a Prescribed Burn on Ranges* 43 *through 48*. November. [OE-0355]

Harding ESE, 2002. *Evaluation of Vegetation Clearance Methods Technical Memorandum, Ordnance and Explosives Remedial Investigation/Feasibility Study, Former Fort Ord, California*. May. [OE-0399F]

Gilbane, 2014. *Final, Track 2 Munitions Response Remedial Investigation /Feasibility Study, BLM Area B and MRS-16, Former Fort Ord, California*. August. [OE-0802B]

Gilbane, 2015a. *Final, Revision 1, Track 2 Munitions Response Remedial Investigation /Feasibility Study, BLM Area B and MRS-16, Former Fort Ord, California*. March. [OE-0802C]

Gilbane, 2015b. *Final, Revision 2, Track 2 Munitions Response Remedial Investigation /Feasibility Study, BLM Area B and MRS-16, Former Fort Ord, California*. May. [OE-0802D]

Malcolm Pirnie, Inc., 2002. *Final Fort Ord Ordnance and Explosives Risk Assessment Protocol*. October. [OE-0402G]

MACTEC/Shaw, 2012. *Final Comprehensive Basewide Range Assessment Report, Former Fort Ord, California, Revision 1*, June 2009. [BW-2300J]; *Revision 2*, January 2012. [BW-2300L]

Shaw, 2009. *Final MRS-16 Munitions and Explosives of Concern Remedial Action Report, Former Fort Ord, California, Revision 1*. July. [OE-0682F]

U.S. Army (Army), 1995. Memorandum of Understanding Between the U.S. Army and U.S. Department of the Interior, Bureau of Land Management. April 19. [OE-0006A]

Army, 1996. Letter of Transfer, A Portion of Former Fort Ord from the Department of the Army to the Department of the Interior, Bureau of Land Management. Parcel A, Parcel B and the Range Control Compound. October 18. [OE-0152]

Army, 2002. *Final Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California*. September 30. [OE-0414]

Army, 2008. *Record of Decision, Impact Area Munitions Response Area, Track 3 Munitions Response Site, Former Fort Ord, California*. [OE-0647]

Army, 2009. *Final Record of Decision Amendment, Site 39 Inland Ranges, Former Fort Ord, California*. August 25. [RI-041E]

Army, 2013. *Final Community Relations Plan Update Number 4, Fort Ord, California.* November 20. [BW-2671A]

Army, 2016. *Munitions Response Site (MRS) Security Program, Former Fort Ord, California.* March. [OE-0422P]

U.S. Army Corps of Engineers (USACE), 1997. *Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP).* April. With technical assistance from Jones and Stokes, Sacramento, California. [BW-1787]

USACE, 2000. *Draft Final Ordnance and Explosives Remedial Investigation/Feasibility Study Work Plan, Former Fort Ord, California*. May 15. [OE-0233M]

USACE, 2005. *Revised Attachment A - Habitat Management Plan Map for Former Fort Ord.* April. [BW-1787]

U.S. Environmental Protection Agency (EPA) 1989. *Guidance for Conducting Remedial Investigation/Feasibility Studies Under CERCLA. Interim Final*. EPA 540/G-89/004. October.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS), 2015. *Programmatic Biological Opinion for Cleanup and Property Transfer Actions Conducted at the Former Fort Ord, Monterey County, California* (8-8-09-F-74). May 28, 2015.

The White House, 2012. *Establishment of the Fort Ord National Monument by the President of the United States of America, A Proclamation*. April 2012.

Zander and Associates (Zander), 2002. *Assessment, East Garrison and Parker Flats Land Use Modifications.* May 1. [BW-2180]

TABLES

Table 1. SUMMARY OF REMEDIAL ALTERNATIVES EVALUATION

Record of Decision, Track 2 BLM Area B and MRS-16, Former Fort Ord, California

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	Compliance with ARARs	Short-Term Effectiveness	Long-Term Effectiveness and Permanence	Reduction of T, M, V Through Treatment	Implementability	Cost	State Acceptance	Community Acceptance
B-1 Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within sub-area B-1.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posed by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-1 Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$67,000	Acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-1 Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including prescribed burning, by safety protocols.	Effective and permanent in the long term because surface removal, and subsurface removal in select areas, would be conducted and LUCs would mitigate potential risks posed by MEC that may be remain present.	Provides reduction through surface removal and subsurface removal in select areas.	Administratively feasible. High level of effort to implement from a technical perspective.	$3,252,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-1 Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$4,633,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	**Compliance with ARARs**	**Short-Term Effectiveness**	**Long-Term Effectiveness and Permanence**	**Reduction of T, M, V Through Treatment**	**Implementability**	**Cost**	**State Acceptance**	**Community Acceptance**
B-2 Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within sub-area B-2.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-2 Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$86,000	Acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-2 Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including prescribed burning, by safety protocols.	Effective and permanent in the long term because surface removal, and subsurface removal in select areas, would be conducted and LUCs would mitigate potential risks posed by MEC that may be remain present.	Provides reduction through surface removal and subsurface removal in select areas.	Administratively feasible. High level of effort to implement from a technical perspective.	$3,808,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-2 Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$5,497,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-2A Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within sub-area B-2A.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	**Compliance with ARARs**	**Short-Term Effectiveness**	**Long-Term Effectiveness and Permanence**	**Reduction of T, M, V Through Treatment**	**Implementability**	**Cost**	**State Acceptance**	**Community Acceptance**
B-2A Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$45,000	May be acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-2A Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal, and subsurface removal in select areas, would be conducted and LUCs would mitigate potential risks posed by MEC that may be remain present.	Provides reduction through surface removal and subsurface removal in select areas.	Administratively feasible. High level of effort to implement from a technical perspective.	$1,709,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-2A Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$4,503,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-3 Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within sub-area B-3.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-3 Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$435,000	May be acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	**Compliance with ARARs**	**Short-Term Effectiveness**	**Long-Term Effectiveness and Permanence**	**Reduction of T, M, V Through Treatment**	**Implementability**	**Cost**	**State Acceptance**	**Community Acceptance**
B-3 Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including prescribed burning, by safety protocols.	Effective and permanent in the long term because surface removal, and subsurface removal in select areas, would be conducted and LUCs would mitigate potential risks posed by MEC that may be remain present.	Provides reduction through surface removal and subsurface removal in select areas.	Administratively feasible. High level of effort to implement from a technical perspective.	$21,922,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-3 Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$37,127,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-3A Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within sub-area B-3A.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-3A Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$38,000	Acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-3A Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including prescribed burning, by safety protocols.	Effective and permanent in the long term because surface removal, and subsurface removal in select areas, would be conducted and LUCs would mitigate potential risks posed by MEC that may be remain present.	Provides reduction through surface removal and subsurface removal in select areas.	Administratively feasible. High level of effort to implement from a technical perspective.	$2,442,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	**Compliance with ARARs**	**Short-Term Effectiveness**	**Long-Term Effectiveness and Permanence**	**Reduction of T, M, V Through Treatment**	**Implementability**	**Cost**	**State Acceptance**	**Community Acceptance**
B-3A Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$3,167,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-4 Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of subsurface receptors within sub-area B-4.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-4 Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$209,000	Acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-4 Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal, and subsurface removal in select areas, would be conducted and LUCs would mitigate potential risks posed by MEC that may be remain present.	Provides reduction through surface removal and subsurface removal in select areas.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$2,397,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-4 Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Vegetation removal by prescribed burns would be beneficial for the environment.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work, including vegetation clearance, by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$10,321,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	**Compliance with ARARs**	**Short-Term Effectiveness**	**Long-Term Effectiveness and Permanence**	**Reduction of T, M, V Through Treatment**	**Implementability**	**Cost**	**State Acceptance**	**Community Acceptance**
B-5 Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within sub-area B-5.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-5 Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$26,000	Acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-5 Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work by safety protocols.	Effective and permanent in the long term because surface removal, and subsurface removal in select areas, would be conducted and LUCs would mitigate potential risks posed by MEC that may be remain present.	Provides reduction through surface removal and subsurface removal in select areas.	Administratively feasible. High level of effort to implement from a technical perspective.	$1,849,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-5 Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Dewatering of Mudhen Lake and subsurface removal would be conducted with appropriate mitigation measures to minimize habitat impact.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$3,134,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-6 Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within sub-area B-6.	No ARARs were identified for this alternative.	Not effective in the short term because no further action is taken.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	Not administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	**Compliance with ARARs**	**Short-Term Effectiveness**	**Long-Term Effectiveness and Permanence**	**Reduction of T, M, V Through Treatment**	**Implementability**	**Cost**	**State Acceptance**	**Community Acceptance**
B-6 Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$61,000	Acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
B-6 Alternative 3	Not Applicable								
B-6 Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work by safety protocols.	Effective and permanent in the long term because surface removal and subsurface removal would be conducted.	Provides reduction through surface and subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$2,527,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
MRS-16 Alternative 1 No Further Action	NFA would be protective of human health for recreational users who stay on established roads and trails, but may not be protective of surface or subsurface receptors within the “saturated area” of MRS-16.	No ARARs were identified for this alternative.	May be effective in the short term because detected MEC items have been removed from the site.	Not effective or permanent in the long term because no further action would be taken to address potential risks posted by MEC that may be present.	Does not provide reduction of toxicity, mobility, or volume because no further action would be taken.	May not be administratively feasible to implement. While the NFA alternative would be easy to implement, the necessary approvals are not expected.	No Cost	Not acceptable to the regulatory agencies.	Not acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
MRS-16 Alternative 2 Land Use Controls	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present.	No ARARs were identified for this alternative.	Effective in the short term because potential risks posed by MEC that may be present are mitigated by munitions recognition and safety training, construction support, and public education.	Effective and permanent in the long term because potential risks are mitigated by munitions recognition and safety training, construction support, and public education.	Does not provide reduction of toxicity, mobility, or volume because no MEC removal would be conducted.	Administratively feasible. Moderate level of effort to implement from a technical perspective.	$49,000	Acceptable to the regulatory agencies.	Acceptable to the public. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.
MRS-16 Alternative 3	Not Applicable								

Remedial Alternative	Nine CERCLA Evaluation Criteria								
	Threshold Criteria		Balancing Criteria					Modifying Criteria	
	Overall Protection of Human Health and the Environment	**Compliance with ARARs**	**Short-Term Effectiveness**	**Long-Term Effectiveness and Permanence**	**Reduction of T, M, V Through Treatment**	**Implementability**	**Cost**	**State Acceptance**	**Community Acceptance**
MRS-16 Alternative 4 Subsurface Removal	Protective of human health and the environment. Mitigates potential risks posed by MEC that may be present. Subsurface removal that involves excavation and sifting would be conducted with appropriate mitigation measures to minimize habitat impact.	Remedial action would be implemented in compliance with ARARs.	Effective in the short term. Workers and the community would be protected during implementation of remediation field work by safety protocols.	Effective and permanent in the long term because subsurface removal would be conducted.	Provides reduction through subsurface removal.	Administratively feasible. High level of effort to implement from a technical perspective.	$817,000	Acceptable to the regulatory agencies.	Acceptable to some community members. Specific comments and Army responses are presented in the Responsiveness Summary of this ROD.

Table 2. Applicable Or Relevant And Appropriate Requirements (ARARs)
Record of Decision, Track 2 BLM Area B and MRS-16, Former Fort Ord, California

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks
Federal ARARs				
Hazardous Materials & Transportation Act	49 CFR Part 172. 101	Applicable (3) /Chemical and Action	These regulations impose procedures and controls on the transportation of hazardous materials.	The regulations include specific standards of control and substantive requirements, criteria and limitations that may apply to the transport of detonation materials and selected recyclable ordnance materials.
Federal Resource Conservation and Recovery Act (RCRA), Subpart M (Military Munitions Rule)	40 CFR Parts 266 and 270	Relevant and Appropriate (2,3) / Chemical and Action	The regulations identify when military munitions on active ranges become subject to the regulatory definition of "solid waste", for purposes of Subtitle C, and if these wastes are hazardous, the management standards which apply.	Portions of the Rule may be relevant and appropriate, but those provisions of the Rule which exclude military munitions from RCRA Subtitle C regulations are not appropriate to the remediation of a closed range. The relevant portions relate to the management of MEC which is recovered, including characterization as hazardous waste and requirements for treatment, storage, and transportation. The Rule provides for the storage and transportation of recovered military munitions in accordance with DDESB standards.
State of California ARARs				
California Clean Air Act (Health and Safety Code)	Monterey Bay Unified Air Pollution Control District Rule 438 (Open Outdoor Fires; *Adopted 4-16-2003; Revised 9-15-2004; October 19, 2011; and September 19, 2012)*	Applicable (1) / Action	These prohibitory rules describe permit requirements, allowable days for burning, and restrictions. The rules include both substantive and procedural requirements regarding open burning.	The rule includes specific standards of control. It also includes non-substantive procedural and administrative provisions with which the Army, under CERCLA, is not required to comply. Substantive requirements: §3.4, prohibiting burn on no-burn days. The Army will conduct prescribed burns on allowable days in accordance with CCR Title 17, §80110. §3.7.10, burn shall be ignited only by devices and methods approved by the California Department of Forestry and Fire Protection (CDF). The Army will use ignition devices approved by CDF. §3.7, materials to be burned shall be dry and reasonably free of dirt, soil and visible surface moisture prior to burning, and shall be free from combustible impurities such as tires, tar paper, household rubbish, demolition or construction debris, and other materials not grown at a site. The Army will comply with this section by removing tires, structures and other debris from the sites prior to conducting prescribed burns, where it is safe to do so. MEC items have been removed from the areas where accessible and where it was safe to do so. Emissions from incidental detonation of MEC during prescribed burning are expected to be insignificant, based on a study conducted by the Army, in consultation with EPA and DTSC (*Technical Memorandum, Air Emissions from Incidental Ordnance Detonation During a Prescribed Burn on Ranges* 43 *through 48* (Harding ESE, 2001)). The study concluded that air pollutant emissions from incidental MEC detonation during a prescribed burn will be minor compared to emissions contributed directly from biomass burning, and will result in pollutant concentration well below health-protective regulatory screening levels. • The regulation is intended to protect the public health. The Army will substantively comply with this regulation by implementing the site preparation measures as described above, as well as conducting the burns in accordance with the smoke management program, and applying resources to contain the fire within the intended boundaries to minimize public exposure to smoke.

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks
California Health and Safety Code, Division 20	Title 22, CCR Division 4.5	Applicable (3) / Chemical and Action	The statute and regulations provide for identification of hazardous waste in §§66261. If a material is a hazardous waste, Division 4.5 provisions further regulate hazardous waste generators, transporters, and treatment, storage, and disposal facilities.	The Army will evaluate discovered items in accordance with the approved work plan to determine the presence of energetic materials or other constituents that would cause it to be characterized as a hazardous waste. Substantive requirements: • Storage: onsite storage of explosive items will meet DoD standards (DDESB 6055.9-M). • Transportation: offsite transportation of small arms ammunition will incorporate applicable manifesting and placarding requirements. Conforms to Defense Reutilization and Marketing Office (DRMO) instruction. • Disposal/recycling: offsite disposal or recycling facility or facilities for small arms ammunition will be state and/or RCRA-authorized.
California Health and Safety Code	Title 22, CCR §66264.601-603	Relevant and appropriate (2) / Action	These regulations apply to hazardous waste treatment which is conducted in a device that does not meet the definition of a "container" in 22 CCR 66260.10 is characterized as a "Miscellaneous Unit" subject to the provisions of 22 CCR 66264.601-603. For activities where detonations are in a device that meet the 22 CCR 66260.10 definition of a container, the requirements for "temporary units," as set forth in 22 CCR 66264.553 apply.	The regulations include generally described narrative standards. Compliance with substantive requirements is achieved through regulatory coordination of site-specific work plans in accordance with CERCLA and FFA. Under CERCLA, the Army is not required to comply with procedural requirements such as obtaining a permit.
California Health and Safety Code	Title 22, CCR §66265.382	Relevant and Appropriate (3)/ Chemical and Action	Open burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate and bulk military propellants which cannot safely be disposed of through other modes of treatment. Detonation is an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometers/second at sea level). Owners or operators choosing to open burn or detonate waste explosives shall do so in accordance with the following table and in a manner that does not threaten human health or the environment. lb. waste explosives — Min. Distance from OB/OD to property 0 to 100 — 204 meters (670 feet) 101 to 1,000 — 380 meters (1,250 feet) 1,001 to 10,000 — 530 meters (1,730 feet) 10,001 to 30,000 — 690 meters (2,260 feet)	The requirement includes specific standards of control and addresses situations similar to those that may be addressed during remediation; detonation of MEC will comply with these requirements.

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks
California Clean Air Act (Health and Safety Code)	Title 17, CCR §80100 et. seq.	Relevant and Appropriate (1)/ Action	The regulations provide guidelines, programs and agency procedures for smoke management plans.	The regulations are relevant and appropriate. The Army will comply with substantive elements of the regulations. Under CERCLA, the Army is not required to comply with procedural and administrative provisions; however these elements will be addressed as part of the remedial design/remedial action process. <u>Substantive requirements</u>: §80110(d) prohibiting burn on no-burn days. The Army will conduct prescribed burns on allowable days in accordance with CCR Title 17, §80110. §80145(o) (1) [local air district smoke management plan or other enforceable mechanisms shall] require the material to be burned to be free of material that is not produced on the property or in an agricultural or prescribed burning operation. Material not to be burned includes, but not limited to, tires, rubbish, plastic, treated wood, construction/demolition debris, or material containing asbestos. The Army will comply with this section by removing tires, structures and other debris from the sites prior to conducting prescribed burns, where it is safe to do so. MEC items have been removed from the ground surface of the areas where accessible and where it was safe to do so. Emissions from incidental detonation of MEC during prescribed burning are expected to be insignificant, based on a study conducted by the Army, in consultation with EPA and DTSC *(Technical Memorandum, Air Emissions from Incidental Ordnance Detonation During a Prescribed Burn on Ranges 43 through 48* (Harding ESE, 2001)). The study concluded that air pollutant emissions from incidental MEC detonation during a prescribed burn will be minor compared to emissions contributed directly from biomass burning, and will result in pollutant concentration well below health-protective regulatory screening levels. • The regulation is intended to protect the public health. The Army will substantively comply with this regulation by implementing the site preparation measures as described above, as well as conducting the burns in accordance with the smoke management program, and applying resources to contain the fire within the intended boundaries to minimize public exposure to smoke.
State of California TBC - considered in the review of potential ARARs but not applicable or relevant and appropriate				
California Fish and Game Commission	Wetlands Resources (pursuant to § 703 of California Fish and Game Code; not a statute)	Policy (1,2,3) / Location	This policy (1) seeks to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California; (2) strongly discourages development in or conversion of wetlands; and (3) opposes, consistent with its legal authority, any development or conversion which would result in a reduction of wetland acreage or wetland habitat values. To that end, the Commission (1) opposes wetland development proposals unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage; and (2) strongly prefers mitigation which would achieve expansion of wetland acreage and enhancement of wetland habitat values.	The policy provides for the protection of wetland resources. CDFW was heavily involved in the development of the HMP (and subsequent Wetland Resources Protection Plan specific to former Fort Ord), which include the development of mitigation measures to protect wetland resources.

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks
Compliance with Other Statutes and Regulations (that are mandatory, but are not ARARs)				
Endangered Species Act (16 USC §§ 1531-1543)	16 USC § 1536 (a) and (c); 16 USC § 1538 (a)(I)	Federal Law (1,2,3)	Federal agencies are required under Section 7 of the ESA to ensure that their actions do not jeopardize the continued existence of a listed species or result in destruction of or adverse modification of its critical habitat (16 USC § 1536). If the proposed action may affect the listed species or its critical habitat, consultation with the U.S. Fish and Wildlife Service (USFWS) and/or California Fish and Wildlife may be required (50 CFR § 402. 14). Additionally, Section 9 of the ESA prohibits the illegal taking of a listed species (16 USC§ 1538(a) (I).	The Army has completed an endangered species, Section 7 consultation, and the USFWS has issued several Biological Opinions for the Army disposal and reuse actions at the former Fort Ord. Endangered plant and animal species and critical habitats occur at Fort Ord. Each reuse area will be screened for potential impacts to any endangered species identified in the *Installation-Wide Multispecies Habitat Management Plan* (HMP; USACE, 1997) and additional requirements identified in subsequent documents (USACE, 2005; USFWS, 2015, Zander, 2002). The provisions of the HMP and referenced additional requirements satisfy the requirements of the ESA.
Migratory Bird Treaty Act (MBTA)	16 U.S.C. §§703·712	Federal Law (1,2,3)	The statute sections prohibit the taking, possession of, buying, selling, purchasing, or bartering of any migratory bird, including feathers or other parts, nest eggs, or products, except as allowed by regulations.	USFWS has issued a non-jeopardy biological opinion for Army predisposal actions to include the remediation of MEC, which provides that vegetation clearance activities occur outside the nesting seasons for migratory birds.

Note: A full list of statutes and regulations that were considered in the ARARs analysis is included in the BLM Area B and MRS-16 RI/FS (Gilbane, 2015b) Table 5-1.

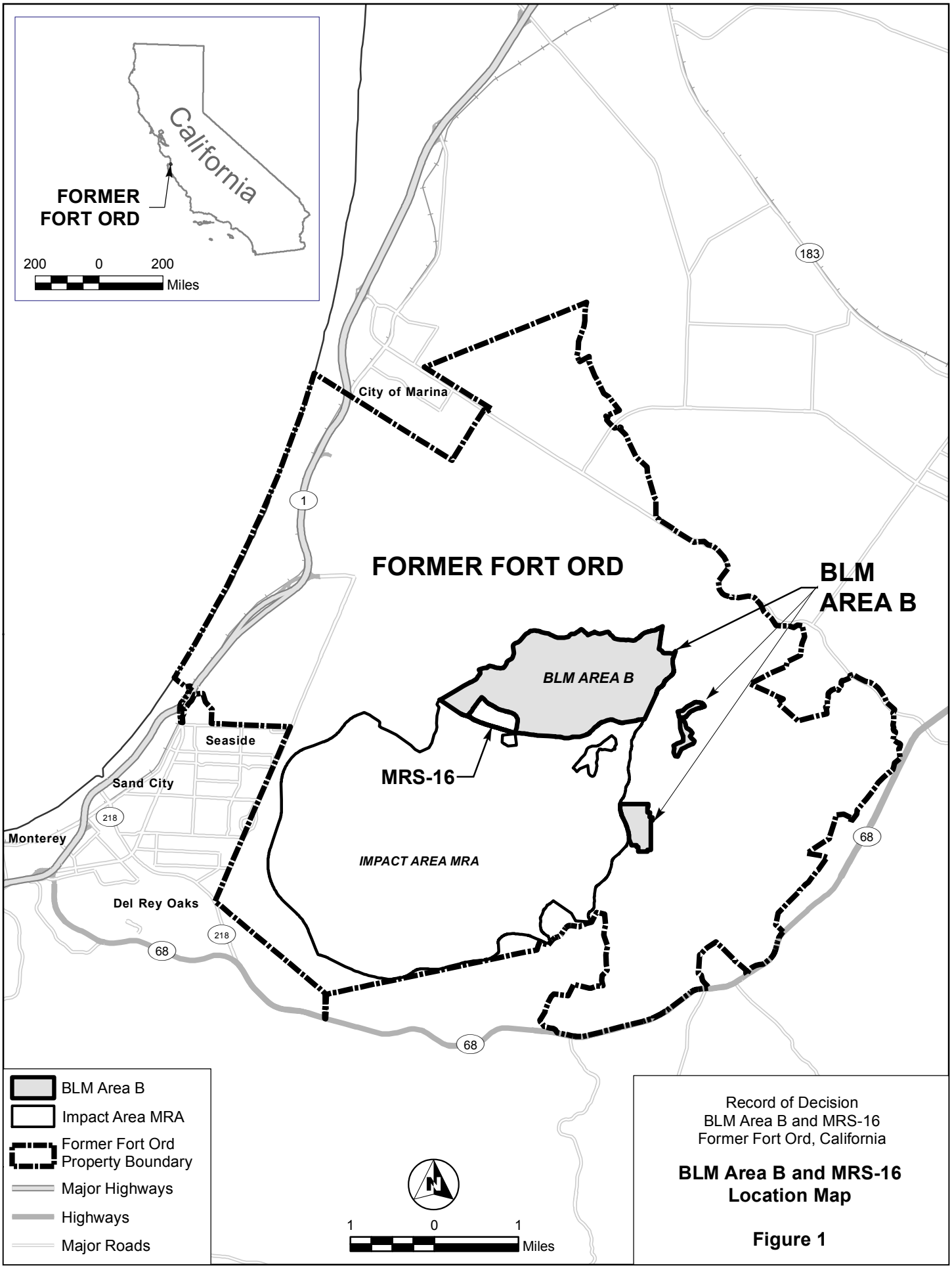
* 1 = Vegetation Clearance; 2 = MEC Removal; 3 = Detonation of MEC

Table 3. Summary of Selected Remedy Cost
Record of Decision, Track 2 BLM Area B and MRS-16
Former Fort Ord, California

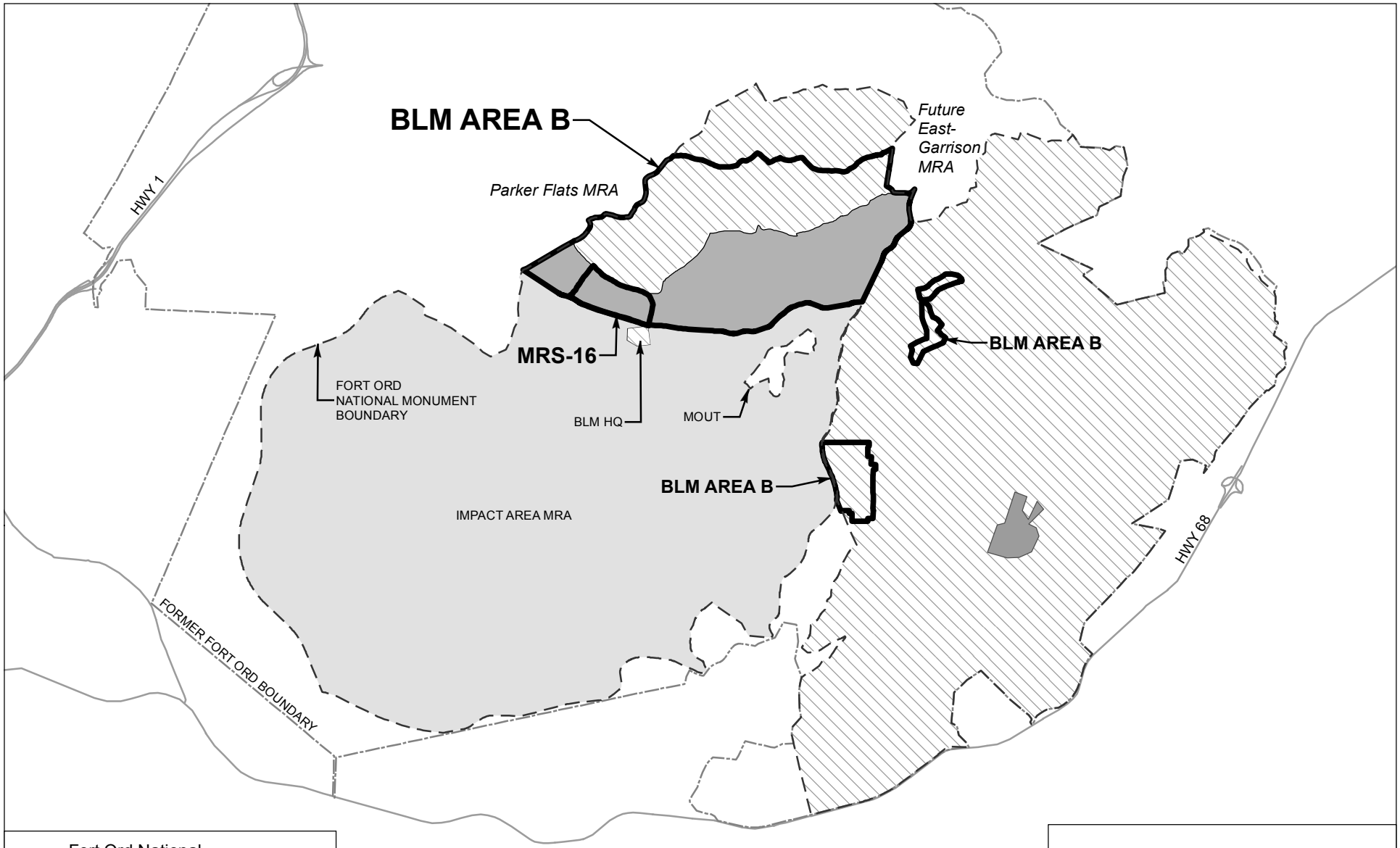
	Remedial Alternative	Total Remedial Alternative Cost
	Long Term Management Measures	**$410,000**
B-1	Alternative 2 Land Use Controls	$67,000
B-2	Alternative 2 Land Use Controls	$86,000
B-2A	Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	$1,709,000
B-3	Alternative 3 Technology-aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs	$21,922,000
B-3A	Alternative 2 Land Use Controls	$38,000
B-4	Alternative 2 Land Use Controls	$209,000
B-5	Alternative 2 Land Use Controls	$26,000
B-6	Alternative 2 Land Use Controls	$61,000
MRS-16	Alternative 2 Land Use Controls	$49,000
	Remedial Alternative Subtotal	**$24,167,000**
	TOTAL	**$24,577,000**

Note: Capital costs for the selected remedy are approximately $23,187,000 and operations and maintenance costs total approximately $1,389,000.

FIGURES



G:\ArcGIS\USACE\Fort_Ord\PROJECTS\BLM\Area_B\ROD\map_docs\AreaB\Fig01_Regional.mxd 6/10/2015 [14:53 PM] LCARR, Gilbane



Fort Ord National Monument Boundary
Former Fort Ord Boundary
BLM Area B
Impact Area MRA
Property transferred to BLM
Property to be transferred to BLM

Abbreviations:
BLM = Bureau of Land Management
MRA = Munitions Response Area
MOUT = Military Operations in Urban Terrain

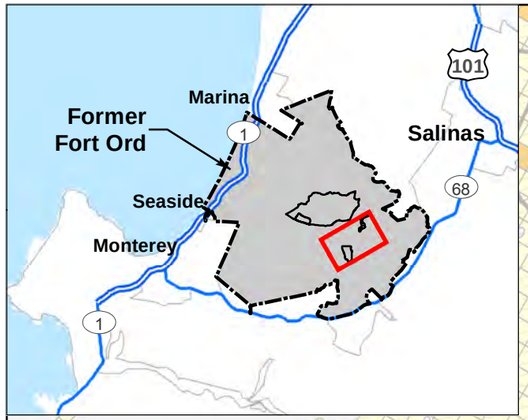
Note:
Land Use Controls apply to the entire footprint of BLM Area B and MRS-16

Record of Decision
BLM Area B and MRS-16
Former Fort Ord, California

Fort Ord National Monument and Property Transfer Status

Figure 2

G:\ArcGIS\USACE\Fort_Ord\PROJECTS\BLM\Area_B\ROD\map_docs\AreaB\Fig02_AreaB_Loc.mxd 6/10/2015 [16:32 PM] LCARR, Gilbane



Mudhen Lake

MRS-21

MRS-12

MRS-14D

MRS-25

MRS-26

MRS-14E

MRS-14B

Previous Site Walk Path

Grid - Surface Clearance

Grid - Removal to 1ft

Grid - 100% Sampled (to 4 ft)

Grid - Removal to 4ft

Munitions Response Site

BLM Area B Track 2 Boundary

Eucalyptus Fire Area

Mudhen Lake Outline (approximate)

700 0 700

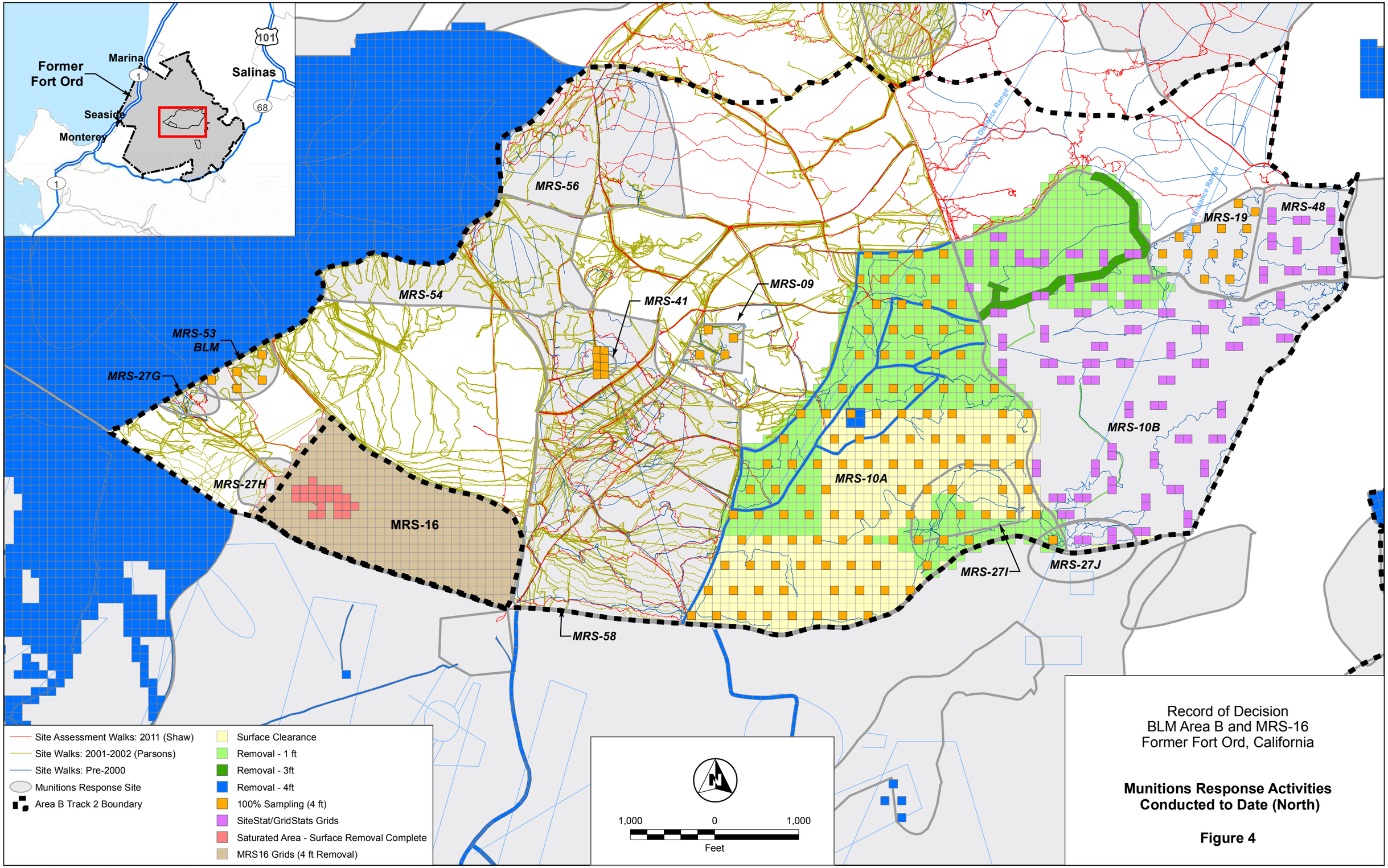
Feet

Record of Decision
BLM Area B and MRS-16
Former Fort Ord, California

Munitions Responses Conducted to Date (East)

Figure 3

G:\ArcGIS\USACE\Fort_Ord\PROJECTS\BLM\Area_B\ROD\map_docs\AreaB\Fig03_Mun_Resp.mxd 6/10/2015 [15:03 PM] LCARR, Gilbane

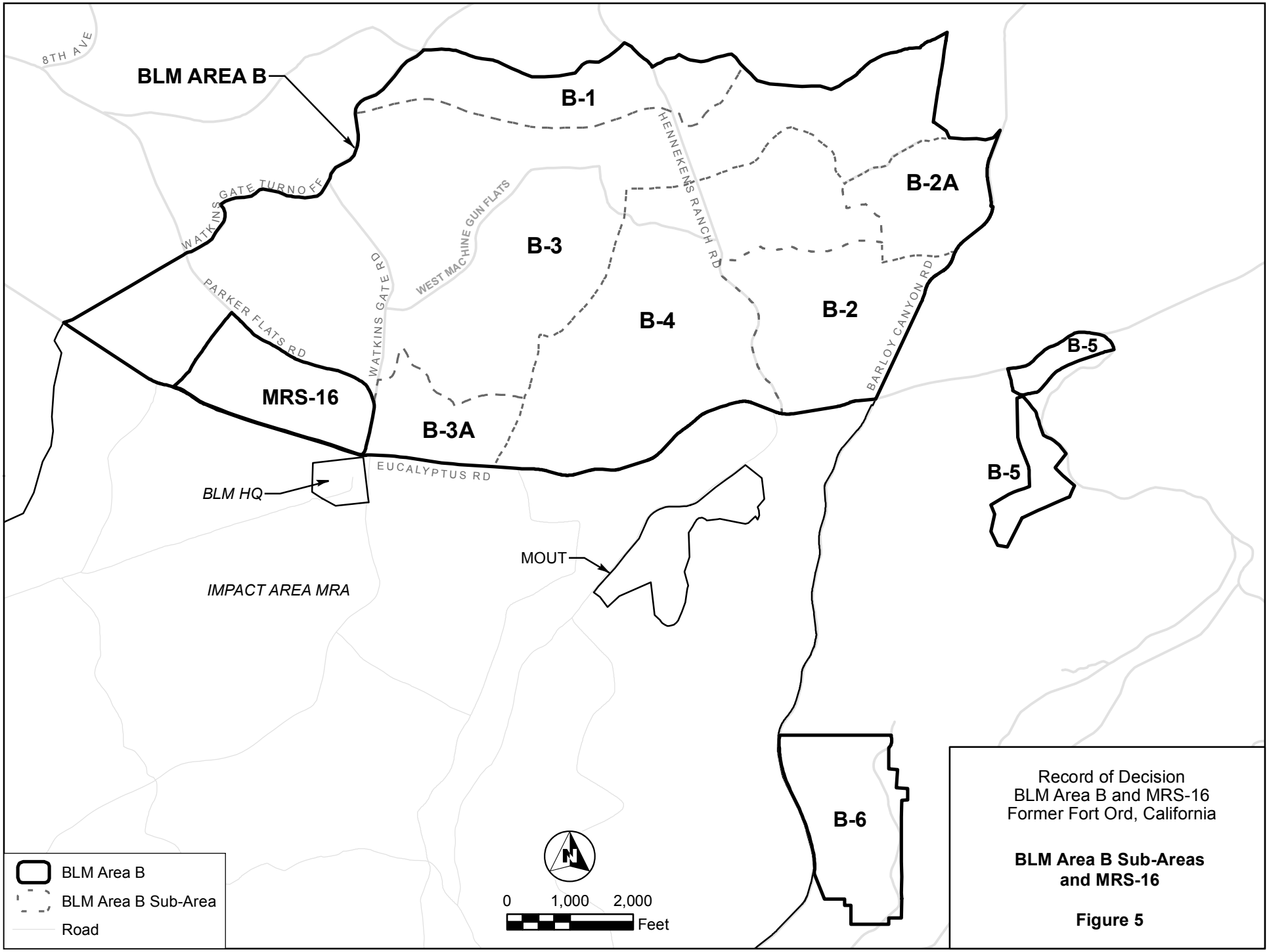


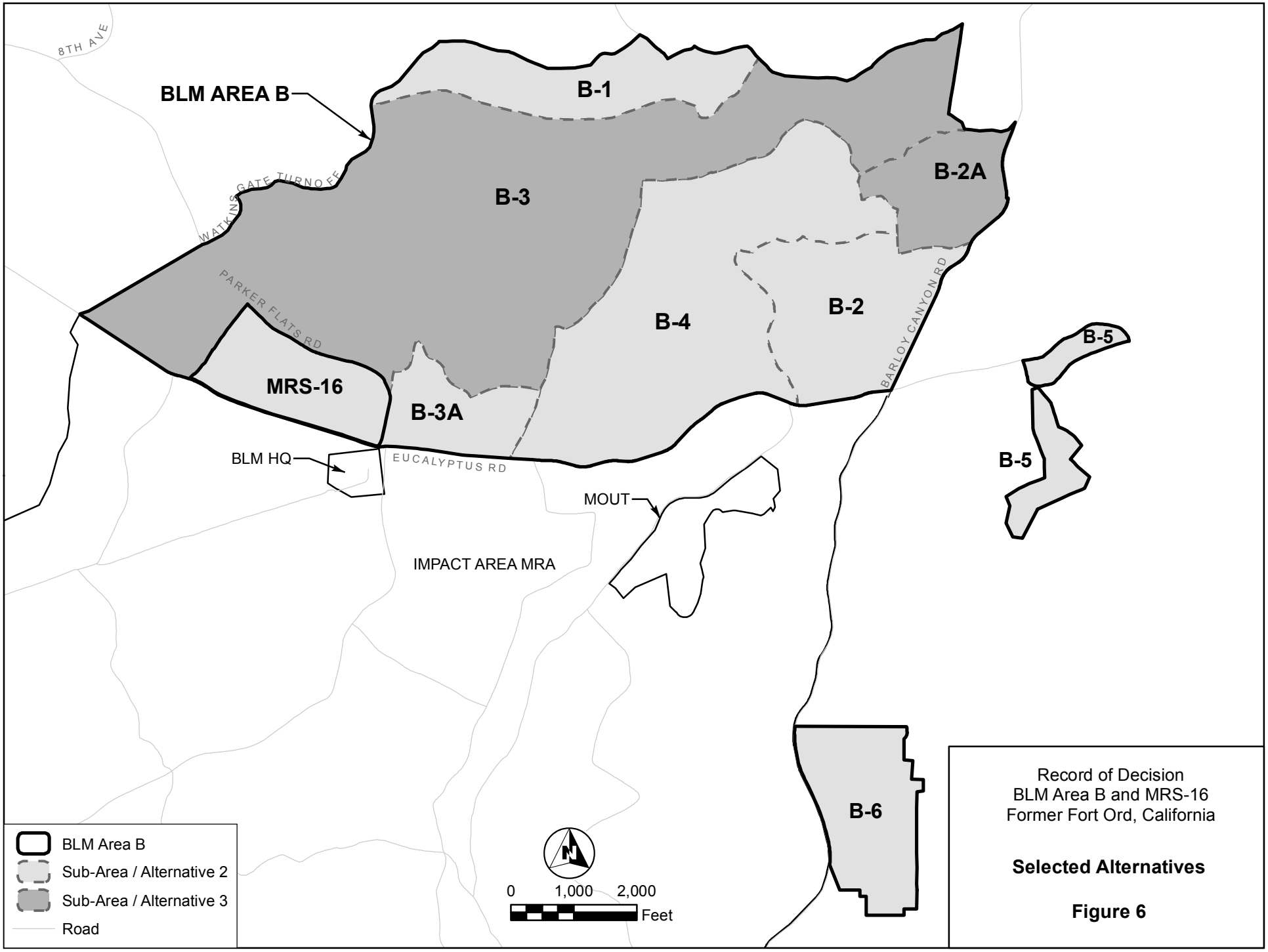
Record of Decision
BLM Area B and MRS-16
Former Fort Ord, California

Munitions Response Activities Conducted to Date (North)

Figure 4

G:\ArcGIS\USACE\Fort_Ord\PROJECTS\BLM\Area_B\ROD\map_docs\AreaB\Fig04_MR_Inv_Area_B_North.mxd 3/8/2017 [15:25 PM] LCARR, Gilbane


8TH AVE
BLM AREA B
B-1
HENNEKENS RANCH RD
B-2A
WATKINS GATE TURNOFF
WEST MACHINE GUN FLATS
B-3
WATKINS GATE RD
PARKER FLATS RD
B-4
B-2
BARLOY CANYON RD
B-5
MRS-16
B-3A
EUCALYPTUS RD
B-5
BLM HQ
MOUT
IMPACT AREA MRA
B-6
BLM Area B
BLM Area B Sub-Area
Road
0 1,000 2,000
Feet
Record of Decision
BLM Area B and MRS-16
Former Fort Ord, California
BLM Area B Sub-Areas
and MRS-16
Figure 5
G:\ArcGIS\USACE\Fort_Ord\PROJECTS\BLM\Area_B\ROD\map_docs\AreaB\Fig05_sub_areas.mxd 6/12/2015 [14:02 PM] LCARR, Gilbane


8TH AVE
BLM AREA B
B-1
B-2A
B-3
WATKINS GATE TURNOFF
PARKER FLATS RD
B-4
B-2
BARLOY CANYON RD
B-5
MRS-16
B-3A
BLM HQ
EUCALYPTUS RD
MOUT
B-5
IMPACT AREA MRA
B-6
BLM Area B
Sub-Area / Alternative 2
Sub-Area / Alternative 3
Road
N
0
1,000
2,000
Feet
Record of Decision
BLM Area B and MRS-16
Former Fort Ord, California
Selected Alternatives
Figure 6
G:\ArcGIS\USACE\Fort_Ord\PROJECTS\BLM\Area_B\ROD\map_docs\AreaB\Fig06_alternatives.mxd 6/12/2015 [14:02 PM] LCARR, Gilbane

APPENDIX A

Glossary of Military Munitions Response Program Terms

Appendix A. Glossary of Military Munitions Response Program Terms

Construction Support: Assistance provided by DoD explosive ordnance disposal (EOD) or UXO-qualified personnel and/or by personnel trained and qualified for operations involving chemical agent (CA), regardless of configuration, during intrusive construction activities on property known or suspected to contain UXO, other munitions that may have experienced abnormal environments (e.g., DMM), or munitions constituents in high enough concentrations to pose an explosive hazard, or CA, regardless of configuration, to ensure the safety of personnel or resources from any potential explosive or CA hazards. Source: (7).

Discarded Military Munitions (DMM): Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 U.S.C. 2710 (e)(2)). For the purposes of the Military Munitions Response Program being conducted at the former Fort Ord, DMM does not include small arms ammunition .50 caliber and below.

Engineering Control (EC): The management of facility operations using engineering principles (e.g., facility design, operation sequencing, equipment selection, or process limitations). Source: (7).

Explosive Ordnance Disposal (EOD) Personnel: Military personnel who have graduated from the Naval School, Explosive Ordnance Disposal; are assigned to a military unit with a Service-defined EOD mission; and meet Service and assigned unit requirements to perform EOD duties. EOD personnel have received specialized training to address explosive and certain CA hazards during both peacetime and wartime. EOD personnel are trained and equipped to perform render safe procedures (RSP) on nuclear, biological, chemical, and conventional munitions, and on improvised explosive devices. Source: (7).

Expended: The state of munitions debris in which the main charge has been expended leaving the inert carrier. Source: (1).

Feasibility Study (FS): A study undertaken to develop and evaluate alternatives for remedial action. Source: (3).

Impact Area: The impact area consists of approximately 8,000 acres in the southwestern portion of former Fort Ord, bordered by Eucalyptus Road to the north, Barloy Canyon Road to the east, South Boundary Road to the south, and North-South Road to the west. Source: (1).

Institutional Control (IC): (a) Non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination by limiting land or resource use; (b) are generally to be used in conjunction with, rather than in lieu of, engineering measures such as waste treatment or containment; (c) can be used during all stages of the cleanup process to accomplish various cleanup-related objectives; and (d) should be "layered" (i.e., use multiple ICs) or implemented in a series to provide overlapping assurances of protection from contamination. Source: (6).

Land Use Controls (LUCs): Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property, to manage risks to human health and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination, or physical barriers to limit access to real property, such as fences or signs. Source: (7).

Magnetometer: An instrument used to detect ferromagnetic (iron-containing) objects. Total field magnetometers measuring the strength of the earth's natural magnetic field at the magnetic sensor

location. Gradient magnetometers, sensitive to smaller near-surface metal objects, use two sensors to measure the difference in magnetic field strength between the two sensor locations. Vertical or horizontal gradients can be measured. Source: (4).

Material Documented as Safe (MDAS): MPPEH that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH. Source: (7).

Material Documented as an Explosive Hazard (MDEH): MPPEH that cannot be documented as MDAS, that has been assessed and documented as to the maximum explosive hazards the material is known or suspected to present, and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH. Source: (7).

Material Potentially Presenting an Explosives Hazard (MPPEH): Material that, prior to determination of its explosives safety status, potentially contains explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris); or potentially contains a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization or disposal operations). Excluded from MPPEH are munitions within the DoD established munitions management system and other hazardous items that may present explosion hazards (e.g., gasoline cans, compressed gas cylinders) that are not munitions and are not intended for use as munitions. Source: (7).

Military Munitions: Military munitions means all ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the DoD, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, or nuclear weapons, nuclear devices, and nuclear components, other than non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed. (10 U.S.C. 101(e)(4)).

Military Munitions Response Program (MMRP): The MMRP is a program under which munitions responses are conducted. Source: (1)

Mortar: Mortars typically range from approximately 1 inch to 11 inches in diameter or larger, and can be filled with explosives, toxic chemicals, white phosphorus or illumination flares. Mortars generally have thinner metal casing than projectiles but use the same types of fuzing and stabilization. Source: (2).

Munitions Constituents (MC): Any materials originating from UXO, DMM, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (10 U.S.C. 2710(e)(3)).

Munitions Debris: Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. Source: (7).

Munitions and Explosives of Concern (MEC): A term distinguishing specific categories of military munitions that may pose unique explosives safety risks: UXO, as defined in 10 U.S.C. 101(e) (5); DMM, as defined in 10 U.S.C. 2710(e)(2)); or munitions constituents (e.g., TNT,

cyclotrimethylenetrinitramine [RDX]), as defined in 10 U.S.C. 2710(e)(3)), present in high enough concentrations to pose an explosive hazard. Source: (7). For the purposes of the Military Munitions Response Program being conducted for the former Fort Ord, MEC does not include small arms ammunition .50 caliber and below.

Munitions Response: Munitions response means response actions, including investigation, removal actions, and remedial actions, to address the explosives safety, human health, or environmental risks presented by UXO, discarded military munitions (DMM), or munitions constituents (MC), or to support a determination that no removal or remedial action is required. (32 CFR 179.3)

Munitions Response Area (MRA): Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. An MRA is comprised of one or more munitions response sites. Source: (7).

Munitions Response Site (MRS): A discrete location within an MRA that is known to require a munitions response. Source: (7).

MEC Sampling: Performing MEC searches within a site to determine the presence of MEC. Source: (1).

Operating Grids: Typically, 100-foot by 100-foot parcels of land as determined by survey and recorded by GPS, marked at each corner with wooden stakes. Sites are divided into operating grids prior to the commencement of work by brush removal or MEC sweep teams. A single grid may be occupied by only one team at any time, and the grid system facilitates the maintenance of safe distances between teams. They are identified sequentially using an alphanumeric system (e.g., E-5). Source: (1).

Projectile: An object projected by an applied force and continuing in motion by its own inertia, such as a bullet, bomb, shell, or grenade. Also applied to rockets and to guided missiles. Source: (2).

Range-Related Debris: Debris, other than munitions debris, collected from operational ranges or from former ranges (e.g., target debris, military munitions packaging and crating material). Source: (7).

Remedial Investigation (RI): Process undertaken to determine the nature and extent of the problem presented by a release which emphasizes data collection and site characterization. The RI is generally performed concurrently and in an interdependent fashion with the feasibility study. Source: (3).

Removal Depth: The depth below ground surface to which all ordnance and other detected items are removed. Source: (1).

SiteStats/GridStats (SS/GS): Programs developed by QuantiTech for the Huntsville USACE to predict the density of ordnance on sites with spatially random dispersal of ordnance. Source: (5).

Surface Removal: Removal of MEC from the ground surface by UXO teams using visual identification sometimes aided by magnetometers. Source: (1).

Technology-Aided Surface Removal: A removal of UXO, DMM, or CWM on the surface (i.e., the top of the soil layer) only, in which the detection process is primarily performed visually, but is augmented by technology aids (e.g., hand-held magnetometers or metal detectors) because vegetation, the weathering of UXO, DMM, or CWM, or other factors make visual detection difficult. Source: (7).

Track 0 Areas: Areas of the former Fort Ord that contain no evidence of MEC and have never been suspected of having been used for military munitions-related activities of any kind. This definition has been clarified in the Explanation of Significant Differences, Final Record of Decision, No Action

Regarding Ordnance-related Investigations (Track 0 ROD), former Fort Ord, California (March 2005) to include areas not suspected as having been used for military munitions-related activities of any kind, but where incidental military munitions have been discovered. Source: (1).

Track 1 Sites: Sites at the former Fort Ord where military munitions were suspected to have been used, but based on the results of the Munitions Response Remedial Investigation/Feasibility Study (MR RI/FS) each site falls into one of the following three categories: Category 1: There is no evidence to indicate military munitions were used at the site (i.e., suspected training did not occur); or Category 2: The site was used for training, but the military munitions items used do not pose an explosive hazard (i.e., training did not involve explosive items); or Category 3: The site was used for training with military munitions, but military munitions items that potentially remain as a result of that training do not pose an unacceptable risk based on site-specific evaluations conducted in the Track 1 OE RI/FS. Field investigations identified evidence of past training involving military munitions, but training at these sites involved only the use of practice and/or pyrotechnic items that are not designed to cause injury. In the unlikely event that a live item of the type previously observed at the site is found, it is not expected that the item would function by casual contact (i.e., inadvertent and unintentional contact). Source: (1).

Track 2 Sites: Sites at the former Fort Ord where MEC items were present, and a MEC removal has been conducted. These areas are evaluated in area-specific RI/FSs to assess whether they are in a protective state based on their reasonably anticipated future land uses. Possible outcomes of a Track 2 RI/FS and ROD could include no further action, land use controls, and/or additional MEC removal. Source: (1).

Track 3 Sites: Track 3 Sites are those areas where MEC is suspected or known to exist, but investigations are not yet complete or need to be initiated, or any area identified in the future. Source: (1).

Unexploded Ordnance (UXO): Military munitions that: (A) Have been primed, fuzed, armed, or otherwise prepared for action; (B) Have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or materials; and (C) Remain unexploded, whether by malfunction, design, or any other cause. (10 U.S.C. 101 (e) (5)). For the purpose of the Military Munitions Response Program being conducted for the former Fort Ord, UXO does not include small arms ammunition .50 caliber and below.

UXO-Qualified Personnel: Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, or Senior UXO Supervisor. Source: (7).

UXO Technician: Personnel who are qualified for and filling Department of Labor, Service Contract Act, Directory of Occupations, contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III. Source: (7).

Sources of the Above Definitions:

(1) Non-standard definition developed to describe Fort Ord-specific items, conditions, procedures, principles, etc. as they apply to issues related to the MEC cleanup.

(2) "Unexploded Ordnance (UXO): An Overview", October 1996. DENIX.

(3) Technical Guidance for Military Munitions Response Actions, Environmental and Munitions Center of Expertise Interim Guidance Document (IGD) 14-01, dated December 20, 2013.

(4) Survey of Munitions Response Technologies, June 2006. ITRC (Interstate Technology and Regulatory Council) with ESTCP (Environmental Security and Technology Certification Program) and SERDP (Strategic Environmental Research and Development Program).

(5) Evaluation of Statistical Methodologies used in U.S. Army Ordnance and Explosive Work. September 1999. Ostrouchov, George, Zimmerman, Gregory P., Beauchamp, John J., Federov, Valerii V., and Downing, Darryl J. Prepared by Oak Ridge National Laboratory for the U.S Army Engineering and Support Center.

(6) Institutional Controls: A Site Managers' Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups. US EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-74FS-P, EPA 540-F-00-005. September 2000.

(7) Department of Defense Manual Number 6055.09-M, Volume 8, February 29, 2008, Administratively Reissued August 4, 2010; Change 1, March 12, 2012.