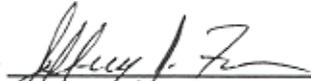


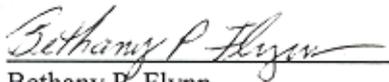
**Draft Final  
Literature Review Report  
Ordnance and Explosives  
Remedial Investigation/Feasibility Study  
Former Fort Ord, California**

Prepared for

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HLA Project No. 46310 00176

  
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This document was prepared by Harding Lawson Associates at the direction of the U.S. Army Corps of Engineers (USACE) for the sole use of the Army, USACE, and regulatory agencies, the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of the USACE and Army. This report and the interpretations, conclusions, and recommendations contained within are based in part on information presented in other documents that are cited in the text and listed in the references. Therefore, this report is subject to the limitations and qualifications presented in the referenced documents.

# CONTENTS

ACRONYM LIST .....	vi
EXECUTIVE SUMMARY .....	x
1.0 INTRODUCTION.....	1
1.1 Purpose.....	2
1.2 Report Organization.....	2
2.0 FORT ORD OE-RELATED HISTORY AND PHYSICAL SETTING.....	3
2.1 OE-Related History.....	3
2.1.1 Historical Use .....	3
2.1.2 History of OE Use.....	4
2.1.3 Summary of Existing OE Removal Program .....	4
2.2 Physical Setting.....	6
2.2.1 Location .....	6
2.3 Land Use .....	7
2.3.1 Land Use.....	7
2.3.2.1 Developed Land .....	8
2.3.2.2 Undeveloped Land .....	9
2.3.3 Future Land Use .....	10
2.3.4 OE Site Categories .....	11
2.4 Site Features.....	12
2.4.1 Climate.....	12
2.4.2 Ecological Setting.....	12
2.4.3 Topography and Surface Waters .....	13
2.4.4 Subsurface Conditions .....	14
2.4.4.1 Geology.....	14
2.4.4.2 Hydrogeology .....	15
3.0 GUIDANCE FOLLOWED FOR LITERATURE REVIEW .....	17
4.0 ELEMENTS OF LITERATURE REVIEW .....	18
4.1 Previous Investigations .....	18
4.2 Historical Records.....	20
4.2.1 Former Range Control Records.....	20
4.2.2 Historical Maps.....	20
4.2.3 Aerial Photographs .....	21
4.2.4 Historical Film Footage .....	21
4.2.5 Real Estate Records.....	21
4.2.6 Newspaper Articles .....	22
4.2.7 Presidio of Monterey Historian's Office.....	22
4.2.8 Summary of BLM Records.....	22
4.2.9 Summary of USA Environmental Inc., Incident Reports .....	22
4.3 Interviews.....	23

5.0	RESULTS OF LITERATURE REVIEW .....	24
5.1	Previously Identified OE Sites .....	24
5.2	Additional Areas Identified .....	24
5.2.1	Training Facilities.....	24
5.2.1.1	Machine Gun Squares.....	25
5.2.1.2	Mortar Squares.....	25
5.2.1.3	Ranging Area .....	25
5.2.1.4	Rifle Instruction Circle (RIC) Training Areas .....	26
5.2.1.5	Proficiency Test Areas.....	26
5.2.1.6	1000-inch Mortar Range.....	27
5.2.1.7	Recoilless Rifle Training Areas.....	27
5.2.1.8	OE Sweep Areas .....	28
5.2.1.9	Close Combat Course .....	30
5.2.1.10	Artillery Firing Points .....	30
5.2.1.11	MST & RRST .....	31
5.2.1.12	75mm Pack Howitzer Firing Area.....	31
5.2.2	Other Identified Suspect Training Areas .....	32
5.2.2.1	Tank Gunnery Range .....	32
5.2.2.2	Combat Ranges 1, 2, and 3.....	32
5.3	Incident Reports.....	33
5.4	Areas Designated As Non OE Areas.....	33
5.5	Small Arms Ranges .....	35
5.6	Areas Designated As Areas of Potential Concern.....	36
5.7	Status of OE Investigation .....	37
6.0	REFERENCES.....	38

**TABLES**

1	Site Status, Known or Suspected OE Sites
2	List of Maps Reviewed
3	Aerial Photograph Review
4	IRP Investigation Activities
5	Potential Unexploded Ordnance Report Summary

**PLATES**

1	Location Map - Former Fort Ord
2	Fort Ord Property Acquisition - 1917 to Present
3	Previously Identified Known or Suspected OE Sites
4	OE Site Status
5	Land Reuse (HMP)
6	Plant Communities
7	Generalized Soil Types
8	Training Facilities
9	1956 Photograph –Training Facilities
10	Identified Suspect Training Areas and Known or Suspected OE Sites
11	Areas Designated as Non OE Areas

- 12 Approximate Locations of UXO Items
- 13 IRP Sites
- 14 Small Arms Ranges
- 15 OE Site Status

## **APPENDIXES**

- A ARCHIVE SEARCH REPORT
- B OE FILES SEARCH FORMS
- C REPRESENTATIVE MAPS
- D RESPONSE TO REGULATORY AGENCY COMMENTS
- E SUMMARY OF PUBLIC COMMENTS AND REPOSSES

## **DISTRIBUTION**

## ACRONYM LIST

APHE	Armor Piercing High Explosive
AP	Anti-Personnel or Armor Piercing
API	Armor Piercing Incendiary
ARF Range	Automatic Rifle Firing Range
AR Table	Automatic Rifle Table
ARTEP	Army Training and Evaluation Program
ASP	Ammunition Supply Point
ASR	Archives Search Report
AT	Anti-Tank
ATT	Army Training Test
ATWES	Anti-Tank Weapons Effect Simulator
BAC	Bayonet Assault Course
Biv	Bivouac
BIP	Blow In Place
BLM	Bureau of Land Management
BM	Bench Mark
BRAC	Base Realignment and Closure
BTA	Bayonet Training Area
BTC	Bayonet Training Course
CAIS	Chemical Agent Identification Sets
Cal	Caliber
CBR	Chemical, Biological, Radiological
CC	Combat Command
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CMS	CMS Environmental Inc.
CTG	Cartridge
CX	Center of Expertise
EOD	Explosive Ordnance Disposal
E & D	Engineering and Design
EE/CA	Engineering Evaluation and Cost Analysis
FAAF	Fritzsche Army Airfield
FBTA	Field Battalion Training Area
FCC	Flight Communications Center
FCCC	Field Communication Crewman Course
FORA	Fort Ord Reuse Authority
FP	Firing Point
FRC	Fort Ord Range Control/Former Range Control
FSA	Food Service Area
FUDS	Formerly Used Defense Sites
HE	High Explosive
HEAT	High Explosive Anti-Tank
HFA	Human Factors Applications, Inc.
HMP	Habitat Management Plan
HHCA	Hand to Hand Combat Area

HUMRO	Human Research Resources Organization
IDL	Infantry Division Light
Infl Crse	Infiltration Course
IRP	Installation Restoration Program
ITT	Inter Theater Transfer (manual)
LAW	Light Anti-Tank Weapon
LOR2	Lookout Ridge Part II
LSBT	Laguna Seca Bus Turn-around
LSOS	Laguna Seca Open Spaces
LST11	Laguna Seca Turn 11 Expansion
LRC	Leadership Reaction Course
LVDC	Light Vehicle Driving Course
MBA	Mine and Booby-Trap Area
MG	Machine Gun
MRA	Multi-Range Area
MST	Mechanics Support Team (manual)
MTR	Mortar
NCOA	Non-Commissioned Officer Academy
NCP	National Contingency Plan
OE	Ordnance and Explosives
OWR	Oil Well Road
PCPTA	Physical Combat Proficiency Test Area
PTA	Physical Training Area
PTL	Primary Target Line
RIC	Rifle Instruction Circle
RI/FS	Remedial Investigation Feasibility Study
Rng	Range
ROTC	Reserve Officers' Training Corps
RR	Recoilless Rifle
RRTA	Recoilless Rifle Training Area
RSOP	Reconnaissance, Selection, and Occupation of Position
SAW Range	Semi-automatic Assault Weapon Range
SC	Signal Corps
SMAW	Shoulder Fired Medium Assault Weapon
SOP	Standard Operating Procedure
SP	Start Point
ST	Service Test
TCRA	Time-Critical Removal Action
TD	Target Detection
TRADOC	Training and Doctrine Command
TS	Training Site
USA	USA International, Inc.
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UXB	UXB International, Inc.
UXO	Unexploded Ordnance

## **EXECUTIVE SUMMARY**

This report presents the results of the Literature Review, the first step in evaluating existing ordnance and explosives (OE) related information in support of the OE Remedial Investigation/Feasibility Study (OE RI/FS) for the former Fort Ord, as required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This Literature Review Report summarizes the results of locating and retrieving OE-related information that will be used to identify areas where OE-related activities occurred or were suspected to have occurred at Fort Ord. Identified OE sites or areas will be further evaluated in the OE RI/FS.

### ***OE-Related Background***

From its founding in 1917 until 1940, Fort Ord served primarily as a training and maneuver area for field artillery and cavalry units stationed at the Presidio of Monterey. In 1940 the post was expanded to more than 20,000 acres and served as a staging area for many fighting divisions and units during World War II and subsequent international conflicts. From 1947 to 1975, the installation was a basic training center. After 1975, the post was deactivated, and the 7<sup>th</sup> Infantry Division (Light) occupied the installation; light infantry troops operate without heavy tanks or armor. Military training on Fort Ord continued until base closure in 1994.

During much of Fort Ord's history, cavalry, field artillery, and infantry units used portions of the installation for maneuvers, target ranges, and other purposes. OE that have been fired into, fired upon, or used on the facility include artillery and mortar projectiles, rockets and guided missiles, rifle and hand grenades, land mines, pyrotechnics, bombs, and demolition materials. OE is present at Fort Ord as either unexploded ordnance (UXO) or ordnance scrap.

### ***Elements of Literature Review***

The Literature Review builds upon the 1997 Revised Archives Search Report (ASR) completed by the U.S. Army Corps of Engineers, St. Louis District. The ASR contains the greatest amount of comprehensive information of ordnance use at the former Fort Ord. The ASR identified all known and suspected ordnance sites based on the review and research of records from Fort Ord, national repositories, local information sources (e.g., libraries), and interviews with active and former Fort Ord military personnel. The ordnance sites were identified as areas for further investigation.

The Literature Review process included gathering and searching files from multiple sources. Previous investigations at Fort Ord that documented OE-related activities were reviewed along with historical records. Historical records reviewed included historical maps, range control files (including construction records, Dud clearance records and training area location maps), aerial photographs, historical film footage, real estate records, Bureau of Land Management (BLM) and ordnance contractor incident reports and newspaper articles. Interviews were conducted with retired military personnel, active Corps of Engineers employees, persons present as active servicemen at Fort Ord from the 1930s through base closure in 1994, and current ordnance removal contractors.

### ***Results***

The Literature Review resulted in the identification of three types of potential OE areas at Fort Ord: (1) existing or suspected OE areas identified in the ASR, (2) training areas and/or suspected areas where no evidence of live fire was discovered, and (3) additional suspected areas where live fire may have occurred. This review also resulted in the identification of training facilities as described below.

## **Potential OE Areas**

### **Known or Suspected OE Areas**

The existing or suspected OE sites are those identified in the ASR and comprise previously documented areas of known or suspected ordnance use that have been investigated or are currently undergoing investigation. Previous ordnance use, history of the site, and methods of ordnance clearance and removal for each of these OE sites will be discussed and evaluated in the OE RI/FS.

### **Training Facilities**

Several training areas were identified in the Literature Review that were considered suspect based on the designation provided on maps or information discovered during file reviews. These areas included machine gun squares, mortar squares, rifle instructional circles, a tank ranging area, proficiency test areas, the known distance ranges, recoilless rifle training areas, a close combat course, and OE sweep areas. Because no evidence was found that would support the use of ordnance at these locations, they are considered non OE training areas. In addition, these areas were located in close proximity to major roads or housing areas, did not have range fans identified on training maps, and were generally much smaller in size than known live fire areas. In general, live ordnance was not used in training areas.

## **Additional Suspect Areas**

In addition to the areas identified above, several areas were identified that have the potential to contain buried ordnance items or where the use of live ordnance may have occurred. These areas include the Tank Gunnery Range and the Combat Ranges 1, 2, and 3. These areas were identified primarily on the basis of a review of historical training maps and aerial photographs. These areas are considered suspect and will require further evaluation during the OE RI/FS process.

### **Areas Designated as Non OE Areas**

Based on review of information sources found to date (including aerial photographs, facilities training maps, range and training files, interviews, Fort Ord specific documents, and other sources), areas have been delineated for which no evidence of ordnance use has been found. The designation of areas as non OE areas is based mainly on review of training facilities maps and aerial photographs, the presence or absence of physical features associated with live fire areas (e.g., range fans, disturbed vegetation), and interviews with former Fort Ord and military personnel. Other factors considered include: (1) physical location of the feature, (2) development history, and (3) results of the remedial investigation and excavation activities at Installation Restoration Program (IRP) sites.

## 1.0 INTRODUCTION

This Literature Review report has been prepared by Harding Lawson Associates (HLA) on behalf of the U.S. Army Corps of Engineers (USACE), Sacramento District, to address OE at the former Fort Ord, Monterey County, California (Plate 1). Preparation of this report is the first step in evaluating existing ordnance and explosives (OE) related information in support of the OE Remedial Investigation/Feasibility Study (OE RI/FS) as required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This Literature Review report summarizes the results of locating and retrieving OE-related documents that will be used to identify areas where OE-related activities occurred or were suspected to have occurred at Fort Ord. Identified OE sites or areas will be further evaluated and targeted for remedial actions in the OE RI/FS. Areas not identified as suspected OE areas based on the information presented herein will be identified as candidates for no further ordnance-related investigation or action.

The documentation in this report will be used to support property transfer decisions under the base realignment and closure (BRAC) plan. Chemical contamination and associated remedial options were addressed at RI sites in the Final Basewide Remedial Investigation/Feasibility Study (HLA, 1995).

This document includes Army responses to written regulatory agency and public comments received on the Draft Literature Review Report dated September 24, 1999. Responses to regulatory agency comments are provided in Appendix D. Responses to written comments received from entities other than the regulatory agencies are provided in Appendix E. Applicable comments on the Draft document were incorporated into the text of this document.

HLA prepared this report in accordance with USACE Scope of Work (SOW) dated 0056, Delivery Order 0046, Contract DACA05-96-D-0007.

### 1.1 Purpose

The purpose of this report is to identify all locations within the boundary of Fort Ord at the time of base closure in 1994, where OE-related activities occurred or were suspected to have occurred. This documentation process is necessary to satisfy RI/FS requirements under CERCLA. The literature review was used to create a master record of all Fort Ord OE-related documentation identified to date. The Fort Ord Geographical Information System (GIS) is currently being updated to include the OE-related information. The literature review findings will also support the development of future Fort Ord decision documents and no further action decisions.

### 1.2 Report Organization

This Literature Review report was prepared in accordance with the U.S. Environmental Protection Agency's (EPA's) *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA, 1988)*. Report organization is as follows:

- Section 2 – OE-related history and physical setting
- Section 3 – Literature review guidance followed for this report
- Section 4 – Elements of the literature review
- Section 5 – Literature review results
- Section 6 – References.

## 2.0 FORT ORD OE-RELATED HISTORY AND PHYSICAL SETTING

This section summarizes the history of OE use at Fort Ord and describes the physical setting.

### 2.1 OE-Related History

#### 2.1.1 Historical Use

Military training on Fort Ord began in approximately 1917, when the U.S. Department of the Army (Army) purchased property that includes the present-day East Garrison and nearby lands on the southeast central side of Fort Ord (15,609.5 acres) and a portion of the present-day Main Garrison (200 acres; Plate 2). The property was used as maneuver and training ground primarily for the 11<sup>th</sup> Cavalry and the 76<sup>th</sup> Field Artillery stationed at the Presidio of Monterey. During the spring and summer the 30<sup>th</sup> Infantry Regiment stationed at the Presidio of San Francisco also participated in maneuvers as did other Reserved National Guard units (*USAEDH, 1993*) (*Gillis, 1999*). Additionally, the Stanford University Reserve Officers' Training Corps (ROTC) Field Artillery batteries trained at Fort Ord (*FAJ, 1929*). Training camps on base at this time included tent and mess areas such as Camp Pacific, Camp Huffman, and Camp Clayton.

Until the 1940s the installation was used as a maneuver area and field target range for infantry, cavalry, and artillery units. In 1940 the post was expanded to more than 20,000 acres and served as a staging area for many fighting divisions and units during World War II and subsequent international conflicts (*TSCRRC, 1993*). The 7<sup>th</sup> Infantry Division was activated at the base in July of 1940 and was the first major unit to occupy Fort Ord. During World War II, the post was a staging area for many fighting divisions and units. Following World War II, the post was home to the 4<sup>th</sup> Infantry Division, which trained soldiers for the Korean conflict. The 4<sup>th</sup> Infantry Division was moved to Fort Benning in 1950 and replaced by the 6<sup>th</sup> Infantry Division (*TSCRRC, 1993*). The 6<sup>th</sup>

Infantry Division occupied Fort Ord until 1956. In 1957 Fort Ord was designated United States Army Training Center, Infantry (*USAEDH, 1997*). Basic and advanced infantry training continued until the training center was deactivated in 1974. At this time the 7<sup>th</sup> Infantry Division once again occupied the installation. The 7<sup>th</sup> Infantry Division was converted to a light division in 1983. The 7<sup>th</sup> Infantry Division (Light) included infantry and field artillery battalions, as well as an aviation brigade (*Army, 1989*).

Fort Ord was selected in 1991 for closure and the 7<sup>th</sup> Infantry Division was relocated to Fort Lewis. Troop reallocation was not completed until 1993. The base was officially closed in September 1994. Although Army personnel still operate the base, no active Army division is stationed at Fort Ord.

#### 2.1.2 History of OE Use

After 1917, when the base was established, cavalry, field artillery, and infantry units used portions of Fort Ord for maneuvers, target ranges, and other purposes. OE that have been fired into, fired upon, or used on the facility include artillery and mortar projectiles, rockets and guided missiles, rifle and hand grenades, land mines, pyrotechnics, bombs, and demolition materials. OE is anything related to munitions designed to cause damage to personnel or material through explosive force, or incendiary action, including bombs, warheads, missiles, projectiles, rockets, small arms ammunition, antipersonnel and antitank mines, demolition charges, pyrotechnics, grenades, torpedoes and depth charges, high explosives and propellants, and all similar and related items or components explosive in nature or otherwise designed to cause damage to personnel or material.

OE is present at Fort Ord as either OE or ordnance scrap. A wide variety of conventional

UXO items have been located at sites throughout Fort Ord, including pyrotechnics and explosives.

### **2.1.3 Summary of Existing OE Sampling and Removal Program**

Known or suspected OE sites were identified in the 1997 Draft Revised Archive Search Report (ASR) (an update of previous ASRs). The ordnance sites were identified as areas for further investigation. The Phase 1 Engineering Evaluation/Cost Analysis (EE/CA) (*USACE, 1997*) utilized information in the ASR and identified known OE sites at the time of its issue. The Phase 1 EE/CA addressed 29 OE sites and subsites, and the Phase 2 Engineering Evaluation/Cost Analysis (Phase 2 EE/CA; *U.S. Army, 1998*) addressed the remaining OE sites, including any potential future OE sites. The Phase 1 and Phase 2 EE/CAs were developed to describe the UXO removal and management activities for sites known or suspected to contain UXO. Plate 3 shows previously identified, known, or suspected OE sites based on the most recent data available. The sites are also listed in Table 1.

The Army conducted and documented OE sampling and removal actions to address threats to public health or welfare or the environment using the Time-Critical Removal Action (TCRA) or the EE/CA and Action Memorandum processes. Plate 4 shows the current OE sampling and removal status at each site.

Removal actions were implemented based on the discovery of OE-related hazards identified during the area reconnaissance and/or site sampling. These removal actions were conducted as TCRA as described in the Fort Ord Ordnance and Explosive Waste Time-Critical Removal Action Memorandum (*Army, 1994*). In November 1998, the Army decided to evaluate OE at Fort Ord in an OE RI/FS under the Comprehensive Environmental Response, Compensation, and Liability Act

(CERCLA). The Army is preparing the OE RI/FS to address OE-related hazards on Fort Ord, which will include input from the community and will require regulatory agency review and approval. The OE RI/FS will evaluate past removal actions as well as recommend future response actions deemed necessary to protect human health and the environment under future uses.

The Army will continue conducting OE sampling and removal actions at identified OE sites to mitigate imminent explosive hazards to the public while gathering data about the type of OE and level of explosive hazard at each of the sites. The information gathered will be used in the OE RI/FS. The OE RI/FS will contain a comprehensive evaluation of all OE-related data for the entire Fort Ord and will evaluate long term response alternatives for cleanup and risk management of OE.

Removal actions may continue at OE sites under a non-time critical mechanism described in the *Final Action Memorandum, Phase 2 Engineering Evaluation/Cost Analysis, Ordnance and Explosives Sites, Former Fort Ord, Monterey County, California (Army, 1999)*. The Phase 2 EE/CA Action Memorandum addresses UXO removal actions at OE sites while the OE RI/FS is being conducted and provides recommendations for UXO removal actions contained in the Phase 2 EE/CA (*Army, 1999*). Because past military training activities resulted in the deposition of UXO in some areas on Fort Ord, the Phase 1 and Phase 2 EE/CAs were developed to describe the UXO removal and management activities for sites known or suspected to contain UXO. The Phase 1 EE/CA Action Memorandum 1 addressed 12 OE sites for which no further removal actions were recommended. The Phase 2 EE/CA Action Memorandum addresses the remaining OE sites on Fort Ord for which the Phase 2 EE/CA established a “plug-in” evaluation process designed to address any UXO situation on Fort Ord.

The Phase 2 EE/CA addressed additional known or suspected OE sites not evaluated in Action Memorandum 1 by developing categories for each site based on: (1) expected type of UXO present, (2) soil type, and (3) future land use of the site. Five removal alternatives were developed to address each category of site. UXO data were obtained from the ASR prepared in December 1993, the ASR Supplement prepared in November 1994, and the Revised Draft ASR completed in 1997 (*USAEDH, 1993, 1994, 1997*). A preliminary site reconnaissance was conducted as part of the ASR to further identify/characterize potential OE sites; the results are contained in excerpts of the 1997 ASR, which are provided in Appendix A of this report.

Appendixes D and E of the Phase 2 EE/CA provide a summary of the number and types of UXO and ordnance scrap found during removal actions at OE sites on Fort Ord at the time the EE/CA was prepared. Data on UXO and ordnance scrap identified since that time, and on an ongoing basis as removal actions are performed, will be provided in After Action Reports and in the OE RI/FS.

The Army is the lead agency for OE removal activities at Fort Ord. However, the regulatory agencies (the United States Environmental Protection Agency [EPA] and the California Department of Health Services [now known as the Department of Toxic Substances Control DTSC, or Cal-EPA]) have been and will continue to be involved and provide direction during OE removal activities. The Army is performing its activities in compliance with the detailed process described in the National Contingency Plan (NCP) for conducting a CERCLA removal action.

## **2.2 Physical Setting**

The following sections summarize the location and general physical setting of the base, including intended land uses.

### **2.2.1 Location**

Fort Ord is adjacent to Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Plate 1). The base consists of approximately 28,000 acres adjacent to the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. The Southern Pacific Railroad and Highway 1 pass through the western part of Fort Ord, separating the beachfront portions from the rest of the base. The south and southeast of Fort Ord are bordered by unincorporated portions of Monterey County, and include several communities as well as the Laguna Seca Recreation Area and Toro Regional Park. Land immediately east of Fort Ord is primarily agricultural.

### **2.3 Land Use**

This section provides a summary of Fort Ord's land use.

#### **2.3.1 Land Use**

Fort Ord consists of both developed and undeveloped land. The three principal developed areas are the East Garrison, the Fritzsche Army Airfield (FAAF), and the Main Garrison; these areas collectively comprise approximately 8,000 acres. The remaining 20,000 acres are largely undeveloped areas.

Before the Army's acquisition of the property, land in the vicinity of the present-day Main Garrison was primarily agricultural, and the remainder of the property was covered with chaparral and oak woodland. No permanent improvements were made until the late 1930s, when administrative buildings, barracks, mess halls, tent pads, and a sewage treatment plant were constructed in the present-day East Garrison.

In 1940, additional agricultural property was purchased for the further development and expansion of the Main Garrison. At the same time, the beachfront property was donated to the

Army. Building construction in the Main Garrison began in 1940 and continued into the 1980s, starting in the northwest corner of the base and expanding southward and eastward. Additional property south of the current boundary and west of Laguna Seca was leased by the Army from 1941 to 1944 (Plate 2). During the 1940s and 1950s, a small airfield within the Main Garrison was present in what is now the South Parade Ground. In the early 1960s the FAAF was completed. The Main Garrison airfield was then decommissioned and its facilities were redeveloped as motor pools and other facilities. Subinstallations of the complex included Fort Hunter Liggett, Camp Roberts, Fort Macarthur (responsible for reserve training), and the Presidio of Monterey.

Land uses in both areas that were the developed and undeveloped areas when Fort Ord was active are described below.

### **2.3.2.1 Developed Land**

With up to 15,000 active-duty military personnel and 5,100 civilians during its active history, developed areas at Fort Ord resembled a medium-sized city, with family housing, medical facilities, warehouses, office buildings, industrial complexes, and gas stations. Individual land-use categories were as follows:

- Residential areas included military housing, such as training and temporary personnel barracks, enlisted housing, and officer housing.
- Local services/commercial areas provided retail or other commercial services, such as gas stations, minimarkets, and fast-food facilities.
- Military support/industrial areas included industrial operations, such as motor pools, machine shops, a cannibalization yard (area where serviceable parts are removed from damaged vehicles), and the FAAF.

- Mixed land-use areas combined residential, local services/commercial, and military support operations.
- Schools included the Thomas Hayes Elementary, Roger S. Fitch Junior High, General George S. Patton Elementary, and Gladys Stone schools. High school students attended Seaside High, outside Fort Ord's southwest boundary.
- Hospital facilities included the Silas B. Hayes Army Hospital, medical and dental facilities, and a helipad.
- Training areas included physical training areas, firing ranges, and maneuver areas.
- Recreational areas included a golf course and clubhouse, baseball diamonds, tennis courts, and playgrounds.

The three principal developed areas are described below.

#### ***East Garrison***

The East Garrison is on the northeast side of the base, adjacent to undeveloped training areas. Military/industrial support areas at the East Garrison include tactical vehicle storage facilities, defense recycling and disposal areas, a sewage treatment plant, and small arms ranges. Also at the East Garrison was recreational open space, including primitive camping facilities, baseball diamonds, a skeet range, and tennis courts. Recreational open space comprised 25 of the approximately 350 acres of the East Garrison.

#### ***Fritzsche Army Airfield***

The FAAF is in the northern portion of Fort Ord, on the north side of Reservation Road and adjacent to the city limits of Marina. The primary land use was for military/industrial support operations; facilities include airstrips, a motor park, aircraft fuel facilities, a sewage treatment plant, aircraft maintenance facilities,

an air control tower, a fire and rescue station, and aircraft hangars.

### **Main Garrison**

The Southern Pacific Railroad right-of-way and Highway 1 separate the coastal zone from Fort Ord's Main Garrison. The Main Garrison consisted of a complex combination of the various land-use categories. Facilities included schools; a hospital; housing; commercial facilities, including a dry cleaner and a gasoline service station; and industrial operations, including motor pools and machine shops.

#### **2.3.2.2 Undeveloped Land**

Undeveloped land is described as coastal zone areas and inland areas.

### **Coastal Zone**

A system of sand dunes lies between Highway 1 and the shoreline. The western edge of the dunes has an abrupt drop of 40 to 70 feet, and the dunes reach an elevation of 140 feet above mean sea level (MSL) on the gentler, eastern slopes. The dunes provide a buffer zone that isolates the Beach Trainfire Ranges from the shoreline to the west. In some areas, spent ammunition has accumulated on the dune slopes as the result of years of range operation. Stilwell Hall (a recreation center), numerous target ranges, ammunition storage facilities, and two inactive sewage treatment facilities lie east of the dunes.

Monterey County has designated Fort Ord's coastal zone an environmentally sensitive area because of the presence of rare and/or endangered species and because of its visual attributes. The California Natural Coordinating Council (CNCC) and the Heritage Conservation and Recreation Service (HCRS) have identified the dunes at Fort Ord as among the best coastal dunes in California because of significant features including coastal strand vegetation comprising many exotic ice plants and the habitat of the black legless lizard (*Monterey County Planning Department [MCPD], 1984*).

### **Inland Areas**

Undeveloped land in the inland portions of Fort Ord included the Multi Range Area (MRA) and infantry training areas, portions of which were used for livestock grazing and recreational activities such as hunting, fishing, and camping. These undeveloped areas are primarily left in their natural state, with minor development of facilities.

#### **2.3.3 Future Land Use**

The future land uses presented in this section are based primarily upon the Fort Ord Reuse Authority (FORA) March 1997 Fort Ord Base Reuse Plan (*FORA, 1997*), and the July 1995 SUMP (*USACE and BLM, 1995*). Other sources of future land use include public benefit conveyance, negotiated sale requests, transfer documents, and the Installation-Wide Multi-Species Habitat Management Plan (HMP; *USACE, 1997*). The Reuse Plan identified approximately 20 land use categories at Fort Ord (*FORA, 1997*) including habitat management, open space/recreation, institutional/public facilities, commercial, industrial/business park, residential, tourism, mixed use, and others. The land-use areas adapted from the HMP are shown on Plate 5.

#### **2.3.4 OE Site Categories**

The Phase 2 EE/CA provided a mechanism to assign the remaining OE sites to one of four categories. The four categories are based on maximum UXO penetration depth, UXO detection limits, and future land use requirements. Future land use requirements were considered in the Phase 2 EE/CA for categorizing sites. The Phase 2 EE/CA categories are described as follows and will be further evaluated in the OE RI/FS:

- Category A sites are sites where no UXO was found during sampling.
- Category B sites are sites where UXO was found during sampling or is suspected to be

on the site. The UXO detection limit is at least as deep as the maximum UXO penetration depth. Maximum UXO penetration depth is not deeper than the removal depth required to support future land use.

- Category C sites are sites where UXO was found during sampling or is suspected to be onsite. The UXO detection limit is not as deep as the maximum UXO penetration depth, nor is the detection limit as deep as the removal depth required to support future land use.
- Category D sites are sites where UXO was found during sampling or is suspected to be onsite. The UXO detection limit is at least as deep as the removal depth required to support future land use. Maximum UXO penetration depth is deeper than the removal depth required to support future land use.

## **2.4 Site Features**

### **2.4.1 Climate**

The area's climate is characterized by warm, dry summers and cool, rainy winters. The Pacific Ocean is the principal influence on the climate at Fort Ord, causing fog and onshore winds that moderate temperature extremes. Daily ambient air temperatures typically range from 40 to 70 degrees Fahrenheit (F), but temperatures in the low 100s have occurred. Thick fog is common in the morning throughout the year. Winds are generally from the west.

The average annual rainfall of 14 inches occurs almost entirely between November and April. Because the predominant soil is permeable sand, runoff is limited and streamflow occurs only intermittently and within the very steep canyons in the eastern portion of Fort Ord.

### **2.4.2 Ecological Setting**

Fort Ord is located on California's central coast, a biologically diverse and unique region. The range and combination of climactic,

topographic, and soil conditions at the former Fort Ord supports many biological communities. Field surveys were conducted from 1991 through 1994 to provide detailed site-specific, as well as basewide information regarding plant communities, botanical resources, observed and expected wildlife, and biological resources of concern. Plant communities were mapped for the whole base as described in the *Draft Basewide Biological Inventory, Fort Ord, California, dated December 8, 1992*.

Several of the former Fort Ord plant communities have been combined for simplification. The 12 plant communities described at former Fort Ord sites include: coast live oak woodland (coastal and inland); central maritime chaparral; central coastal scrub; grassland; developed/landscaped and disturbed dunes; dune scrub; iceplant mats; riparian forest; wetlands (including vernal pools and freshwater marsh); and coastal strand (Plate 6). Central maritime chaparral is the most extensive natural community, occupying approximately 12,500 acres in the south-central portion of the base. Oak woodlands are widespread and occupy the next largest area, about 5,000 acres. Grasslands, primarily in the southeastern and northern portions of the base, occupy approximately 4,500 acres. The other community types generally occupy less than 500 acres each. The remaining approximately 4,000 acres of the base are considered fully developed and not defined as ecological communities.

Special-status biological resources are those resources, including plant and wildlife taxa and native biological communities, that receive various levels of protection under local, state, or federal laws, regulations, or policies. The closure and disposal of former Fort Ord is considered a major federal action that could affect several species proposed for listing or listed as threatened or endangered under the federal Endangered Species Act (ESA). The U.S. Department of Fish and Wildlife Services (USFWS) final Biological Conference Opinion for the Disposal and Reuse of Fort Ord

(USFWS, 1993) required that a habitat management plan be developed and implemented to reduce the incidental take of listed species and loss of habitat that supports these species. The HMP for former Fort Ord complies with the USFWS biological opinion and establishes the guidelines for the conservation and management of wildlife and plant species and habitats that largely depend on former Fort Ord land for survival (USACE, 1997). Of the 12 plant communities identified at Fort Ord, two are considered rare or declining and of highest inventory priority by the California Department of Fish and Game (CDFG, 1997): central maritime chaparral and valley needlegrass grassland. Special-status taxa that occur or potentially occur in the plant communities at Fort Ord include 22 vascular plants, 1 invertebrate, 4 reptiles, 1 amphibian, 9 birds, and 2 mammals.

**2.4.3 Topography and Surface Waters**

Elevations at Fort Ord range from approximately 900 feet MSL near Impossible Ridge, on the east side of the base, to sea level at the beach. The predominant topography of the area reflects a morphology typical of the dune sand deposits that underlie the western and northern portions of the base. In these areas, the ground surface slopes gently west and northwest, draining toward Monterey Bay. Runoff is minimal due to the high rate of surface water infiltration into the permeable dune sand; consequently, well-developed natural drainages are absent throughout much of this area. Closed drainage depressions typical of dune topography are common.

The topography in the southeastern third of the base is notably different from the rest of the base. This area has relatively well-defined, eastward-flowing drainage channels within narrow, moderately to steeply sloping canyons. Runoff is into the Salinas Valley.

**2.4.4 Subsurface Conditions**

**2.4.4.1 Geology**

Fort Ord is within the Coast Ranges Geomorphic Province. The region consists of northwest-trending mountain ranges, broad basins, and elongated valleys generally paralleling the major geologic structures. In the Coast Ranges, older, consolidated rocks are characteristically exposed in the mountains but are buried beneath younger, unconsolidated alluvial fan and fluvial sediments in the valleys and lowlands. In the coastal lowlands, these younger sediments commonly interfinger with marine deposits.

Fort Ord is at the transition between the mountains of the Santa Lucia Range and the Sierra de la Salinas to the south and southeast, respectively, and the lowlands of the Salinas River Valley to the north. The geology of Fort Ord generally reflects this transitional condition; older, consolidated rock is exposed at the ground surface near the southern base boundary and becomes buried under a northward-thickening sequence of poorly consolidated deposits to the north. Fort Ord and the adjacent areas are underlain, from depth to ground surface, by one or more of the following older, consolidated units:

- Mesozoic granitic and metamorphic rocks
- Miocene marine sedimentary rocks of the Monterey Formation
- Upper Miocene to lower Pliocene marine sandstone of the Santa Margarita Formation (and possibly the Pancho Rico and/or Purisima Formations).

Locally, these units are overlain and obscured by geologically younger sediments, including:

- Plio-Pleistocene alluvial fan, lake, and fluvial deposits of the Paso Robles Formation

- Pleistocene eolian and fluvial sands of the Aromas Sand
- Pleistocene to Holocene valley fill deposits consisting of poorly consolidated gravel, sand, silt, and clay
- Pleistocene and Holocene dune sands
- Recent beach sand
- Recent alluvium.

The geology of Fort Ord is described in detail in Volume II of the Final Basewide RI/FS, Basewide Hydrogeologic Characterization (HLA, 1995a). Generalized soil types for Fort Ord are presented on Plate 7.

#### **2.4.4.2 Hydrogeology**

Recent studies of Fort Ord hydrogeology concluded that the base straddles two distinct groundwater basins, the Salinas and Seaside basins (Geotechnical Consultants, Inc. [GTC], 1984; Staal, Gardner & Dunne, Inc. [SGD], 1987). Fort Ord includes the southwestern edge of the Salinas basin and the eastern portion of the smaller Seaside basin. The Salinas basin

underlies the northern and southeastern portions of the base, and the Seaside basin underlies the southern and southwestern areas. Basewide RI/FS sites with recognized groundwater contamination are limited to the Salinas groundwater basin at Fort Ord; therefore, only the Salinas basin is described in detail in this Literature Review.

The Salinas groundwater basin is relatively large and extends well beyond the boundaries of Fort Ord. At Fort Ord, the Salinas basin is composed of relatively flat-lying to gently dipping poorly consolidated sediments. Although relatively simple structurally, the sediments are stratigraphically complex, reflecting a variety of depositional environments. Aquifers within the Salinas basin at Fort Ord, from top to bottom, include the unconfined A-aquifer, the confined Upper 180-foot aquifer, the confined and unconfined Lower 180-foot aquifer, and the confined 400-foot and 900-foot aquifers. These aquifer names reflect local historical water levels and are not directly correlated to present water levels at Fort Ord.

Groundwater extraction by the City of Marina, by Fort Ord, and by irrigation wells in the Salinas Valley have historically induced seawater intrusion into the Lower 180-foot and the 400-foot aquifers. Seawater intrusion continues to affect these aquifers. Intrusion into the Upper 180-foot aquifer appears to be limited to the vicinity of the beach at Fort Ord (HLA, 1999b).

### 3.0 GUIDANCE FOLLOWED FOR LITERATURE REVIEW

The literature review process followed the COE guidance *Procedures for Conducting Preliminary Assessments at Potential Ordnance Response Sites* (USACE, 1995). Other guidance documents outlined procedures and identified information sources for conducting historical record research and include the:

- COE Huntsville Center, Ordnance and Explosives Center of Expertise Interim Guidance for Archives Searches at Potential Ordnance Response Sites, September 5, 1995 (USAEDH, 1995)
- EPA Guidance for Performing Preliminary Assessments under CERCLA (EPA, 1991), and
- ASTM Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process (ASTM, 1995).

## 4.0 ELEMENTS OF LITERATURE REVIEW

This section describes the sources of information used in the Literature Review. The Literature Review process included gathering and searching files from multiple sources outlined below. Detailed data on all information sources reviewed were recorded on OE files search forms (Appendix B). The search forms included information on the location of the file, point of contact (including address and telephone number), author, source of the information, and information on the contents of the file. The search forms will be filed with a copy of its referenced documents or the location where the document is archived depending on its size. The sources of information are described in the next sections.

### 4.1 Previous Investigations

The results of previous investigations at Fort Ord that contain historical information related to OE were reviewed. Information in the following reports was used to establish the boundaries of the previously known or suspected OE sites shown on Plate 3:

- Volume 1 of the *Literature Review and Base Inventory Report (EA, 1991)* – Historical information on development at Fort Ord and interviews with former Fort Ord personnel
- *Community Environmental Response Facilitation Act (CERFA) Report (Little, 1994)* – A review of Fort Ord property transaction records
- *Data Summary and Work Plan, Site 39 – Inland Ranges (HLA, 1994)* – Investigation results for several locations within Site 39, the Multi-Range Area
- *Archives Search Reports (ASRs; [USAEDH, 1993, 1994, 1997])* – Detailed historical literature review and interviews with former Fort Ord personnel.

The ASR contains the greatest amount of comprehensive information on ordnance use at the Fort Ord. Sources of information reviewed in the process of completion of the ASRs included aerial photo coverage of Fort Ord in 1941, 1949, 1956, and 1992; National Archives and Records Administration, Pacific Sierra Division, San Bruno, California, the Pacific Southwest Region, Laguna Niguel, California, and the Suitland Branch, Suitland, Maryland; National Personnel Records Center, Military Records, St. Louis, Missouri; Naval Postgraduate School, Monterey California; Fort Ord fire department records; Monterey County Library, Seaside branch, Seaside, California; Salinas City Library, Salinas, California; Monterey Public Library, Monterey, California; the Monterey History and Art Association, Monterey, California; and interviews with former Fort Ord personnel. Other sources of historical information reviewed for this report include:

- *Final Basewide Remedial Investigation/ Feasibility Study, Fort Ord, California (HLA, 1995)*
- *Engineering Evaluation/Cost Analysis – Phase 1, Former Fort Ord, Monterey County, California (USACE and ESCH, 1997)*
- *Engineering Evaluation/Cost Analysis – Phase 2, Former Fort Ord, Monterey County, California (USACE and ESCH, 1998)*
- *Draft Action Memorandum 1 – Twelve Sites, Phase 1 Engineering Evaluation/Cost Analysis, Ordnance and Explosives Sites, Former Fort Ord, Monterey County, California (Army, 1998)*
- *Draft Action Memorandum, Phase 2 Engineering Evaluation/Cost Analysis, Ordnance and Explosives Sites, Former*

*Fort Ord, Monterey County, California (Army, 1999)*

- *Enhanced Preliminary Assessment of Monterey Bay (HLA, 1999a)* – A review of historical activities along the coast of Fort Ord
- HLA’s Basewide Remedial Investigation Site Characterization Reports from 1993 through 1995.

**4.2 Historical Records**

This section presents a summary of the historical records reviewed as part of the literature search. Additional sources of information are still being gathered and will be reviewed and added to subsequent versions of this report as they are acquired. The types of records reviewed are summarized below and include: (1) former range control records, (2) historical maps, (3) aerial photographs and photo maps, (4) videotapes of historical film footage, (5) Fort Ord historical real estate records, (6) historical newspaper articles, (7) records from the Presidio of Monterey historian's office, (8) ordnance incident reports, and (9) interviews.

**4.2.1 Former Range Control Records**

Former range control records located at Fort Ord were reviewed. The records included files for specified training areas and ranges. Types of information present in the files include standard operating procedures (SOPs) and range regulation documentation, construction plans, location maps, ordnance clearance memorandums, and diagrams of physical training courses. Most of the information contained in the files dated from the early 1970s through the early 1990s. The records were obtained from the Range Control files covering the period 1975 through 1993. These records contain information on sweeps conducted both inside the MRA and outside the MRA. Most of the information is negative information (i.e.,

sweep conducted, but no live ordnance found). The records do indicate that several items were found within existing OE sites and several items were located outside existing known or suspected OE sites. Table 5 lists the items found, date of incident and OE-Site if applicable.

**4.2.2 Historical Maps**

The following types of maps were reviewed: (1) topographic maps dating from 1913; (2) training and facilities maps from 1945 through 1992; (3) facilities maps from the 1940s, and (4) assessor’s plat maps from 1922.

Table 2 presents a list of the maps reviewed and their references. Example training maps, one from each decade from 1940 until 1990, are presented as Appendix C.

**4.2.3 Aerial Photographs**

Aerial photographs and photo maps dating from the early 1940s through 1994 were reviewed to evaluate whether additional training areas not identified on historical maps may have been present. Table 3 presents a list of the aerial photographs and photo maps reviewed along with a short description of the area covered and date of the photograph.

**4.2.4 Historical Film Footage**

Historical film footage identified by the Presidio of Monterey historian and through a search of the National Archives was obtained and reviewed. The film footage included 1938 footage titled *A Day in the Life of a Cavalry Soldier* and 1941 National Archives footage on activities at Fort Ord, California, in 1940. Activities documented in the films included cavalry training, rifle and machine gun practice, artillery and mortar training, night maneuvers, building of the Main Garrison, light tank maneuvers, physical and recreational activities.

#### **4.2.5 Real Estate Records**

Property transfer information presented in the CERFA report and information from the Real Properties office on training areas and ranges was reviewed. Property transfer information is detailed on the USACE *Real Estate, Fort Ord* map dated November 1981. This map details the acquisition and disposition of property after July 1, 1940. The Real Property construction records for the ranges and training areas, present a brief description of the facility (e.g. size, number of targets and firing points present) and whether construction was permanent or temporary. The records did not generally describe activities that occurred within the training areas and therefore were of limited use in the literature review.

#### **4.2.6 Newspaper Articles**

Historical newspaper articles from the *Salinas Daily Index* and the Fort Ord Panorama were reviewed at the Monterey County Library and the Presidio of Monterey Historians Office, respectively.

#### **4.2.7 Presidio of Monterey Historian's Office**

The Presidio of Monterey Historian's Office was visited to determine the availability of files related to training activities at Fort Ord and to obtain information. Information was obtained on historical film footage and training activities conducted at Fort Ord involving troops stationed at the Presidio of Monterey.

#### **4.2.8 Summary of BLM Records**

Unexploded Ordnance Potential Incident records from the BLM Fort Ord project office were reviewed to identify areas within BLM land where potential OE items have been discovered. BLM personnel prepare an incident form if a potential OE item is discovered on BLM land. These records are then forwarded to an onsite USACE UXO Safety Specialist, the

ordnance removal contractor, and the Federal Police for investigation and removal of the item for proper disposal. Fifteen incidents have occurred since 1997. Table 5 lists the items found, date of the incident, and OE-site if applicable.

#### **4.2.9 Summary of USA Environmental Inc., Incident Reports**

Unexploded Ordnance Incident reports prepared by USA Environmental Inc., the current ordnance removal contractor, were reviewed to identify locations where the contractor responded to unexploded ordnance incidents. The reports date from May 1996 through July 1999. These records document responses to incidents that occurred during landfill construction activities in 1996, Removal Actions at IRP Site 16 (Pete's Pond), BLM discoveries, and 2 responses to ordnance finds near the Fitch Park Housing Area reported by the Federal Police. Table 5 lists the items found date of the incident and OE-site if applicable.

#### **4.3 Interviews**

Telephone and personnel interviews were conducted with persons listed in Section 6.0. Persons interviewed included retired and active military personnel, active Corps of Engineers employees, persons present as active servicemen at Fort Ord from the 1930s through base closure in 1994, and current ordnance removal contractors. Interview records from other investigations including the ASR, the Phase 1 EE/CA, the Enhanced Preliminary Assessment of Monterey Bay, and Volume I of the Literature Review and Base Inventory Report were also reviewed. Additional interviews will be conducted if persons with possible information related to historical OE use at Fort Ord are identified.

## 5.0 RESULTS OF LITERATURE REVIEW

### 5.1 Previously Identified OE Sites

All currently known or suspected OE sites are shown on Plate 3. The OE sites were identified through the archive search process and documented in the ASRs (*USAEDH, 1993, 1994, 1997*). These sites comprise previously documented areas of known or suspected ordnance use and have or are currently undergoing additional investigation. Additional investigation includes site walks and sampling and if warranted would include an ordnance removal action. A description, including the history and type of ordnance related items known to have been used at the known or suspected OE sites, is included in the ASR (*ASR, 1997*; Appendix A). Table 1 includes the site name, the source from which information was used to identify each of the sites, the deepest penetrating ordnance item found at the site, and the current investigation status of the known or suspected OE sites. Each of these previously identified areas of ordnance use, including the history of the site and methods of ordnance clearance and removal, will be discussed and evaluated in the OE RI/FS.

### 5.2 Additional Areas Identified

#### 5.2.1 Training Facilities

The following sections describe areas that may have been used for weapons training and practice and that are identified on training facilities maps. Available information indicates that these locations were instructional areas only and did not include the use of OE. Several live fire small arms ranges (50-caliber ball ammunition or smaller) which lie outside of the MRA and OE Site 22 (Beach Ranges) were identified during this investigation. Small arms ranges which occur outside of OE Site 22, are currently being investigated (site

reconnaissance, mapping and sampling) under the Site 39 Small-Arms Investigation. Ranges used strictly for the purpose of small arms training are not considered OE sites and are not discussed in this document.

#### 5.2.1.1 Machine Gun Squares

Nine machine gun square locations were identified on training maps dating from approximately 1954 through 1961. Some of the machine gun squares can also be identified on the 1951 photographs and on 1960 and 1965 aerial mosaics. The former locations of the nine machine gun squares are shown on Plate 8. The machine gun squares were used for the practice of setting up and aiming weapons or dry fire training (*USAEDH, 1993*). No evidence has been found that would support the use of live ammunition at the machine gun squares. This conclusion is supported by the fact that the machine gun squares were located within developed areas of Fort Ord (east side of Highway 1) adjacent to main roads, barracks, and other military housing (Plate 9). Additionally, no range fans are shown on the training maps associated with the machine gun squares as are seen at known live fire locations.

#### 5.2.1.2 Mortar Squares

Eight mortar square locations were identified on training maps dating from approximately 1954 through 1972. Four of the mortar squares can also be identified on the 1960 aerial mosaic. The former locations of the eight mortar squares are shown on Plate 8. Mortar squares were used for the practice of setting up and aiming of weapons or dry fire training (*USAEDH, 1993*). No evidence has been found that would support the use of live ordnance at the mortar squares. Like the machine gun squares, the mortar squares were located within the developed portions of Fort Ord near housing and actively used roads (Plate 9). No range fans are shown associated with the mortar squares as is the case

with the areas where live fire occurred. Four of the eight mortar squares (three previously located in the Patton Park Housing area and one within the Main Garrison) were located within an area designated as a “Well Area, No Artillery Firing or Demolitions” as shown on the 1945 Fort Ord Training Facilities map (Army, 1945).

### 5.2.1.3 Ranging Area

The Ranging Area is identified on the 1956 Fort Ord Training Areas and Facilities map. The former Ranging Area location is shown on Plate 8. The 1956 map also indicates that at that time the area was assigned to the 759<sup>th</sup> Tank Battalion. The Ranging Area is not shown on the 1957 Training Area map or any of the available training maps dated after 1956. The 1957 and 1958 maps indicate that the area previously identified as the Ranging Area is designated as the Basic Driving Area & Field Commo Crewmans Course (FCCC). The location of the Ranging Area is adjacent to and partially overlaps OE Site 34 (Fritzsche Army Airfield). OE Site 34 was identified in the ASR as a 2.36-inch rocket practice range. The 2.36-inch rocket practice range is indicated on training facilities maps from the 1940s (listed as “practice bazooka & rifle grenade”); however, available maps dated from the 1950s to the present do not show the rocket range. An interview with military personnel indicated that the Ranging Area was used for either sighting gun tubes or double checking range finders, neither of which would involve weapons firing (*Brown, 1999; Curtis, 1999*). The military personnel explained that tanks are a direct fire weapon that when using live fire would typically fire at targets with a hillside downrange. The Fritzsche Army Airfield area is flat and surrounded by residential areas and farm land.

### 5.2.1.4 Rifle Instruction Circle (RIC) Training Areas

Approximately 11 rifle instruction circle (RIC) training areas were identified on training maps and aerial photos dating from 1949 through

1961. The former locations of the 11 RIC locations are shown on Plate 8. The RIC training areas were used in the practice of aiming/sighting of rifles. No evidence has been found that would support the use of live ammunition at these training areas. This conclusion is supported by the fact that the RIC training areas were located within developed areas of Fort Ord (mainly on the east side of Highway 1) adjacent to main roads, barracks, and other military housing (Plate 9).

Additionally, no range fans such as are seen at known live rifle firing ranges are shown on the training maps associated with the RIC training areas.

### 5.2.1.5 Proficiency Test Areas

Two Proficiency Test Areas were identified during the records search. The first Proficiency Test Area was described and sketched in a Fort Ord memorandum dated August 9, 1956. The location is not identified on any of the available training facilities maps. The memorandum states that this area “is off limits to all track laying or wheel vehicles.” The memorandum describes the southern half of the test area as encompassing testing stations and the northern half encompassing projected panel sites for machine gun manipulation problems. Discussions with Fort Ord Range Control indicated that this area was for dry fire training and possible firing of blank rounds (*HLA, 1994*).

Proficiency Test Area 2 was identified on a circa 1954 training facilities map. An interview with a former range control officer indicated that the proficiency test areas were used to test a soldier's proficiency in the breaking down and setting up of weapons. According to the former range control officer, the proficiency test areas were not used for live fire exercises. Proficiency Test Area 2 lies within an area identified on a 1945 Training Facilities map as a “Well Area, No Artillery Firing Or Demolitions” (*Army, 1945*). The locations of the proficiency test areas are shown on Plate 8.

### 5.2.1.6 1000-inch Mortar Range

The 1000-inch Mortar Range was identified on the 1961 Training Facilities map. No range fan is shown associated with this training area as is shown at live-fire training areas. The 1000-inch Mortar Range training area was used for direct fire training by gun crew or indirect fire using a forward observer to adjust fire (*Youngblood, 1999*). Live mortars were not used in this training activity. Inert mortar projectiles were fired using a pneumatic device and the projectiles were retrieved to be used over again. The 1964 Field Training Areas & Range Map (the next available Fort Ord training facility map) shows the 1000-inch Mortar Range relocated within OE Site 37 (Plate 3) and replaced by a nearby mortar square (Plate 8).

### 5.2.1.7 Recoilless Rifle Training Areas

Three recoilless rifle training areas (RRTAs) are identified on the training maps from circa 1954, 1956, 1957, 1958, and 1961. According to a former Range Control Officer the three training areas were not used for live fire training (*Stickler, 1999*). One of the former RRTA locations is OE Site 20 (Plate 3). OE Site 20 is described in the ASR and has been evaluated under the OE removal program. No OE was found in the sampling of OE Site 20 (*USACE, 1997a*). Of the two remaining recoilless rifle training areas, one lies within the footprint of OE Site 16 and the other lies between OE Site 4A and OE Site 53 (Plate 10). OE Site 16, which includes the area designated as a RRTA, will undergo OE sampling in the future.

### 5.2.1.8 OE Sweep Areas

Former Range Control files contain a staff directive (dated December 17, 1976) to the assistant Chief of Staff of the 7<sup>th</sup> Infantry Division, Fort Ord, “to develop an SOP for the sweep and clearing of open areas near housing areas to insure any dud ammunition that may be present be properly disposed of.” Attached to the directive is a map indicating the area to be

cleared (which included portions of two training areas) and a draft letter that discusses the date by which the clearance sweep should be completed, as well as notes that coordination should be made between the 49<sup>th</sup> ordnance detachment and the sweeping unit. According to training facilities maps, Training Areas A and I were located immediately adjacent to the Patton Park and Marshall/Fitch Park housing areas, respectively. Training Area A was first indicated on the 1976 Training Facilities Plan. Prior to this date the area was referred to as Training Area D or not formally designated as a training area. No specific training activity locations are shown within the area that makes up Training Area A on any available historical maps dated after 1958. From approximately 1954 through 1958, a portion of Training Area A included OE Site 13A (Practice Mortar Range; Plate 3). A portion of OE Site 13A is located within that portion of Training Area A identified for the clearance sweep. The 1945 Training Facilities map identified an area designated as a “wire entanglement area” adjacent to Area A within what is now the Patton Park Housing Area. Housing was constructed within former Training Area A from 1978 through 1982 (Abrams Park) and continued in 1987 through 1990 with the construction of Preston Park. No ordnance related items were found during the construction of the Abrams Park and Preston Park housing areas (Verett, 1999).

Training Area I was first indicated on the 1964 training facilities map. Prior to this date the area was not formally designated as a training area. Several training sites are indicated on the training facilities maps within the portion of Training Area I identified for the clearance sweep. These include a map reading area (orienteering area); bivouac areas E & F; the Field Fort Training Area; a mortar square; a machine gun square; several physical training areas; and a rifle instruction circle. Several known or suspected OE sites also occur within the area identified for the clearance sweep. These include OE Site 24A (Practice Rifle Grenade), OE Site 44 (MPC Habitat Preserve),

OE Site 44 (EDC), and portions of OE Site 4A (CBR Training Area), OE Site 40 (Parker Flats Gas House), OE Site 49 (Former Rifle Grenade Range), and OE Site 50 (Artillery Hill). To date no record of the results of the OE sweep have been located. The 49<sup>th</sup> ordnance detachment no longer exists and has been replaced by the 87<sup>th</sup> ordnance detachment out of Moffett Field, California. No records of the 49<sup>th</sup> ordnance detachment are on file with the 87<sup>th</sup> ordnance detachment. The 49<sup>th</sup> ordnance detachment was under the command of the 3<sup>rd</sup> Ordnance Battalion out of Fort Lewis, Washington. The 3<sup>rd</sup> Ordnance Battalion also does not have any records pertaining to the 49<sup>th</sup> ordnance detachment (*Hicks, 1999*). A representative from the 3<sup>rd</sup> Ordnance Battalion stated that the 49<sup>th</sup> explosive ordnance disposal (EOD) records have probably been destroyed. Contact with those present at Fort Ord during this time period indicated that the drafting of the SOP for the sweep was initiated by an incident where a youth detonated an ordnance item within the Fitch Park housing area (*Blackgrove, 1999; Conrad, 1999*). The youth reportedly found the ordnance item (M-79 grenade) within one of the nearby ranges (45 or 48) and carried it back to the Fitch Park housing area. According to the Range Control Officer at the time a sweep of the area was not performed (*Stickler, 1999*).

### 5.2.1.9 Close Combat Course

The Close Combat Course is shown on the 1945 and 1946 Training Facilities maps. The approximate former location of the Close Combat Course is shown on Plate 8. The Close Combat Course is not identified on the available training maps from the 1950s to the present. This area was used to train soldiers in field combat tactics. Small arms blank rounds were typically used in these training areas (*Youngblood, 1999*).

### 5.2.1.10 Artillery Firing Points

Four artillery firing points located outside the MRA were identified from former range control files and training facilities drawings. The

coordinates of the firing point locations (Plate 8) were included in the Range Control files. Range control records and interviews indicate the firing points were used by artillery divisions utilizing 105mm Howitzers and were fired at targets within the MRA. According to interviews with range control personnel conducted in 1994, these areas experienced light use from about 1978 through 1982 (*HLA, 1994*); However, the firing points continued to be listed on range control documents dated 1984, 1987 and 1992. Each of the four firing points are located within one of the known or suspected OE sites. Portions of the range fans associated with each of the firing points extend outside of known or suspected OE sites. According to the SOPs for Fort Ord artillery firing points all duds and misfires were to be reported to Range Control upon completion of firing and recorded on the range checklist (*Army, 1991*). The SOP also stated that Range Control was responsible for arranging with EOD for the removal of duds. A dud is defined as an “explosives munition which has not exploded as intended, or which has failed to explode after being armed.” (*Army, 1991*). According to the former Range Control Officer present during the periods of firing point use, all rounds fired from the firing points landed in the target area within the multi-range area (*Stickler, 1999*).

### 5.2.1.11 MST & RRST

The definition of these acronyms and the exact use of this area are unknown. The MST and RRST training area location was identified on the 1958 Training Areas And Facilities map. The approximate location of the training area is shown on Plate 8. Activities in this area may have been related to recoilless rifle training. Based on the physical location of this training area it would not have been utilized for the purpose of live fire exercises (*Stickler, 1999*). The former training area lies within an area that is currently developed (Schoonover housing area). No ordnance related items were found during the construction of the Schoonover housing area (*Verett, 1999*). No range fan is shown on the 1958 map associated with this

training area as is shown associated with known live fire training areas. The Army investigated this area in 1994 for the potential presence of OE due to its proximity to previously identified training areas to the south (Plate 4). Ten OE sample grids were established and sampled by the ordnance removal contractor. No evidence of OE, including OE-related scrap, was found (HFAI, 1994). Additionally, a site walk by a USACE UXO Safety Specialist of a suspect OE area immediately to the east of the MST & RRST location did not identify the presence of high explosive projectile fragmentation, fuzes or expended projectiles (ASR, 1997).

### **5.2.1.12 75mm Pack Howitzer Firing Area**

The identification of this area is based on the results of an interview with a retired Fort Ord military engineer (HLA, 1994). The engineer stated that he had heard that this area was used in the early 1900s by cavalry stationed at the Presidio of Monterey. Firing points were reportedly established in this area and firing was into the inland range area (Plate 8). The boundary of this area is based on a general area that was circled during the interview. The boundary includes the location of two former OE sites (Sites 1 and 6; Plate 3). No evidence that would support the use of this area as a firing point was found during the Archive Search process or this investigation. Field investigations at OE Sites 1 and 6, which included site walks, a global positioning system (GPS) survey of the OE site boundaries and OE sampling, turned up no evidence of 75mm Howitzer use (HFAI, 1994). Additionally, although use of this land by the Army prior to purchase is possible, this portion of the former Fort Ord was not purchased by the Army until 1940.

### **5.2.2 Other Identified Suspect Training Areas**

The following sections describe areas that may have been used for weapons training and practice and that are identified on training

facilities maps. Available information indicates that these areas may have included the use of live ordnance.

#### **5.2.2.1 Tank Gunnery Range**

The Tank Gunnery Range was identified on the 1956, 1957, and 1958 training maps. The former location is shown on Plate 10. The range is located partially within OE Site 32C (Oil Well Road Training Area), with the range fan shown extending to the northwest beyond the Site 32C boundary. The ASR describes activities at OE 32C including use as a target area for shoulder-launched projectiles and rifle grenades. The history of OE Site 32C and methods of ordnance clearance and removal will be discussed and evaluated in the OE RI/FS. On the basis of information identified to date, the portion of the Tank Gunnery Range extending beyond the boundary of OE Site 32C may require further evaluation in the OE RI/FS.

#### **5.2.2.2 Combat Ranges 1, 2, and 3**

Combat Ranges 1, 2, and 3 were identified on the 1945 and 1946 Training Facilities maps. The former approximate location is shown on Plate 10. The combat ranges were not identified on the available training maps from the 1950s to the present. The combat ranges partially overlap several known or suspected OE sites. Those physical portions of the combat ranges lying within known or suspected OE sites will be investigated as part of the overall investigation of the site they fall within. The remainder of the combat ranges that fall outside boundaries of the known or suspected OE sites may require further evaluation in the OE RI/FS.

### **5.3 Incident Reports**

Records documenting ordnance encounters reported by BLM employees were reviewed. Reports filed by the ordnance removal contractor in response to private citizen, Corps contractor, and BLM encounters, were also reviewed. Additionally, EOD incident reports

were also reviewed. The reports contain information on the item found including the approximate location, the type and disposition of the item (if known) and how the item was disposed (Table 5). All ordnance finds, whether OE scrap or live, when reported, are documented. Every OE item reported, whether OE scrap or live, is responded to. Many of the items reported were found within or immediately adjacent to previously identified ordnance sites or training areas (Plate 12). With the exception of the items found at locations 4, 5, 16, 17, 19, 20, 21, 23, 27, 30, 32 and 33, all items were either inert practice, expended or otherwise non-hazardous (i.e., OE scrap). The status (UXO or OE scrap) of the items found at location 30 is unknown. Locations 19 and 23 lie within previously identified ordnance sites. An evaluation of the items listed on Table 5 and their impact to the property those items were found on, will be included in the applicable associated decision document.

#### **5.4 Areas Designated As Non OE Areas**

Based on the review of information sources found to date (including aerial photos, facilities training maps, range and training area files, interviews, Fort Ord specific documents, and other sources listed in the references), areas have been delineated for which no evidence of ordnance use has been found (Plate 11). The designation of these areas as non OE areas was based mainly on review of training facilities maps and aerial photographs, Range Control records (which included Fort Ord range regulation documentation) the presence or absence of physical features associated with live fire areas (e.g., range fans, disturbed vegetation), and interviews with former Fort Ord and military personnel. Other factors considered included:

- The physical location of the feature: Training areas that were identified within or adjacent to developed areas (e.g., barracks, housing, and roads) were evaluated with respect to the physical location of the

training area and the likelihood of OE use at these locations. Training areas surrounded by development would not allow for the safe firing of weapons.

- Development history: Portions of Fort Ord have been developed since the area was established for the purpose of military use, including the East Garrison and the Main Garrison. The development history of these areas would preclude the use of ordnance from these areas.
- Investigation of remedial investigation sites: During the RI/FS for chemical contamination, numerous investigations were conducted throughout Fort Ord including areas designated here as non OE. Many of the investigation techniques used were capable of detecting OE if it was present at these sites. The following techniques were used:
  - **Geophysical surveys** – Electromagnetic, magnetometer, and ground penetrating radar surveys were conducted to locate buried metallic debris, buried drums, and underground storage tanks.
  - **Trenching** – Trenching, using a backhoe, was conducted to investigate buried metal detected during the geophysical survey.
  - **Soil excavation** – Contaminated soil was excavated as part of the site remedial actions.

A list of the sites where these techniques were used for the RI/FS for chemical contamination is shown in Table 4. The site locations are shown on Plate 13.

OE specialists were present during many of the trenching and excavating operations to check for potential OE items. In addition, field personnel working on the RI/FS for chemical contamination completed an ordnance recognition class to enhance their

ability to recognize and report any OE encountered during the investigation. Some ordnance was encountered during the above-mentioned activities that occurred within previously identified or suspected OE sites; however, no OE was encountered during RI/FS investigations occurring outside the previously identified or suspect OE sites.

- Additionally, a recurring comment made in interviews by former Fort Ord Army personnel was that ordnance use was not allowed outside of designated firing ranges (*Blackgrove, Stickler, 1999*).

Plate 11 shows areas for which no evidence has been found to indicate ordnance use.

### 5.5 Small Arms Ranges

Small arms ranges are defined as any range used for the firing of weapons .50 caliber or smaller. Several small arms ranges were utilized throughout the history of Fort Ord and were located in three general locations, the Beach Ranges (OE Site 22), the MRA (OE Site 15) and the East Garrison. The former location of the small arms ranges, with the exception of those located within the MRA, are shown on Plate 14. Ranges within the MRA occasionally changed use over time or were multipurpose ranges and supported the use of large caliber weapons, as well as small arms. All ranges within the MRA were arranged around a central impact area. This configuration presents the possibility for OE from ranges utilizing larger caliber munitions to be present in the small arms ranges within the MRA. All small arms ranges within the MRA will be, or are currently being investigated for the presence of spent ammunition (i.e., lead) and OE. The lead investigation is being conducted as part of the Basewide RI/FS for chemical contamination (*HLA, 1995*).

Small arms ranges within OE Site 22 (Beach Ranges) were also investigated for the presence of lead as part of the Basewide RI/FS. Additionally, OE sampling was performed at OE

Site 22 to evaluate the potential presence of OE. The adequacy of the sampling effort at OE Site 22 will be evaluated in the OE RI/FS.

Several small arms ranges were also located at the East Garrison. The location of historic ranges in the East Garrison, as well as those ranges active at the time of base closure, are shown on Plate 14. Those ranges active at the time of base closure were investigated for the presence of lead as part of the IRP Site 39A investigation (Basewide RI/FS). Additional evaluation for the presence of lead at the historic ranges formerly present at the East Garrison is ongoing. The small arms investigation will include a site walk in the presence of a UXO safety specialist or an ordnance removal contractor. If information suggests that weapons of caliber larger than .50 were used the range will be investigated under the OE RI/FS.

As stated in Section 2.1.2, small arms are considered OE. According to the Ordnance and Explosives Center of Expertise (CX) Interim Guidance Document 99-02, "For the purpose of OE projects with small arms, the U.S. Army Engineering and Support Center, Huntsville, OE-CX, recognizes caliber .50 and smaller as small arms." The guidance document also states that small arms ammunition present a very low risk to the public (*CEHNC, 1999*). Because small arms present a low level of risk, the literature review will not consider the small arms ranges as suspect OE areas.

### 5.6 Areas Designated As Areas of Potential Concern

Also delineated on Plate 11 are those areas, which based on the results of the literature review, show the potential for the presence of OE. These areas include all the previously known or suspected OE sites as well as, newly identified suspect areas. The newly identified sites include firing ranges and firing points outside the MRA. In addition to the previously known or suspected sites and the newly



## 6.0 REFERENCES

- American Society for Testing and Materials (ASTM), 1995. Annual Book of ASTM Standards, Section 11, Water and Environmental Technology. Vol. 11.04.
- Blackgrove, J., 1999. Telephone call with Jeff Fenton, Harding Lawson Associates. July 7.
- Brown, Sargent First Class, 1999. 1<sup>st</sup> Battalion, 149<sup>th</sup> Armor Telephone call with Jeff Fenton, Harding Lawson Associates. July 1.
- California Department of Fish and Game (CDFG), 1997. List of California Terrestrial Natural Communities Recognized by the National Diversity Data Base. December.
- Conrad, D., 1999. Telephone call with Jeff Fenton, Harding Lawson Associates. July 7.
- Curtis, Sargent First Class, 1999. U.S. Army, Fort Knox Kentucky, Telephone call with Jeff Fenton, Harding Lawson Associates. July 7.
- EA Engineering, Science, and Technology (EA), 1991. *Basewide Remedial Investigation/Feasibility Study, Fort Ord, California, Vol. 1, Literature Review and Base Inventory. Draft final.* Prepared for Omaha COE.
- Field Artillery Journal (FAJ), 1929. *The ROTC at Stanford University.* January-February.
- Geotechnical Consultants, Inc., (GTC), 1984. *Hydrogeological Update, Fort Ord Military Reservation and Vicinity.* Prepared for Sacramento USACE. October.
- Gillis, T., 1999. Interview with Jeff Fenton, Harding Lawson Associates. July 27.
- Harding Lawson Associates (HLA), 1994. *Draft Final Data Summary and Work Plan, Site 39 - Inland Ranges, Fort Ord, California.* May 17.
- \_\_\_\_\_, 1995. *Final Basewide Remedial Investigation/Feasibility Study, Fort Ord, California.* Prepared for USACE. October.
- \_\_\_\_\_, 1997. *Draft Final Site Characterization Site 39A – East Garrison Ranges, Fort Ord, California.* May 16.
- \_\_\_\_\_, 1999a. *Final Enhanced Preliminary Assessment of Monterey Bay, Fort Ord, California.* January 12.
- \_\_\_\_\_, 1999b. *Draft Report of Quarterly Monitoring, January through March 1999, Fort Ord, California.* July 27.
- Hicks, G., 1999. Major, 3<sup>rd</sup> Ordnance Battalion. Telephone call with Jeff Fenton, Harding Lawson Associates. July 8.
- Human Factors Applications, Inc. (HFAI), 1994. Volume I, OEW Sampling and OEW Removal Action, Fort Ord Final Report, Fort Ord, California. December 1.
- Little, A.D., 1994. *Community Environmental Response Facilitation Act (CERFA) Report, Fort Ord, Monterey, California.* Prepared for U.S. Army Environmental Center Aberdeen Proving Ground, Maryland 21010. April.
- Monterey County Planning Department (MCPD), 1984. *Greater Monterey Peninsula Area Plan (Part of the Monterey County General Plan).* Prepared for Monterey County.
- Staal, Gardner & Dunne, Inc. (SGD), 1987. *Hydrogeologic Investigation, Seaside Coastal Groundwater Basin, Monterey County, California.* Prepared for Monterey Peninsula Water Management District. May.
- Stickler, L., 1999. Interview with Jeff Fenton, Harding Lawson Associates. July 29.
- Tri-Services Cultural Resources Research Center (TSCRRC), 1993. *Historical and*

- Architectural Documentation Reports for Fort Ord, California*. September. (Conducted for the Office of Directorate of Environmental Programs Conservation Division.)
- U.S. Army, 1998. *Engineering Evaluation/Cost Analysis – Phase 2, Former Fort Ord, Monterey County, California*. Final. U.S. Army Engineering and Support Center Huntsville and U.S. Army Corps of Engineers, Sacramento District. April.
- U.S. Army Corps of Engineers (USACE) Washington, 1995. *Procedures for Conducting Preliminary Assessments at Potential Ordnance Response Sites*. April.
- \_\_\_\_\_, USACE, Sacramento District and Engineering and Support Center Huntsville, 1997a. *Engineering Evaluation/Cost Analysis – Phase 1, Former Fort Ord, Monterey County, California*. Final. September.
- \_\_\_\_\_, 1997. *Installation-Wide Multi-Species Habitat Management Plan for Former Fort Ord, California*. April. With technical assistance from Jones and Stokes Associates, Sacramento, California.
- U.S. Army Engineer Division, Huntsville (USAEDH), 1993. *Archives Search Report, Fort Ord, California, Monterey County, California*. Prepared by U.S. Army Corps of Engineers, St. Louis District. December.
- \_\_\_\_\_, 1994. *Archives Search Report (Supplement No. 1). Fort Ord, California, Monterey County, California*. Prepared by U.S. Army. Corps of Engineers, St. Louis District. November.
- \_\_\_\_\_, 1995. Interim Guidance for Archives Searches at Potential Ordnance Response sites. September 5.
- \_\_\_\_\_, 1997. *Revised Archives Search Report, Former Fort Ord, California, Monterey County, California*. Prepared by U.S. Army Corps of Engineers St. Louis District.
- USAEDH Center of Expertise (CX), 1999. *Small Arms Determinations, Ordnance and Explosives (OE) Center of Expertise (CX) Interim Guidance Document 99-02*. April 21.
- U.S. Department of the Army (Army), 1999. *Final Action Memorandum, Phase 2 Engineering Evaluation/Cost Analysis, Ordnance and Explosives Sites, Former Fort Ord, Monterey County, California (AMPI)*. June 28.
- \_\_\_\_\_, 1998. *Draft Action Memorandum 1 - Twelve Sites, Phase 1 Engineering Evaluation/Cost Analysis, Ordnance and Explosives Sites, Former Fort Ord, Monterey County, California*. January 23.
- \_\_\_\_\_, 1991. *Fort Ord Range/Training Area Operating Procedures and Usage Guide, Fort Ord Pamphlet 350-5, Change 1*. June 20.
- \_\_\_\_\_, 1989. Commanders & Staff Directory, Headquarters 7<sup>th</sup> Infantry Division (Light) and Fort Ord, Prepared by DOIM-ADMIN Services, Fort Ord, California. August.
- \_\_\_\_\_, 1980. *On Post Ranges and Training Areas*. Fort Ord Regulation 350-5. September 9.
- \_\_\_\_\_, 1945. *Map of Training Facilities, Fort Ord and Vicinity*. August.
- U.S. Environmental Protection Agency (EPA), 1991. *Guidance for Performing Preliminary Assessments under CERCLA*. Prepared by the Office of Emergency and Remedial Response, Washington, D.C. September.
- United States Fish and Wildlife Service (USFWS), 1993. *Biological Opinion for the Disposal and Reuse of Fort Ord, Monterey County, California*. October 19, 1993. (I-8-93-F-14).
- Verett, Jay, 1999. Interview with Jeff Fenton, Harding Lawson Associates. September 23.
- Weston, Roy F., Inc. (Weston), 1990. *Task Order 11 - Enhanced Preliminary Assessment*

*for Fort Ord.* Prepared for U.S. Army Toxic and Hazardous Materials Agency. Aberdeen Proving Grounds, Maryland. December.

Youngblood, Jack, 1999. Interview with Jeff Fenton, Harding Lawson Associates. July.

Research for this report included interviews or contact with the following individuals:

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Sargent First Class Brown	U.S. Army Reserves Former Fort Ord, California
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Lee Stickler	U.S. Army (retired)
Thomas Gillis	U.S. Army (retired)
John Hemphill	U.S. Army (retired)
Peter Lash	U.S. Army (retired)
Donald Conrad	U.S. Army (retired)
Joe Blackgrove	U.S. Army (retired)
Jack Youngblood	U.S. Army (retired)
Jack Fenton	U.S. Army Fort Ord, 1954
Allen Fenton	U.S. Army Fort Ord, 1958
Jim Breitlow	U.S. Army Fort Ord, 1970
Donald Highsmith	U.S. Army Fort Ord, 1985-89
Charles Lemmons	Patton Museum Fort Knox, Kentucky
Nick Iaiennaro	U.S. Army Corp of Engineers Rock Island District

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Jay Verett	U.S. Army Corps of Engineers (retired)
Deanne Strauser	U.S. Army Corps of Engineers St. Louis District
Doug Ralston	USA Environmental, Inc. Project Manager
Gay Rearick	Presidio of Monterey Records Center

The following institutions or organizations were also contacted or visited:

National Archives and Records Administration  
Motion Picture, Sound, and Video Branch  
College Park, Maryland

National Image and Mapping Agency

Military History Institute  
Carlisle Barracks  
Carlisle, Pennsylvania

U.S. Army Corps of Engineers  
Office of History  
Alexandria, Virginia

Headquarters United States Army  
Training and Doctrine Command  
Fort Monroe, Virginia

Bureau of Land Management  
Fort Ord Project Office

Monterey County Library

Monterey County Historical Society

University of California at Santa Cruz

Stanford Special Collections Library

University of California at Berkeley  
Earth Sciences Library

Whittier College  
Fairchild Aerial Photography Collection

Pacific Aerial Surveys  
Oakland, California

Geography and Map Division Library of Congress  
Washington, D.C.

United States Department of the Interior  
Geological Survey EROS Data Center

Vintage Video  
Greencastle, Pennsylvania

Monterey County Water Resources Agency

Presidio of Monterey  
Military Police Administration

City of Marina Police Department

City of Seaside Police Department

Monterey County Sheriff Department

Caltrans, District 5

## **TABLES**

**Table 1. Site Status, Known or Suspected OE Sites  
Draft Final Literature Review Report  
Former Fort Ord, California**

Site Number	Site Name	Source of OE Site Location <sup>a</sup>	Deepest Penetrating OE Item Found <sup>b</sup>	Site Status
OE-1	Flame Thrower Range	1957 and 1958 Fort Ord Training Areas and Facilities	No OE found <sup>1</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-2	Pete's Pond	Interview	No OE found <sup>1</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-3	Old Demolition Training Area, Range 49	Interview	81mm mortar <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-4A	CBR Training Area	1957 and 1958 Fort Ord Training Areas and Facilities	Rifle grenade <sup>2</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-4B	CBR Training Area	1957 and 1958 Fort Ord Training Areas and Facilities	Surface OE <sup>2</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-4C	CBR Training Area within CSU Footprint	1957 and 1958 Fort Ord Training Areas and Facilities	See Site OE-31	OE Site has undergone removal action as part of Site OE-31; site will undergo additional evaluation in the OE RI/FS
OE-5	South of East Garrison	Based on the discovery of a rocket motor	No OE found <sup>1</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-6	Booby Traps and Land Mines	1957 and 1958 Fort Ord Training Areas and Facilities	No OE found <sup>1</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-7	Mine and Booby Trap Training Area within CSU Footprint	1957 and 1958 Fort Ord Training Areas and Facilities	See Site OE-31	OE Site has undergone removal action as part of Site OE-31; site will undergo additional evaluation in the OE RI/FS
OE-8	Mine and Booby Trap Training Area within CSU Footprint	1957 and 1958 Fort Ord Training Areas and Facilities	See Site OE-31	OE Site has undergone removal action as part of Site OE-31; site will undergo additional evaluation in the OE RI/FS
OE-9	MBA Training Area	1957 and 1958 Fort Ord Training Areas and Facilities	60 mm mortar <sup>b</sup>	More sampling to be performed
OE-10A	Leary Hill Region	Location noted on several historical maps	81mm mortar <sup>b</sup>	Removal in progress
OE-10B	Elliot Hill Region	Location noted on several historical maps	Stokes mortar <sup>b</sup>	Removal in progress
OE-11	Demolition Training Area	Interview and 1957 Fort Ord Training Areas and Facilities	Surface OE <sup>b</sup>	Removal in progress
OE-12	Picnic Canyon	Unspecified Reports	40mm AA <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-13A	Practice Mortar Range	1957 and 1958 Fort Ord Training Areas and Facilities	No OE found <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-13B	Practice Mortar Range	1957 and 1958 Fort Ord Training Areas and Facilities	3.5-inch rocket <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS

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OE-13C	CSU-Footprint Wedge	1957 and 1958 Fort Ord Training Areas and Facilities	See Site OE-31	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-14A	Lookout Ridge 2	1956 and 1957 Fort Ord Training Areas and Facilities	Rifle grenade <sup>3,4</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-14B	Pilarcitos Canyon	1956 and 1957 Fort Ord Training Areas and Facilities	No OE Found <sup>3</sup>	Sampling complete; removal to be performed
OE-14C	Site 14SE	1956 and 1957 Fort Ord Training Areas and Facilities	Rifle grenade <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-14D	Site 14 West	1956 and 1957 Fort Ord Training Areas and Facilities	22mm sub-caliber projectile <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS. Additional removal to be performed.
OE-14E	Site 14 East	1956 and 1957 Fort Ord Training Areas and Facilities	22mm sub-caliber projectile <sup>4</sup>	Sampling complete; removal to be performed
OE-15DRO.1	Del Rey Oaks, E29a	Boundary based on property transfer	Stokes mortar <sup>b</sup>	Sampling complete; 4-foot removal completed within fire break (eastern margin of site)
OE-15DRO.2	Del Rey Oaks, E29b.1	Boundary based on property transfer	No OE found <sup>b</sup>	Sampling completed at part of the site, 4-foot removal completed within fire break (eastern margin of site)
OE-15SEA.1	Seaside 1, E24	Boundary based on property transfer	75mm shrapnel projectile <sup>b</sup>	Sampling completed at part of the site, 4-foot removal completed within fire break (eastern margin of site)
OE-15SEA.2	Seaside 2, E34	Boundary based on property transfer	Stokes mortar <sup>b</sup>	Sampling completed at part of the site, 4-foot removal completed within fire break (eastern margin of site)
OE-15SEA.3	Seaside 3, E23.1	Boundary based on property transfer	Rifle grenade <sup>b</sup>	Sampling completed at part of the site, 4-foot removal completed within fire break (eastern margin of site)
OE-15SEA.4	Seaside 4, E23.2	Boundary based on property transfer	57mm projectile <sup>b</sup>	Sampling completed at part of the site, 4-foot removal completed within fire break (eastern margin of site)
OE-15 MOCO.1	Monterey County 1, E29b.2	Boundary based on property transfer	Unknown	No sampling or removal completed
OE-15 MOCO.2	Monterey County 2, E21b.3	Boundary based on property transfer	66mm LAW rocket <sup>b</sup>	4-foot removal completed within fire break only (eastern margin of site)
OE-15 BLM	BLM	Identified on several historical maps	Unknown	No sampling or removal completed
OE-16	2.36-inch Rocket Moving Target Range	Interview	2.36-inch rocket <sup>a</sup>	No sampling or removal completed
OE-17	Anti-Tank Practice Mine Area	Interviews	No OE found <sup>1</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS

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Site Number	Site Name	Source of OE Site Location <sup>a</sup>	Deepest Penetrating OE Item Found <sup>b</sup>	Site Status
OE-18	100-pound Bomb; within CSU footprint	1984 training facilities map	See Site OE-31	OE Site has undergone removal action as part of Site OE-31; site will undergo additional evaluation in the OE RI/FS
OE-19	Rifle Grenade Range	Not specified	Surface OE <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-20	Recoilless Rifle Training Range	1957 Fort Ord Training Areas and Facilities	No OE found <sup>1</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-21	Mudhen Lake	Possible dumping ground (ASR)	Surface OE <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-22	Beach Ranges/Trainfire Ranges	Identified on several historical maps	No OE found <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-23	Demolition Area	1957 Fort Ord Training Areas and Facilities and interview	Surface OE <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-24A	Practice Rifle GR	1946 Fort Ord Master Plan	Surface OE <sup>2</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-24B	Practice HGR	1946 Fort Ord Master Plan	No OE found <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-24C	Live HGR	1946 Fort Ord Master Plan	No OE found <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-24D	Booby Traps	1946 Fort Ord Master Plan	No OE found <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-24E	Practice RGR	1946 Fort Ord Master Plan	No OE found <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-25	Firing Point; within 14D Footprint (Range P-5)	Not Specified	See Site OE-14D	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-26	Hilltop within 14D Footprint (Range P-5)	Not Specified	See Site OE-14D	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-27A	Training Site 1	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27B	Training Site 2	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27C	Training Site 3	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27D	Training Site 4	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27E	Training Site 5	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS

**Table 1. Site Status, Known or Suspected OE Sites  
Draft Final Literature Review Report  
Former Fort Ord, California**

Site Number	Site Name	Source of OE Site Location <sup>a</sup>	Deepest Penetrating OE Item Found <sup>b</sup>	Site Status
OE-27F	Training Site 6	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27G	Training Site 7	1984 training facilities map	37 mm projectile <sup>b</sup>	Portion sampled and awaiting vegetation clearance as part of OE-53 BLM
OE-27H	Training Site 8	1984 training facilities map	2.36-inch rocket <sup>a</sup>	No sampling completed
OE-27I	Training Site 9	1984 training facilities map	Surface OE <sup>b</sup>	OE Site has undergone removal action as part of Site OE-10A; additional evaluation in the OE RI/FS
OE-27J	Training Site 10	1984 training facilities map	Surface OE <sup>b</sup>	Portion undergoing removal as part of OE-10A Southern
OE-27K	Training Site 11	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27L	Training Site 12	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27M	Training Site 13	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27N	Training Site 14	1984 training facilities map	Surface OE <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27O	Training Site 15	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27P	Training Site 16	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27Q	Training Site 17	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27R	Training Site 18	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27S	Training Site 19	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27T	Training Site 20	1984 training facilities map	No OE found <sup>4</sup>	Some sampling completed as part of OE-14E
OE-27U	Training Site 21	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS

**Table 1. Site Status, Known or Suspected OE Sites  
Draft Final Literature Review Report  
Former Fort Ord, California**

Site Number	Site Name	Source of OE Site Location <sup>a</sup>	Deepest Penetrating OE Item Found <sup>b</sup>	Site Status
OE-27V	Training Site 22	1984 training facilities map	No OE found <sup>3,4</sup>	Some sampling completed as part of OE-14B and OE-14E
OE-27W	Training Site 23	1984 training facilities map	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-27X	Training Site 24	1984 training facilities map	No OE found <sup>3</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-27Y	Training Site 25	1984 training facilities map	No OE found <sup>3</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-28	MOUT Site	Interview	81mm mortar <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-29	Laguna Seca Bus Turn around	Boundary based on parcel transfer	Rifle grenade <sup>3</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-30	Laguna Seca Turn 11	Lies within MRA (ASR)	75mm HE projectile <sup>3</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-31	CSU Footprint	Boundary based on parcel transfer	Rifle grenade <sup>3</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-32A	Oil Well Road I	1957 Fort Ord Training Areas and Facilities and interview	No OE found <sup>3</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-32B	Oil Well Road II	1957 Fort Ord Training Areas and Facilities and interview	No OE found <sup>3</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-32C	Oil Well Road III	1957 Fort Ord Training Areas and Facilities and interview	81mm illuminating flare <sup>2</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-33	OE Cache	Federal police	Not applicable <sup>7</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-34	Fritzsche Army Airfield	1942 Fort Ord Master Plan	2.36-inch rocket <sup>3</sup>	Removal complete; Army is initiating additional site evaluation
OE-35	Former Range Control	Within the MRA (ASR)	Surface OE <sup>3</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-36 <sup>c</sup>				
OE-37	Parker Flats Practice Mortar Range	Undated fire department map; 1964 Field Training Areas & Range Map	75mm HE frag <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-38 <sup>d</sup>				
OE-39	Mine and Booby Trap Training Area	1957 and 1958 Fort Ord Training Areas and Facilities	No OE found <sup>a</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-40	Parker Flats Gas House	Unspecified historical maps and the Enhanced Preliminary Assessment	81mm mortar <sup>b</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-41	Powder Magazine	1945 Training Facilities	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS

**Table 1. Site Status, Known or Suspected OE Sites  
Draft Final Literature Review Report  
Former Fort Ord, California**

Site Number	Site Name	Source of OE Site Location <sup>a</sup>	Deepest Penetrating OE Item Found <sup>b</sup>	Site Status
OE-42	Demolition Area - Rifle Grenade Area	1946 Fort Ord Master Plan	37mm rifle grenade <sup>b</sup>	Removal in progress
OE-43	South Boundary Area	Interview	37mm spotter <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-44 (PBC)	MPC Habitat Preserve	Site walk	37mm frag <sup>b</sup>	Sampling complete; Site will undergo additional evaluation in the OE RI/FS
OE-44	EDC	Site walk	105mm HE frag <sup>b</sup>	Sampling in progress
OE-45	Tactical Training Area - TTA	Not specified	Surface OE <sup>b</sup>	Additional sampling to be performed
OE-46	York School	Parcel transfer	2.36-inch rocket <sup>b</sup>	Sampling in progress
OE-47	Wolf Hill	Parcel transfer	75mm HE projectile <sup>4</sup>	Removal complete; site will undergo additional evaluation in the OE RI/FS
OE-48	Unnamed	1946 Fort Ord Master Plan	4.2-inch frag <sup>b</sup>	Sampling complete; site will undergo additional evaluation in the OE RI/FS
OE-49	Former Rifle Grenade Range	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-50	Artillery Hill	Interview	75mm shrapnel projectile <sup>b</sup>	Removal in progress
OE-51 <sup>d</sup>				
OE-52	Rifle Grenade and Projectile Target Area	Interview	Stokes mortar <sup>b</sup>	Removal at OE-53 expanding into OE-52
OE-53 (EDC)	Shoulder-Launched Projectile Area	Not specified	75mm HE projectile <sup>b</sup>	Removal in progress
OE-53 (BLM)	Shoulder-Launched Projectile Area	Not specified	37mm projectile <sup>b</sup>	Sampling complete, awaiting vegetation clearance
OE-54 (EDC)	Canyon Target Area	Interview	No OE found <sup>b</sup>	Removal in progress
OE-54 (BLM)	Canyon Target Area	Interview	Unknown	Awaiting vegetation clearance
OE-55	Parker Flats	Interview	Rifle grenade <sup>b</sup>	Removal in progress
OE-56	Hayrake Area	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-57	Unnamed, coordinates only	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-58	Unnamed, coordinates only	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-59	Unnamed	Interview	Surface OE <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-60	Unnamed, coordinates only	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS

**Table 1. Site Status, Known or Suspected OE Sites  
Draft Final Literature Review Report  
Former Fort Ord, California**

Site Number	Site Name	Source of OE Site Location <sup>a</sup>	Deepest Penetrating OE Item Found <sup>b</sup>	Site Status
OE-61	Grenade Range	Interview	Surface OE <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-62	Laguna Seca Open Spaces	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-63	Canyon Training Area	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-64	Unnamed	Interviews	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-65	Unnamed	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-66	Signal Corps Small Arms	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-67	Unnamed	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-68	Unnamed	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-69	Unnamed	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS
OE-70	Unnamed	Interview	No OE found <sup>5</sup>	Site walk with RAC <sup>6</sup> evaluation; site will undergo additional evaluation in the OE RI/FS

<sup>a</sup> Revised Archives Search Report (USAEDH, 1997)

<sup>b</sup> Sampling or Removal Action through 10/99

<sup>c</sup> This site number has not been used

<sup>d</sup> OE-38 and OE-51 were created in error due to the mislocation of OE-9 and OE-52, respectively (teleconference with USACE St. Louis 3/18/99)

<sup>1</sup> Final Phase 1 EE/CA

<sup>2</sup> USA Environmental Inc., After Action Report; Surface OE are non-penetrating items (e.g., flares, smoke grenades, fuzes)

<sup>3</sup> UXB International Inc., After Action Report

<sup>4</sup> CMS Environmental Inc. (now USA Environmental Inc.), After Action Report

<sup>5</sup> Based on site walk

<sup>6</sup> Risk Assessment Code (RAC) evaluation. Risk assigned based on results of a site walk

<sup>7</sup> OE items were found in a burial pit

**Table 2. List of Maps Reviewed  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>Map Title</b>	<b>Date</b>	<b>Reference</b>
Topographic Map, Monterey and Salinas Quadrangles	1913	USGS
Map of the David Jacks Corporations, Proposed Acreage Subdivisions	June 1914	H.F. Cozzens
Assessor's Plat, Monterey City Lands Tract No. 1, Map No.2	1922	Monterey County
Topographic Map, Camp Ord and Vicinity	1933-1934	U.S. Army
Topographic Map, Camp Ord and Vicinity	1938	U. S. Army
Corps of Engineers, U.S. Army Tactical Map	1939-40	USGS
Fort Ord: Map Locator	1940	Unknown
Camp Ord, Showing Ultimate Layout of Concurrent Training Camps	6/20/40	U.S. Army, Presidio of Monterey
Fort Ord. East Garrison Topography and Temporary Housing Layout	11/28/41	Office of Constructing Quartermaster
Fort Ord Military Reservation	1943	U. S. Army, Corps of Engineers
East Garrison Layout of Building and Roads	1/28/42	U. S. Army
Training Facilities, Fort Ord and Vicinity, Calif.	Aug 45	U. S. Army
Topographic Map, Fort Ord Military Reservation	1944	Army Map Service
Fire-Hydrants, Fire-Telephones, Main Garrison	7/3/44	Post Engineer Office, Fort Ord
Main Garrison Cantonment Land Use Map, 53-1-9, 2a	3/20/46	Post Engineer
General Site Plan and Building Use, Main Garrison, 53-1-9, 2b	3/20/46	Post Engineer
General Road Map, Main Garrison, 53-1-9, 2c	3/20/46	Post Engineer
General Tree Cover Map, 53-1-9, 2e	4/5/46	Post Engineer
General Organized Recreational Area, Main Garrison, 53-1-9, 2d	4/5/46	Post Engineer
Ord Village General Road Map, 53-1-9, 4a	3/20/46	Post Engineer
East Garrison Cantoment 1 and Use Map, 53-1-9, 3	4/5/46	Post Engineer
Reservation Boundary & Land Use Map, 53-1-9, 2	4/5/46	U. S. Army
Real Estate, Fort Ord (Military Reservation); Segments "1A -1D"	4/24/46	Department of the Army
Topographic Map, Seaside 7.5' Quadrangle	1947	Army Map Service
Topographic Map, Salinas 15' Quadrangle	1947	Army Map Service
Topographic Map, Fort Ord Military Reservation	1948	U. S. Army Corps of Engineers
Training Areas That Cannot Be Used At Same Time	Circa 1954	Unknown

**Table 2. List of Maps Reviewed  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>Map Title</b>	<b>Date</b>	<b>Reference</b>
Main Garrison Layout	Feb 56	U. S. Army Corps of Engineers
Range Complex, Fort Ord (Construction Priority Map)	7/3/56	U. S. Army
Map of Fort Ord Training Areas and Facilities	12/20/56	U. S. Army
Map of Fort Ord Training Areas and Facilities	7/15/57	U. S. Army
Map of Fort Ord Training Areas and Facilities	1/10/58	U. S. Army
Firebreak Map, Fort Ord Fire Department	5/11/58	U. S. Army, Fire Department Scrapbook
Map of Fort Ord Training Areas and Facilities	9/29/58	U. S. Army
Basic Information, Ranges & Training Facilities, Master Plan	12/31/58	U.S. Army Corps of Engineers
Basic Information, Training Facilities	6/30/61	U. S. Army Corps of Engineers
Field Training Areas and Range Map, Fort Ord	4/27/64	U. S. Army
Back Country Roads, Field Training Area and Range Map	Jan 67	U. S. Army
Training Facilities Map	3/13/68	U. S. Army, Corps of Engineers
Topography (Inland Ranges) Sheets 1 through 4, 15-25-851	1969	U. S. Army, Corps of Engineers
Training Facilities Plan, Fort Ord	1/11/71	U. S. Army Corps of Engineers
Training Ranges and General Road Maps	3/16/72	U. S. Army, Corps of Engineers
Reservation Map, Basic Information	3/1/75	U. S. Army, Corps of Engineers
Training Facilities Plan, Future Development, Master Plan	12/1/76	U. S. Army, Corps of Engineers
Topography with Training Facility Notes	1976	U. S. Army
Reservation Plan, Fort Ord	6/1/77	U.S. Army, Corps of Engineers
Training Facilities Plan, Future Development Plans	6/1/77	U.S. Army, Corps of Engineers
Proposed Annexation of Fort Ord Military Reservation	Nov 83	U. S. Army

**Table 2. List of Maps Reviewed  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>Map Title</b>	<b>Date</b>	<b>Reference</b>
Training Facilities Map, Basic Information Maps, Master Plan	Jun 84	U. S. Army, Corps of Engineers
Close In Training Areas & Selected Post Facilities	8/16/65	U.S. Army
Close In Training Areas & Selected Post Facilities	5/1/67	U. S. Army
Post Locator Map	1/15/69	U.S. Army
Fort Ord and Vicinity, Series V895S	1972	Defense Mapping Agency (DMA)
Field Training Area and Range Map	7/1/72	U.S. Army
Close In Training Areas & Selected Post Facilities	2/23/73	U.S. Army
Ranges and Training Area Overlay, Fort Ord and Vicinity	2/1/76	U.S. Army
Close In Training Areas	3/1/76	U.S. Army
Close In Training Areas & Selected Post Facilities	Sep 77	U.S. Army
Ranges and Training Area Overlay, Fort Ord and Vicinity	Jan 78	U.S. Army
Ranges and Training Area Overlay, Fort Ord and Vicinity	7/15/78	U.S. Army
Ranges and Training Area Overlay, Fort Ord and Vicinity	6/1/81	U.S. Army
Ranges and Training Area Overlay, Fort Ord and Vicinity	4/1/82	U.S. Army
Fort Ord and Vicinity Firing Points and Associated Range Fans, Firing Points 1 and 2	Circa 1984	Range Control
Fort Ord Military Installation Map, Series V795S	8/1/84	USGS, DMA
Fort Ord Training Facilities Map, Master Plan	Mar 80	U.S. Army Corps of Engineers
Notes on June 84 Training Map	Jun 84	U. S. Army, Corps of Engineers
Ranges and Training Area Overlay, Fort Ord and Vicinity	11/15/87	U. S. Army
Training Facilities, Master Plan	5/2/88	U. S. Army Corps of Engineers
Site Plan, Future Development Plans	May 89	U. S. Army Corps of Engineers
Aerial Mapping-GPS Control Network, Topographic Maps	9/8/94	U. S. Army
Highway 1 Construction Diagram	Unknown	Caltrans

**Table 3. Aerial Photograph Review  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>Aerial Photograph Area</b>	<b>Date</b>	<b>Reference</b>	<b>Comments</b>
Photo Map, Southwestern Fort Ord, Western Impact Area, Sheet 74-27	1942	29TH Engineer Reproduction Plant, Portland OR	Shows western impact area, prepared from U. S. Army 1941 and 1942 aerial photographs and 1937 and 1939 Fairchild Aerial Surveys aerial photographs.
Photo Map, Southeastern Fort Ord, Eastern Impact Area, Sheet 74-28	1942	29TH Engineer Reproduction Plant, Portland OR	Shows southeastern Fort Ord. Prepared from U. S. Army 1941 and 1942 aerial photographs and 1937 and 1939 Fairchild Aerial Surveys aerial photographs.
Photo Map, Northwestern Fort Ord, Main Garrison, Sheet 73-27	1942	29TH Engineer Reproduction Plant, Portland OR	Shows northwest Fort Ord, Main Garrison Area. Prepared from U. S. Army 1941 and 1942 aerial photographs and 1937 and 1939 Fairchild Aerial Surveys aerial photographs.
Photo Map, Northeastern Fort Ord, East Garrison Area, Sheet 73-28	1942	29TH Engineer Reproduction Plant, Portland OR	Shows northeastern Fort Ord including East Garrison Area. Prepared from U. S. Army 1941 and 1942 aerial photographs and 1937 and 1939 Fairchild Aerial Surveys aerial photographs.
Photo Map, Southern Fort Ord	1943	U. S. Army, Corps of Engineers	Shows Inland Range area. Prepared from 1941 Fairchild Aerial Surveys photographs.
Photo Map, Northern Fort Ord	1943	U. S. Army, Corps of Engineers	Shows Main Garrison and Fritzsche Army Airfield Areas. Prepared from 1941 Fairchild Aerial Surveys photographs.
Aerial Photograph, East Garrison, Photo Number ABG-17F-87	8/17/49	U. S. Department of Agriculture, Soil Conservation Service	Shows East Garrison Area and area southeast of East Garrison. Ranges evident on photographs.
Aerial Photograph, Western Inland Ranges, Photo Number ABG-17F-195	8/17/49	U. S. Department of Agriculture, Soil Conservation Service	Shows Inland Range area. Ranges evident in photo. Training areas north of Inland Range area also evident.

**Table 3. Aerial Photograph Review  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>Aerial Photograph Area</b>	<b>Date</b>	<b>Reference</b>	<b>Comments</b>
Aerial Photograph, Southwestern Inland Ranges, Photo Number ABG-17F-193	8/17/49	U. S. Department of Agriculture, Soil Conservation Service	Shows Inland Range area. Ranges are evident.
Aerial Photograph, Northeastern Inland Ranges, OE-10A and 10B areas, Photo Number ABG-17F-131	8/17/49	U. S. Department of Agriculture, Soil Conservation Service	Shows Inland Range area and area north of ranges.
Aerial Photograph, Southeastern Inland Ranges, Photo Number ABG-17F-133	8/17/49	U. S. Department of Agriculture, Soil Conservation Service	Shows Inland Range area and Laguna Seca area.
Aerial Photograph, Intergarrison Area, Photo Number ABG-17F-129	8/17/49	U. S. Department of Agriculture, Soil Conservation Service	Shows Intergarrison area.
Aerial Photograph set covering Main Garrison, East Garrison, Intergarrison North South Road area to Inland Ranges. Photo Numbers 3-1 through 3-25, 2-53 through 2-80, and 2-10, 2-12, 2-14, 2-16, 2-18, 2-20, 2-22, 2-24, 2-26, 2-28, 2-31, 2-33, 2-35, 2-37, 2-39, 2-41, 2-43, 2-45, 2-47, 2-49, 2-51	6/23/51, 7/3/51	Fairchild Aerial Surveys, Inc.	9 by 9 inch set of 46 photographs covering a portion of the installation. Scale is 1 inch = 400 feet.
Aerial Photograph, Southeastern Inland Ranges, Photo Number ABG-23R-85	8/1/56	U. S. Department of Agriculture, Soil Conservation Service	13 by 13 inch photograph covering portion of the installation
Aerial Photograph, Parker Flats Area, Photo Number ABG-5R-35	5/1/56	U. S. Department of Agriculture, Soil Conservation Service	13 by 13 inch photograph covering portion of the installation
Aerial Photograph set covering majority of Fort Ord. Photo Numbers ABG-1GG-45-53,128-133	5/2/66	Not Referenced	9 by 9 inch set of 15 photographs covering a portion of the installation.
Aerial Photograph set covering Inland Ranges, Photo Numbers 186-1-1 through 186-1-10	3/13/69	USACE Fort Ord	9 by 9 inch set of 10 photographs covering the inland ranges.

**Table 3. Aerial Photograph Review  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>Aerial Photograph Area</b>	<b>Date</b>	<b>Reference</b>	<b>Comments</b>
Aerial Photograph set covering portion of Fritzsche Army Airfield, Intergarrison Area, Main Garrison and Inland Ranges, Photo Numbers 186-1 through 17 and 186-1 through 4.	5/10/74, 10/18/74	USACE	9 by 9 inch set of 21 photographs covering a portion of the installation. Scale of photos ranges from 1:2500 to 1:18,000
Aerial Photograph set covering most of the installation, Photo Numbers 186-1-3 though 1-6, 186-2-1 through 2-4 and 2-6, 186-3-1 and 3-4 through 3-6, 186-4-3.	12/17/75	USACE, American Aerial	9 by 9 inch set of 14 photographs covering most of the installation. Scale of photographs 1:25,000.
Aerial Photograph set covering all but Main Garrison area. Photo Numbers 178-138, -139, -141, -161 and -162.	6/16/78	USDA	9 by 9 inch set of 5 photographs covering a portion of the installation.
Aerial Photograph covering all of Fort Ord. Photo Number 1-5-0	12/1/80	Not Available	30 by 30 inch photograph covering entire installation.
Aerial Photograph set covering Main Garrison and portion of Fritzsche Army Airfield and housing areas between Main Garrison and Fritzsche Army Airfield. Photo Numbers 1-1 through 1-6, 2-1 through 2-6, 3-1 through 3-6 and X-1 through X-5.	10/22/85	Not Available	9 by 9 inch set of 20 photographs covering portion of the installation. Scale is 1:12,000.
Aerial Photograph set covering Main Garrison and portion of Fritzsche Army Airfield and housing areas between Main Garrison and Fritzsche Army Airfield. Photo Numbers 1-1 through 1-5, 2-1 through 2-5, 3-1 through 3-5 and 186 9-93 through 9-94.	3/25/86, 11/12/86	Not Available	9 by 9 inch set of 15 photographs covering a portion of the installation,

**Table 3. Aerial Photograph Review  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>Aerial Photograph Area</b>	<b>Date</b>	<b>Reference</b>	<b>Comments</b>
Aerial Photograph set presented in Aerial Photograph Analysis of Fort Ord Military Reservation, Monterey County dated November 1992. Series of photograph sets from 1941 through 1992.	1941 through 1992	US EPA, Region 9	Photobook containing aerial photographs with EPA interpretation of physical features.
Oblique aerial of the recently constructed Main Garrison Fort Ord	10/14/41	0103-46B-82 12-2500	
Aerial photograph of Camp Ord (East Garrison) Circa 1939	Unknown		Small arms ranges and "tent city" clearly visible.
Oblique aerial photograph. South from Ord-Marina Highway	Unknown	03	Prior to construction of the Main Garrison and Beach ranges. Outline of the 200-acre parcel in the Main Garrison area is visible.
Oblique aerial photograph. View from east to west of most of the Fort Ord area prior to development	Unknown	RJ362-West	This photo appears to have been taken at approximately the same date as the above photo.

**Table 4. RI Activities  
Summary of Activities  
Draft Final Literature Review Report  
Former Fort Ord, California**

<b>IRP Site Number</b>	<b>Geophysical Survey</b>	<b>Trenching</b>	<b>Excavation</b>	<b>Comments</b>
1		x	x	IA-Trickling Filter
2			x	Holding ponds
3			x	RI - Ranges
6			x	IA
8			x	IA
10			x	Burn Pit
12	x	x	x	Lower Meadow
14			x	Grease Racks
15			x	IA
16	x	x	x	RI
17	x	x	x	RI
20	x	x	x	IA
21			x	IA
22			x	IA
24	x	x	x	IA
30			x	IA
31	x		x	RI
32			x	IA
34	x	x	x	IA
36			x	IA
39A			x	IA
39B	x	x	x	IA
40	x	x	x	IA
41			x	IA

**Table 5. Potential Unexploded Ordnance Report Summary  
Draft Final Literature Review  
Former Fort Ord, California**

<b>Map Location Number</b>	<b>OE Item Identified</b>	<b>Source</b>	<b>Report Date</b>	<b>OE-site Number</b>	<b>Comments</b>
1	Smoke grenade (OE scrap)	BLM <sup>1</sup>	Nov-97	None	Situation resolved by UXO contractor, site is near OE-27N Item was rusted out.
2	Parachute Flare (OE scrap)	BLM	6/3/97	None	Item removed by Federal Police. Non-hazardous
3	Possible 75mm projectile (OE scrap)	BLM	6/2/97	OE-64	Located near top of ridge, item removed, was not hazardous.
4	Ground burst simulator	BLM	7/7/97	None	Item removed for disposal by UXO contractor, located near OE-27L.
5	2 40mm practice projectiles (Dud)	BLM	9/29/97	None	Dud Items removed for disposal by UXO contractor. Found near OE-11.
6	10 Slap flares, 1 smoke grenade, possible other unidentified (OE scrap)	BLM	11/18/97	None	Items removed by UXO contractor for disposal, near OE-10B.
7	Practice mine (OE scrap)	BLM	6/17/98	None	Inert item, removed by UXO contractor.
8	MK 2 Hand Grenade (OE scrap)	BLM	10/14/98	OE-10B	Item removed for disposal by UXO contractor.
9	Slap Flare (OE scrap)	BLM	4/6/99	None	Near OE-10B.
10	Slap Flare (OE scrap)	BLM	Not available	OE-57	Item 50 yards from trail.
11	Smoke Grenade (OE scrap)	BLM	1/26/99	OE-27Q	Off Pilacitos Canyon. Item expended, removed by UXO contractor for disposal.
12	Smoke Grenade (OE scrap)	BLM	2/10/99	OE-10A	Intersection of Eucalyptus and Hennikens Ranch Road
13	Smoke Grenade (OE scrap)	BLM	7/28/97	OE-35	Item removed by UXO contractor. No fuze.
14	Pile of projectiles (OE scrap)	BLM	6/30/97	OE-12	Items removed by UXO contractor.
15	Possible 60mm mortar head (OE scrap)	BLM	6/3/97	Unknown	Item removed by Corps Safety Specialist.
16	Unknown dud	Range Control <sup>2</sup>	10/16/75	None	Located at landfill area.

**Table 5. Potential Unexploded Ordnance Report Summary  
Draft Final Literature Review  
Former Fort Ord, California**

<b>Map Location Number</b>	<b>OE Item Identified</b>	<b>Source</b>	<b>Report Date</b>	<b>OE-site Number</b>	<b>Comments</b>
17	40mm HE projectile	Range Control	11/3/81	None	Located at training area G-7.
18	Smoke canister (OE scrap)	Range Control	March/April 1984	None	Location specified at Area L. Location within Training Area L is not documented.
19	Artillery simulator	Range Control	10/9/85	OE-27H	Location specified at OE Site 27H. Location within OE Site 27H is not documented.
20	Unknown dud	Range Control	December 1985/January 1986	OE-27F	Location specified as Training Site 6. Location within Site 6 is not documented.
21	40mm practice projectile	Range Control	4/13/87	None	Located at coordinate 094559
22	343 2.36-inch Rockets (OE scrap)	Range Control, CMS <sup>3</sup>	8/9/93, April 1997	OE-2	Items disposed of by UXO contractor.
23	1 Stokes mortar, 1 105mm HE projectile, 10 2.36-inch rockets, 1 illumination grenade, 1 rocket burster, 1 slap flare, 1 60mm illuminating mortar, 6 smoke rifle grenades	CMS	7/96 through 10/96	None	Items found during landfill construction activities at Area A. Records indicate some items were live and some were scrap.
24	2 40mm projectiles (OE scrap)	CMS	8/5/97	OE-49	Items found by housing resident. Inert items removed for disposal by UXO contractor. Based on age of item would not be associated with training activities at OE-49.
25	1 40mm practice projectile (OE scrap)	CMS	7/14/99	None	Item found at Fitch Park housing area. Inert item removed for disposal by UXO contractor. Based on age of item it would not be associated with training activities at nearby OE sites 24A through 24E.

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<b>Map Location Number</b>	<b>OE Item Identified</b>	<b>Source</b>	<b>Report Date</b>	<b>OE-site Number</b>	<b>Comments</b>
26	1 81mm practice mortar (inert)	EOD <sup>4</sup>	1/10/92	OE-54	Retained for training use.
27	1 Rifle smoke grenade 100-M <sup>1</sup> rounds, Ball and tracer	EOD	2/20/93	None	Items found 50 feet from the base of the water tower. Taken to safe holding area.
28	1 Training mine 1 Unfuzed 100lb bomb (OE scrap) 1 Parachute trip flare 2 Practice anti-tank mines	EOD	4/3/93	OE-18	Taken to safe holding area. 100lb bomb was a concrete filled training device.
29	1 3.5-inch rocket motor (OE scrap)	EOD	5/11/93	OE	Taken to safe holding area.
30	1 3.5-inch rocket	HLA <sup>5</sup>	1975 to 1978	None	Item found in bush approximately one mile east of the intersection of Blanco Road and Reservation Road.
31	Practice landmine (OE scrap)	HLA	Unknown	None	Inert training device removed by 87 <sup>th</sup> EOD.
32	1 2.36-inch rocket	CMS	Unknown	None	Item detonated in place.
33	1 M-79 grenade	Fort Ord Panarama	9/10/76	OE-15 BLM	Items found near Ranges 45 or 48 and brought back to housing area.
34	1 Hand grenade (OE scrap)	Contractor field notes	9/12/94	None	Inert training device removed by UXO contractor.

<sup>1</sup> Bureau of Land Management Unexploded Ordnance Potential Incident Reports

<sup>2</sup> Range Control Dud Records

<sup>3</sup> CMS Unexploded Ordnance Incident Report (CMS now known as USA Environmental, Inc.)

<sup>4</sup> Explosive Ordnance Detachment Incident Report

<sup>5</sup> HLA Site 39 Data Summary and Work Plan

## **DISTRIBUTION**

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Former Fort Ord, California

January 4, 2000

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Quality Control Reviewer



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