

**Bureau of Land Management Area B
Unit B-2A
Technical Information Paper
for Public Access on Trails
Former Fort Ord, California**

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Prepared for



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List of Acronyms

| | |
|--------|---|
| AR | Administrative Record |
| Army | United States Department of the Army |
| BLM | United States Bureau of Land Management |
| DGM | Digital Geophysical Mapping |
| KEMRON | KEMRON Environmental Services, Inc. |
| MD | Munitions Debris |
| MEC | Munitions and Explosives of Concern |
| MR | Munitions Response |
| QA | Quality Assurance |
| QC | Quality Control |
| OESS | Ordnance and Explosives Safety Specialist |
| RA | Remedial Action |
| RD | Remedial Design |
| SSWP | Site-Specific Work Plan |
| TIP | Technical Information Paper |
| TM | Technical Memorandum |
| USACE | United States Army Corps of Engineers |
| UXO | Unexploded Ordnance |

1.0 Introduction

This Technical Information Paper (TIP) provides an evaluation of site conditions in the Bureau of Land Management (BLM) Area B Unit B-2A (Figure 1) and identifies specific trails to consider opening for public recreational use (Figure 2). The remedial actions (RAs) within BLM Area B, Unit B-2A occurred under the following:

- *Final Record of Decision Track 2 Bureau of Land Management Area B and Munitions Response Site 16 Former Fort Ord, California* [United States Department of the Army (Army), 2017];
- *Final Work Plan Remedial Design (RD)/Remedial Action (RA) Track 2 Bureau of Land Management Area B and Munitions Response Site 16 Former Fort Ord, California* [KEMRON Environmental Services, Inc. (KEMRON), 2017a]; and
- *Final Site-Specific Work Plan Munitions and Explosives of Concern Remedial Action BLM Area B Former Fort Ord, California* (BLM Area B SSWP; KEMRON, 2017b).

Surface munitions and explosives of concern (MEC) removal, digital geophysical mapping (DGM), subsurface MEC removal within the trails, and a risk reduction are complete and documented in the *Bureau of Land Management Area B Unit B-2A Munitions and Explosives of Concern Remedial Action Technical Memorandum Former Fort Ord, California* (Unit B-2A TM; KEMRON, 2019). This document presents the results of the subsurface MEC removal within the trails, RAs conducted in this area, and current access management measures. The Unit B-2A trails will remain closed until regulatory agencies approve this TIP.

1.1 Site Location and Existing Conditions

Unit B-2A (approximately 72 acres) is located in Remedial Work Area B-2A within BLM Area B. Unit B-2A lies to the west of Barloy Canyon Road, and south of East Machine Gun Flats Road (Figure 1).

During RA operations unit closure and restricted public access (using temporary fence with warning signs) occurred in accordance with the BLM Area B SSWP (KEMRON, 2017b). The trail alignments are shown on Figure 2.

2.0 Remedial Actions Completed

2.1 Surface MEC Removal and Digital Geophysical Mapping Survey

The Unit B-2A TM (KEMRON, 2019) described the surface MEC removal and DGM survey completed within the unit. Appropriate quality control (QC) and quality assurance (QA) were implemented. The MEC recovered during RAs conducted by KEMRON is shown on [Figure 4](#).

The trails were allowed to remain open during the work in the “Primary” area in 2017-2018, during non-cleanup operation times (evenings and weekends) but were otherwise closed to public use during remedial activities. The trails were closed during the work operations within the buffer, the trails, and as part of the risk reduction.

2.2 Subsurface MEC Removal

The Unit B-2A TM (KEMRON, 2019) described the subsurface MEC removal completed within the unit. KEMRON completed subsurface MEC removal in Trails 61 & 62 ([Figure 3](#)) in accordance with the BLM Area B SSWP (KEMRON, 2017b). The BLM Area B SSWP (KEMRON, 2017b) specified subsurface MEC removal on trail alignments as a 12-foot wide area. Based on coordination with BLM, the 12-foot wide area included a 4-foot wide travel lane and a 4-foot wide area on both sides.

On Trails 61 & 62, subsurface MEC removal was conducted through an intrusive investigation using a hand-held metal detector and an EM61 in analog mode. The UXO personnel did not recover MEC items. Subsurface MEC removal met the measurement quality objectives and the QC/QA practices outlined in the BLM Area B SSWP (KEMRON, 2017b). No QC failures occurred within Unit B-2A. The United States Army Corps of Engineers (USACE) did not issue any corrective action requests.

2.2.1 Risk Reduction

The Unit B-2A TM (KEMRON, 2019) described the risk reduction completed within the unit. Appropriate QC and QA were implemented. During surface MEC removal within the Primary area, a 4.2-inch smoke mortar projectile was recovered. Since the filler cannot be confirmed visually, the 4.2-inch mortar projectile was classified as a munition with unknown filler. Following the established procedures it was confirmed as smoke-filled, and was subsequently subjected to

detonation. Based on the potential for additional 4.2-inch mortar projectiles with unknown filler to be present in the unit, a risk reduction operation was conducted. Subsurface anomalies that could potentially represent 4.2-inch mortar projectiles were intrusively investigated to 18- to 24-inch depths. Nine MEC items were recovered, two of which were 4.2-inch smoke mortar projectiles. Based on this work the probability of encountering an unknown filler item during reuse of the property is low. Additional detail is provided in Unit B-2A TM (KEMRON, 2019). The MEC recovered during RAs conducted by KEMRON are provided in [Appendix A](#) and [Figure 4](#).

2.2.2 Summary of MEC/Munitions Debris Removed

The Unit B-2A TM (KEMRON, 2019) described the MEC/Munitions Debris (MD) recovered during RAs conducted by KEMRON in Unit B-2A. UXO personnel managed MEC and MD items encountered and removed during RAs in a manner consistent with the BLM Area B SSWP (KEMRON, 2017b) and the *Final Quality Assurance Project Plan Former Fort Ord, California Volume II Appendix A Munitions and Explosives of Concern Remedial Action* (KEMRON, 2016). [Appendix A](#) and [Figure 4](#) provide a summary of MEC items encountered by KEMRON to date. The UXO personnel recovered no MEC items during subsurface MEC removal in the trails ([Table 1](#)).

Table 1. Subsurface MEC Removal Summary within Trails

| Unit | Trails | Trail Clearance Area (approximate acreage) | Subsurface MEC Removal | | | |
|------|---------|--|--------------------------------|------------------------------|---|---------------------|
| | | | Area of Target Acquisition | | Munitions Debris Recovered (approximate pounds) | MEC Items Recovered |
| | | | DGM Data (approximate acreage) | Analog (approximate acreage) | | |
| B-2A | 61 & 62 | 1 | 0 | 1 | 155 | 0 |

2.2.3 Consideration for Future MEC Remedial Action

During the BLM-Army joint inspection, BLM identified restoration areas (Figure 5). USACE Ordnance and Explosives Safety Specialist (OESS) recommended limited analog subsurface MEC removal (to 24 inch depth) in the restoration footprint to support planned activities. If required, the trails will be temporarily closed during additional work in the BLM restoration areas (Figure 5) when the work is scheduled. The Remedial Action Report will document the limited subsurface MEC removal within the planned restoration areas as well as all RAs conducted.

3.0 Access Management Measures

Trails 61 and 62 are currently closed. After the subsurface MEC removal was completed on the trails, BLM improved the trails to make them suitable for public uses. Trailheads will be updated so they are easily identifiable. If evidence of off-trail excursions is noted by BLM they will consider installation of signs or barriers to supplement efforts to maintain traffic inside the designated use areas. Based on BLM's experience managing the Fort Ord public lands for many years, BLM expects users to stay on open, designated, and signed trails. BLM personnel regularly monitor user activities.

The Army continues to implement public education measures in coordination with BLM in a manner consistent with the *Final Interim Land Use Control Implementation Plan Track 2 Bureau of Land Management Area B and Munitions Response Site 16 Former Fort Ord, California* (KEMRON, 2018). These measures supplement the access management effort in BLM Area B. The following public education measures are in place in BLM Area B.

- Information in kiosks to provide information regarding current trail access status in BLM Area B.
- Brochures that describe the military's previous use of the property and the access management guidelines (e.g., staying on designated trails or roads, no camping, and no digging) for recreational users including actions to take if a suspected munitions item is encountered (3Rs of explosives safety).
- Public website fortordcleanup.com to provide current trail access status and information to encourage people to adhere to access management guidelines.

Once approval to open the trails is obtained, the Army will utilize these mechanisms to disseminate the new trail access information to the public in coordination with BLM.

4.0 Recommendation & Conclusion

Surface MEC removal and DGM are complete. Subsurface MEC removal along the trails is complete within Unit B-2A. Risk reduction was also completed in the unit. As identified in [Section 3.0](#), mechanisms to distribute the new trail access information (kiosks, website) are in place. BLM has prepared the trails for public recreational use within the alignment shown on Figure 2. Based on the evaluation, the Army recommends opening the trails in Unit B-2A for recreational users. If required, the trails will be temporarily closed during additional work in the BLM restoration areas ([Figure 5](#)) when the work is scheduled.

5.0 References

KEMRON Environmental Services, Inc. (KEMRON), 2016. *Final Quality Assurance Project Plan Former Fort Ord, California Volume II Appendix A Munitions and Explosives of Concern Remedial Action* (Administrative Record [AR]# OE-0884A)

KEMRON, 2017a. *Final Work Plan Remedial Design (RD)/Remedial Action (RA) Track 2 Bureau of Land Management Area B and Munitions Response Site 16 Former Fort Ord, California* (AR# OE-0899B)

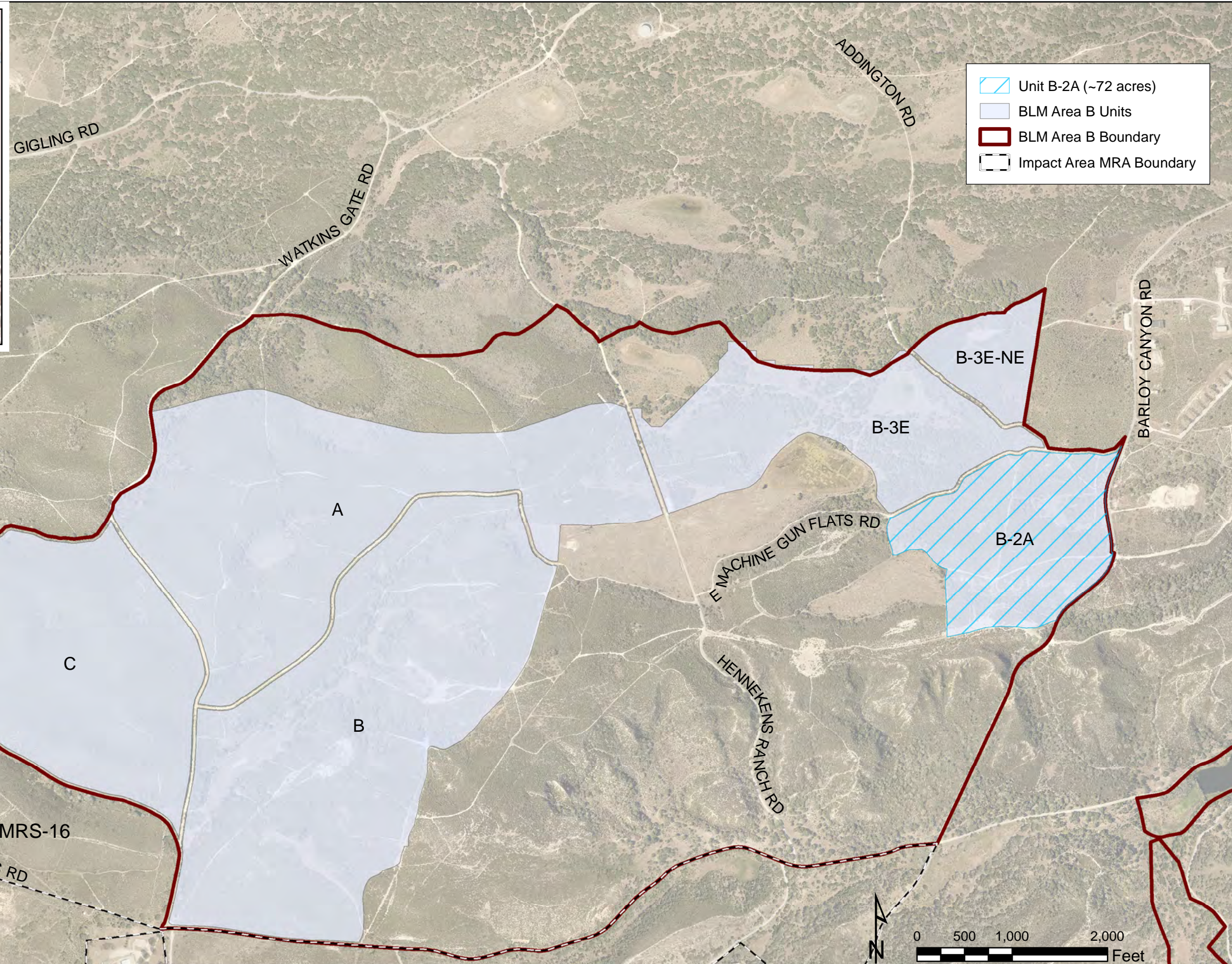
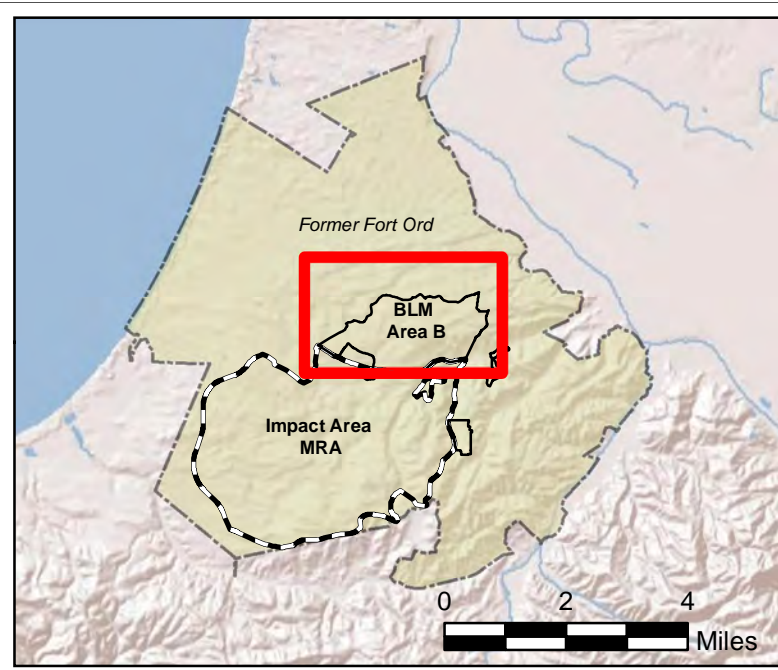
KEMRON, 2017b. *Final Site-Specific Work Plan Munitions and Explosives of Concern Remedial Action BLM Area B Former Fort Ord, California* (AR# OE-0900B)

KEMRON, 2018. *Final Interim Land Use Control Implementation Plan Track 2 Bureau of Land Management Area B and Munitions Response Site 16 Former Fort Ord, California* (AR# OE-0907B)

KEMRON, 2019. *Bureau of Land Management Area B Unit B-2A Munitions and Explosives of Concern Remedial Action Technical Memorandum Former Fort Ord, California* (AR# OE-0958)

The United States Department of the Army (Army), 2017. *Final Record of Decision Track 2 Bureau of Land Management Area B and Munitions Response Site 16 Former Fort Ord, California* (AR# OE-0897)

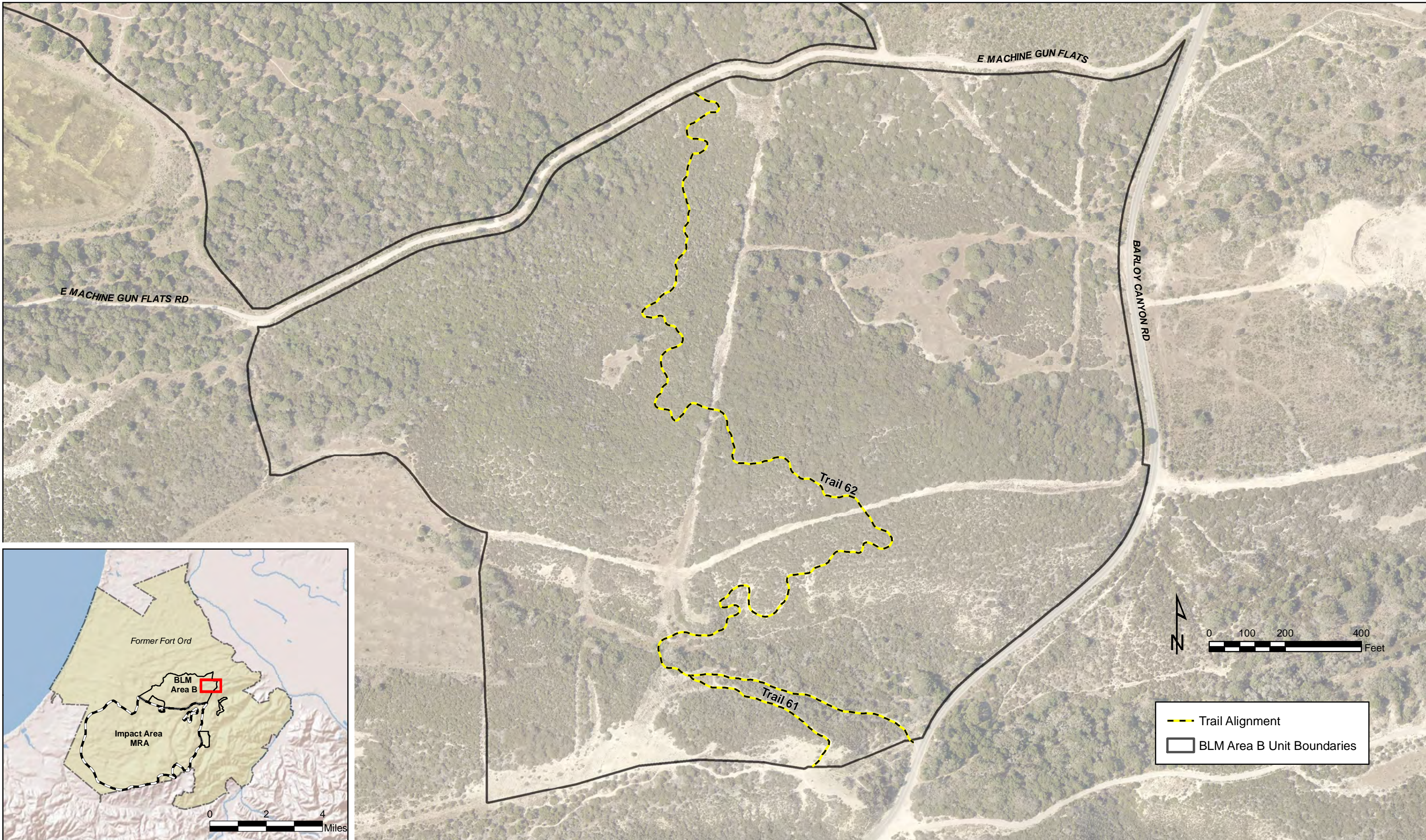
Figures



BLM Area B - Unit B-2A
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Figure 1
 Location





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Figure 2
 Unit B-2A Trails

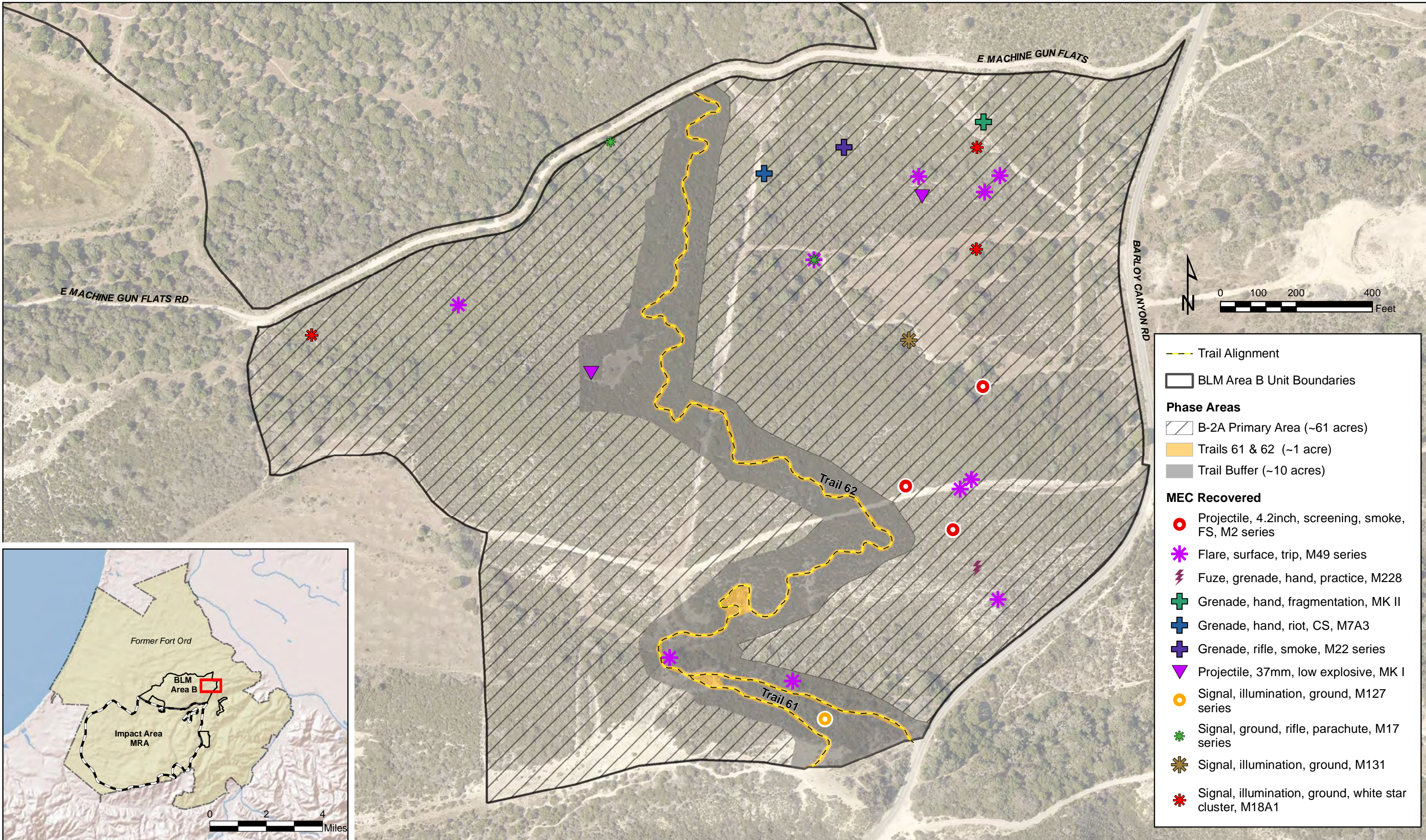




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Figure 3
 Subsurface MEC Removal

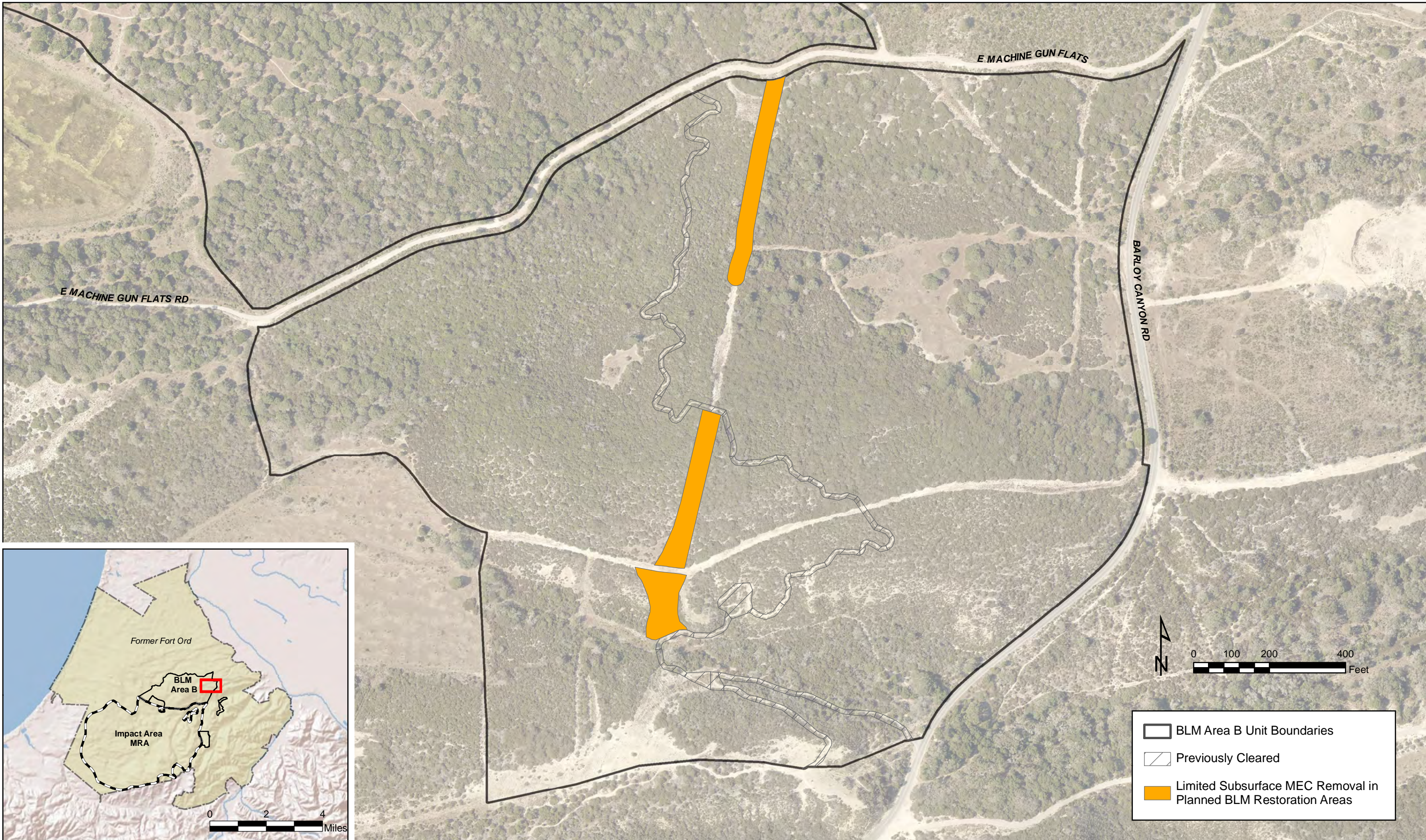




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Figure 4
 Unit B-2A MEC Recovered





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Figure 5
 BLM Restoration Areas



Appendix A

Unit B-2A MEC Items Recovered

| Date Found | Item Number | Item Type | Qty | Description | Depth (inches) | Operation | Area |
|--|--------------|-----------|-----|---|----------------|--|--------------|
| 11/8/2017 | C4D2F8-1-1 | DMM | 1 | Flare, surface, trip, M49 series | 0 | Surface Removal | Primary |
| 11/21/2017 | C4D4J2-1-1 | UXO | 1 | Grenade, hand, fragmentation, MK II | 0 | Surface Removal | Primary |
| 11/22/2017 | C4D4I2-1-1 | UXO | 1 | Flare, surface, trip, M49 series | 0 | Surface Removal | Primary |
| 11/22/2017 | C4D4I2-1-2 | UXO | 1 | Flare, surface, trip, M49 series | 0 | Surface Removal | Primary |
| 11/28/2017 | C4D3J2-1-1 | UXO | 1 | Signal, ground, rifle, parachute, M17 series | 0 | Surface Removal | Primary |
| 12/7/2017 | C4D3I6-1-1 | UXO | 1 | Grenade, hand, riot, CS, M7A3 | 0 | Surface Removal | Primary |
| 12/11/2017 | C4D4C2-1-1 | UXO | 1 | Projectile, 4.2inch, screening, smoke, FS, M2 series | 0 | Surface Removal | Primary |
| 12/21/2017 | C4D3J8-1-1 | UXO | 1 | Grenade, rifle, smoke, M22 series | 0 | Surface Removal | Primary |
| 1/3/2018 | C4D4A1-1-1 | UXO | 1 | Flare, surface, trip, M49 series | 0 | Surface Removal | Primary |
| 1/3/2018 | C4D4A1-1-2 | DMM | 1 | Flare, surface, trip, M49 series | 0 | Surface Removal | Primary |
| 1/8/2018 | C4D3H0-1-1 | UXO | 1 | Projectile, 37mm, low explosive, MK I | 0 | Surface Removal | Primary |
| 1/9/2018 | C4C4I1-1-1 | DMM | 1 | Fuze, grenade, hand, practice, M228 | 0 | Surface Removal | Primary |
| 1/10/2018 | C4C4H2-1-1 | UXO | 1 | Flare, surface, trip, M49 series | 0 | Surface Removal | Primary |
| 1/10/2018 | C4D3E0-1-1 | UXO | 1 | Signal, illumination, ground, M131 | 0 | Surface Removal | Primary |
| 10/11/2018 | C4C4J1_1028 | UXO | 1 | Projectile, 4.2inch, screening, smoke, FS, M2 series | 8 | Risk Reduction (MetalMapper Cued DigEx) | Primary |
| 10/11/2018 | C4D3A0_1091 | UXO | 1 | Projectile, 4.2inch, screening, smoke, FS, M2 series | 16 | Risk Reduction (MetalMapper Cued DigEx) | Primary |
| 2/5/2019 | C4C3F7-1-1 | UXO | 1 | Flare, surface, trip, M49 series | 0 | Surface Removal | Trail Buffer |
| 2/6/2019 | C4C3E7-1-1 | UXO | 1 | Signal, illumination, ground, M127 series | 0 | Surface Removal | Trail Buffer |
| 2/12/2019 | C4D3D1-1-1 | UXO | 1 | Projectile, 37mm, low explosive, MK I | 0 | Surface Removal | Trail Buffer |
| 4/23/2019 | C4C3F3-G-1 | UXO | 1 | flare, surface, trip, M49 series | 4 | Risk Reduction (Gap) | Trail Buffer |
| 5/15/2019 | C4D4J1-G-1-1 | UXO | 1 | signal, illumination, ground, white star cluster, M18A1 | 6 | Risk Reduction (Gap) | Primary |
| 5/16/2019 | C4D3I0-G-1 | UXO | 1 | flare, surface, trip, M49 series | 2 | Risk Reduction (Gap) | Primary |
| 5/20/2019 | C4D2E4-G-1 | UXO | 1 | signal, illumination, ground, white star cluster, M18A1 | 6 | Risk Reduction (Gap) | Primary |
| 5/21/2019 | C4D3G7-G-1-1 | UXO | 1 | flare, surface, trip, M49 series | 8 | Risk Reduction (Gap) | Primary |
| 5/21/2019 | C4D3G7-G-1-2 | UXO | 1 | signal, ground, rifle, parachute, M17 series | 8 | Risk Reduction (Gap) | Primary |
| 5/21/2019 | C4D4G1-G-1-1 | UXO | 1 | signal, illumination, ground, white star cluster, M18A1 | 6 | Risk Reduction (Gap) | Primary |
| Total number of MEC items recovered: 26 | | | | | | | |