

Air Force Civil Engineer Center



Edwards Air Force Base (EAFB) Military Munitions Response Program (MMRP) Proposed Plan Public Meeting

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05 October 2021

Battle Ready...Built Right!



What is the Proposed Plan

- **The Proposed Plan is a document that summarizes the remedial alternatives being considered for the MMRP at EAFB and the preferred remedial alternative identified in the Feasibility Study**





Timeline to the Proposed Plan



- **1994 to 2003 – Archives search and EAFB range inventory**
 - Archive searches were performed for munitions and weapons use
 - Only conventional weapons (explosives and small arms) were used; no evidence of chemical weapons, biological weapons, or low-level radioactive waste use or storage was found
 - Five closed range areas were designated as Munitions Response Areas (MRAs) AL500 through AL505



Timeline (continued)

- **2005 to 2006 – Comprehensive Site Evaluation (CSE) Phase I and Wide Area Assessment**
 - Characterized the MRAs for Munitions and Explosives of Concern (MEC) and hazardous chemicals from the munitions to groundwater, soil, and the air
 - Included reviews of historical records, interviews, and preliminary visual reconnaissance
 - Airborne light detection and ranging (LiDAR) and orthophotography surveys were conducted
- **2007 to 2010 – CSE Phase II**
 - MRAs AL501, AL504, and AL505 were each subdivided into two or more Munitions Response Sites (MRSs)
 - MRAs AL500, AL501, AL502, and AL503 each have only one MRS



Timeline (continued)



- **CSE Phase II (continued)**
 - Investigations were conducted for MEC, Munitions Debris (MD), and contaminants from munitions
 - The investigations at MRSs AL501A, AL504, AL505-2, and AL505-4 are summarized in the following slides
 - MRSs AL500, AL501, AL502, AL503, AL504A, AL505-1, AL505-2A, and AL505-4A were recommended for No Further Action (NFA)
- **2012 – Removal Actions**
 - Surface clearances were conducted at MRSs AL504, AL505-2, and AL505-4 to address the munitions observed at ground surface and recommendations made based on CSE Phase II activities



Timeline (continued)



- **2015 to 2016 – Supplemental CSE Phase II**
 - Additional investigations were conducted at MRSs AL505-3 and AL505-5
 - NFA was recommended for both sites
- **2015 to 2016 – Remedial Investigation (RI)**
 - Further investigations were conducted at MRSs AL501A, AL504, AL505-2, and AL505-4 as recommended in the CSE Phase II
 - These four sites are addressed in the Proposed Plan
 - The investigations and results are summarized in the following slides



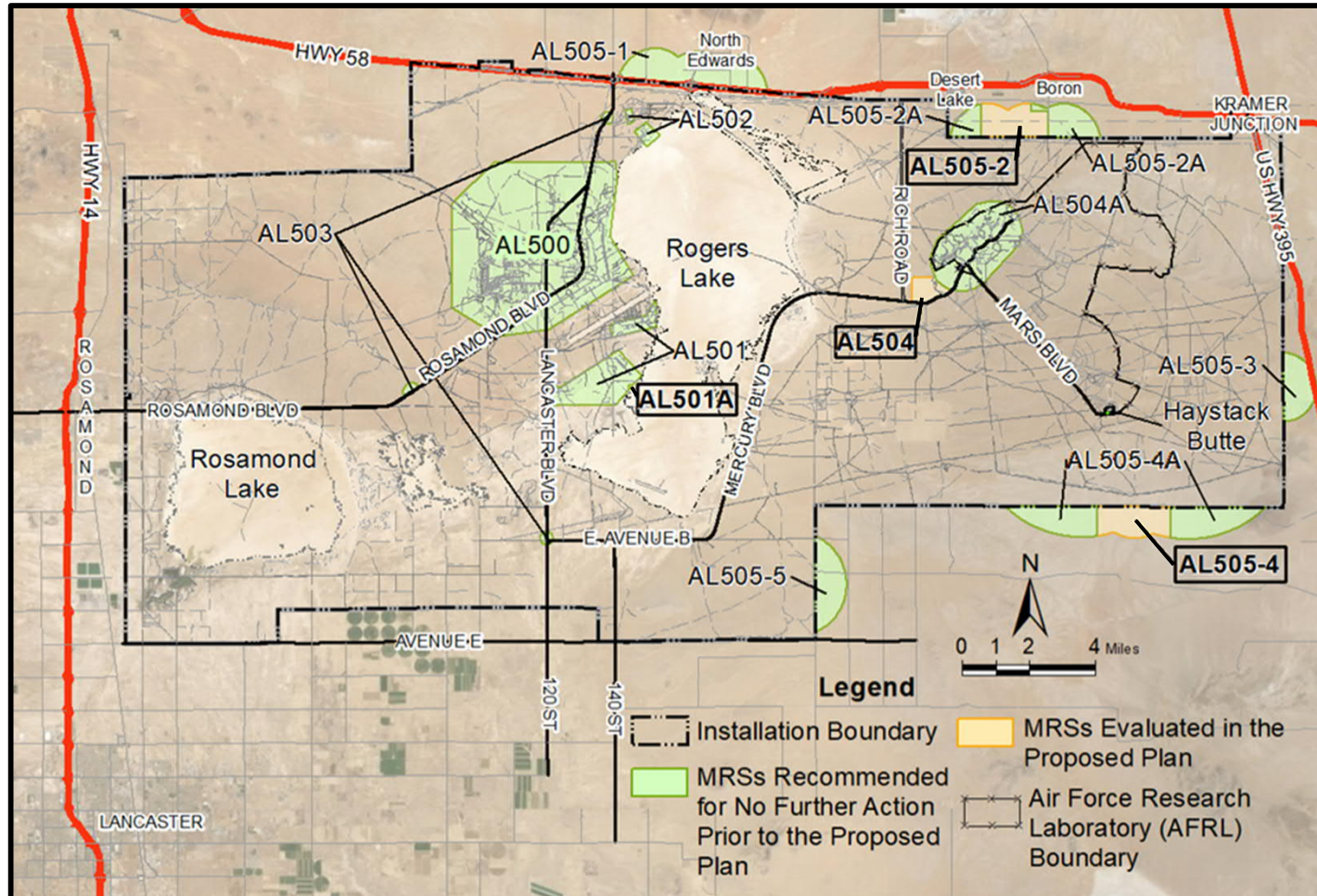
MRSs Addressed in the Proposed Plan



- **MRS AL501A**
 - South Base Ordnance Range (Pistol Range)
- **MRS AL504**
 - 7th Army Air Force Bombing and Gunnery Range (Former Mock Battleship Target Area)
- **MRS AL505-2**
 - Off-Base Adjacent Area 2 (Central)
- **MRS AL505-4**
 - Off-Base Adjacent Area 4 (Central)



MRSs Addressed in the Proposed Plan



Sites shown in gold were evaluated in the Proposed Plan

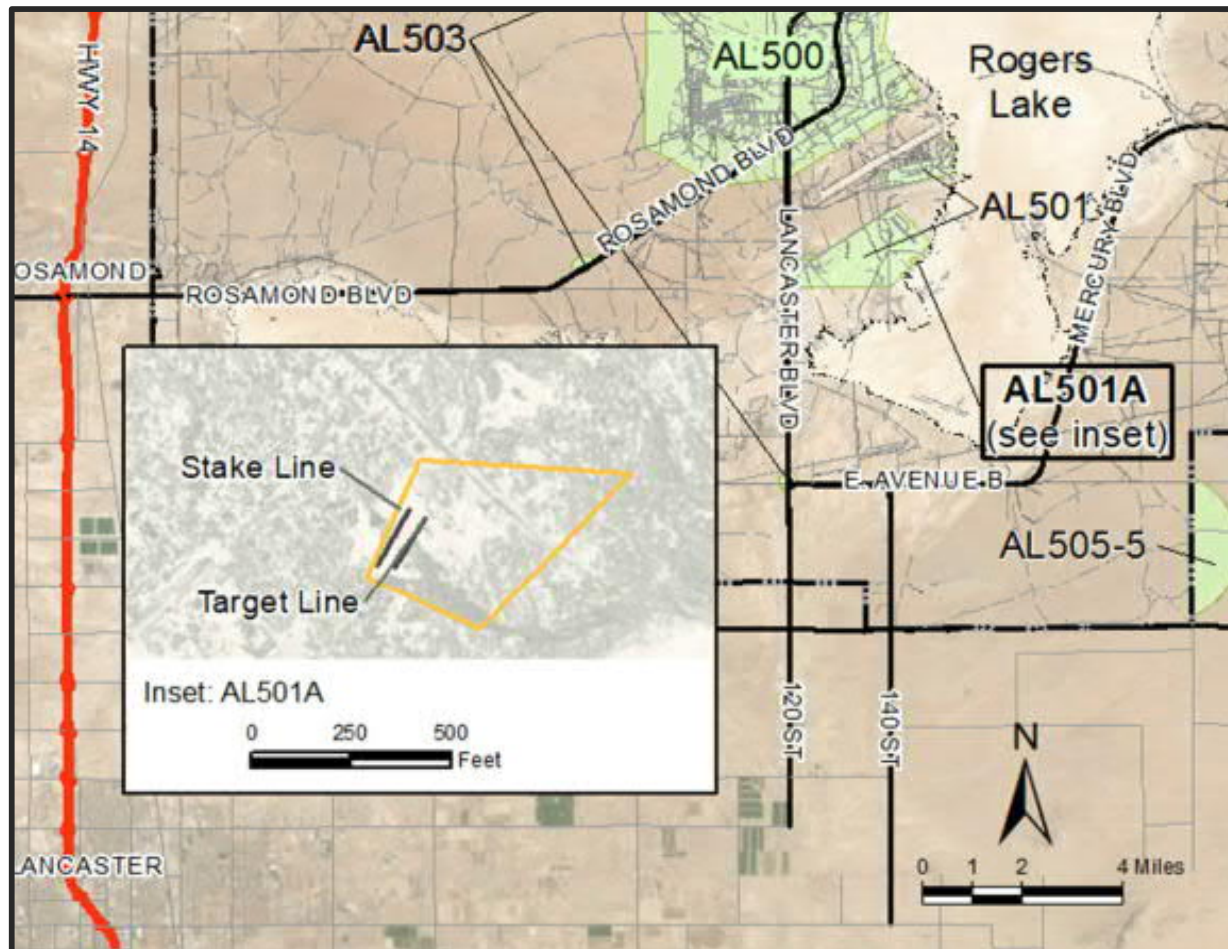
Sites shown in green have been previously recommended for NFA prior to the Proposed Plan



MRS AL501A (Pistol Range)



- **MRS AL501A is a former pistol range located near the South Base runway**



- The range was used for small arms training only between 1933 and 1944
- Features of the range (a stake line and a target line) are still visible today



MRS AL501A - Investigations



- **2007 to 2010 – CSE Phase II**
 - A detailed visual survey indicated only small arms were used
 - MD includes lead bullets and bullet fragments left on ground surface
 - No MEC was present
 - Soil screening (x-ray fluorescence) for lead was conducted; most samples were non-detect, and none exceeded background concentrations or residential regulatory limits (state or federal)



MRS AL501A - Investigations and Recommendation



- **2015 to 2016 – RI**
 - **The RI evaluated the impact of lead particles on birds that ingest grit to aid food digestion; very few lead fragments in the size range birds will ingest (0.5 to 3.0 millimeters [mm]) were found**
 - **Soil samples were collected for laboratory analyses; lead does not exceed project screening levels or background**
 - **Visible bullets (328 pounds total) were removed from the ground surface (100% of the site)**



MRS AL501A – Conclusions and Recommendations



- **No MEC hazards were found at MRS AL501A**
- **There are no current unacceptable risks to human health or the environment from lead bullets and bullet fragments**
- **NFA is recommended for MRS AL501A**



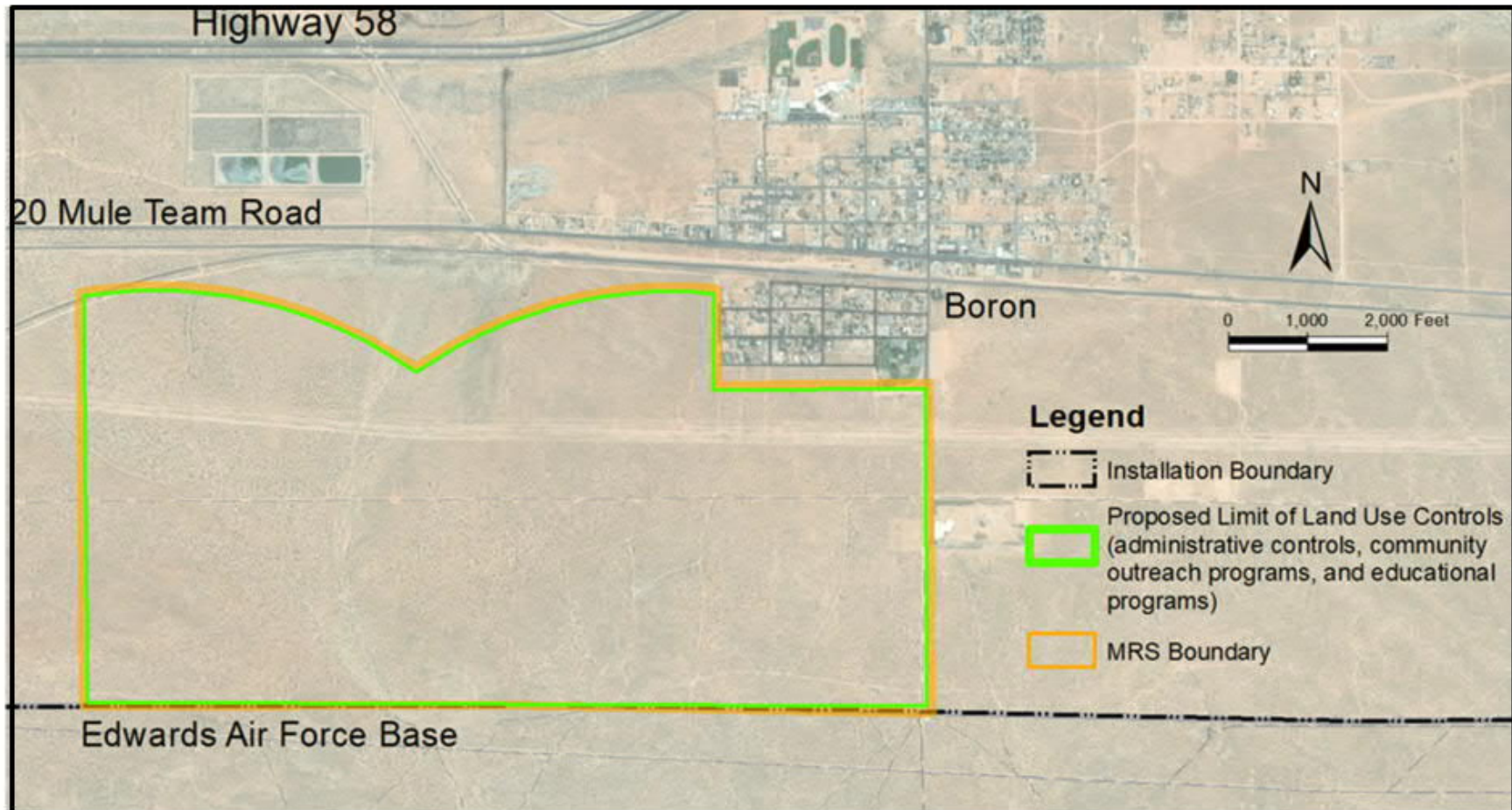
MRSs AL505-2 and AL505-4 (Off-Base Adjacent Areas)



- **MRS AL505-2 is an off-base overshoot area for a former bombing target located 1.5 miles southwest of Boron**
 - The target was used between 1945 and 1957
 - The land is privately owned and not controlled by the Air Force
- **MRS AL505-4 is an off-base overshoot area for a former bombing target located 1.1 miles north of the site**
 - The target was used between 1945 and 1953
 - The land is owned and controlled by the Bureau of Land Management

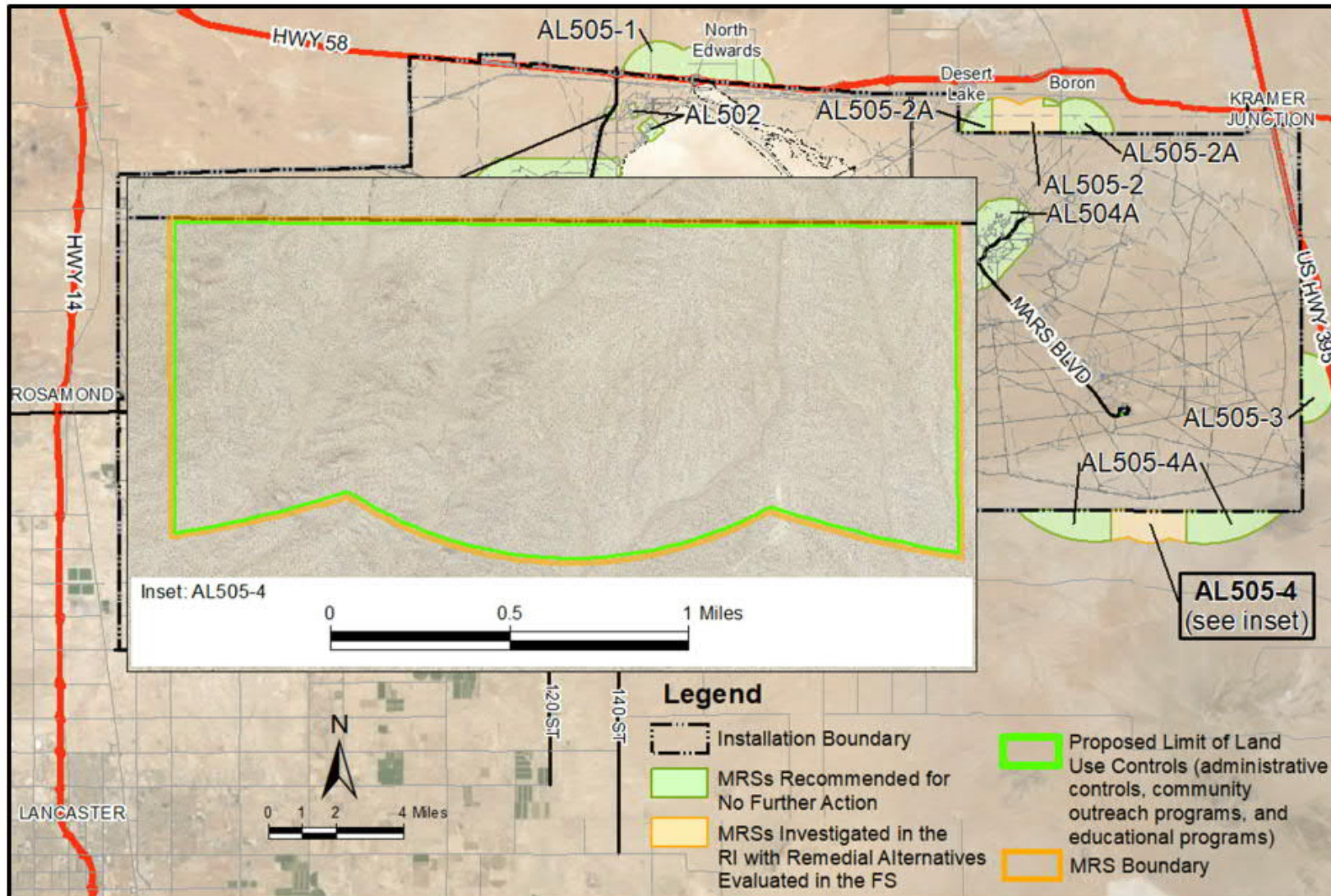


MRS AL505-2 Site Map





MRS AL505-4 Site Map





MRSs AL505-2 and AL505-4 Investigations



- **2006 to 2007 – CSE Phase II**
 - Helicopter magnetometer (HeliMag) and visual surveys found and removed numerous MD items at both sites
 - One MEC item (a photoflash bomb) was found and removed from AL505-4
 - Soil sampling was conducted; explosives were not detected, and metals were generally less than the background concentrations
 - There are no unacceptable risks to human health and the environment due to contaminants from munitions



MRSs AL505-2 and AL505-4 Investigations (continued)



- **2012 – Surface clearances**
 - 8,000 pounds of MD and 1,800 pounds of other debris were found and removed from both sites
- **2015 to 2016 – Remedial Investigation**
 - The RI included geophysical surveys or representative areas of the sites; no buried MEC items were found at either site
 - Hundreds of buried MD items were found and removed at AL505-2 and dozens at AL505-4
 - Because the RI found buried MD, and 100% of the sites were not investigated, a low potential for buried MEC hazards remains



MRSs AL505-2 and AL505-4 Remedial Alternatives



- **Alternative 1 – No Action**
 - Not preferred because it does not address the low risk of buried MEC at both sites
- **Alternative 2 – LUCs and LTM is the preferred alternative for both sites**
 - LUCs would be limited to administrative actions, community outreach, and educational programs
 - LTM would be limited to collection of data regarding MEC found on properties in the future, maintaining site records in the base geographic information system (GIS), and performing five-year reviews
 - Cost is \$3.4 million (per site) for the first 200 years



MRS AL504

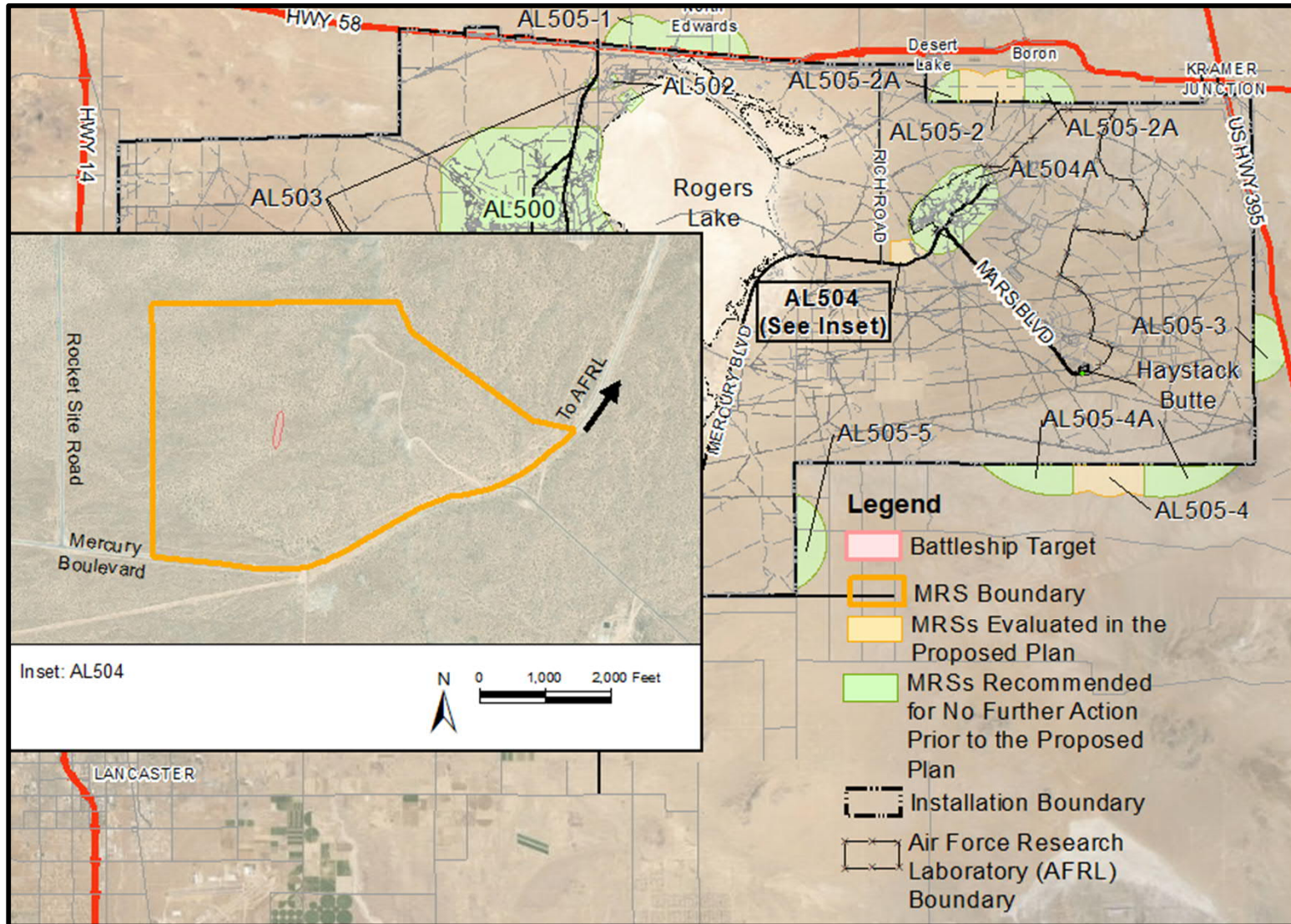
Former Mock Battleship Target Area



- **MRS AL504 is a former aerial bombardment training target located southwest of the Air Force Research Laboratory (AFRL)**
 - **The target was constructed in 1935 using crushed white rock in the shape of a battleship and was used until 1944**
 - **The site is located entirely within EAFB, and all the land is owned by the Department of Defense**
 - **The area is outside of the controlled fence for the AFRL but is patrolled frequently and site visitors are required to have base-issued identification**



MRS AL504 Site Map





MRS AL504 Investigations



- **2006 to 2007 – CSE Phase II**
 - HeliMag, ground-based geophysical, and visual surveys found and removed hundreds of MD items on the ground and subsurface
 - Soil sampling was conducted; explosives were not detected, and metals concentrations were below background
- **2012 Surface Clearance**
 - 43,800 pounds of MD and 1,400 pounds of other debris were found and removed. A total of 27 MEC items and 3 pounds of bulk trinitrotoluene (TNT) explosive were also found and removed



MRS AL504 Investigations (continued)



- **2015 to 2016 – Remedial Investigation**
 - A geophysical survey found, and technicians removed, 11,425 buried MD items and 10 buried MEC items (demolition and general-purpose bombs)
 - Soil sampling was conducted near the TNT and damaged MEC; explosives were generally not detected, but one sample exhibited 1,3-dinitrobenzene at 0.17 milligrams per kilogram (mg/kg), slightly exceeding ecological screening level of 0.073 mg/kg, but not human health screening levels
 - It was concluded that the explosive hazard from buried MEC is high and requires remedial action, but risks to human health and the environment due to chemicals from munitions are below regulatory standards



MRS AL504 Remedial Alternatives



- **Alternative 1 – No action**
- **Alternative 2 – LUCs (including a site perimeter chain-link fence, tortoise barrier and warning signs) and LTM**
 - **Cost is \$15 million for the first 200 years**
- **Alternative 2A – Similar to Alternative 2 but with only site perimeter warning signs to mark the LUCs boundary**
 - **Surveys in Year 1 and every 5 years will evaluate if additional measures are needed to protect human health and the environment**
 - **Cost is \$3.9 million for the first 200 years**



MRS AL504 Remedial Alternatives (continued)



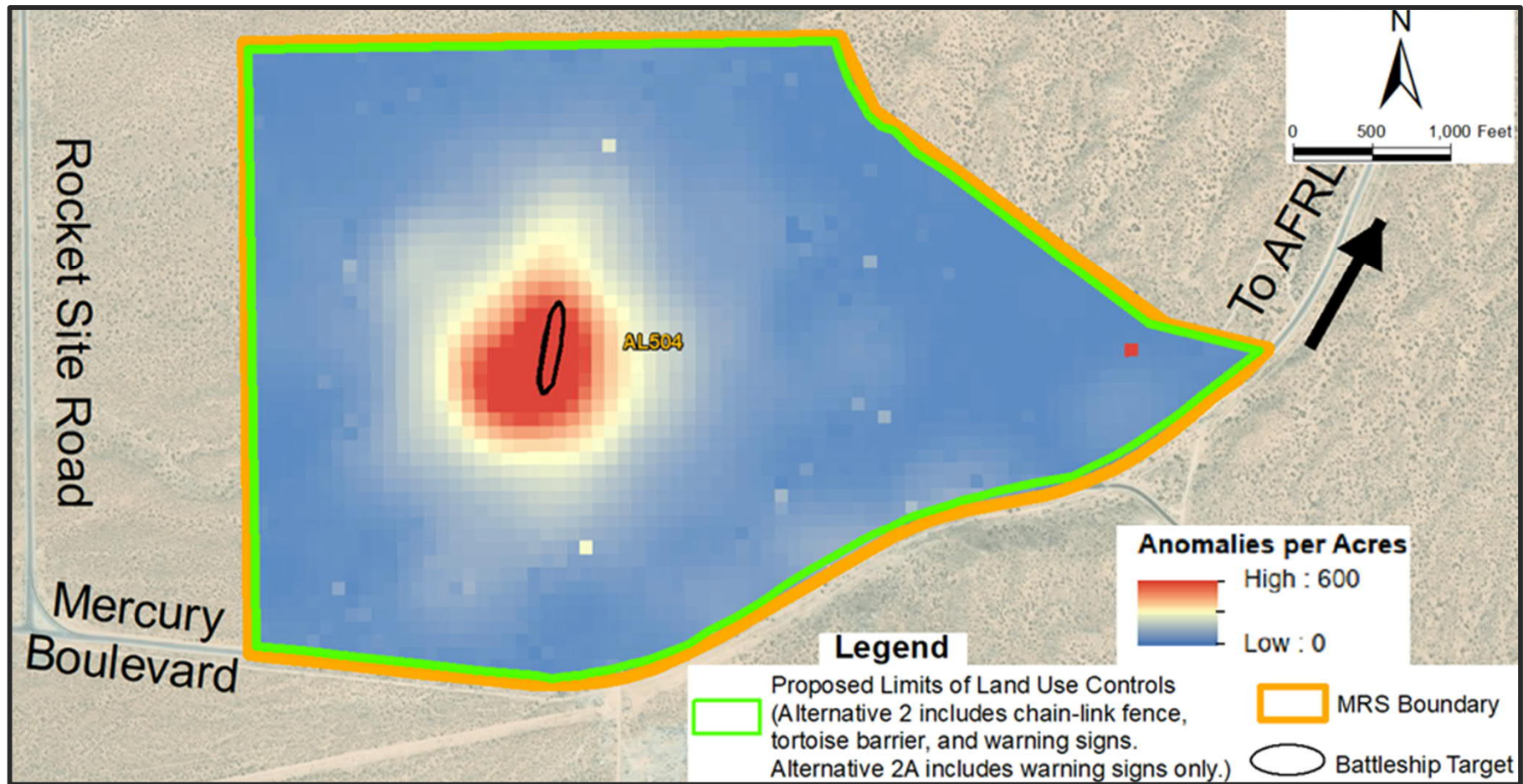
- **Alternative 3 – Partial MEC removal (excludes the historically significant target area) with LUCs (including a fence, tortoise barrier, and warning signs around only the target area) and LTM**
 - Cost is \$20 million for the first 200 years
- **Alternative 3A – Similar to Alternative 3 but with only warning signs to mark the LUCs boundary**
 - Cost is \$19 million for the first 200 years
- **Alternative 4 – Full MEC Removal (including the target area)**
 - Cost is \$44 million



MRS AL504



Alternatives 2 and 2A Conceptual Design

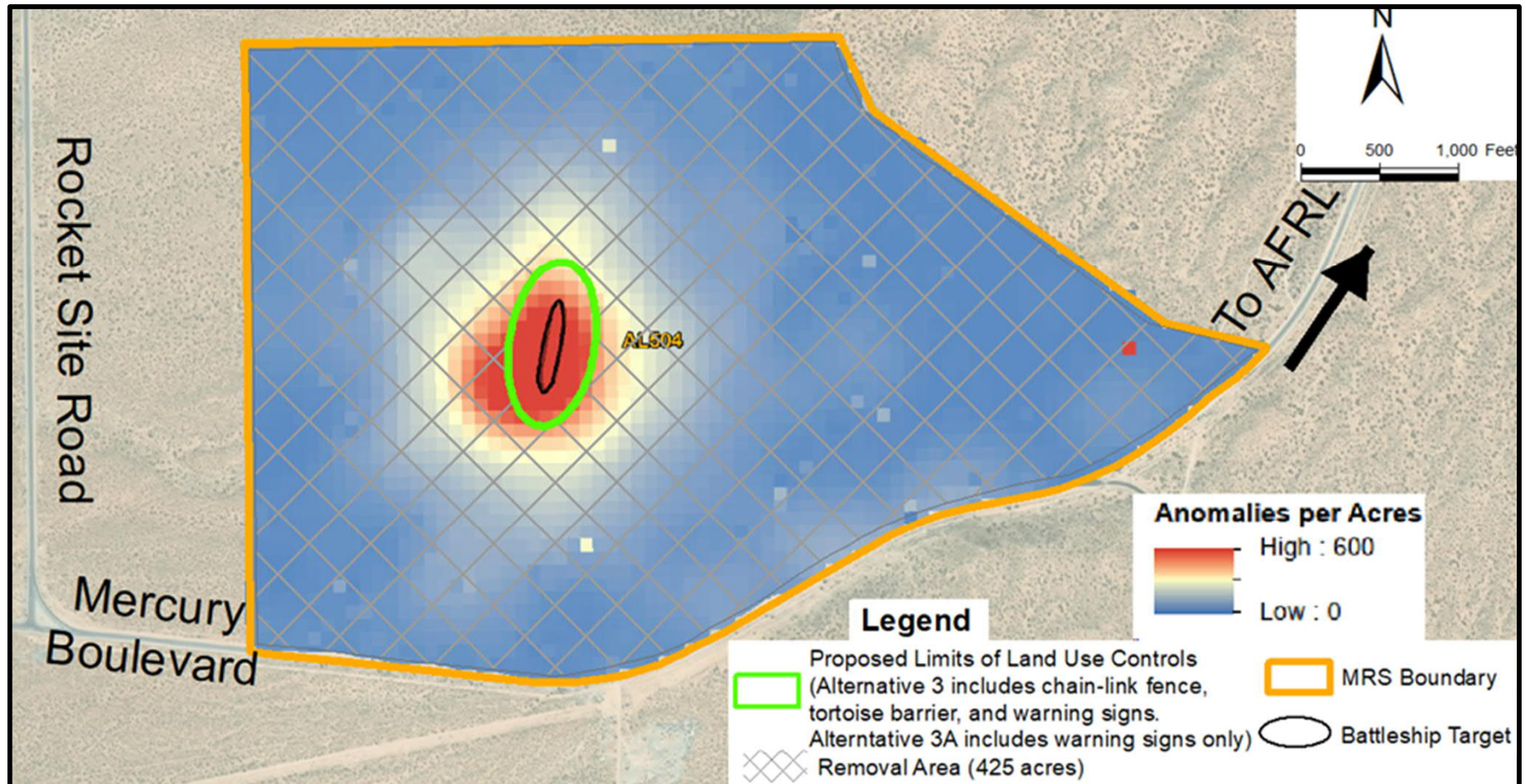




MRS AL504



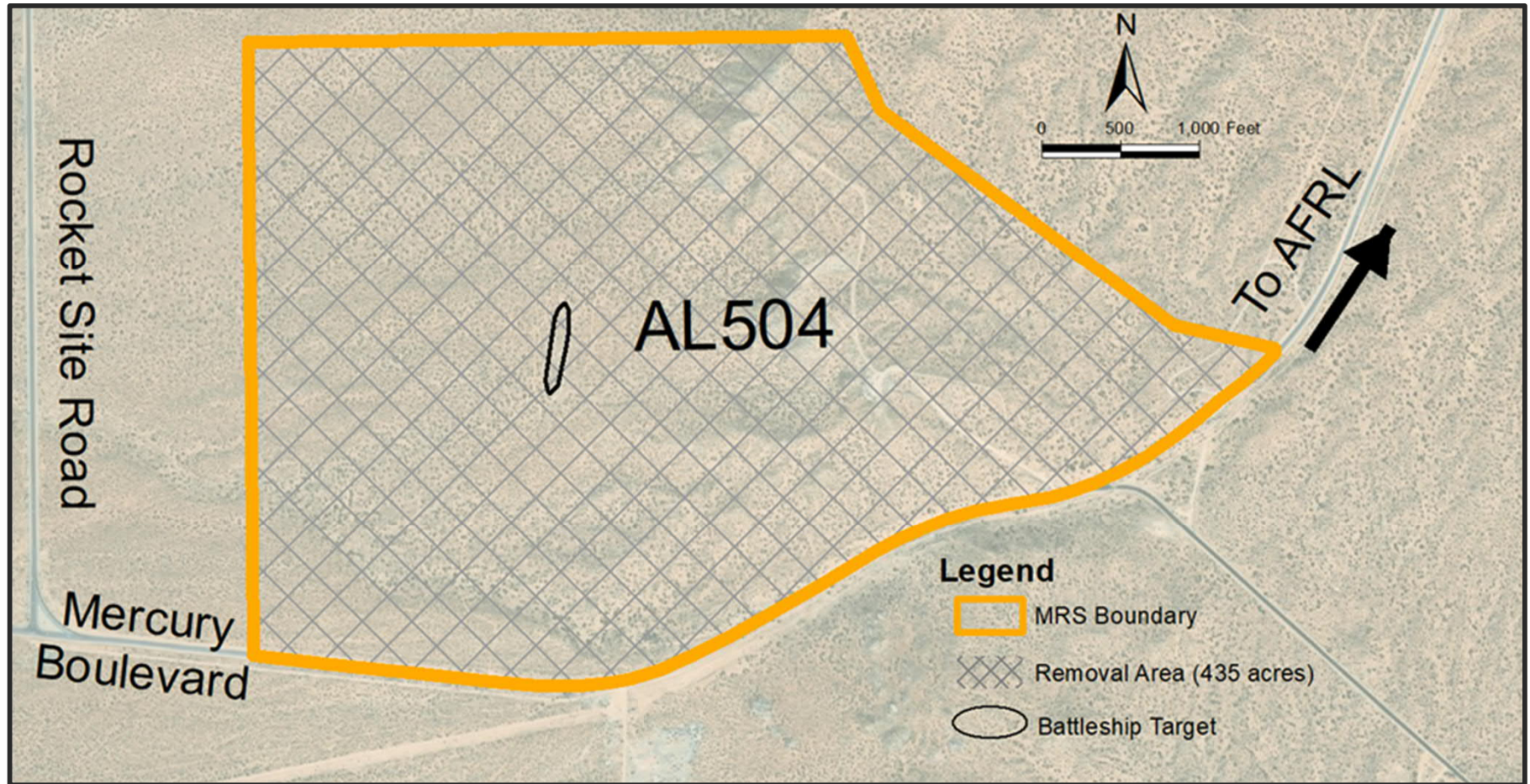
Alternatives 3 and 3A Conceptual Design





MRS AL504

Alternative 4 Conceptual Design





MRS AL504

Preferred Alternative



- **Alternative 2A – LUCs (with site perimeter warning signs) and LTM is preferred because:**
 - It is protective of human health and the environment
 - It meets all federal and state environmental laws, administrative regulations, and contaminant limits/standards
 - Results in least disturbance to natural environment, impact to sensitive species (such as the desert tortoise), and cultural resources
 - Institutional LUCs will prevent residential land use and will ensure that authorized workers have training/resources needed to avoid buried MEC
 - It is the most cost-effective alternative



How to Get More Information



- The documents that the Air Force has used to make decisions about the cleanup activities in this Proposed Plan are included in the Administrative Record File, available online at <https://ar.afcec-cloud.af.mil/>
- If you would like to view the Administrative Record File on base, please make an appointment with Gary Hatch (Environmental Public Affairs) during regular business hours:

Address: 412 TW/PA
Attn: Gary Hatch
305 E. Popson Ave
Edwards AFB, CA 93524

Phone: (661) 277-8707
E-mail: 412tw.pae@us.af.mil
Hours: By appointment only,
Monday through Friday
9 a.m. to 4:30 p.m.

- Technical documents may also be reviewed at the following locations:

Edwards AFB Library
5 West Yeager Boulevard
Edwards AFB, California 93524
(661) 275-2665

Los Angeles County Public Library
601 West Lancaster Boulevard
Lancaster, CA 93534
(661) 948-5029

Kern County Public Library
Wanda Kirk Branch
3611 West Rosamond Boulevard
Rosamond, CA 93560
(661) 256-3236



How to Submit Comments



- **Public input regarding this Proposed Plan is important to the Air Force. Comments provided by the public are valuable in helping the Air Force select a final cleanup remedy**
- **Comments can be made at the public meeting (comment forms will be made available to the public) or you may mail or e-mail your comments on the Proposed Plan to Gary Hatch using the contact information on the previous slide**
- **A comment form is provided on Page 35 of the Proposed Plan, but written comments may be in any form. You may add additional pages to this form, as necessary**
- **Comments must be postmarked by November 1, 2021 (30 days after public notice was published)**
- **If you have any questions about the comment period, please contact Gary Hatch**

