

**FINAL  
DECISION DOCUMENT**

**REMAINING AREA MUNITION RESPONSE SITE**

**FORMER PINECASTLE JEEP RANGE**

**ORANGE COUNTY, FLORIDA**

**MRS No. I04FL40501**



**U.S. Army Corps of Engineers**

**June 2011**

**Final Decision Document**  
*Remaining Area MRS*  
*MRS # I04FL40501*  
*Former Pinecastle Jeep Range, Orange County, Florida*

**EXECUTIVE SUMMARY**

ES.1. This Decision Document contains the selected remedy for the Remaining Area Munition Response Site (MRS) (MRS I04FL40501) of the former Pinecastle Jeep Range, Formerly Used Defense Site (FUDS) (Project No. I04FL0405). This MRS is comprised of the areas surrounding the Demonstration Range. A large number of residences are located in the northwestern and northern part of the MRS. A portion of the Orange County Solid Waste Facility is located within the eastern part of the Remaining Area MRS. The southern part of the MRS and much of the eastern part of the MRS is undeveloped. Portions of this MRS are expected to be developed with mixed residential, commercial, industrial, and public use including expansion of the landfill.

ES.2. The selected remedy for this MRS is No Department of Defense Action Indicated (NDAI). No munitions and explosives of concern (MEC) were recovered during the 2009 Remedial Investigation or other investigative activities conducted at the Remaining Area MRS. Due to the lack of MEC and the low density of munitions debris, the MEC and munitions constituents (MC) exposure pathway is not considered complete for the Remaining Area MRS.

ES.3. The expected cost associated with the selected remedy for this MRS is \$0.

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### **LIST OF ACRONYMS**

ASR	Archives Search Report
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESAJ	U.S. Army Corps of Engineers – Jacksonville District
CSM	conceptual site model
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
FDEP	Florida Department of Environmental Protection
FUDS	Formerly Used Defense Site
FS	Feasibility Study
INPR	Inventory Project Report
MC	munitions constituents
MD	munitions debris
MEC	munitions and explosives of concern
MRS	Munitions Response Site
NDAI	No DoD Action Indicated
RAB	Restoration Advisory Board
RI	remedial investigation
SI	Site Inspection
TCRA	time-critical removal action
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UXO	unexploded ordnance

## **PART 1: THE DECLARATION**

### **1.0 Project Name and Location**

The Pinecastle Jeep Range, Formerly Used Defense Site (FUDS) (FUDS Property No. I04FL0405) is located in Orange County, Florida. The Remaining Area Munitions Response Site (MRS) (No. I04FL40501) is comprised of the areas surrounding the Demonstration Ranges. A large number of residences are located in the northwestern and northern part of the MRS. The county landfill is located within the eastern part of the MRS. The southern part of the MRS and much of the eastern part of the MRS is undeveloped. Portions of this MRS are expected to be developed with mixed residential, commercial, industrial, and public use including expansion of the landfill. The location of the MRS is shown in Figure 1.

### **2.0 Statement of Basis and Purpose**

2.1. This Decision Document is being presented by the United States Army Corps of Engineers (USACE) to describe the Department of Defense (DoD) selected remedy for the Remaining Area MRS of the Pinecastle Jeep Range Formerly Used Defense Site (FUDS) in Orange County, Florida. The FUDS Charter designated the Army as the Executive Agent on behalf of the DoD charged with meeting all applicable environmental restoration requirements at FUDS, regardless of which DoD component previously owned or used the property. The Secretary of the Army further delegated the program management and execution responsibility for FUDS to the USACE. The USACE is the lead agency for investigating, reporting, evaluating and implementing remedial actions at the former Pinecastle Jeep Range.

2.2. This Decision Document is a requirement of 42 U.S. Code § 9617 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, and follows the requirements from Engineer Regulation 200-3-1, FUDS Program Policy (USACE, 2004) and the United States Environmental Protection Agency (USEPA) guidance provided in A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents, EPA 540-R-98-031.

2.3. The remedy described in this Decision Document was selected in accordance with CERCLA, 42 U.S. Code § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 Code of Federal Regulations Part 300 et seq., as amended. The Administrative Record provides supporting documentation for this decision.

### **3.0 Description of Selected Remedy**

The remedial investigation (RI) completed in 2010 characterized the nature and extent of munitions and explosives of concern (MEC) and of munitions constituents (MC) associated with prior military activities at the former Pinecastle Jeep Range. Due to the lack of MEC and the low density of munitions debris, the MEC and MC exposure pathway is not considered complete for the Remaining Area MRS; therefore, no unacceptable exposures to these hazards are known to exist. Given these data, the Remaining Area MRS was recommended for No DoD Action Indicated (NDAI). However given this recommendation, additional investigations could potentially be initiated if evidence of potential DoD use is discovered at a later date.

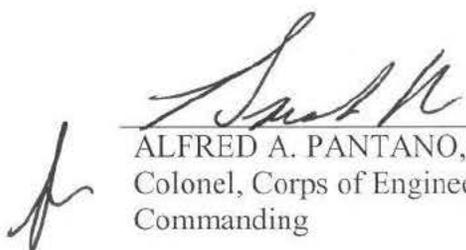
### **4.0 Statutory Determinations**

Based on the information currently available, the MEC exposure pathway is not considered complete for the Remaining Area MRS. The selected NDAI remedy for the Remaining Area MRS is protective of human health and the environment.

**5.0 Authorizing Signatures**

This Decision Document presents the selected response action at the Remaining Area MRS at the former Pinecastle Jeep Range in Orange County, Florida. The U.S. Army Corps of Engineers is the lead agency under the Defense Environmental Restoration Program (DERP) at the Pinecastle Jeep Range FUDS, and has developed this Decision Document consistent with the CERCLA, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan. This Decision Document will be incorporated into the larger Administrative Record file for the former Pinecastle Jeep Range, which is available for public view at 5575 S. Semoran Blvd., Orlando, Florida. This document, presenting a selected remedy with a present worth cost estimate of \$0, is approved by the undersigned, pursuant to Memorandum, DAIM-ZA, September 9, 2003, subject: Policies for Staffing and Approving Decision Documents, and to Engineer Regulation 200-3-1, FUDS Program Policy.

APPROVED:

  
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ALFRED A. PANTANO, JR.  
Colonel, Corps of Engineers  
Commanding

## **PART 2: THE DECISION SUMMARY**

### **1.0 Project Name, Location, and Brief Description**

1.1. The site addressed in this Decision Document is the Remaining Area MRS (MRS No. I04FL40501) within the former Pinecastle Jeep Range, FUDS Property No. I04FL0405. The USACE is the lead agency for investigating, reporting, evaluating, and implementing remedial actions at the project site. The Florida Department of Environmental Protection (FDEP) has been a supporting agency of this process, having reviewed and commented on planning documents, and the remedial investigation/feasibility study (RI/FS) report.

1.2. The former Pinecastle Jeep Range is located approximately three miles east-northeast of the Orlando International Airport in Orange County, Florida. The Remaining Area MRS is comprised of the areas surrounding the Demonstration Range. A large number of residences are located in the northwestern and northern part of the MRS. The Orange County Solid Waste Facility is located within the eastern part of the MRS. The southern part of the MRS and much of the eastern part of the MRS is undeveloped. Portions of this MRS are expected to be developed with mixed-use residential, commercial, industrial, and public use—including expansion of the landfill.

### **2.0 Project Site History and Enforcement Activities**

#### **2.1 Site History**

The U.S. Government established the Pinecastle Jeep Range during 1943 when it leased approximately 12,483 acres for use by the Army Air Corps. The property was also known as the Tactical Demonstration Range, the Orlando Range, Pinecastle Range, Pinecastle Bombing Range and Pinecastle Chemical Demonstration Range, and was an off-post, or auxiliary site, of Pinecastle Army Air Field—the predecessor to McCoy Air Force Base. Although a sub-installation of the Pinecastle Army Air Field, a number of elements of the Army Air Force Tactical Center headquartered at Orlando Army Air Base used the facility for gunnery range training. The Army Air Forces School of Applied Tactics using the site for Combined Tactical Demonstration exercises for student instruction in employment of aerial weapons. Pinecastle Jeep Range was initially used for small arms training with a Jeep Range for .50 caliber machine gun training, a 45-position rifle range, and a separate 15-target rifle range. The curriculum of the school included at least four choreographed munitions demonstration programs which took place in front of students and observers situated on bleachers nearby. These demonstrations included ordnance demonstrations, convoy strafing demonstrations, chemical warfare demonstrations (using chemical agent simulant), and tactical air forces demonstrations. The War Department declared the Pinecastle Jeep Range surplus effective December 2, 1946, and by December 5, 1947, the War Department terminated the lease on the range property. Range clearance activities were conducted at the former Pinecastle Jeep Range from March to September 1947 and during the summer of 1948. On August 6, 1948, the War Department terminated the lease with

Magnolia Ranch, Inc. for the majority of the range (11,833 acres). Magnolia Ranch, Inc. subsequently filed damage claims and sued the government in the United States Court of Claims in 1952. An additional clearance effort occurred in 1953, and the case was settled in 1955. The ordnance clearances conducted in April and June 1953 resulted in a recommendation that a 500-acre area be restricted to surface use only based on the surface clearance completed. This area included a small portion of the Demonstration Range (North) MRS, specifically the eastern portion of the Odyssey Middle School, the wetland between Odyssey Middle School and Tivoli Gardens, and the southwestern portion of Tivoli Woods. There was no subsequent documentation that the restricted area was implemented. No records of munitions finds since the 1953 clearance activity until 2009 have been located.

## **2.2 Previous Investigations**

2.2.1. The USACE has completed a series of studies for the former Pinecastle Jeep Range compliant with the CERCLA process.

2.2.2. An Inventory Project Report (INPR) was completed in 1994 to determine the eligibility for the Pinecastle Jeep Range under the DERP-FUDS, establish the preliminary site boundary, assign the FUDS project number, and evaluate whether further action was warranted.

2.2.3. An Archives Search Report (ASR) was completed in 1997 based on available historical records, interviews, and a site visit. The site visit team was not able to access undeveloped areas in the western portion of the site but potential bomb craters were noted from aerial photographs. In 2004, an ASR Supplement was prepared based on the 1997 ASR to form a preliminary conceptual site model (CSM) and to establish areas of concern.

2.2.4. A Site Inspection (SI) was conducted in 2007 to determine if there was evidence of remaining munitions at the former Pinecastle Jeep Range. During the SI, several bomb craters and munitions debris (MD) were discovered, and soil samples were collected which contained concentrations of explosives compounds. In June 2007, several unexploded ordnance (UXO) were discovered by a landowner and were subsequently destroyed by military personnel from Patrick Air Force Base. The discovery of these munitions led to a time-critical removal action (TCRA) that began in August 2007 resulting in more UXO and MD being discovered in several areas within the former Pinecastle Jeep Range, including at the Odyssey Middle School, Tivoli Gardens, and a northern portion of the Mockingbird Property adjacent to Odyssey Middle School. During the TCRA, no MEC or MD were found in the Warwick sub-division, which is adjacent to the west of the school property and Mockingbird Property.

2.2.5. Prior to the completion of the TCRA in July 2008, an RI was initiated to characterize the location, concentration, and extent of MEC and MC contamination at the site. To assess the presence of MEC at the project site, a geophysical survey was conducted to detect anomalies similar in characteristics to the munitions formerly used. The team selected 51,010 anomalies throughout the FUDS for investigation and found UXO at 20 locations and MD at 599 locations.

The remaining 50,391 locations consisted of non-munitions debris (e.g., construction debris, sprinklers, etc.), small arms projectiles, anomalies caused by instrument noise or rough terrain, and anomalies which became unavailable due to flooding or a retraction of permission to enter a property.

### **2.3 CERCLA Enforcement Activities**

To date, there have been no CERCLA-related enforcement activities at the project site.

### **3.0 Community Participation**

3.1. In an effort to keep the public informed, public meetings relating to activities within the former Pinecastle Jeep Range were held on four occasions. The public meetings were designed to present the investigation schedule for the site and also to receive questions regarding investigation activities and to solicit views on the reasonably anticipated land uses and potential future land uses of the MRS. Fact sheets were prepared and distributed during these meetings.

3.2. A Restoration Advisory Board (RAB) was established for the former Pinecastle Jeep Range project in an effort to maintain representatives of the community as stakeholders of the project. The RAB members were allowed to review and comment on site documents before their release to the public. During the RI/FS, ten RAB meetings were held in an effort to include these community representatives in the investigation and remedy selection process for the site.

3.3. A news release was issued on July 18, 2010, to announce the completion of the final RI/FS Report and a Proposed Plan. A draft final version of the Proposed Plan was issued on July 22, 2010. The Proposed Plan was posted on the USACE-Jacksonville District (CESAJ) website and placed in the local administrative repository with the RI/FS Report and other documents for the site. The USACE sent a letter to all property owners within the boundary of the FUDS that explained the results of the RI/FS Report and the CERCLA process. The local residents and other interested parties were encouraged to review the Proposed Plan and submit comments during their attendance at the July 22, 2010 Public Meeting. Public comments on the Proposed Plan were accepted during a 30 day public review and comment period (i.e., July 22 – August 23, 2010).

### **4.0 Scope and Role of Response Action**

4.1. Similar to many FUDS, the problems at the former Pinecastle Jeep Range are complex. As a result, the USACE has organized the site into four MRSs to facilitate the cleanup. These four MRSs are as follows:

- Demonstration Range (North) MRS;
- Demonstration Range (South) MRS;

- Demonstration Range (East) MRS; and
- Remaining Areas MRS.

4.2. The USACE has already selected the remedies for these MRSs. Apart from the Remaining Areas MRS, which has been selected for NDAI, the Demonstration Range MRSs have been prescribed remedies with the goal of reducing the risks posed by MEC and MC contamination within those MRSs. The Demonstration Range MRSs were divided accordingly due to their different land uses, each mandating a different approach in order to achieve their respective remediation goal. Whereas the Demonstration Range (North) MRS includes residential properties, a school, and wetlands, the other MRSs contain either open pastures and wetlands (Demonstration Range (South) MRS) or wetlands, commercial developments, and a large landfill facility (Demonstration Range (East) MRS). Separate Decision Documents have been created for each MRS to address the specific characteristics of each, as well as to present their selected remedy.

4.3. This document addresses risks associated with MEC and MC contamination within the Remaining Area MRS. No MEC were recovered during the RI or other investigative activities conducted at the Remaining Area MRS. Due to the lack of MEC and the low density of munitions debris, the MEC and MC exposure pathway is considered incomplete for the Remaining Area MRS. Alternative 1, NDAI, has been selected for this MRS.

## **5.0 Project Site Characteristics**

### **5.1 Conceptual Site Model**

5.1.1 The Remaining Area MRS almost encompasses the Demonstration Range MRSs—bordering them mostly to the north, south, east, and a small portion to the west. Most of the former DoD activity occurred at a Jeep Track constructed (with the northern half being within the Demonstration Range (North) MRS and the southern half being in the Demonstration Range (South) MRS. Three small arms ranges (pistol range, 300-yd known distance range, .30 and .50 caliber moving target machinegun range) existed in the southwest corner of the Remaining Area MRS with safety fans oriented toward the east. The majority of the Remaining Area MRS was outside of the small arms range fans. The northern and northwestern portions of the MRS contain large residential developments. The eastern portion of the MRS contains a large solid waste management facility. Developed areas are expected to remain the same as current use; however, new developments are anticipated in the portion of the MRS south of the Beachline Expressway. Expansion of the solid waste management facility may also occur.

5.1.2 The Remaining Area MRS did not have MEC or MC hazards identified during the RI, therefore the exposure pathway is not considered complete.

## **5.2 Site Overview**

The Remaining Area MRS is comprised of 10,330 acres surrounding the Demonstration Range of the former Pinecastle Jeep Range FUDS. A large number of residences are located in the northwestern and northern part of the MRS. The Orange County Solid Waste Facility is located within the eastern part of the MRS. The southern part of the MRS and much of the eastern part of the MRS is undeveloped. The Remaining Area MRS should be considered as no restriction to access. There are no areas of archaeological or historical importance within this MRS.

## **5.3 MEC Investigation**

5.3.1. Throughout the residential developments in the northwestern and northern portions of the MRS, the RI investigated MEC occurrence and distribution through a combination of geophysical surveys, intrusive investigation of geophysical anomalies, and identification of metallic anomalies using handheld metal detectors followed immediately by intrusive investigation (mag and dig). Approximately 900 residential parcels were investigated with a combination of geophysical mapping followed by intrusive investigation of geophysical anomalies and mag-and-dig procedures or solely mag-and-dig. More than half of the residential parcels were investigated with 100% of the exposed ground surface being investigated. For the remainder, approximately 20% of the DGM anomalies were investigated. In undeveloped areas of the MRS, primarily in the north-central, northeastern, and southern portions of the MRS, geophysical data were collected on transects cut through the undeveloped upland areas. Geophysical anomalies were identified and intrusively investigated with 100% of the anomalies being investigated in low density areas and 20% of the anomalies being investigated in the higher density areas with 37% of the anomalies being investigated overall.

5.3.2. No MEC were recovered during the RI or other investigative activities conducted at the Remaining Area MRS. Two inert-filled high-explosive-type AN-M40A1 23-lb parachute fragmentation bombs were found at the western edge of the MRS in the Warwick development. These items, which did not have explosive components, are interpreted to be static display munitions used for the demonstrations. No other munitions debris was found in the area even though 100% of the exposed ground surface was investigated by a contractor hired by the developer. In the southwestern part of the MRS, east of the former small arms ranges, several pieces of unidentified fragmentation and an inert 40mm projectile were found. Additional grids at these locations did not find additional munitions debris. Due to the lack of MEC and the low density of munitions debris, the MEC exposure pathway is not considered complete for the Remaining Area MRS.

## **5.4 MC Investigation**

Soil, surface water, sediment samples were collected in the Remaining Area MRS from the Warwick and Avon Subdivisions and from the former small arms ranges to determine the

presence of MC contamination in those areas, and if so, its extent. None of the metals detected in any of the media exceeded the FDEP Soil Cleanup Target Levels for Direct Contact or Leachability to Groundwater. Additionally, no samples were collected in association with MEC since MEC were not discovered in the MRS. Based on the sampling results, no unacceptable risk is expected due to exposure to soil, surface water, or sediment at this MRS.

## **6.0 Current and Potential Future Land and Water Uses**

### **6.1 Land Uses**

The Remaining Area MRS consists of residences, undeveloped ranchland, and a portion of the Orange County Solid Waste Facility. Portions of this MRS are expected to be developed with mixed-use residential, commercial, industrial, and public use—including expansion of the solid waste facility.

### **6.2 Groundwater and Surface Water Uses**

There are currently no known groundwater wells used for drinking sources or irrigation within the Remaining Area MRS. The surface waters within the wetlands and streams are not utilized, nor normally accessed.

## **7.0 Summary of Project Site Risks**

### **7.1 Human Health Risks**

The Remaining Area MRS was not addressed in the risk characterization. No explosive hazards were identified at the Remaining Area MRS. Only very limited munitions debris finds were made and these were either non-explosive or interpreted to be fragmentation from outside the MRS. Expended small arms ammunition is classified as munitions debris and presents no explosive hazard. No human health risk due to MC was identified for the Remaining Area MRS.

### **7.2 Ecological Risks**

A screening level ecological risk assessment for the Remaining Area MRS indicated that of the nine metals retained for consideration, only antimony and strontium exceeded their respective initial screening values, with hazard quotients of 1.8 for both metals compared to maximum detected concentrations. Due to low hazard quotients and conservative nature of the ecological screening values, no unacceptable ecological risk is expected at this MRS due to exposure to soil. Antimony and strontium were only detected in 12% (2 of 17) of samples above the lowest ecological screening value, and the average concentration when compared to the ecological screening values was considerably less than 1.0.

### **7.3 Basis for Response Action**

The Remaining Areas MRS was found to contain no risks associated with MEC or MC and was recommended for NDAI.

### **8.0 Documentation of Significant Changes from Preferred Alternative of Proposed Plan**

NDAI was selected for the Remaining Area MRS as presented in the final Feasibility Study and Proposed Plan. This alternative remains unchanged from what was presented in these documents.

### **PART 3: THE RESPONSIVENESS SUMMARY**

#### **1.0 Stakeholder Issues and Lead Agency Responses**

Part II Section 3.0 of this Decision Document described the activities used to solicit community input. A public meeting was held on July 22, 2010 to present the Proposed Plan and obtain comments from the community. The meeting also initiated a 30-day public review period. Members of the public made comments during the meeting and written comments were received during the review period. Letters, along with a Proposed Plan fact sheet, were sent to all of the property owners within the former Range to invite them to the meeting, to explain the recommended alternatives and to encourage them to submit comments. A summary of the concerns raised by the public and stakeholders along with responses are provided below.

Concern: A resident expressed concern over the omission of the discussion regarding munitions debris found in the portion of the Warwick development which is within the Remaining Area MRS. There was concern that the presence of munitions debris in that area constitutes a hazard to the public, and for this reason, the area should be included in one of the Demonstration Range MRSs.

Response: The Warwick development was intrusively investigated to the fullest extent possible to 100% of the exposed ground surface (the eastern half by the USACE and the western half by the developer), and no hazardous munitions were found. The munitions debris consisted of two non-explosively configured bombs and brass casings from .50 caliber bullets. The bombs were likely from educational displays that were shown to military personnel participating in the training exercises conducted during World War II. The brass casings can be attributed to waste from the machine gun range farther east. The munitions debris does not constitute an explosive hazard. Warwick is outside of the property controlled by the military during World War II and behind the observation areas. Given the extensive investigation and the historical use of the site, it is unlikely that munitions would be found in Warwick. The recommendation for Warwick to be included in the Remaining Area MRS, as presented in the Proposed Plan, is based on this consistency of data.

Concern: The residential areas within the FUDS boundary (namely Avon, Tivoli Woods, Central Park, and parts of Newport) were partly within a former .50 caliber machine gun range. Also, samples collected during the Site Inspection within a wetland in this area contained mercury above background levels (as stated in the Site Inspection Report). For these reasons, the residential areas should be included in the portion of the site requiring further action.

Response: The extensive investigation of the residential areas as part of the Remedial Investigation did not find any hazardous munitions in the areas north of Lee Vista Blvd. The limited numbers of expended .50 caliber bullets do not constitute a hazard. The screening level risk assessment in the Site Inspection Report found that the mercury detection (0.2

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*Former Pinecastle Jeep Range, Orange County, Florida*

mg/kg) did not exceed the Florida Department of Environmental Protection (FDEP) Direct Contact criteria (3 mg/kg) nor the FDEP leachability criteria (2.1 mg/kg). Soil samples were also collected during the Remedial Investigation but again did not exceed the FDEP screening levels. A review of the list of munitions used at Pinecastle Jeep Range shows that mercury is only a very minor component of some of the munitions used at the site, indicating that the small quantities of mercury identified in the soil is likely naturally occurring or due to a source other than military munitions. Based on this information, which has also been included in the Remedial Investigation Report, there is no strong basis for including the residential areas north of Lee Vista Boulevard with the areas requiring further action.

Concern: Groundwater and soil testing was only conducted where munitions were encountered, and the final RI/FS Report did not recommend any additional groundwater or soil testing.

Response: The Remedial Investigation used a standard approach to environmental investigations that determines if contamination is moving from sources of contamination (in this case munitions and munitions debris) into underlying soils and groundwater. Our sampling was focused on locations where munitions were found. Results indicated concentrations that exceeded the FDEP criteria at only limited locations. Additional samples were collected surrounding the locations with FDEP exceedances to bound the areas of contamination. At the request of FDEP, monitoring wells were installed and sampled but no further exceedances were found. Overall, elevated concentrations were found at very limited locations, and were mostly attributed to munitions demolitions that occurred during the investigation. The remedial investigation did not find widespread contamination in the soil and did not find contamination in the groundwater. For this reason, no widespread groundwater and soil sampling was recommended.

Concern: Orange County also recommended Permit Restrictions (which at a minimum could consist of a notice and disclaimer) stating that the area was part of the former Pinecastle Jeep Range. The county also indicated that it is evaluating the issue of requiring additional geotechnical analysis for parcels within the Remaining Area MRS, notwithstanding the findings and recommendations of the RI/FS.

Response: The recommended alternatives outlined in the Proposed Plan as finalized by the Decision Document constitute the USACE recommendations for this site. The county is free to impose any additional requirements at its discretion.

Concern: During the public meeting, a few residents inquired as to whether the Pinecastle Jeep Range would ever be 100% clear of munitions. Residents were also curious as to USACE's stance in the event that, years from now, munitions are discovered within the areas which were cleared, or those that were cleared as a result of the recommended future removal actions.

Response: Due to technological limitations, it is impossible to guarantee that all munitions are removed—or could be removed—from the former Pinecastle Jeep Range. The USACE never walks away from a FUDS; therefore if munitions are found in the future, the USACE will take appropriate action at that time.

Concern: The FDEP review of the draft final Remedial Investigation/Feasibility Study Report expressed concerns about munitions constituents (mainly copper, barium, and some explosives compounds) concentrations in soil exceeding either the FDEP Direct Contact criteria or Leachability to Groundwater criteria at several isolated locations within the Demonstration Range MRSs where demolition activities destroyed munitions during the RI.

Response: Additional soil samples were collected to help determine the extent of the exceedances, and groundwater wells were installed at four of the six recommended locations where leachability criteria were exceeded (one location was inaccessible and another was flooded). Subsequent soil sampling demonstrated that munitions constituents were limited to small footprints (~1 square meter) on the surface, and that munitions constituents were not leaching into the shallow groundwater. Results from this additional sampling were incorporated into the final Remedial Investigation report.

## **2.0 Technical and Legal Issues**

No Technical or legal issues were noted for the Remaining Area MRS.

Figure 1

# Remaning Area MRS Pinecastle Jeep Range

Orange County  
Orlando, Florida

## Legend

-  MRS Boundary
-  FUDS Boundary
-  Parcel Boundary

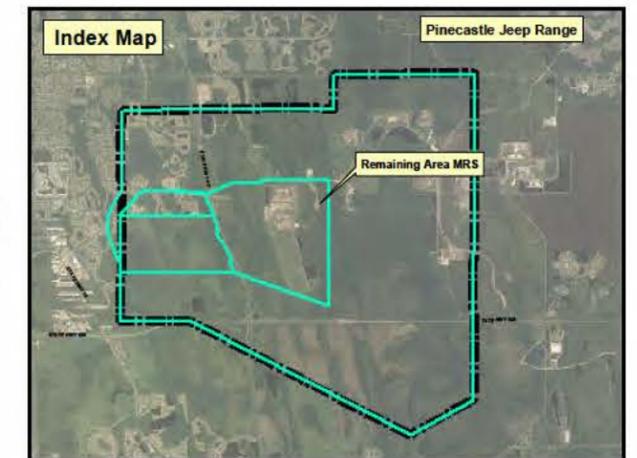
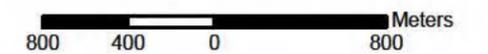


Image Source: 2007 Orthophotos  
Projection: UTM Zone 17 NAD83, Units in Meters



PARSONS

U.S. ARMY CORPS  
OF ENGINEERS  
HUNTSVILLE CENTER

DESIGNED BY  
BT

DRAWN BY  
BT

CHECKED BY  
GH

SUBMITTED BY  
MS

### Pinecastle Jeep Range

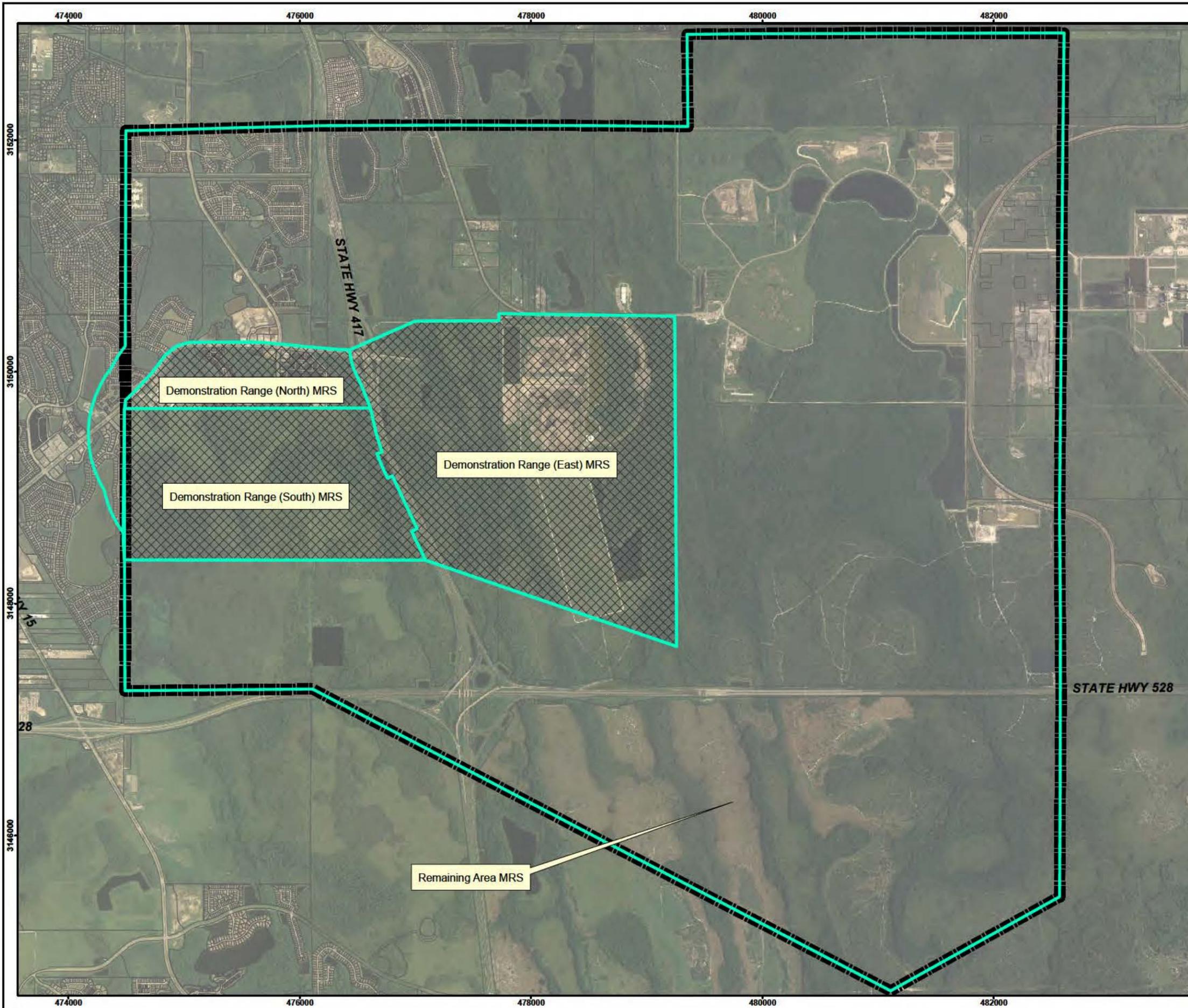
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DATE November 2010

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# Figure 2 - CONCEPTUAL SITE EXPOSURE MODEL

Site/MRS Name: FORMER PINECASTLE JEEP RANGE – Remaining Area MRS

Completed By: Donald Seder, PARSONS

Date Completed: March 7, 2011

