FINAL DECISION DOCUMENT

ORLANDO RANGE AND CHEMICAL YARD

GOLDENROD ROAD FIELD

ORANGE COUNTY, FLORIDA

FORMERLY USED DEFENSE SITE PROPERTY NUMBER: I04FL0396

U.S. Army Corps of Engineers
Jacksonville District
701 San Marco Boulevard
Jacksonville, Florida 32207

22 July 2014

EXECUTIVE SUMMARY

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 Goldenrod Road Field munitions response site (MRS) within the former Orlando Range and Chemical Yard (ORCY) Formerly Used Defense Site (FUDS), Property Number I04FL0396 located in Orange County, Florida.

The Secretary of Defense designated the Army as the Executive Agent for 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 remedial actions, and implementing remedial actions at the former ORCY.

An explosive safety hazard is not anticipated at the ORCY Goldenrod Road Field MRS and the risk assessment identified no unacceptable risks to human health or the environment; therefore, the lead agency determined that no action is necessary to protect public health or welfare or the environment. The No Further Action (NFA) Alternative is the appropriate selected remedy for ORCY Goldenrod Road Field MRS.

The remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S. Code § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 Code of Federal Regulations Part 300 et seq., as amended.

The Florida Department of Environmental Protection (FDEP) concurs with the selected remedy.

Based on information currently available, the selected remedy is protective of human health and the environment and satisfies the statutory requirements of CERCLA §121(b).

The estimated cost for the selected remedy is summarized in Table E.1.

TABLE E.1

SUMMARY OF SELECTED REMEDY AND COST

MRS	SELECTED REMEDY	COST
GOLDENROD ROAD FIELD MRS	No Further Action	$0
	TOTAL	**$0**

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Figure 1 Site Location Map

LIST OF ACRONYMS AND ABBREVIATIONS

ABP	Agent Breakdown Product
CA	Chemical Agents
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CWM	Chemical Warfare Materiel
DDT	Dichloro-Diphenyl-Trichloroethane
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
FDEP	Florida Department of Environmental Protection
FUDS	Formerly Used Defense Sites
MC	Munitions Constituents
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MRS	Munitions Response Site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
ORCY	Orlando Range and Chemical Yard
RI	Remedial Investigation
SARA	Superfund Amendment and Reauthorization Act
SI	Site Inspection
SLRA	Screening Level Risk Assessment
T&E	Threatened and Endangered
U.S.	United States
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
UXO	Unexploded Ordnance

PART 1: DECLARATION

1. SITE NAME AND LOCATION

Site Name: Orlando Range and Chemical Yard Goldenrod Road Field MRS

Formerly Used Defense Site (FUDS) Property Number: I04FL0396

Federal Facility Identifier: I04FL039603M01

The former ORCY is located approximately four miles north of the Orlando International Airport, partly within the City of Orlando, in Orange County, Florida. The former ORCY FUDS property is heavily developed. The only undeveloped areas are a few wetlands located toward the center and the western half of the FUDS property, outside of the MRSs. The majority of the structures within the FUDS consist of businesses, schools, single-family dwellings, and apartments. The Goldenrod Road Field MRS is in the northern-central portion of the former ORCY FUDS. The site is currently undeveloped, unpaved, and treeless. Figure 1 shows the former ORCY boundaries and the boundary of the Goldenrod Road Field MRS within the former ORCY.

2. STATEMENT OF BASIS AND PURPOSE

This Decision Document presents the Selected Remedy for Goldenrod Road Field MRS. The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendment and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

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 Goldenrod Road Field MRS.

3. DESCRIPTION OF SELECTED REMEDY

An explosive safety hazard is not anticipated at the ORCY Goldenrod Road Field MRS and the risk assessment identified no unacceptable risks to human health or the environment; therefore, the lead agency determined that no action is necessary to protect public health or welfare or the environment. The No Further Action (NFA) Alternative is the appropriate selected remedy for Goldenrod Road Field MRS.

4. STATUTORY DETERMINATIONS

No remedial action is necessary within the former ORCY Goldenrod Road Field MRS to ensure protection of human health and the environment; therefore, statutory determinations are not necessary. Five-Year Reviews will not be performed.

5. AUTHORIZING SIGNATURES

This Decision Document presents the NFA recommendation for the Site. The USACE Jacksonville District, is the lead agency under the Defense Environmental Restoration Program at the ORCY FUDS and developed this Decision Document consistent with CERCLA, as amended by SARA, and the NCP. This Decision Document will be incorporated into the existing Administrative Record File, which is available for public review at the Orlando Public Library Southeast Branch located at 5575 S. Semoran Boulevard in Orlando. The addition of this Decision Document completes the Administrative Record File and becomes the Administrative Record for the ORCY. The Administrative Record is protected from additional documents being added. This document, presenting the NFA recommendation, 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, *Formerly Used Defense Sites Program Policy*.

APPROVED:

Alan M Dodd

ALAN M. DODD
Colonel, Corps of Engineers
Commanding

15 AUG 14

Date

PART 2: DECISION SUMMARY

1. PROJECT NAME, LOCATION, AND BRIEF DESCRIPTION

The former ORCY is located approximately four miles north of the Orlando International Airport, partly within the City of Orlando, in Orange County, Florida. The former ORCY FUDS property is heavily developed. Businesses and residences exist along and between the major roads of the site. The ORCY is a FUDS property; the DoD has not occupied or used any portions of the property after declaring it excess in 1946. The only undeveloped areas are a few wetlands located toward the center and the western half of the FUDS property, outside of the MRSs. The majority of the structures within the FUDS consist of businesses, schools, single-family dwellings, and apartments. The Goldenrod Road Field MRS is in the northern-central portion of the former ORCY FUDS. The site is currently undeveloped, unpaved, and treeless. Figure 1 shows the former ORCY boundaries and the boundary of the Goldenrod Road Field MRS within the former ORCY.

The USACE, Jacksonville District, is the lead agency under the Defense Environmental Restoration Program (DERP) for this FUDS (Site Property Number: I04FL0396). The FDEP supports this Decision Document and concurs with the Selected Remedy.

2. PROJECT HISTORY AND ENFORCEMENT ACTIVITIES

2.1 Project History

Between 1942 and 1943, the United States acquired from various owners, by condemnation and lease, approximately 2,111 acres for the ORCY FUDS (Figure 1). The acquired land was originally used to support the operation of the Orlando Air Base as a rifle training range that was arranged with a series of firing lines oriented to fire northward from the southern end of the property. Later, the Army Air Corps abandoned the rifle range and constructed a Toxic Gas Yard (storage yard for cylinders and drums of chemical agents) with other improvements such as ordnance storage igloos, a storage warehouse, latrines, and a few smaller buildings near the center of the tract. A pistol range was added west of the abandoned rifle range.

The southern part of the FUDS was used for conducting training demonstrations that were incorporated into the curriculum for the Army Air Forces School of Applied Tactics. Typically, several demonstrations were conducted per month with as many as 1,000 persons attending. Chemical warfare demonstrations involved aircraft spray tanks and the dropping or static firing of smoke and incendiary bombs (during this era, smoke and incendiary weapons were categorized as chemical weapons). The Army Air Force conventional weapons demonstrations were also performed at this site and included simulated anti-tank mines, demolition equipment, small arms firing from ground and aircraft, rifle grenades, rocket launcher (bazooka), fragmentation grenades, aircraft signal flares, ground-fired munitions, and simulated 300-lb bomb detonations.

In April 1946, much of the former ORCY was declared excess. A Certificate of Clearance issued in February 1950 stated that approximately 220 acres of Tract 51 was given a careful visual inspection and was declared clear of all dangerous and explosive materials reasonably possible to detect. The certificate also recommended that this land be used for any purpose for which it was suited. In the years since the closure of the facility, no munitions finds have been reported by the community.

2.2 Previous Investigations

In 1993, the Corps conducted a site visit and archives search. The site visit mostly concentrated on the vicinity of the former storage yard. No buildings from the former storage yard were present. No major excavations or other unusual conditions were noted.

A Chemical Warfare Materiel (CWM) Scoping and Security Study that evaluated and prioritized 91 suspected CWM sites nationwide was conducted between 2002 and 2007. In February 2004, the project team conducted a site visit to evaluate current conditions and confirm previous findings. During the visit, the team met with the general contractor constructing Capehart Park. The contractors had encountered construction debris but not any material that could be directly attributed to the military use of the site. The report, issued in August 2007, recommended that a Site Inspection (SI) be conducted at the site.

Aerial photographs taken from 1943 to 1947 showing conditions before, during, and after the military's use of the site were evaluated in 2008. The analysis identified structures and features such as craters. The Historical Photographic Analysis was used for planning specific locations to be investigated during the SI.

The USACE through its contractor Parsons-conducted a SI at the former ORCY to assess the potential presence of munitions and explosives of concern (MEC), munitions debris (MD) indicative of potential MEC (including CWM), munitions constituents (MC) including chemical agents (CA), agent breakdown products (ABPs), and pesticides (specifically dichloro-diphenyl-trichloroethane [DDT]) within the FUDS. The project began in July 2008 and was completed in January 2010. MD, consisting of nose weights from M50-series 4-lb incendiary bombs, and a brass casing from a 75mm projectile were found.

During the SI, surface soil (0-2 inches), subsurface soil (2-4 feet), sediment, surface water, and groundwater samples were collected and analyzed based on the munitions known or suspected to have been used at the site. MC samples were collected and analyzed for the presence of metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, vanadium and zinc), explosives, polycyclic aromatic hydrocarbons, volatile organic compounds, pesticides, and/or perchlorate. Selected samples were also analyzed for the presence of white phosphorous. Antimony, arsenic, barium, and copper were detected in soil above screening levels. Chromium, lead, manganese, molybdenum, strontium, and vanadium in groundwater grab samples were also above screening levels.

A Remedial Investigation (RI) was conducted on the project site from June 2011 to March 2012 to characterize the former ORCY with regard to location, concentration, and nature of MEC, and possible MC contamination. Samples collected during the RI included surface soil (0-2 inches), subsurface soil (12 inches), and groundwater samples which were analyzed for explosives and select metals (antimony, barium, cadmium, chromium, copper, lead, manganese, molybdenum, nickel, strontium, vanadium, and zinc). A baseline risk assessment was conducted using the data collected. Using the results of the investigation, the risk assessment concluded that no unacceptable human health or ecological risk due to MC remains at Goldenrod Road Field MRS. A qualitative hazard assessment was conducted to assess potential explosive hazards to human receptors associated with complete exposure pathways within this area. No MEC or munitions debris were identified in the any of the excavations conducted at the MRS. Based on available information, no MEC hazards are anticipated to be present within Goldenrod Road Field MRS. The RI resulted in a Feasibility Study.

2.3 Enforcement Activities

There have been no CERCLA enforcement activities at this project site.

3. COMMUNITY PARTICIPATION

In accordance with CERCLA, DoD, and U.S. Army regulations, the USACE Jacksonville District has kept the local community involved throughout the RI process. A Community Relations Plan was developed by the USACE Jacksonville District and community involvement was facilitated through public notices and meetings, which allowed members of the community to provide comments and recommendations during the site characterization and remedy selection process.

Community meetings were held at Stonewall Jackson Middle School in January and May of 2011 in preparation of the RI field effort. Each meeting included presentations, fact sheet distribution, and an opportunity for project team members to answer questions from community members. Representatives from Orange County and the FDEP also attended the meetings to help provide answers to questions from the public.

A public meeting took place on December 10, 2013 to present the public with the Proposed Plan for the site. A notice was placed in the local newspaper to invite the public to this meeting. At

this meeting, USACE Jacksonville District representatives answered questions related to the proposed remedy. Attendees included representatives from USACE, FDEP, and contractors. The meeting was also followed by a 30-day public comment period that began on December 1, 2013.

The Proposed Plan was made available to the public prior to the comment period through the Administrative Record filed at the Orlando Public Library Southeast Branch located at 5575 S. Semoran Boulevard in Orlando. Comments were received from two members of the public during the comment period.

4. SCOPE AND ROLE OF RESPONSE ACTION

An explosives safety hazard is not anticipated at the former ORCY Goldenrod Road Field MRS and the risk assessment identified no unacceptable risks to human health or the environment for MC. Consequently, no response action is necessary within Goldenrod Road Field MRS.

Once a Selected Remedy has been approved for the Goldenrod Road Field MRS that is determined to be protective of human health and the environment, minimizes explosive safety hazards, and satisfies the statutory requirements of CERCLA §121(b) with regards to the former DoD use of the MRS, the lead agency will develop a remedial design/response action plan that details how the Selected Remedy will be conducted. Following the completion of the remedial design/response action plan, the remedial action will be implemented.

5. PROJECT MRS CHARACTERISTICS

The Goldenrod Road Field MRS encompasses approximately 0.74 acres. Based on results of previous investigations and the recent RI, no complete MEC exposure pathways are present at Goldenrod Road Field MRS. Based on the lack of MEC contamination, no complete MC exposure pathways are present at Goldenrod Road Field MRS. The rest of this section provides an overview of site surface and subsurface features, sampling strategies, and potential constituents of contamination.

5.1 Site Features

The land that comprises the former ORCY FUDS property is nearly level. From the eastern edge, where the elevation is approximately 85 feet above sea level, the elevation increases toward the west to approximately 100 feet above sea level. The central and eastern portions of the site are crossed by wetland areas slightly lower than the surrounding areas.

A majority of the site is underlain by nearly level to gently sloping, poorly drained to moderately well drained soils, sandy throughout, mostly of marine origin. Some have organic stained subsoil at less than 30", some at 30" to 50". Most areas were modified for urban use. Surficial permeability is high, ranging from > 6.0 in/hr. The area has a high potential for sheet and rill erosion on slopes, otherwise slight, owing to the nearly level terrain. Wind erosion is a high hazard on these sandy soils.

The state of Florida supports 112 federally-listed Threatened and Endangered (T&E) species consisting of 57 animals and 55 plants. Seventeen of these federally-listed species are known to exist in Orange County. These species include 2 reptiles, 6 birds, and 10 plants. No T&E species were observed during the 2009 SI fieldwork or during this RI field effort.

5.2 Sampling Strategy

During the RI, all 26 anomalies interpreted to be consistent with potential MEC were investigated at the Goldenrod Road Field MRS using geophysical data collected during the SI. MD in the form of end weights from M50 4-lb incendiary bombs, and a brass casing from a 75mm projectile were found at two locations at the Goldenrod Road Field MRS; however, because all of the anomalies in the MRS that were identified as potential MEC were investigated and no MEC were found, no MEC are expected to remain at the MRS.

Fifteen surface soil samples, one subsurface soil sample and four groundwater samples were collected. Four shallow groundwater wells and one piezometer were installed to allow the collection of groundwater samples and groundwater level information. The baseline MC risk assessment followed a phased approach starting with a screening level risk assessment (SLRA) and moving toward a more complex, site-specific risk assessment. In addition, the baseline risk assessment evaluated the magnitude of the risk at the site and the primary causes of that risk. Based on results of the baseline MC risk assessment and a review of the MC risk assessment objectives, unacceptable human health and ecological risks are not expected at the Goldenrod Road Field MRS.

Data collected during the previous investigations and the RI were sufficient to characterize the site. The data were used to support a risk assessment approach as agreed to by the project team. Results of the RI indicate that there are no hazards within Goldenrod Road Field MRS. There is no evidence of any impact to the soil and water within the boundaries of the site. No MEC were recovered during the intrusive investigation.

5.3 Constituents of Concern

No known contaminants or constituents of concern have been identified at the Site.

5.4 MEC Contamination

No MEC pathways are currently identified for either human or ecological receptors at Goldenrod Road Field MRS.

6. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

6.1 Land Uses

In the 1950s, most of the area making up the former ORCY became a residential development. Over time, businesses were constructed along the main thoroughfares including Goldenrod Road and Lake Underhill Road. Development continues within the few remaining undeveloped

parcels. Future land use is projected to remain similar to the current use. The Goldenrod Road Field MRS has been cleared and graded and is zoned as C-1; neighborhood commercial. This MRS is also expected to remain the same as the current use through 2030 (Orange County Property Appraiser, http://www.ocpafl.org).

6.2 Groundwater and Surface Water Use

Much of the area is highly urbanized with surface water being directed through a stormwater sewer system into the natural or artificial drainage areas located on the site. Small drainage ponds exist throughout the FUDS, mostly under control of the Orange County Public Works. Two large drainage ditches extend through the site, one starting with its northern end adjacent to Capehart Park (in the central part of the ORCY FUDS) then flowing south. Another drainage ditch starts at the southern boundary of the Chickasaw Elementary School and parallels the north-south power line south of the school. The two ditches are connected by a drainage ditch traversing east-west through the middle of the Demonstration Range MRS.

The surficial aquifer, or water table aquifer, is found where poorly consolidated clastic rock or unconsolidated sediments overlie the limestones and dolomites of the Floridan aquifer. The thickness of the shallow aquifer is highly variable due to large variations in the thickness of sands. The shallow aquifer may directly overlie the Floridan aquifer, or they may be separated by confining beds. Recharge to the water table aquifer is almost entirely from local rainfall, except in those areas where it is hydraulically connected to the Floridan aquifer. Discharge from the shallow aquifer may be by downward percolation into the Floridan aquifer, seepage into streams, lakes, sinkholes, and pumpage from wells (USACE, 1993a). The primary source of drinking water for Orange County Florida public water system consists of the Floridan aquifer (Orange County Utilities Annual Drinking Water Report 2011, http://www.orangecountyfl.net).

There are 170 documented water wells known to exist within a 4-mile radius of the ORCY. There are 11 wells reported within the ORCY boundary. Eight of these wells are classified as "other", one is classified as "irrigation," and two are classified as "domestic." The depths to water in these wells are unknown.

During the 2009 SI fieldwork, the field crew noted two instances of residential wells, thought to be for gardening or irrigation use only. The operation of these wells could not be verified, nor was it known as to their depths. They did not appear to be for potable use, as water for this area is supplied from municipal water sources. A resident living near Capehart Park (i.e., north of the Demonstration Range MRS, 7104 Flanders) stated that, when built, every house in that neighborhood had a well option to water their grass, but that many people removed the wells.

7. SUMMARY OF SITE RISKS

Based on results of previous historical investigations and the RI, no complete MEC exposure pathways are present at Goldenrod Road Field MRS. Based on the lack of MEC contamination, no complete MC exposure pathways are present at Goldenrod Road Field MRS. The absence of complete MC exposure pathways also means that unacceptable risks to human health or the environment as a result of exposure to MC are not anticipated at this MRS.

8. SELECTED REMEDY

8.1 Summary and Description

NFA is the selected remedy for the former ORCY Goldenrod Road Field MRS and this remedy would involve continued use of the site in its current condition. This remedy places no restriction on land use or access.

8.2 Cost Estimate

There are no costs associated with NFA.

8.3 Estimated Outcomes

The expected outcome within ORCY Goldenrod Road Field MRS and the NFA Alternative is that nothing will change and that there will be unrestricted access and unrestricted exposure. No restriction will be placed on current or future land use, and no MEC is present to be removed.

9. STATUTORY DETERMINATIONS

Based on the information currently available, the selected remedy for the Goldenrod Road Field MRS satisfies the requirements of CFR 300.430(f)(4)(ii) and the site requires no further action to satisfy the unlimited use and unrestricted exposure (UU/UE) requirements; therefore, five-year reviews are not required.

10. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan was released for public comment on December 10, 2013. The Proposed Plan identified NFA as the Preferred Alternative. Comments were received from only two members of the public but did not warrant any changes to the Proposed Plan.

PART 3: RESPONSIVENESS SUMMARY

This Responsiveness Summary summarizes all comments for the Proposed Plan received from the public and FDEP regarding the preferred remedy and general concerns related to the Site.

1. STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

Part 3 of this Decision Document describes the activities used to solicit community input. A public meeting was held on December 10, 2013 to present the Proposal 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. No written comments were received during the 30-day 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 rainsed by the public along with responses are provided below.

1.1 Florida Department of Environmental Protection Comments

The FDEP concurs with the selected remedy.

1.2 Public Comments

Comments were received from two members of the public and are presented below with responses.

Concern: A resident, who lives in the northern part of the Orlando Range and Chemical Yard, west of the Goldenrod Road Field site, expressed concern regarding his house sinking and wanted to know if anyone could answer any questions as to why the house is sinking.

Response: The military used the area as a storage and chemical storage area. There were no heavy excavation activities conducted in that area. Unfortuntately, sink holes may occur and, houses and foundations settling are common in the area.

Concern: A resident expressed concern over two smoke grenades that were found on his property while working in the yard. After a call to 911, a speciality person came to remove these items. This person indicated the smoke grenades were live. There was concern about the possibility of a child finding these bombs. The resident asked if somebody could come and check the yard out.

Response: The area where the two items were found was not located in the area used by the military. It was unclear where those items came from. It is possible that those were

put there after somebody had them as a souvenir and kept them.

Subsequent communication with the bomb squads for both the City of Orlando and Orange County could not locate any records of any response to the resident's address, nor any record of any ordnance item being recovered from there.

2. TECHNICAL AND LEGAL ISSUES

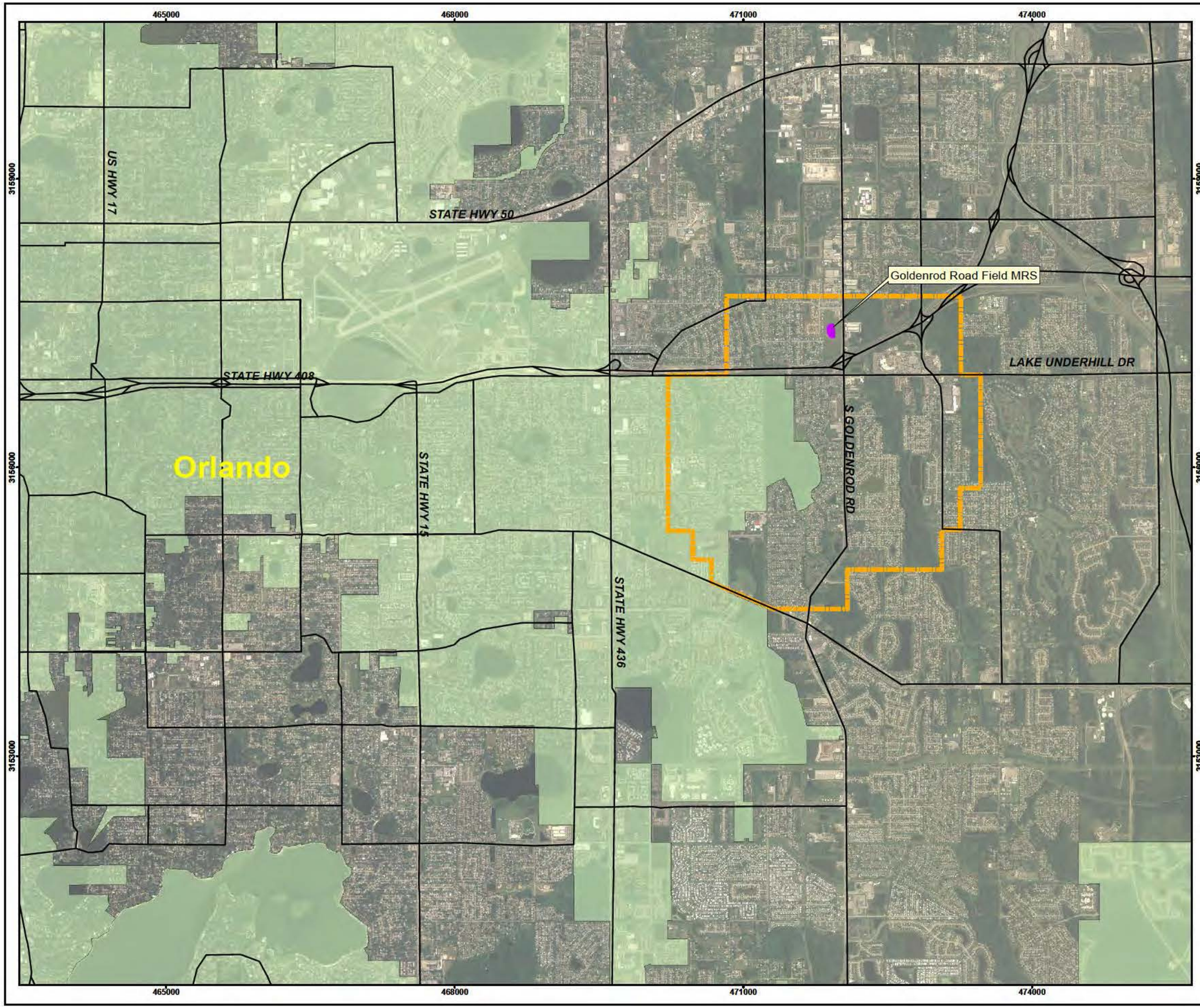
None. .

ATTACHMENT

Figure 1

Site Location
Orlando Range and Chemical Yard

Orlando, Florida



Legend

- FUDS Property Boundary
- Streets
- MRS Boundary
- Orlando City Boundary

Site Location in Florida

N

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

0.75 0.375 0 0.75 Miles

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER

DESIGNED BY BT	**Orlando Range and Chemical Yard**	
DRAWN BY BT		
CHECKED BY JC	SCALE As Shown	PROJECT NUMBER 747770.02000
SUBMITTED BY JC	DATE September 2013	PAGE NUMBER 1
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