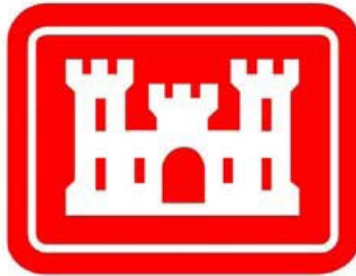


DECISION DOCUMENT
FOR
MUNITIONS RESPONSE SITE 09: NO ACTION AREA
WITHIN
CAMP BUTNER FORMERLY USED DEFENSE SITE
PROJECT NO. I04NC000902
GRANVILLE, PERSON, AND DURHAM COUNTIES,
NORTH CAROLINA

Contract No. W912DY-10-D-0023
Task Order No. 0009

Prepared for:



U.S. Army Corps of Engineers
U.S. Army Engineering and Support Center, Huntsville
and
U.S. Army Corps of Engineers
Savannah District

SEPTEMBER 2020

EXECUTIVE SUMMARY

ES 1. This Decision Document is being presented by the United States Army Corps of Engineers to describe the no action determination for Camp Butner Formerly Used Defense Site, Property No. I04NC0009, Munitions Response Site 09: No Action Area, Granville, Person, and Durham Counties, North Carolina. Munitions Response Site 09: No Action Area is designated as Formerly Used Defense Site Project No. I04NC000902.

ES 2. The Munitions Response Area was delineated into nine (9) Munitions Response Sites, revising the Munitions Response Area and adding new projects 04 through 11. As a result, Munitions Response Site 09 is comprised of 7,148 acres where no munitions or explosives of concern or munitions constituents are a hazard to human health or the environment nor presents an unacceptable risk. Munitions Response Site 09 poses no current or potential threat to human health and the environment. Therefore, no action is necessary to protect human health or the environment.

ES 3. The no action determination described in this Decision Document for Munitions Response Site 09 was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States 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.

ES 4. No response action is required at Munitions Response Site 09; there are no costs to implement this decision.

ES 5. Land Use Controls and Five-Year Reviews are not required as a result of this decision.

ES 6. No remedies were considered as a result of the investigation of the site.

ES 7. By letter dated July 29, 2020, the North Carolina Department of Environmental Quality concurred with this no action determination.

TABLE OF CONTENTS

| | |
|---|-------------|
| EXECUTIVE SUMMARY..... | ES-1 |
| TABLE OF CONTENTS..... | i |
| ACRONYMS AND ABBREVIATIONS | iii |
| PART 1 DECLARATION..... | 1 |
| 1A. PROJECT NAME AND LOCATION..... | 1 |
| 1B. STATEMENT OF BASIS AND PURPOSE | 1 |
| 1C. ASSESSMENT OF PROJECT SITE | 2 |
| 1D. DESCRIPTION OF SELECTED REMEDY..... | 2 |
| 1E. STATUTORY DETERMINATIONS | 2 |
| 1F. DATA CERTIFICATION CHECKLIST | 2 |
| 1G. AUTHORIZING SIGNATURE | 3 |
| FIGURES..... | 5 |
| PART 2 DECISION SUMMARY..... | 4 |
| 2A. PROJECT NAME, LOCATION, AND BRIEF DESCRIPTION..... | 4 |
| 2B. PROJECT HISTORY AND ENFORCEMENT ACTIVITIES | 4 |
| 2B.1 Site History | 4 |
| 2B.2 Previous Investigations | 7 |
| 2B.3 Enforcement Activities | 9 |
| 2C. COMMUNITY PARTICIPATION | 9 |
| 2C.1 Information Dissemination | 10 |
| 2C.2 Technical Project Planning | 10 |
| 2C.3 Community Participation | 10 |
| 2D. SCOPE AND ROLE OF RESPONSE ACTION..... | 11 |
| 2E. PROJECT CHARACTERISTICS | 11 |
| 2E.1 Conceptual Site Model..... | 11 |
| 2E.2 Site Overview..... | 11 |
| 2E.3 Sampling Strategy | 12 |
| 2E.4 Types of Contamination and Affected Media | 13 |
| 2F. CURRENT AND POTENTIAL FUTURE LAND AND WATER USES | 13 |
| 2F.1 Land Use | 13 |
| 2F.2 Groundwater and Surface Water Uses | 13 |
| 2G. SUMMARY OF PROJECT RISKS | 14 |
| 2G.1 Human Health and Ecological Risks..... | 14 |
| 2G.2 Risks from MC..... | 14 |
| 2.G.2.1 Human Health Risks..... | 14 |
| 2.G.2.2 Ecological Risks | 14 |
| 2G.3 Basis for Response Action | 15 |
| 2H. DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVE OF PROPOSED PLAN..... | 15 |

TABLE OF CONTENTS

| | |
|---|-----------|
| PART 3 RESPONSIVENESS SUMMARY | 16 |
| 3A. OVERVIEW | 16 |
| 3B. SUMMARY OF PUBLIC COMMENTS AND LEAD AGENCY RESPONSES | 16 |
| 3B.1 Oral Comments from Public Meeting | 16 |
| 3B.2 Written Comments from Public Meeting | 16 |
| 3B.3 Telephone Comments from Public..... | 16 |
| 3C. Technical and Legal Issues | 16 |
| PART 4 REFERENCES | 17 |

ACRONYMS AND ABBREVIATIONS

| | |
|--------|---|
| AOI | Area of Interest |
| ARNG | Army National Guard |
| ASR | Archives Search Report |
| BLRA | Baseline Risk Assessment |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CRP | Community Relations Plan |
| CSM | Conceptual Site Model |
| DD | Decision Document |
| DGM | Digital Geophysical Mapping |
| DNT | Dinitrotoluene |
| DoD | Department of Defense |
| EE/CA | Engineering Evaluation/Cost Analysis |
| FS | Feasibility Study |
| ft | Feet/Foot |
| FUDS | Formerly Used Defense Site |
| HE | High Explosive |
| HGL | Hydrogeologic, Inc. |
| HHRA | Human Health Risk Assessment |
| MC | Munitions Constituents |
| MD | Munitions Debris |
| MEC | Munitions and Explosives of Concern |
| mm | Millimeter |
| MRA | Munitions Response Area |
| MRS | Munitions Response Site |
| NCDEQ | North Carolina Department of Environmental Quality |
| NCP | National Oil and Hazardous Substances Pollution Contingency Plan |
| PP | Proposed Plan |
| RAB | Restoration Advisory Board |
| RC1 | Range Complex 1 |
| RC2 | Range Complex 2 |
| RI | Remedial Investigation |
| ROE | Right-Of-Entry |
| SLERA | Screening Level Ecological Risk Assessment |
| TNT | Trinitrotoluene |
| TPP | Technical Project Planning |
| USACE | United States Army Corps of Engineers |
| USEPA | United State Environmental Protection Agency |

PART 1 DECLARATION

1A. PROJECT NAME AND LOCATION

This Decision Document (DD) was developed for Munitions Response Site (MRS) 09: No Action Area within the Camp Butner Formerly Used Defense Site (FUDS) Project No. I04NC000902 located in Granville, Person, and Durham Counties, North Carolina (NC). The Camp Butner FUDS is comprised of approximately 40,384 acres, of which a 17,916 acre Munitions Response Area (MRA) composed of five smaller areas was investigated during the 2016 Remedial Investigation (RI): Range Complex 1 (RC1), Range Complex 2 (RC2), Army National Guard (ARNG) Area of Interest (AOI), Hand Grenade Range AOI, and Flame Thrower Range AOI.

Based on the information and recommendations in the Final RI Report, the revised Final Feasibility Study (FS), and the revised Final Proposed Plan (PP), the MRA has been delineated into nine (9) separate projects (revising project 02 and adding new projects 04 through 11). As a result, MRS 09: No Action Area is now limited to 7,148 acres where no munitions and explosives of concern (MEC) or munitions constituents (MC) are a hazard to human health or the environment nor presents an unacceptable risk. The MRS poses no current or potential threat to human health and the environment. Therefore, no action is necessary to protect human health or the environment.

This DD addresses the no action determination for the MRS 09: No Action Area. The other MRSs will be addressed in separate DDs. The acreages and land use of the nine MRSs are described below:

| MRS | Project | MRS Name | Acreage |
|------------|----------------|------------------------------------|----------------|
| MRS 01 | 11 | Military Training MEC Contaminated | 1,429 |
| MRS 02 | 04 | Military Training Buffer Area | 391 |
| MRS 03 | 05 | Buffer Area | 924 |
| MRS 04 | 06 | Central MEC Contaminated | 2,202 |
| MRS 05 | 07 | Northern MEC Contaminated | 1,807 |
| MRS 06 | 08 | Eastern MEC Contaminated | 1,451 |
| MRS 07 | 09 | Western MEC Contaminated | 1,385 |
| MRS 08 | 10 | South MEC Contaminated | 1,179 |
| MRS 09 | 02 | No Action | 7,148 |

1B. STATEMENT OF BASIS AND PURPOSE

The U.S. Army is the lead agency on behalf of the Department of Defense (DoD), and the United States Army Corps of Engineers (USACE) has mission execution authority for the FUDS Program. This DD is being presented by the USACE to describe the DoD no action determination for MRS 09: No Action Area within the Camp Butner FUDS. The USACE, in coordination with the North Carolina Department of Environmental Quality (NCDEQ), determined that no action is necessary at MRS 09: No Action Area. The determination meets the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The determination presented in this DD is based on information contained in the Administrative Record file for the Camp Butner FUDS.

1C. ASSESSMENT OF PROJECT SITE

Evaluations of site data collected during the RI indicates no DoD military munitions confirmed to be MEC; only minimal amounts of munitions debris (MD); and low subsurface anomaly densities are present within the MRS. These MD and anomalies did not indicate the possibility of MEC at this site. Therefore, no unacceptable risk to current or future human receptors exists at the MRS. Environmental sampling for MC was also conducted during the RI. The RI determined that no unacceptable risk to human or ecological receptors, as a result of MC-related contamination, is present at the MRS (HGL, 2018a). The USACE has determined, and the lead regulatory agency (NCDEQ) has concurred, that no action is necessary to protect human health or welfare and the environment at MRS 09: No Action Area.

The no action determination means that no remedy will be implemented at MRS 09: No Action Area. Therefore, use of the area can continue in its current condition. The basis for the no action determination included a review of the evaluation that was conducted by stakeholders who agreed with the conclusion and recommendations of the USACE determination (HGL, 2018a).

1D. DESCRIPTION OF SELECTED REMEDY

As the lead agency, the USACE determined that no action is necessary to protect public health and the environment. No MEC or concentrated areas of MD were found during the RI within the area that makes up MRS 09: No Action Area.

1E. STATUTORY DETERMINATIONS

No remedial action is necessary for protection of human health and the environment. Therefore, CERCLA §121 statutory determinations are not applicable.

1F. DATA CERTIFICATION CHECKLIST

The following information is included in this DD. Additional information can be found in the Administrative Record file for this site.

- Information on characterization efforts, results, and recommendations for the MRS.
- A summary of the risk assessment for MC-related contamination.
- Current and reasonably anticipated future land use assumptions at the MRS.
- Key factors considered in selecting the remedy.

The risk assessment concluded that the potential for adverse risks to human health or ecological receptors from exposure to MC in soil or sediment are considered negligible at the Camp Butner FUDS. No action is necessary for MC. As such, the following information is not included in this DD:

- MC and their respective concentrations;
- Baseline risk represented by the MC;
- Cleanup levels established for MC and the basis for these levels;
- How MC will be addressed; and
- Current and potential beneficial uses of groundwater used in the baseline assessment.

-This space intentionally left blank-

1G. AUTHORIZING SIGNATURE

USACE is providing this DD to describe DoD's determination of the selected remedy for MRS 09: No Action Area. The Secretary of Defense designated the Secretary of the Army as the Lead Agent for FUDS, regardless of which DoD component previously owned or used the property. The Secretary of the Army delegated program oversight to the Assistant Secretary of the Army for Installations, Energy and the Environment, and program management and mission execution authority to USACE. USACE has authority for investigating, reporting, evaluating, and implementing remedial actions at the Camp Butner FUDS. The regulatory agency for this project is the NCDEQ.

This DD presents the no action determination for MRS 09: No Action Area. The U.S. Army is the lead agency at the Camp Butner FUDS under the Defense Environmental Restoration Program and USACE has mission execution authority for the FUDS Program. The USACE has developed this DD at the Camp Butner FUDS, and has developed this DD consistent with the CERCLA, as amended, and the NCP. This DD will be incorporated into the Administrative Record file for Camp Butner FUDS, which is available for public view at the South Granville Public Library, Creedmoor, NC 27522. This document, presenting the no action determination for MRS 09: No Action Area, is approved by the undersigned, pursuant to the CEMP-CED (200-1a) Memorandum, "Re-delegation of Assignment of Mission Execution Functions Associated with Department of Defense Lead Agent Responsibilities for the Formerly Used Defense Sites Program," dated 10 August 2019, and delegation on September 17, 2019, to the Director of Regional Business of FUDS mission execution responsibility for assigned projects, including approval authority on decision documents for FUDS response action up to \$5 million.

THEODORE A. BROWN, P.E., SES
Director of Regional Business

30 September 2020

DATE

PART 2 DECISION SUMMARY

2A. PROJECT NAME, LOCATION, AND BRIEF DESCRIPTION

The Camp Butner FUDS (Figure 1) is located 15 miles north of Durham, North Carolina, and encompasses approximately 40,384 acres in Granville, Person, and Durham counties. The site addressed in this DD is the Camp Butner FUDS Project No. I04NC000902, which encompasses 7,148 acres over eleven non-contiguous areas throughout the Camp Butner FUDS, including the Hand Grenade Range and Gas Chamber (tear gas training), as shown in Figure 2. The USACE is the mission execution authority for investigating, reporting, and making remedial decisions at MRS 09: No Action Area. The properties that make up the MRS are owned by private and public entities and are used for residential, commercial/industrial, agricultural, undeveloped woodlands, and recreational purposes. There are approximately 237 individual parcels and 171 landowners with some landowners owning more than a single parcel. A large portion of the land is undeveloped and forested, with private residences located throughout the area (HGL, 2016).

Access to the MRS is unrestricted. Current land use is residential, commercial/industrial, agriculture, undeveloped woodlands and recreational. Expected current and future receptors at the MRS include residents, occupational workers, recreational users, and visitors. Receptors would primarily be those associated with surface activities; however, some intrusive activities are anticipated (farming, residential activities, utility construction, commercial construction). The maximum depth anticipated during intrusive activities at the MRS is 15 feet (ft) below ground surface (bgs). The RI established that no DoD military munitions confirmed to be MEC or significant concentrations of MD are present within the areas that make up the MRS. Therefore, the USACE, with NCDEQ concurrence, determined that no action at MRS 09: No Action Area is appropriate (HGL, 2018a).

2B. PROJECT HISTORY AND ENFORCEMENT ACTIVITIES

2B.1 Site History

Camp Butner was primarily established to train infantry, artillery, and engineering combat troops for deployment and redeployment overseas during World War II. The installation was active from 1942 until 1946; however, training was only conducted through 1943. Construction of Camp Butner was authorized by the War Department on February 12, 1942. The camp was officially active on August 4, 1942 and occupied approximately 40,384 acres. The various acres compiling Camp Butner FUDS were acquired by the War Department by:

- 40,201 acres acquired in fee;
- 128.4 acres acquired in 82 easements;
- 2.5 acres acquired in licenses; and
- 52.4 acres acquired in 26 leased tracts

The acquired acreage was owned by multiple private owners and consisted of rural, agricultural, undeveloped wooded, commercial, and residential land use parcels. Camp Butner was declared excess by the War Department on January 31, 1947. The installation included approximately 15 live-fire ammunition training ranges, a grenade range, a 1,000-inch range, a gas chamber, and a flame thrower training pad. Munitions used at the site included small arms, 2.36-inch rockets, rifle and hand grenades, 37millimeter (mm) through 155mm high explosive (HE) projectiles, 60mm and 81mm mortars, and antipersonnel practice mines. Training activities also included the use of demolition items such as trinitrotoluene (TNT) and various initiating and priming materials. Following World War II, the camp was closed, limited ordnance clearances were performed, and the property was conveyed to the National Guard, the State of North Carolina, local municipalities, and private owners (HGL, 2016).

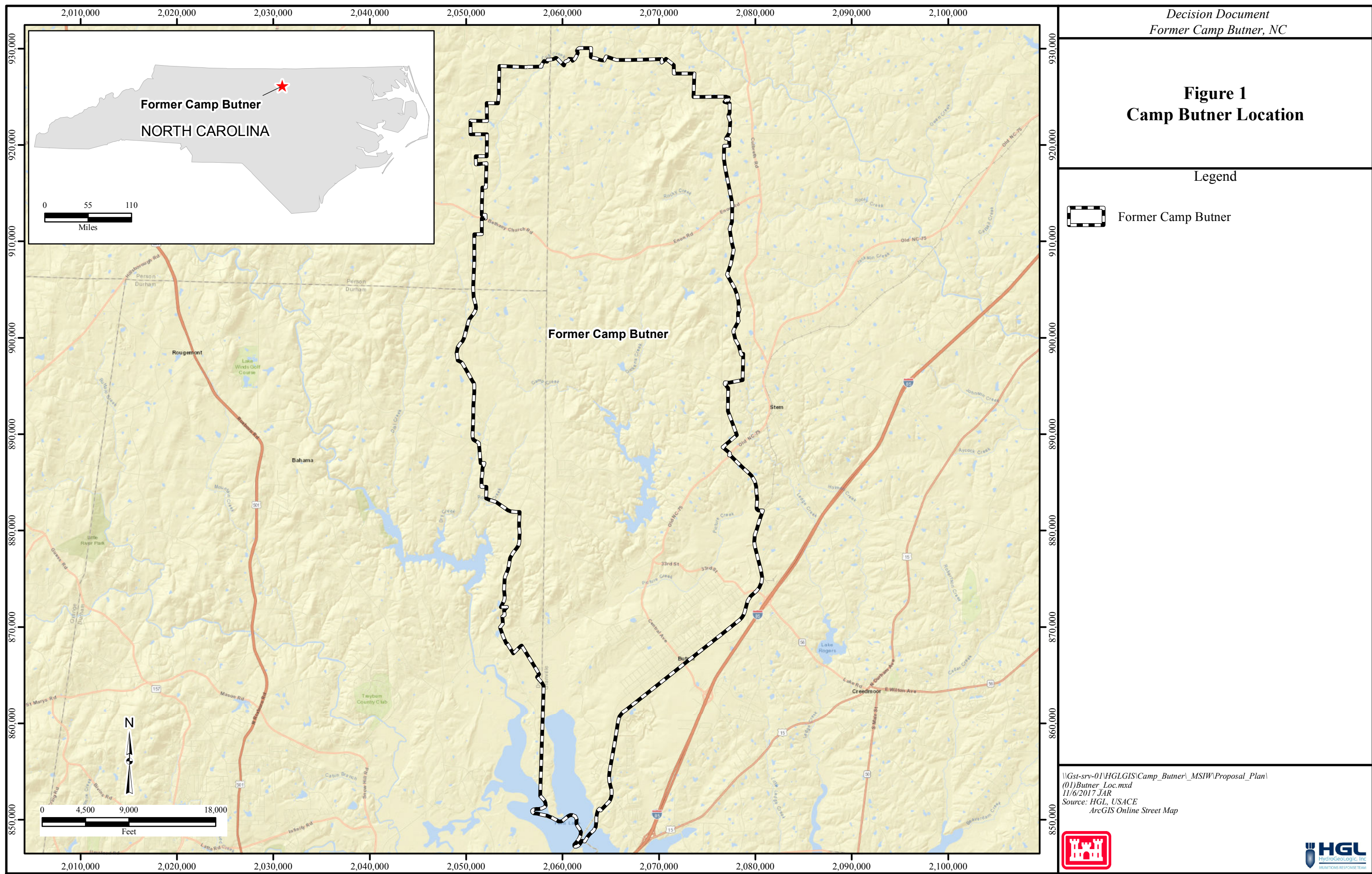



Figure 1
Camp Butner Location

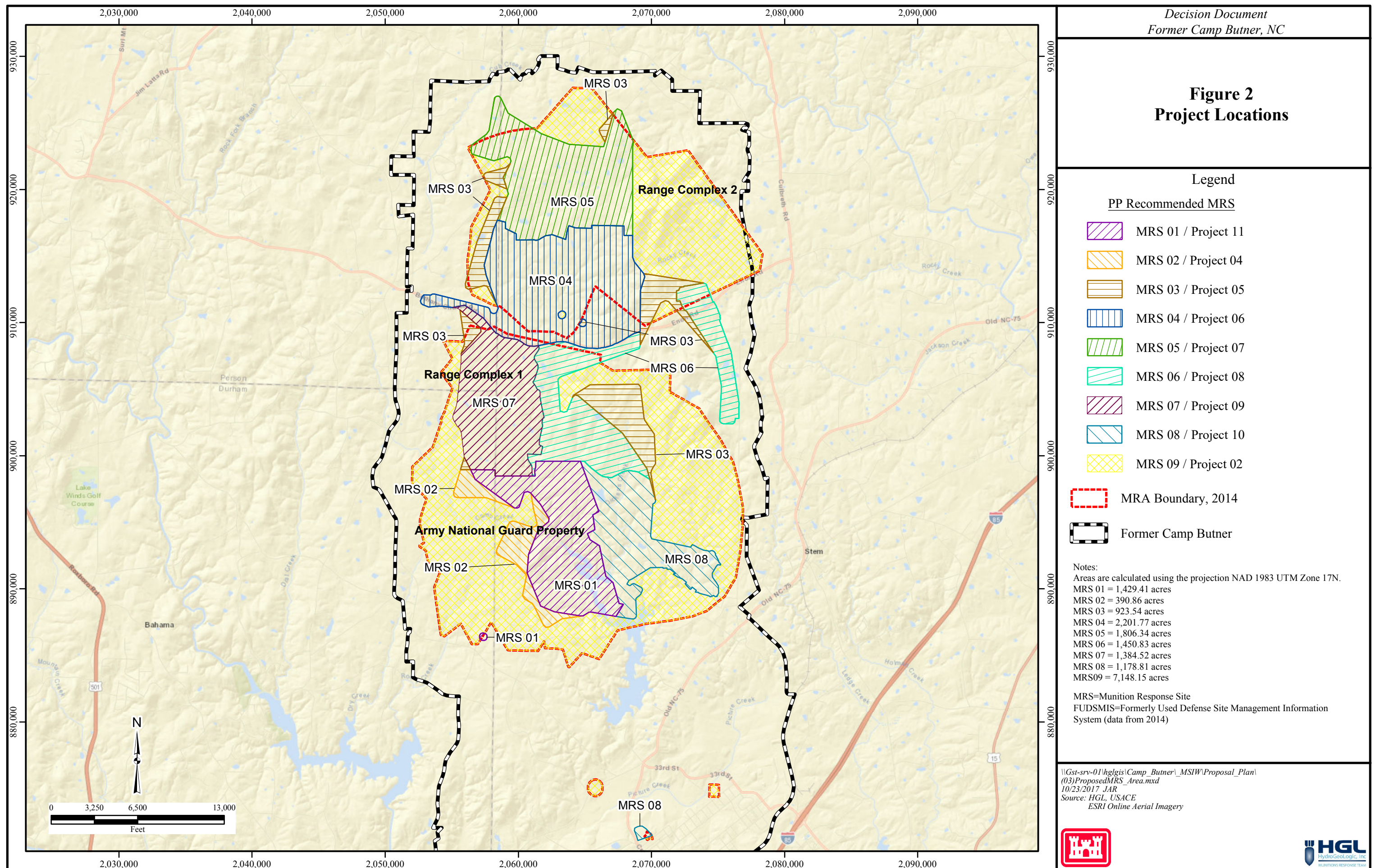
Legend

 Former Camp Butner

\\Gst-srv-01\HGLGIS\Camp_Butner\MSIW\Proposal_Plan\
(01)Butner_Loc.mxd
11/6/2017 JAR
Source: HGL, USACE
ArcGIS Online Street Map



Figure 2
Project Locations



2B.2 Previous Investigations

The following sections summarize the findings of historical reports developed for the Camp Butner FUDS and relate to the current MRS. The MRS consists of eleven non-contiguous areas throughout the Camp Butner FUDS, including the Hand Grenade Range and Gas Chamber (tear gas training), as shown in Figure 2. Although several investigations conducted throughout the Camp Butner FUDS MRA resulted in the identification of MEC, none of the items were discovered within the current MRS boundary. This section summarizes all of the findings for the entire Camp Butner FUDS. Information specific to MRS 09: No Action Area is presented in Section 2E.

2B.2.1 Archives Search Report, 1993 and 2003

An Archives Search Report (ASR) was completed by the USACE, Rock Island District for the Camp Butner FUDS in September of 1993. The Final ASR summarizes the known nature and extent of MEC contamination as of 1993 and identified several areas requiring further evaluation. A supplement to the 1993 ASR was completed in 2003 in support of preparing the Military Munitions Response Range Inventory (HGL, 2016).

The supplemental ASR (2003) identified the RC1 MRS situated in the east-central portion of the Camp Butner FUDS MRS, which contained an artillery impact area, two mortar ranges, and several small arms ranges. All range fans remain within site boundaries, and some range fans overlap with others within the complex. Munitions types expected and/or identified for the RC1 included: small arms, 2.36-inch rockets, hand grenades, rifle grenades, 37mm, 40mm, 57mm, 105mm, and 155mm projectiles, 60mm and 81mm mortars (HGL, 2012b).

2B.2.2 Engineering Evaluation/Cost Analysis, 2001-2004

The Engineering Evaluation/Cost Analysis (EE/CA) addressed the Flame Thrower Range, RC1, RC2, and Hand Grenade Range Camp Butner FUDS MRSs. At the RC1 and RC2, approximately 77 acres were evaluated and divided into approximately 330 grids of acres. Grids were distributed throughout suspected former munitions use areas within RC1 and RC2. Intrusive results provided evidence that identified actual impact and munitions use areas. A total of 13 MEC and 1,485 MD items were recovered during the EE/CA. Munitions identified at these MRSs included:

- 37mm, 40mm, 57mm, 105mm, and 155mm projectiles;
- 60mm and 81mm mortars;
- 2.36-inch rockets; and
- Hand grenades and rifle grenades

During the EE/CA investigation, findings made by a property owner at the Lakeview Subdivision, which is within RC1, resulted in the allocation of sampling grids at this location. Based on the intrusive results, which included the demolition of a 37mm projectile, a Time Critical Removal Action was conducted at the Lakeview Subdivision (HGL, 2016).

2B.2.3 Groundwater Monitoring Well MC Sampling and Characterization, 2004

USACE Wilmington District conducted a drinking well sampling event in August 2004. During the groundwater sampling event, perchlorate concentrations were detected at relatively shallow depths (between 15 ft. and 78 ft.) in 12 of 23 drinking water wells, including detected concentrations at one off-site well location. The off-site location was selected for comparison purposes because it was located outside the boundaries of the Camp Butner FUDS. Perchlorate was detected at concentrations that exceed project screening criteria at two well locations, both of which were relatively shallow wells. One homeowner, whose drinking water well was sampled, confirmed the use of Bulldog Soda fertilizer at his residence. Bulldog Soda contains naturally occurring perchlorate concentrations. Although perchlorate was detected

in 12 of 23 locations, only 2 of the detections were above the project screening level and no detections exceeded the EPA drinking water guidance for human health protection, indicating no adverse health issues would be anticipated.

Lead concentrations were detected at nine well locations during the groundwater sampling activities. Lead was detected at concentrations that exceeded the project screening criteria at one unfiltered sample location and at one filtered sample location. Lead typically adsorbs to sediment, and these detected concentrations could have been the result of elevated turbidity present in the samples. Other potential sources of lead at the Camp Butner FUDS included munitions, water supply piping, gasoline, vehicle exhaust, and lead-based paint. Groundwater analytical results did not indicate that former DoD activities at the Camp Butner FUDS had impacted the groundwater quality; however, perchlorate and lead concentrations detected in the groundwater warranted supplemental investigation (HGL, 2016). Perchlorate and lead were further evaluated in the 2006 MC Sampling Report.

2B.2.4 Soil and Sediment Sampling for MC, 2006

In 2006 the Camp Butner FUDS participated in an investigation to evaluate MC potentially present at World War I and World War II-era FUDS locations. The objective was to collect, sample, analyze, and evaluate soil and surface water samples from six different FUDS locations. Sampling was biased toward heavy use target/impact areas, firing point, and low order detonations/exposed explosives locations, etc. Soil samples were collected from HE impact-craters. Thirteen soil samples (including one background) and three surface water samples were collected. Only lead was identified as a potential MC associated with former use. Lead was detected in soils at concentrations that exceed U.S. Environmental Protection Agency's (USEPA's) Ecological Soil Screening Levels at 11 of the 13 sample locations, including the background sample location. The results of the study indicated that explosive compound concentrations were not detected in the soil or surface water. Perchlorate was not detected above human health screening levels and further evaluation was not necessary. Lead was further evaluated in the Remedial Investigation. Summary of the RI MC sampling is in Section 2E.3 (Sampling Strategy).

2B.2.5 Remedial Investigation, 2016

During the RI, digital geophysical mapping (DGM) surveys, mag-and-dig, and intrusive investigation were conducted throughout the ARNG*, RC1, and RC2. Geophysical mapping was not conducted within the Hand Grenade Range or Flame Thrower Range because these sites were determined to be adequately characterized during previous investigations. Transects were brush cleared and investigated by geophysical surveys; the grids were setup, staked, brush cleared and investigated by geophysical survey (if applicable) and subsequent intrusive investigation; and the surface reconnaissance transects were completed. The grid locations were proposed to characterize the MEC and MD present based on the density of anomalies identified in the geophysical transect surveys. Some areas proposed for investigation in the work plan at RC1 and RC2 were not investigated because landowners refused right-of-entry (ROE). There were no ROE refusals at the ARNG MRS during the RI. Table 2.1 presents the field activities conducted during the RI by Range.

* The ARNG property is eligible for FUDS and is not considered a PRP because the ARNG installation has only been used for small arms (since transfer of the property by Department of Defense (DoD)) and was documented by a memorandum for record (June 14, 2012) located on FRMD (I04NC000902_03.01_0507) and Savannah District Real Estate documentation (I04NC000902_01.01_0002).

Based on the intrusive results within the Ranges and a combination of historical investigations and results from this RI, the Range boundaries were reconsidered to encompass the MEC contaminated areas only. Based on the RI results, the revised MEC-contaminated boundaries should be defined to best characterize the MEC contamination present within the Camp Butner FUDS.

Table 2.1
Completed RI Field Activities by Range (Pre-realignment)

| Activity | Units | RC1 | RC2 | ARNG Range |
|----------------------------------|-------|-----|------|------------|
| Reconnaissance Transects | Miles | 40 | 48.7 | 29.2 |
| DGM Density Transects | Miles | 68 | 69.4 | 49.3 |
| DGM Survey Grids | Each | 62 | 101 | 89 |
| DGM Grids Intrusive ¹ | Each | 62 | 91 | 89 |
| Analog Intrusive Grids | Each | 28 | 13 | N/A |

*1- DGM was conducted but not intrusively investigated in 10 RC2 MRS grids because access was refused by landowner.
N/A denotes Not Applicable.*

During the RI/FS activities, incremental sampling methodology soil samples were collected within the three MRSs and at background locations and were analyzed for explosives and metals (copper, lead, antimony and zinc). No MC was detected at levels constituting an unacceptable risk to human health or the environment, indicating there is no MC contamination. The Baseline Risk Assessment (BLRA) was conducted in accordance with USACE and USEPA guidance and included a Human Health Risk Assessment (HHRA) and a Screening Level Ecological Risk Assessment (SLERA).

The HHRA evaluated current and potential future receptors that may be exposed to the soil at ARNG, RC1, and RC2. The original round of sampling occurred in May 2013. The only metal present at concentrations that could pose a threat to human health, antimony, was determined to be naturally occurring. For explosive compounds, only concentrations of 2,6-dinitrotoluene (DNT) and the summed 2,4-DNT and 2,6-DNT concentrations from the May 2013 sampling conducted exceeded health-based screening values. Because the screening level risk estimates were in the middle or on the low end of the target risk range (10^{-6} to 10^{-4}), and because the October 2013 re-sampling results did not replicate the original elevated detections, it was concluded that explosives contamination at the three ranges does not pose a threat to human health.

The SLERA evaluated exposure of terrestrial receptors (plants, soil invertebrates, birds, and mammals) to contaminants at each of the three ranges. Exposure via the food web was also considered. The SLERA concluded that lead posed minimal threat to insectivorous birds and no threat to the other ecological receptors, and that the other site contaminants did not pose a threat to ecological receptors.

2B.3 Enforcement Activities

To date, there have been no enforcement actions issued for this MRS.

2C. COMMUNITY PARTICIPATION

Community participation in the process leading to this DD falls into three categories: 1) dissemination of information to the community; 2) stakeholder involvement in the technical project planning (TPP) process; and 3) community participation. These three areas are described in more detail below. USACE developed and updated a community relations plan (CRP) for the purposes of managing this effort (HGL, 2012a).

2C.1 Information Dissemination

The following activities were conducted to disseminate information to the community near the Camp Butner FUDS:

- A public record repository for the Camp Butner FUDS Administrative Record was established at the South Granville Public Library.
- A public information session (public meeting) was held during the Restoration Advisory Board (RAB) meeting on April 26, 2012, at the Butner Town Hall. The purpose of the public meeting was to provide an overview of the RI/FS work planned for the Camp Butner FUDS areas and to solicit ROE agreements from property owners. A public notice was published in the local newspaper to announce the public information session.
- A CRP was prepared and finalized in August 2012 for the Camp Butner FUDS (HGL, 2012a). The CRP was completed to encourage two-way communication between USACE and the community surrounding the Camp Butner FUDS.
- A second public meeting was held on April 18, 2013 at the Butner Town Hall. The purpose was to discuss the planned activities to be conducted during the RI/FS fieldwork in May of 2013. The meeting allowed for the exchange of information between the Corps and the community regarding site activities. Public notice was provided in the local newspaper announcing the second public meeting.
- The third public meeting was held on April 16, 2018 at the Butner Town Hall to present the findings of the RI Report, FS, and discuss the Preferred Alternative presented in the PP. This public meeting encouraged public feedback on the PP in support of the public comment period held from March 26, 2018 to April 30, 2018.
- Five RAB meetings were held on April 26, 2012; April 25, 2013; May 6, 2014; June 1, 2016; and November 28, 2017 at the Butner Town Hall Multi-Purpose Room, to provide the public with a status update, to present the results and recommendations of the 2016 Final RI Report (HGL, 2016) and 2018 Final FS Report (HGL, 2018a), respectively. The RAB is still active but has not met since 2017.

2C.2 Technical Project Planning

The initial TPP Meeting was held on November 10, 2011 and, during this meeting, the TPP participants (stakeholders) were provided with an overview of the TPP process, the site history, project objectives, the proposed remedial approach, data quality objectives, and the project schedule. Officials from public offices (regulators, law enforcement, fire departments, elected officials, utilities, etc.) whose departments may be affected by the activities at the Camp Butner FUDS were invited to participate in the TPP process for the investigation of the project site. The participants then worked with the USACE and HydroGeoLogic, Inc. (HGL) to identify concerns related to ordnance activities at Camp Butner FUDS, to provide feedback to USACE in determining a general approach to further investigation(s), and to reach a consensus on a site closeout statement. Further communication with the stakeholders took place during subsequent TPP Meetings held on September 5, 2012 and May 6, 2014.

2C.3 Community Participation

Public meetings were held on April 26, 2012, April 18, 2013, and April 16, 2018 at the Butner Town Hall (see Part 2C.1). Based on the results and conclusions of the RI, no explosive hazards associated with DoD military munitions exists at MRS 09: No Action Area. Due to the No Action recommendation made in the RI, evaluation of the MRS in an FS was not necessary. The PP presented the no action recommendation to the public between March 26, 2018 and April 30, 2018 for public review and comment (HGL, 2018b). Part 3 of this DD documents the feedback received during the public comment period.

2D. SCOPE AND ROLE OF RESPONSE ACTION

The selected remedy (if required), must be protective of the receptors associated with future land use. Current and future land use throughout the MRS includes residential, commercial/industrial, agriculture, undeveloped woodlands, and recreational uses. No MEC or concentrated areas of MD are present; therefore, no source of MC-related contamination exists at MRS 09: No Action Area and no DoD action is necessary to protect human health and the environment.

The results of the RI fieldwork are sufficient to support the no action determination at MRS 09: No Action Area. No action is appropriate for MRS 09: No Action Area because there are no identifiable explosive hazards and no MC-related contamination concentrations above risk-based screening criteria.

2E. PROJECT CHARACTERISTICS

2E.1 Conceptual Site Model

A conceptual site model (CSM) is a representation of a site and its environment that is used to facilitate understanding of the site and the potential contaminant exposure pathways that might be present. The CSM describes potential contamination sources and their known or suspected locations, human and/or ecological receptors present, and the possible interactions between the two. The CSM summarizes which potential receptor “exposure pathways” for DoD military munitions and MC-related contamination are (or may be) “complete” and which are (and are likely to remain) “incomplete.” An exposure pathway is considered incomplete unless all of the following elements are present: (a) a source of DoD military munitions or MC-related contamination; (b) a receptor that might be affected by that contamination; and (c) a method for the receptor to be exposed to (i.e., come into contact with) the contamination. If all of these elements are present, an exposure pathway is considered complete.

Neither MEC nor high concentrations of MD were identified within the areas that make up the current MRS. The absence of complete exposure pathways in surface and subsurface soil has been confirmed for current and future residents, occupational workers, recreational users, and visitors. There are no complete exposure pathways identified for MEC at the MRS. Because neither MEC nor a high concentration of MD-related contamination, indicative of possible MEC, was found, no source for MC-related contamination exists at MRS 09: No Action Area. Environmental sampling activities conducted during the RI (Part 2B.7) confirmed that no MC-related contamination is present within MRS 09: No Action Area. For these reasons, all MC exposure pathways are incomplete.

2E.2 Site Overview

Prior to realignment, the Camp Butner FUDS was composed of five MRS/ranges that were investigated during the RI (HGL, 2016). Subsequently, the ranges were realigned into one MRA. After finalization of the 2016 RI/FS, the MRA was delineated to create nine projects based on RI/FS recommendations and land use. MRS 09: No Action Area includes all the no action acres which were part of the Camp Butner FUDS, but not part of a recommended MEC Contaminated Area requiring remedial action. MRS 09: No Action Area also includes the Hand Grenade Range and Gas Chamber (tear gas training) Range which are also determined to require no action based on historical information. For these reasons, the USACE has determined that no action is appropriate at MRS 09: No Action Area (HGL, 2018a).

2E.3 Sampling Strategy

Investigation of Munitions and Explosives of Concern

DGM and analog transects were surveyed throughout the ARNG, RC1, RC2, and Hand Grenade Range to identify areas of concentrated munitions use within the area. Based on the data collected from these transects, grids were established using DGM, and intrusively investigated in areas of higher anomaly densities. The information gathered during the RI along with historical investigation results, allowed a distinction to be made between the areas with a higher potential for MEC hazards, and the remaining lands

of the MRS with a negligible potential for MEC hazards. Based on this distinction, the RI report recommended the remaining land receive no action. No MEC or concentrated areas of MD were identified during the RI investigation of the current MRS.

MRS 09: No Action Area is located throughout the investigated area of the Camp Butner FUDS. Table 2.2 summarizes the RI field activities completed within MRS 09: No Action Area and Table 2.3 summarizes the intrusive results.

Table 2.2
Summary of RI Field Activities Completed within MRS 09: No Action Area

| Activity Description | Unit | Quantity |
|----------------------------|-------|----------|
| Site Acreage | Acres | 7, 148 |
| Analog Transects | Miles | 0.34 |
| DGM Transects | Miles | 51.42 |
| Reconnaissance Transects | Miles | 40.6 |
| DGM Grid Investigations | Each | 54 |
| Analog Grid Investigations | Each | 8 |
| Intrusive Targets | Each | 590 |

Table 2.3
Summary of RI Intrusive Investigation Results within MRS 09: No Action Area

| Anomaly Type | No. Items Found | Description |
|----------------------|-----------------|--|
| Miscellaneous Debris | 407 | Farm Debris – Barbed wires, cans, bolts, wires, nails, chain links, etc. |
| MD | 5 | Two pieces of identifiable MD were located: Fragments from a slap flare and 57mm AP-T projectile (The remaining MD was unidentifiable frag) |
| Other | 178 | geology, No Contacts, QC seeds, No Finds |

Investigation of Munitions Constituents (MC)

Following the completion of the DGM surveys and intrusive investigation activities, HGL completed environmental sampling activities in biased locations to determine if MC-related contamination was present. Based on the analytical results, a BLRA was conducted to characterize the nature and extent of the release and to assess whether the MC present poses a potential risk to human health.

As summarized in the RI Report, the presence of two explosives analytes were reported in all sample locations. Two explosives (2,4-DNT and 2,6-DNT) were detected in all samples, including the background samples. For data quality control, select sample locations from each MRS and background areas were re-collected as confirmation samples and re-analyzed for explosives using an alternate laboratory (TestAmerica) from the laboratory used in the analyses conducted in July and August 2013 (Microbac). The re-analyzed results were treated as duplicate results of the original samples. Because of anomalous 2,4-DNT and 2,6-DNT results in the background soil samples, all background locations and select sample locations from each MRS were resampled for explosives analysis in October 2013. Based on the evaluation of all analytical data packages, it was determined that both the initial and re-sampled explosives results were usable.

The results of the MC investigation at the Camp Butner FUDS MRA conducted during the RI are described in further detail below.

- ARNG MRS: 11 surface soil samples collected in May 2013 (explosives and select metals analysis) and two samples collected in October 2013 (explosives analysis);
- RC1 MRS: 10 surface soil sample collected in May 2013 (explosives and select metals analysis) and five samples collected in October 2013 (explosives analysis);
- RC2 MRS: 10 surface soil samples collected in May 2013 (explosives and select metals analysis) and two samples collected in October 2013 (explosives analysis); and
- Background: 10 surface soil samples collected in May 2013 (explosives and select metals analysis) and 10 samples collected in October 2013 (explosives analysis).
- Explosives analysis was conducted by Method 8330B and select metals analysis for copper, lead, antimony, and zinc was conducted by method 6010B.
- Based on the conclusion that no MC is present on site at levels that present a risk to human health or the environment, there is no MC contamination identified in surface soils. Therefore, no sampling of additional media such as sediment, surface water, subsurface soils, or groundwater was necessary.

Concentrations from the May 2013 sampling exceeded health-based screening values but were either non-detect or below the screening levels for the October 2013 sampling. The screening level risk estimates were in the middle or the lower end of the target risk range (10^{-6} to 10^{-4}) and the uncertainty analysis determined that the anomalous data from the May 2013 sampling event caused an overestimation of the site risk evaluation. Because the October 2013 re-sampling results did not replicate the May 2013 sampling results, it was concluded that explosives contamination at the three MRSs does not pose a threat to human health (HGL, 2016). The MC evaluation was conducted for the MRS (ARNG, RC1, and RC2) identified prior to the RI. These MRS were modified during the FS. The MC evaluation was summarized from the RI and is presented for Camp Butner in its entirety.

2E.4 Types of Contamination and Affected Media

Based on the results of the RI and previous investigations, no unacceptable risk due to explosive hazards from DoD military munitions or MC-related contamination are present within the surface and subsurface soils of MRS 09: No Action Area (HGL, 2016) (HGL, 2018a).

2F. CURRENT AND POTENTIAL FUTURE LAND AND WATER USES

2F.1 Land Use

Current land use within the MRS includes residential, commercial/industrial, agricultural, undeveloped woodlands and recreational. Homesteads are located throughout the land formerly occupied by Camp Butner. It is anticipated that future land use will remain consistent with current land use with anticipated future residential development. The absence of MEC means that all exposure pathways are incomplete at MRS 09: No Action Area.

2F.2 Groundwater and Surface Water Uses

Groundwater and nearby surface water are used for domestic, irrigation, or drinking water sources for the area; however, MC contamination was not identified at the MRS during the RI. Based on the RI conclusions, there are no unacceptable risks present for MC associated with groundwater or surface water at MRS 09: No Action Area. See Section 2G for a summary of risk associated with the Camp Butner MRS.

2G. SUMMARY OF PROJECT RISKS

2G.1 Human Health and Ecological Risks

2G.1.1 Risks from Munitions and Explosives of Concern

Evaluation of previous investigation findings and data collected during the RI identified areas within the Camp Butner FUDS as MEC contaminated and non-MEC contaminated. After completions of the RI/FS, the Camp Butner FUDS MRA was delineated into nine MRSs based on land use and munitions types. Two pieces of MD, fragments from a slap flare and 57mm AP-T projectile were identified within the MRS during the RI field effort. Based on previous investigations and the results of the RI it was determined that the risk associated with DoD military munitions within the non-MEC contaminated area is negligible (HGL, 2016),

Based on the confirmed absence of explosive hazards at the MRS, the MEC exposure pathways in surface and subsurface soil at the MRS is incomplete for current and future receptors. Land use at the MRS consists of residential, commercial/industrial, agriculture, undeveloped woodlands and recreational land uses. The expected current and future receptors at the MRS includes residents, occupational workers, recreational users, and visitors. Receptors are anticipated to conduct surface and subsurface activities to a maximum depth of 15 feet throughout the MRS. Receptors within the site will remain consistent throughout the foreseeable future and future land use (Section 2F) will potentially include both intrusive and non-intrusive activities (HGL, 2018a).

2G.2 Risks from MC

2.G.2.1 Human Health Risks

Two explosives (2,4-DNT and 2,6-DNT) were detected in all samples in the initial sampling event in May 2013, including the background samples. For data quality control, select sample locations from each MRS and background areas were re-collected as confirmation samples and re-analyzed for explosives using an alternate laboratory. The re-analyzed results were treated as duplicate results of the original samples. All background locations and select sample locations from each MRS were resampled for explosives analysis in October 2013. Based on the evaluation of all analytical data packages, it was determined that both the initial and re-sampled explosives results were usable.

Concentrations from the May 2013 sampling exceeded health-based screening values but were not duplicated or consistent for the October 2013 sampling. The screening level risk estimates were in the middle or on the low end of the target risk range (10^{-6} to 10^{-4}) and the uncertainty analysis determined that the anomalous data from the May 2013 sampling event caused an overestimation. Because the October 2013 re-sampling results did not replicate the May 2013 sampling results, it was concluded that explosives contamination at the three MRSs does not pose a threat to human health (HGL, 2016).

2.G.2.2 Ecological Risks

Based on the site history, the potential contaminants of ecological concern include antimony, lead, zinc, copper, and explosives. The SLERA, conducted as a part of the BLRA, evaluated potential threats to terrestrial plants, soil invertebrates, terrestrial wildlife (mammals and birds) to contaminants at the RC1, RC2, and ARNG MRSs. This evaluation considered exposure of upper trophic level receptors through the food web. The initial screening of maximum concentrations to benchmark values identified the following:

- Based on comparison to background values, antimony was determined to be a naturally occurring background constituent at ARNG, RC1, and RC2 MRS. Antimony was not retained for further analysis at the three Camp Butner FUDS MRSs.
- Zinc concentrations were consistent with background concentrations at the RC1 and RC2 MRSs and was not retained for further analysis at these MRSs.

- Copper, lead, zinc exceeded background values at the ARNG MRS and were retained for food web analysis with respect to birds and mammals.
- Lead concentrations exceeded background values at the RC1 and RC2 MRSs and was retained for food web analysis with respect to birds and mammals at RC1 MRS and birds only at RC2 MRS.
- Although 1,3,5-trinitrobenzene (TNB) was detected, the concentrations were less than the maximum concentrations reported for background and the exceeded occurred in a low ratio of samples indicated that 1,3,5-TNB contamination is not present at the Camp Butner FUDS MRSs.
- The similarity between the majority of the May 2013 ARNG results with the background results combined with the non-detect results for the October 2013 samples suggests that there is no DNT contamination in the ARNG, RC1, and RC2 MRS soils.

The food web analysis determined that lead contamination in soil at the ARNG MRS, RC1 MRS, and RC2 MRS poses a minimal threat to insectivorous birds and no threat to herbivorous birds, carnivorous birds, and mammals and lead does not pose a threat to plants or soil invertebrates. The remaining contaminants identify at the Camp Butner FUDS do not pose a threat to ecological receptors. The SLERA concluded that no actionable ecological risk was identified for the Camp Butner FUDS MRSs (HGL, 2016). Based on this conclusion, no ecological risks are anticipated within the MRS.

2G.3 Basis for Response Action

The RI results were sufficient to characterize MRS 09: No Action Area. The RI only found two pieces of identifiable MD and three pieces of frag throughout the 7,148 acres that make up MRS 09: No Action Area. These results were used to define the MEC contaminated and non-MEC contaminated areas at the Camp Butner FUDS. The BLRA for MC identified no actionable risk to human or ecological receptors throughout the Camp Butner FUDS and therefore MRS 09: No Action Area (HGL, 2016). The basis for the decision of no action is the lack of explosive hazards and risk from MC-related contamination at the MRS.

2H. DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVE OF PROPOSED PLAN

No significant changes have been made since the presentation of the no action for the MRS in the PP (HGL, 2018b). The no action determination described in this DD is appropriate for implementation at MRS 09: No Action Area.

PART 3

RESPONSIVENESS SUMMARY

3A. OVERVIEW

In March 2018, the Army released the Final PP for the Camp Butner FUDS MRA and hosted a public meeting on April 16, 2018 for the nine proposed MRSs evaluated during the RI and presented in the PP, including MRS 09: No Action Area. The public comment period was held from March 26, 2018 to April 30, 2018.

3B. SUMMARY OF PUBLIC COMMENTS AND LEAD AGENCY RESPONSES

The sections below summarize that no public comments were received from the public during the public comment period that extended from March 26, 2018 through April 30, 2018.

3B.1 Oral Comments from Public Meeting

Comment: No public comments on the preferred alternative presented in the PP were received orally at the Public Meeting.

Response: No responses were necessary.

3B.2 Written Comments from Public Meeting

Comment: No public comments on the preferred alternative presented in the PP were received in written form during the public comment period.

Response: No responses were necessary.

3B.3 Telephone Comments from Public

Comment: No public comments on the preferred alternative presented in the PP were received by telephone during the public comment period.

Response: No responses were necessary.

3B.4 Lead Agency Response

NCDEQ concurred with the USACE on the PP (concurrence on June 24, 2020). NCDEQ concurred with the USACE on this DD for MRS 09: No Action Area (concurrence on July 29, 2020).

3C. TECHNICAL AND LEGAL ISSUES

There were no significant technical or legal issues raised during public the comment period.

PART 4 REFERENCES

- Code of Federal Regulations, 2012. Part 300, National Oil and Hazardous Substances Pollution Contingency Plan. April.
- HydroGeoLogic, Inc. (HGL), 2012a. *Final Community Relations Plan Remedial Investigation/Feasibility Study at the Military Munitions Response Sites Former Camp Butner Granville, Person, and Durham Counties, North Carolina*. August.
- HGL, 2012b. Final Work Plan Remedial Investigation/Feasibility Study Military Munitions Response Sites, Former Camp Butner. September.
- HGL, 2016. *Final Remedial Investigation Report Range Complex 1 MRS; Range Complex 2 MRS; North Carolina Army National Guard MRS; Hand Grenade Range MRS; and Flame Thrower Range MRS*, Former Camp Butner Granville County, North Carolina. March.
- HGL, 2018a. Final Feasibility Study Range Complex 1, Range Complex 2, Army National Guard and Flame Thrower Range Munitions Response Sites, Former Camp Butner, Granville, Person, and Durham Counties, North Carolina. January.
- HGL, 2018b. Proposed Plan for Munitions Response Sites within Formerly Used Defense Sites within Formerly Used Defense Site Project I04NC000902 Former Camp Butner Granville, Person, and Durham Counties, North Carolina. November.
- USACE, 2019. Final Feasibility Study Range Complex 1, Range Complex 2, Army National Guard and Flame Thrower Range Munitions Response Sites, Former Camp Butner, Granville, Person, and Durham Counties, North Carolina. Revision 1. March.
- USACE, 2020. Final Proposed Plan for Camp Butner Formerly Used Defense Site (FUDS) Projects I04NC000902, 04, 05, 06, 07, 08, 09, 10 and 11. Former Camp Butner Granville, Person, and Durham Counties, North Carolina. Revision 2. January.