APPENDIX J CONCEPTUAL SITE MODEL

TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS

CONCEPTUAL SITE MODEL* FOR

REMEDIAL INVESTIGATION / FEASIBLITY STUDY FORMER CAMP MAXEY, TEXAS

CONTRACT NO. W912DY-04-D-0009 TASK ORDER NO. 0010

Prepared For:
U.S. Army Engineering & Support Center
CEHNC-CT
4820 University Square
Huntsville, Alabama 35816-1822



Prepared By:
Explosive Ordnance Technologies, Inc. (EOTI)
105 W. Tennessee Ave.
Oak Ridge, Tennessee 37830



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*This is a living (or dynamic) document which may be continually edited and updated throughout the life of the project and is not intended for public release.

FORMER CAMP MAXEY

Conceptual Site Model Information Profiles		
	Site Profile	
Information Needs	Preliminary Information	
Installation Location	Lamar County, Texas; Paris, Texas	
Installation Name	Camp Maxey	
Installation Location	The former Camp Maxey site is located in northeast Texas, approximately 9 miles north of Paris, Texas, 1 mile west of Powderly, Texas, and U.S. Highway 271.	
Installation History	From 1942 to 1945, Camp Maxey was a United States Army post utilized for training infantry in World War II (WWII). Following the conclusion of the war, the facility was inactivated in October 1945, and was declared surplus in 1947.	
	Camp Maxey had a troop capacity of approximately 45,000 men. Three infantry divisions were trained at the installation. Training exercises at former Camp Maxey included the following live weapons training: pistols, carbines, rifles, tommy guns, automatic rifles, machine guns, mortars, bazookas, anti-tank guns, and artillery. Training also included laying land mines and setting "booby traps." "Non-divisional units" also trained at former Camp Maxey, including artillery, tanks, tank destroyers, cavalry, ordnance, quartermaster, signal corps, engineers, medical and military police. A non-divisional chemical warfare training school was established at former Camp Maxey as well. After October 1944, the facility was designated an Infantry Advanced Replacement Training Center for training of additional troop replacements for existing divisions. Before the end of the war, Camp Maxey also housed the largest prisoner of war camp in the United States.	
	The camp was deactivated in 1945 and declared surplus in 1947. Land was conveyed to the state of Texas and sold to private owners. Later, some of the land was returned to the ownership of the federal government for construction of the Pat Mayse Dam on Sanders Creek. Currently, the installation is used by the State of Texas for a National	
	Guard post, 7,468 acres are occupied by Pat Mayse Lake, over 20,000 acres surrounding the lake are occupied by a USACE-flood control and recreation area and a State of Texas Wildlife Management Area, and the remaining portion of the former camp lands are now privately owned and are used for residential, agricultural, and recreational activities.	

Conceptual Site Model Information Profiles		
	Site Profile	
Information Needs	Preliminary Information	
Installation Area and Layout	The former Camp Maxey is a 41,128-acre property. Between 1942 and 1945, as many as 87 live fire ranges were in operation. The ranges arrayed in a circular pattern surrounding two major impact areas: East Impact Area and West Impact Area. A cantonment area was located on the southeast portion of the former camp.	
	For the purpose of generating the 2004 Archives Search Report Supplement, the ranges were grouped into five range complexes. Range Complex 1, a mortar range complex, is located on the northeast corner of the installation and overlaps Range Complex 2. Range Complex 2, consisting of many small arms ranges, is located on the northeast corner of the installation, covering a large portion of the East Impact Area. Range Complex 3 is a small complex located to the southwest of the East Impact Area, and consisted of hand grenade ranges. Range Complex 4 is located over most of the West Impact Area and consisted of an artillery range, mortar ranges, and other training areas. Range Complex 5 is located in the northwest corner of the installation, overlapping Range Complex 4, and consisted of small arms ranges and practice hand grenade ranges. Following the surplus of Camp Maxey, Pat Mayse Lake was formed following the construction of a dam at Sanders Creek in 1967. The lake occupies 7,468 acres and covers a large portion of the northern	
	end of the former installation. The lake is currently owned and managed by the U.S. Army Corps of Engineers (USACE) and is used for a variety of recreational purposes.	
Installation and Range Structures	Installation structures within the cantonment area included single and married housing, installation administrative offices, and recreational facilities. The facility's ordnance area, where all munitions and weaponry used for training were stored, was located 3,000 feet south of the cantonment area. Range specific structures included firing lines, targets, and protective berms. The majority of the original installation and range structures are no longer present at the site.	
	The Pat Mayse Dam was constructed in 1967, resulting in the creation of Pat Mayse Lake which covers the northern portion of the former camp. Six public parks managed by the USACE are present along the shoreline of Pat Mayse Lake. Portions of former Camp Maxey are now occupied by private farms, ranches, and rural residential properties. Some subdivision type housing exists on the southern and central portions of the former camp. A Texas National Guard installation currently occupies the eastern end of the former Camp Maxey. Former ranges located on the current Texas National Guard installation are not included in this FUDS assessment (see Range and Range Complex Descriptions section below).	

C	Conceptual Site Model Information Profiles	
	Site Profile	
Information Needs	Preliminary Information	
Installation	N: Farm Road 197	
Boundaries	S: Undeveloped land and rural properties and Camp Maxey Texas Army National Guard training facility.	
	W: Undeveloped land and rural properties and Farm Road 1499	
	E: U.S. Highway 271	
Landowners	The current landowners include the federal government, the State of Texas, and private land owners.	
	The State of Texas utilizes part of the former camp for a National Guard post, which is located in the east portion of the camp over part of the East Impact Area. The State of Texas also utilizes land for Pat Mayse State Park and Wildlife Management Area located in the northern and western portions of the park.	
	Undeveloped acreage surrounding the lake is occupied by a USACE-flood control and recreation area.	
	The remaining former camp lands, located mainly in the southern portion of the installation, are now privately owned and are used for residential, agricultural, and recreational activities.	
Range/Site Security	Much of the former ranges and impact areas are not restricted from the general public. Much of the East Impact Area is covered by Pat Mayse Lake and the Texas national Guard facility, preventing access to some former range areas by the general public. The West Impact Area is covered by Pat Mayse Lake, park areas, and wildlife management areas, and is open to the general public.	
	Approximately 15% of the former Camp Maxey land area is now privately owned. Pat Mayse State Park, Pat Mayse Lake, and the associated recreational areas are open to the public. Some all-terrain vehicle (ATV) trails, within undeveloped areas maintained by USACE, have been closed since 1997 due to the presence of MEC.	

C	Conceptual Site Model Information Profiles	
Munitions/Release Profile		
Information Needs	Preliminary Information	
Range and Range Complex Descriptions	Due to the large number of ranges located at the former installation, ranges have been grouped into complexes based on common types of munitions used (mortars, artillery, small arms ammunition) and geographic considerations (East vs. West impact areas, etc.). The range complexes presented here are the same as those generated in the 2004 Archives Search Report Supplement.	
	Range Complex 1: Total of 2,536 acres (1,040.7 land acres;1,495.3 water acres) comprised of three mortar ranges; firing points were located on the northwest corner of the East Impact Area along the current location of the Pat Mayse Dam; range layouts included a firing point (firing line) generally oriented to fire southwest, the impact area located a minimum of 600 yards from the firing point, and a 600-yard safety danger zone (SDZ) applied to each side and to the downrange distance; a portion of this complex is now occupied by Pat Mayse Lake.	
	Range Complex 2: 5,045 acres (4,186 land acres; 859 water acres) comprised of 32 small arms ranges arrayed around the East Impact Area; located in the northeast corner of the site including the northeastern portion of Pat Mayse Lake and Pat Mayse Dam; small arms ranges were oriented with firing points surrounding the East Impact Area with firing directions toward the center of the East Impact Area. The small arms utilized in Range Complex 2 included rifles, pistols, and sub-machine guns. Much of the area in Range Complex 2 south of the lake is now utilized in the Texas National Guard training facility, which is considered an active installation, and is not included as part of the Camp Maxey FUDS investigation. Range Complex 1 overlaps with the area of Range Complex 2 within the East Impact Area.	
	Range Complex 3: 61 acres (54 land acres; 7 water acres) comprised of three hand grenade ranges; located on the southwest corner of the East Impact Area; an SDZ of about 600 feet would have been established around the entire range. The grenade ranges consisted of an individual throwing bay or a trench with targets and an impact area approximately 25 yards to the front of the throwing line.	
	Range Complex 4: 3,718 acres (3,031 land acres; 687 water acres) comprised of five ranges/training areas located in the West Impact Area oriented to fire to the west-northwest (one artillery range, two mortar ranges, and two village training areas); located in the western portion of the site and includes the southern end of Pat Mayse Lake. The artillery range consists of an impact area and danger areas to the rear, sides and front. The mortar ranges consist of a firing point generally oriented to fire to the west and northwest, an impact area located a minimum of 600 yards from the firing point, and a 600-yard	

C	Conceptual Site Model Information Profiles
Munitions/Release Profile	
Information Needs	Preliminary Information
	SDZ applied to each side and to the downrange distance. The village training areas were mock villages designed for training for house-to-house fighting. These village training courses permitted a 180° field of fire and the ammunition was limited to M2, caliber .30, or others that do not require an SDZ that exceeds 4,000 yards.
	Range Complex 5: 4,382 acres (3,920 land acres; 462 water acres) comprised of 16 small arms and practice hand grenade ranges associated with the West Impact Area; located in the northwest corner of former Camp Maxey and includes the southern end of Pat Mayse Lake. The ranges in this complex were oriented with firing points surrounding the West Impact Area with firing directions toward the center of the West Impact Area. Range Complex 5 overlaps significantly with Range Complex 4 in the West Impact Area.
	Ranges not included in Complexes: Total of 493 acres (290 land acres; 203 water acres) comprised of three rifle grenade ranges, two grenade assault course ranges, one mines and booby traps range, one Pillbox training area, one cave training area, and one high explosives rocket launching range. These ranges are located on the west side of the East Impact Area, and to the southeast and east of the West Impact Area with firing directions generally toward the center of their respective Impact Areas.
	Note: A MEC survey and sampling effort conducted in 1998 and summarized in the Engineering Evaluation/Cost Analysis (EE/CA) conducted in 2000 divided the former Camp Maxey facility into 17 sectors for the evaluation of MEC presence. These included the following:
	• East Impact Area A, B, C, D, and E
	West Impact Area A, B, C, and D
	Grenade Area
	Bivouac Area A, B, and C
	North Training Area
	South Training Area
	Gas Chamber Area
	Remaining Area
	These sectors overlap to varying degrees with the range complexes delineated in the 2004 ASR supplement. They are noted in this CSM for reference purposes.
Types of Munitions	Range Complex 1: mortars (4.2-inch, 81 millimeter (mm))
Used	Range Complex 2: small arms (general small arms including .22

Conceptual Site Model Information Profiles	
Munitions/Release Profile	
Information Needs	Preliminary Information
	caliber, .30 caliber and less, and .45 caliber), practice hand grenades
	Range Complex 3: hand grenades and Mk II hand grenades
	Range Complex 4: small arms, practice hand grenades, large caliber (105 mm, high explosive (HE)), HE mortars (4.2-inch, 81 mm), pyrotechnics, flares, signals, simulators or screening smoke (other than white phosphorus)
	Range Complex 5: small arms (.50 caliber and machine gun) M21 practice hand grenades
	Ranges not included in Complexes: grenades (live rifle, anti-tank, live hand, Mk II, practice rifle, practice rocket, practice 2.36-inch), practice landmines (mine, anti-tank), flares, signals, simulators or screening smoke (other than white phosphorus), small arms, practice rifle ground rockets, live ground rockets (high explosive, anti-tank (HEAT), 2.36-inch)
Period of Use	1942 – 1945
Munitions Location	MEC remain on the surface and subsurface of the site. Previous site investigations and sampling indicated that the majority of ordnance items were located within the West and East Impact Areas; however, ordnance has been located in areas outside of the impact areas as well. MEC is expected to be located within Pat Mayse Lake as the lake covers large portions of both the West and East Impact Areas.
MEC Density	The West Impact Area and East Impact Area are expected to have high MEC density based on previous site investigations and sampling, and prior use of the areas. Based on previous site investigations and sampling, MEC is expected to be found in areas outside the West and East Impact Areas as well.
Munitions Debris	Munitions debris is expected to be present throughout the impact areas, both on the surface and in the subsurface, and within Pat Mayse Lake. Previous site investigations and sampling indicated that the majority of munitions debris items were located at a depth between 0 and 1 foot below ground surface (bgs). Previous site investigation and sampling also indicated that munitions debris can be expected to be found outside of the impact areas.
Associated Munitions Constituents (MC)	Based on training activities as the former Camp Maxey, associated MC include explosives and metals.
Migration Routes / Release Mechanisms	Migration of MEC on the surface may occur naturally through soil erosion or a storm event, or by human activities such as farming, ranching, construction, or maintenance at the site. Migration of MEC in the subsurface may occur naturally through surface soil erosion or by human activities such as intrusive activities such as farming or ranching techniques, construction, excavation, and/or maintenance at

Conceptual Site Model Information Profiles Munitions/Release Profile	
Information Needs	Preliminary Information
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	the site. Migration of MEC within Pat Mayse Lake is possible due to a storm event, potential dredging, and recreational activities such as boating and diving.
	Migration of MC may occur naturally through surface soil erosion, plant or animal uptake, or by human activities such as maintenance and site work. If soil erosion and subsequent surface runoff carries MC into Pat Mayse Lake, migration of MC through surface water and sediment contact, or indirect or direct ingestion can occur as well. Migration of MC may occur through groundwater; however, it is not a concern as the shallow groundwater in the area is not a source of potable water.

	Conceptual Site Model Information Profiles	
	Physical Profile	
Information Needs	Preliminary Information	
Climate	The climate at the site can be characterized as humid and subtropical, predominantly continental in winter and marine in summer. Rainfall is distributed through the year, and the average annual rainfall is 47.7 inches. The average mean annual temperature in the region is 65 degrees Fahrenheit (°F); the average mean monthly temperature varies from 44°F in January to 85°F in July.	
Topography	The former Camp Maxey lies within the Gulf Coastal Plain which is generally a gently undulating plain characterized by uplands of low relief and broad river valleys. Elevations generally range from 450 to 1,000 feet above mean sea level (amsl) in the area. The surface elevation of Pat Mayse Lake is approximately 451 ftamsl. The topography of the West Impact Area is gently sloping down to the east, toward Pat Mayse Lake, with elevations ranging from 450 to 540 ftamsl. The topography of the East Impact Area is gently sloping down to the north toward Pat Mayse Lake, with elevations ranging from 450 to 540 ftamsl.	
Geology	The geology of the former Camp Maxey area is dominated by Cretaceous sediments. The majority of the sediments were deposited in a marine setting and the Pennsylvanian-Cretaceous unconformity indicating a long period of emergence and erosion.	
	There are two stratigraphic units of the Gulf Series that outcrop in the former Camp Maxey area: the Eagle Ford Group and the Bonham Formation. The Eagle Ford Formation outcrops in the northern part of former Camp Maxey. It is approximately 350 feet thick and consists of shale which is interbedded by thin platy beds of sandstone and sandy limestone. The Bonham Formation outcrops in the southern part of former Camp Maxey. It ranges from 375 to 530 feet thick and consists of marl and clay.	
Soil	The cantonment area, located on the southeast portion of the former camp, and the East Impact Area are contain various soil types; however, the Woodtell Loam and Freestone-Hicota Complex are the predominant soil types. The Woodtell Loam soil consists of loam, clay, and sandy clay loam and has slopes that range from 5 to 12 percent. The Freestone-Hicota Complex consists of fine to very fine sandy loam, clay, loam, and clay loam and has slopes that range from 0 to 3 percent.	
	Various soil types are also present in the area north of Pat Mayse Lake; the dominant soil types include the Whakana-Porum Complex and Whakana fine sandy loam. The Whakana-Porum Complex and Whakana fine sandy loam both consist of fine sandy loam, clay loam, and sandy clay loam. The Whakana-Porum Complex has slopes that range from 8 to 20 percent and the Whakana fine sandy loam has slopes that range from 1	

Conceptual Site Model Information Profiles		
	Physical Profile	
Information Needs	Preliminary Information	
Soil, continued	to 5 percent. The predominant soil types found within the West Impact Area and the	
	central part of the site are include the Freestone-Hicota Complex and the Whakana-Porum Complex.	
Hydrogeology	The Woodbine Group of Cretaceous age, provides water for all purposes in the Camp Maxey area. The Woodbine Group is divided into three water-bearing parts which vary in productivity and quality: the upper, middle, and lower. The lower Woodbine is the most productive and contains the best water quality. The Woodbine Group ranges in thickness from 230 feet to 700 feet. The depth to water is approximately 100 feet in the Woodbine Group in this area.	
	The underlying Trinity Group of Cretaceous age is the largest and most prolific aquifer in the area; however, in the former Camp Maxey area, water within this aquifer is generally too saline for potable use. The Trinity Group is made up of the Antlers, Paluxy, and Twin Mountain Formations. It ranges in thickness from 100 feet to 1200 feet. The depth to water varies between 100 and 200 feet in the Trinity Group in Lamar County.	
Hydrology	The majority of the former Camp Maxey lies within the Sanders Creek watershed and drainage basin. A dam built for flood-control and municipal and industrial water supply on Sanders Creek forms the Pat Mayse Lake, which is the primary surface water body on the site. Within the former Camp Maxey, many small surface drainages flow into Pat Mayse Lake including Little Creek, Spring Branch, Craddock Creek, Summer Branch, Sand Branch, Dead Man Branch, Presses Creek, and Stillhouse Creek.	
	Surface water in the area generally drains to the northeast. Sanders Creek empties into the Red River two miles to the north.	
Vegetation	The former Camp Maxey lies within the Post Oak Savannah vegetational area where the topography is characterized as gently sloping downward into broad drainage areas towards the lake. The area is primarily forestedwhich is also interspersed with prairies composed of Little Bluestem-Indiangrass.	
	The upland areas at the site are dominated by oak species, while the understory species include flowering dogwood (<i>Cornus florida</i>), farkleberry (<i>Vaccinium arboretum</i>), and poison ivy (<i>Rhus toxicodendron</i>).	

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	Conceptual Site Model Information Profiles	
	Land Use and Exposure Profile	
Information Needs	Preliminary Information	
Current Land Use	Current land use at the former Camp Maxey includes the Camp Maxey Texas Army National Guard training facility, Pat Mayse Lake, Pat Mayse State Park, undeveloped land open to the public for recreation activities including hunting, camping, and hiking, the Pat Mayse Wildlife Management Area, and privately owned land used for rural residential, farming, and ranching purposes.	
Current Human Receptors	Human receptors that may access the site include military personnel at the Texas National Guard installation, visitors to the Pat Mayse Wildlife Management Area, recreational users of the lake, state park, or undeveloped areas, and residents on privately owned land.	
Current Activities (frequency, nature of activity)	Current activities include recreational activities such as boating, diving, fishing, and swimming at Pat Mayse Lake, recreational activities such as hunting, camping, hiking, and ATV riding in the undeveloped areas or in the state park, any maintenance activities in the state park or wildlife management area, and farming and ranching activities in the privately owned land. Training activities are currently conducted at the Texas National Guard facility; however, this is considered an active installation and these areas are not included as part of the Camp Maxey FUDS investigation.	
Potential Future Land Use	No change in land use is planned for the federal- and state-owned lands. Private landowners potentially may develop portions of their properties for various purposes (e.g., farming/ranching, new home construction, etc.), to include intrusive construction work.	
Potential Future Human Receptors	Same as current receptors.	
Potential Future Land Use Related Activities	Same as current activities	
Zoning / Land Use Restrictions	Some ATV trails in the undeveloped areas maintained by USACE have been closed. The Pat Mayse Wildlife Management Area is within the former installation. USACE maintains acreage surrounding Pat Mayse Lake for flood control. Some institutional controls in the form of signage have been placed within the former Camp Maxey property.	
Beneficial Resources	The Texas Historical Commission identified the project area as having the "potential for containing archeological sites which may be eligible for inclusion in the National Register of Historic Places or for designation as State Archeological Landmarks". The Pat Mayse Wildlife Management Area provides a large volume of habitat for a variety of local flora and fauna (see Ecological Profile). Large sections of wetlands also exist within the former Camp Maxey.	

Conceptual Site Model Information Profiles Land Use and Exposure Profile	
Information Needs	Preliminary Information
Demographics/	Demographics for Lamar County:
Zoning	- Population (2000): 48,499
	- Population density (2000): 53 residents / square mile
	Demographics for Paris, Texas
	- Population (2000): 25,898

Conceptual Site Model Information Profiles	
	Ecological Profile
Information Needs	Preliminary Information
Fauna	Fauna existing within former Camp Maxey includes mammals, birds, reptiles, amphibians, and aquatic organisms. The former camp provides a suitable habitat for these various forms of wildlife due to its undisturbed nature. The Interior Least Tern is listed as endangered on both the state and federal lists. The American Peregrine Falcon is listed as endangered on the state list. The Bald Eagle is listed as threatened on both the state and federal lists. The Arctic Peregrine Falcon is listed as threatened on the state list. These four birds species have been identified in Lamar County. Previous surveys identified the Bald Eagle and Arctic Peregrine Falcon near Pat Mayse Lake. These birds species may visit the site in the winter as flyovers or migrants. Pat Mayse Lake is considered to be a suitable habitat for the Interior Least Tern as well. No other state-listed endangered or threatened species for Lamar County have been identified at the former camp.
Habitat Type	The undisturbed nature of this site has allowed much of the native habitat acreage to remain. The site includes forested upland, wetlands, and aquatic habitats.
Degree of Disturbance	Current and anticipated future activities at the site, such as recreational activities, provide a moderate degree of disturbance of habitat and/or fauna within the former camp.







