FINAL

ENVIRONMENTAL ASSESSMENT

MAINTENANCE OF THE BEAR LAKE STORM WATER RETENTION POND WHITEMAN AIR FORCE BASE, MISSOURI

United States Air Force
509th Bomb Wing

October 2010

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This EA has been prepared in accordance with the National Environmental Policy Act (NEPA). This document focuses on analyzing the following environmental resources: land use, soil resources, infrastructure, socioeconomics and environmental justice, noise, cultural resources, biological resources, water resources, air quality, safety, and hazardous materials and waste. The proposed action includes performing needed maintenance on the Bear Lake Storm Water Retention Pond. The EA addresses implementing the proposed action and the no-action alternative. Under the no-action alternative, the proposed project would not be implemented. Implementation of the proposed action would result in minor, net long term beneficial impacts to water resources, biological resources, local socioeconomics, and onsite infrastructure at Whiteman AFB. Benefits of the project include Increased capacity of the storm water retention pond to positively affect water quantity and water quality Aesthetic enhancement of the local landscape Improved opportunities for recreational fishing for airmen and their families; and Reduced risk to downstream natural resources from catastrophic dam failure. As a result of implementing the proposed action, minor short-term adverse impacts that are less than significant without mitigation, would be anticipated, including Air quality from increased mobile emissions and fugitive dust The noise environment due to construction vehicle operations Biological resources and wetlands due to land and water disturbance Water quality due to land and water disturbance; and Traffic and transportation from slightly increased levels of construction vehicles. The no action alternative was not found to satisfy the purpose or need for the action. This alternative would not enable Whiteman AFB to maintain its land and water resources by proper functioning of the Bear Lake Storm Water Retention Pond. The no action alternative would have minor adverse long term impacts to land use, biological resources, water resources, and recreational facilities at Whiteman AFB.

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FINAL

ENVIRONMENTAL ASSESSMENT

MAINTENANCE OF THE BEAR LAKE STORM WATER RETENTION POND WHITEMAN AIR FORCE BASE, MISSOURI

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ENVIRONMENTAL ASSESSMENT
MAINTENANCE OF THE BEAR LAKE STORM WATER RETENTION POND
WHITEMAN AIR FORCE BASE, MISSOURI

Responsible Agency: United States Air Force (USAF).

Proposals and Actions: The 509th Bomb Wing proposes to implement maintenance actions on the 5.2-acre Bear Lake Storm Water Retention Pond at Whiteman Air Force Base (AFB), Missouri. The actions include water drawdown, sediment removal, retention wall construction, and periodic future maintenance. Implementing the proposed action will not result in the need for additional/new base personnel. The Environmental Assessment (EA) addresses these proposed actions.

Affected Location: Whiteman AFB, Missouri.

For Additional Information: Telephone inquiries may be made to Whiteman AFB's Community Planner at (660) 687-6306.

Designation: Environmental Assessment.

Abstract: This EA has been prepared in accordance with the National Environmental Policy Act (NEPA). This document focuses on analyzing the following environmental resources: land use, soil resources, infrastructure, socioeconomics and environmental justice, noise, cultural resources, biological resources, water resources, air quality, safety, and hazardous materials and waste. The proposed action includes performing needed maintenance on the Bear Lake Storm Water Retention Pond. The EA addresses implementing the proposed action and the no-action alternative. Under the no-action alternative, the proposed project would not be implemented.

Implementation of the proposed action would result in *minor, net long term beneficial impacts* to water resources, biological resources, local socioeconomics, and onsite infrastructure at Whiteman AFB. Benefits of the project include:

- Increased capacity of the storm water retention pond to positively affect water quantity and water quality;
- Aesthetic enhancement of the local landscape;
- Improved opportunities for recreational fishing for airmen and their families; and
- Reduced risk to downstream natural resources from catastrophic dam failure.

As a result of implementing the proposed action, minor short-term adverse impacts that are less than significant without mitigation, would be anticipated, including:

- Air quality from increased mobile emissions and fugitive dust;
- The noise environment due to construction vehicle operations;
- Biological resources and wetlands due to land and water disturbance;
- Water quality due to land and water disturbance; and

- Traffic and transportation from slightly increased levels of construction vehicles.

The no action alternative was not found to satisfy the purpose or need for the action. This alternative would not enable Whiteman AFB to maintain its land and water resources by proper functioning of the Bear Lake Storm Water Retention Pond. The no action alternative would have minor adverse long term impacts to land use, biological resources, water resources, and recreational facilities at Whiteman AFB.

FINDING OF NO SIGNIFICANT IMPACT / FINDING OF NO PRACTICABLE ALTERNATIVE

MAINTENANCE OF THE BEAR LAKE STORM WATER RETENTION POND WHITEMAN AIR FORCE BASE, JOHNSON COUNTY, MISSOURI

12 OCTOBER 2010

The National Environmental Policy Act (NEPA) requires that Whiteman Air Force Base (AFB) consider the environmental effects of their proposed programs, projects, and actions before initiating them. An Environmental Assessment (EA) has been prepared in accordance with the Council on Environmental Quality (CEQ) "Regulations for Implementing the Procedural Provisions of NEPA" (40 Code of Federal Regulations [CFR], Parts 1500 through 1508); and Air Force Instruction (AFI) 327061 (The Environmental Impact Analysis Process [EIAP], as codified at 32 CFR Part 989) and incorporated herein by reference.

The EA assessed the potential environmental effects and associated impacts of work in and around the Bear Lake Storm Water Retention Pond, located on Whiteman AFB, Johnson County, Missouri. The EA describes and considers impacts associated with the initial removal and disposal of accumulated sediment, the construction of retaining wall(s) along portions of two sides of the pond, and the periodic removal of sediment as it accumulates in the future, as necessary to support design function of the pond as part of the military mission. Actions necessary to complete the maintenance project (the Proposed Action), are described in Section 2.0 of the EA. The EA examines effects of the Proposed Action and the No Action Alternative.

DESCRIPTION OF PROPOSED ACTION ALTERNATIVE

This EA addresses the initial removal and disposal of accumulated sediment, the construction of retaining walls, and periodic removal of sediment as it accumulates in the future. In implementing the proposed action, Whiteman AFB will comply with all conditions stipulated in the Clean Water Act (CWA) Individual Permit Number NWK-2009-1568 (Appendix A) as well as utilize Best Management Practices (BMPs) as stipulated in the Whiteman AFB 2007 NPDES General Permit for Storm Water Discharge Associated with Construction Activities (Appendix B), the Storm Water Pollution Prevention Plan (SWPPP) (USAF 2005), and as required for regulatory compliance (Section 2.4.3). These measures are described in this EA, and are included as components of the proposed action.

NO ACTION ALTERNATIVE CONSIDERED

Under the no action alternative, the proposed action would not be implemented. Current installation operations would continue. Sediment would not be removed from the Bear Lake Storm Water Retention Pond, no retaining walls would be constructed and periodic maintenance dredging would not occur as needed.

POTENTIAL ENVIRONMENTAL IMPACTS

The EA analyzes the potential environmental consequences of implementing the proposed action and the no action alternatives. Resource areas received thorough evaluation to identify potential environmental consequences included: Land Use Resources; Traffic; Socioeconomics; Biological Resources; Water Resources; Air Quality; Hazardous Materials and

Waste Management; Noise; Socioeconomics; and Safety. Implementation of the proposed action would not result in significant impacts to any resource area.

Whiteman AFB's compliance with applicable Federal, State, and local laws and regulations, as well as working in close conjunction with pertinent regulatory agencies, provide the device by which environmental standards of performance and goal attainment are measured. The Management practices and regulatory requirements identified in this EA commit Whiteman AFB to relatively rigorous regulatory coordination and compliance, plan implementation, and short- or long-term monitoring in association with the construction and/or operational life of the proposed action.

Implementation of the proposed action would result in *minor, net long term beneficial impacts* to the water resources, biological resources, local socioeconomics, and onsite infrastructure at Whiteman AFB. Benefits of the project include:

- Increased capacity of the storm water retention pond to positively affect water quantity and water quality
- Aesthetic enhancement of the local landscape
- Improved opportunities for recreational fishing for airmen and their families
- Reduced risk to downstream natural resources from catastrophic dam failure

As a result of implementing the proposed action, minor short-term adverse impacts that are less than significant without mitigation, would be anticipated, including:

- Air quality from increased mobile emissions and fugitive dust
- The noise environment due to construction vehicle operations
- Biological resources and wetlands due to land and water disturbance
- Water quality due to land and water disturbance
- Traffic and transportation from slightly increased levels of construction vehicles

The no action alternative was not found to satisfy the purpose or need for the action. This alternative would not enable Whiteman AFB to maintain its land and water resources by proper functioning of the Bear Lake Storm Water Retention Pond. The no action alternative would have minor adverse long term impacts to land use, biological resources, water resources, and recreational facilities at Whiteman AFB.

CONCLUSION

<u>Finding Of No Practicable Alternative</u>

Pursuant to executive order (EO) 11990, protection of wetlands and taking the above information into consideration, I find that there is no practicable alternative to this action and that the proposed action includes all practicable measures to minimize harm to the existing environment. Whiteman AFB provided a 30-day public review period and sent notices to appropriate government organizations including the Kansas City District of the United States Army Corps of Engineers (USACE).

Finding of No Significant Impact

After careful consideration of the potential impacts described in this EA, I conclude that implementation of the proposed action would not result in significant impact, either individually or cumulatively, to the environment, conducted in a manner consistent with applicable regulatory requirements and provided routine management measures (i.e., best management practices) and measures to further mitigate potential impacts as specified in this EA are implemented. Therefore, preparation of an environmental impact statement is not appropriate or required.

PUBLIC REVIEW AND COMMENT

Public comment was invited for a period of thirty days following publication of a Notice of 30-Day Period for Public Comment on 6 January 2010 in the Sedalia Democrat and the Warrensburg Daily Star-Journal. The Notice provided specific information identifying the project proponent and lead agency, a brief description of the project, where to find the EA, and how and when to provide comments.

SIGNATURE

Approved By: _____ 2 NOV 10

MICHAEL R. HASS, Colonel, USAF, P.E. Date
AFGSC Civil Engineer

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APPENDICES

Appendix A. Whiteman AFB 2010 Clean Water Act Section 404 Individual Permit.

Appendix B. Whiteman AFB 2007 NPDES General Permit for Storm Water Discharge Associated with Construction Activities.

Appendix C. 2006 Assessment of Contaminants in Bear Lake Sediment and Water.

Appendix D. Agency Scoping Letters and Distribution List.

Appendix E. Missouri Department of Conservation Natural Heritage Database Request – Response.

Appendix F. 2009 USACE Jurisdictional Determination.

ACRONYMS AND ABBREVIATIONS

ac	acres
ACC	Air Combat Control
ACM	Asbestos-Containing Material
AFB	Air Force Base
AFGSC	Air Force Global Strike Command
AFI	Air Force Instruction
AFOSH	Air Force Occupational Safety and Health
AFRC	Air Force Reserve Center
AICUZ	Air Installations Compatible Use Zones
AIRFA	American Indian Religious Freedom Act
AT/FP	Antiterrorism/Force Protection
BMP	Best Management Practice
BW	Bomb Wing
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES/CEAN	Civil Engineering Squadron
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CRMP	Cultural Resources Management Plan
CSR	Code of State Regulations
CWA	Clean Water Act
dB	Decibel
dBA	A-Weighted Decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONPA	A Finding of No Practicable Alternative
ft	Feet
FW	Fighter Wing
FY	Fiscal Year
HAP	Hazardous Air Pollutants
HMMP	Hazardous Material Management Process
INRMP	Integrated Natural Resources Management Plan
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
LBP	Lead-Based Paint

MDC	Missouri Department of Conservation
mi	miles
MIUWU	Mobile Inshore Undersea Warfare Unit-114
MDNR	Missouri Department of Natural Resources
MOANG	Missouri Army National Guard
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
non- RPW	Non-Relatively Permanent Water
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
O_3	Ozone
OHWM	Ordinary High Watermark
Pb	Lead
PL	Public Law
PM10	Particulate Matter Equal to or Less than 10 Microns in Diameter
PM2.5	Particulate Matter Equal to or Less than 2.5 Microns in Diameter
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SAC	Strategic Air Command
SARA	Superfund Amendments and Reauthorization Act
SCS	Soil Conservation Service
SO_2	Sulfur Dioxide
SPCCP	Spill Prevention, Control and Countermeasures Plan
SWPPP	Storm Water Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
TNW	Traditionally Navigable Waterway
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared to identify, document, and address the potential impacts to the human environment associated with implementation of the proposed action and the no action alternative by Whiteman Air Force Base (AFB).

ES.1 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

This EA has been prepared by the Air Force, Air Force Global Strike Command (AFGSC), and the 509th Bomb Wing pursuant to requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations implementing NEPA, and Air Force Instruction (AFI) 327061 (*The Environmental Impact Analysis Process* [EIAP], as codified in 32 Code of Federal Regulations [CFR] Part 989). The EA will be distributed for public and agency review, and comments received will be addressed in the Final EA.

ES.2 PURPOSE AND NEED FOR ACTION

The purpose of the action is to perform necessary maintenance on the Bear Lake Storm Water Retention Pond. A properly maintained facility is necessary to protect the physical integrity of downstream aquatic habitats from the degradation that inevitably results from unmanaged storm water runoff.

Sediment has accumulated in the pond to the extent that the pond's retention capacity is substantially reduced. At the present reduced capacity, the facility cannot achieve the required standards for managing storm water quantity and quality: both flood storage volume and the retention time needed for pollutant (e.g., sediment) removal are reduced. Maintenance of the storm water facility is needed to comply with storm water management requirements and to protect downstream resources.

ES.3 PROPOSED ACTION AND ALTERNATIVES

ES.3.1 Proposed Action

This EA is intended to address the initial removal and disposal of accumulated sediment, the construction of retaining walls, and periodic removal of sediment from the pond as it accumulates in the future.

In executing the proposed action, Whiteman AFB will fully implement the conditions stipulated in the Clean Water Act (CWA) Section 404 Individual Permit (Appendix A). Whiteman will also utilize Best Management Practices (BMPs) as stipulated in the Whiteman AFB 2007 National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharge Associated with Construction Activities (Appendix B), the Storm Water Pollution Prevention Plan (SWPPP) (USAF 2005), and as otherwise required for regulatory compliance (Section 2.4.3). These measures are described in this EA, and are included as components of the proposed action.

ES.3.2 No Action Alternative

Under the no action alternative, the proposed action would not be implemented. Current installation operations would continue. Sediment would not be removed from the Bear Lake Storm Water Retention Pond, no retaining walls would be constructed and periodic maintenance dredging would not occur as needed. This alternative would limit the capability

of Whiteman AFB to manage storm water quantity and quality, reduce recreation opportunities, and would not meet the purpose of or need for the proposed action.

ES.4 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Implementation of the proposed action would result in *minor, net long term beneficial impacts* to the water resources, biological resources, local socioeconomics, and onsite infrastructure at Whiteman AFB. Benefits of the project include:

- Increased capacity of the storm water retention pond to positively affect water quantity and water quality;
- Aesthetic enhancement of the local landscape;
- Improved opportunities for recreational fishing for airmen and their families; and
- Reduced risk to downstream natural resources from catastrophic dam failure.

As a result of implementing the proposed action, minor short-term adverse impacts that are less than significant without mitigation, would be anticipated, including:

- Air quality from increased mobile emissions and fugitive dust;
- The noise environment due to construction vehicle operations;
- Biological resources and wetlands due to land and water disturbance;
- Water quality due to land and water disturbance; and
- Traffic and transportation from slightly increased levels of construction vehicles.

The no action alternative was found not to satisfy the purpose or need for the action. This alternative would not enable Whiteman AFB to maintain its land and water resources through the proper functioning of the Bear Lake Storm Water Retention Pond. The no action alternative would have minor adverse long term impacts to land use, biological resources, water resources, and recreational facilities at Whiteman AFB.

1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared by the United States Air Force (USAF), Air Force Global Strike Command (AFGSC), and the 509th Bomb Wing (BW) pursuant to requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Part 1500-1508), and Air Force Instruction (AFI) 327061 (*The Environmental Impact Analysis Process* [EIAP], as codified in 32 CFR Part 989).

This EA analyzes the potential environmental effects of work in and around the Bear Lake Storm Water Retention Pond and at a sediment disposal area located on Whiteman Air Force Base (AFB) in Johnson County, Missouri.

Section 1.1 provides background information on Whiteman AFB and the vicinity of the Bear Lake Storm Water Retention Pond. The purpose and need for the proposed action is described in Section 1.2. A detailed description of the proposed action and the no action alternative is provided in Section 2.0, while Section 3.0 describes the existing conditions of various environmental and socioeconomic resources that could be affected by the proposed action and the no action alternative. Section 4.0 describes effects of the alternatives to the human environment. Section 5.0 addresses potential cumulative effects of the proposed action.

1.1 BACKGROUND

Whiteman AFB occupies approximately 5,419 acres (ac) (3,871 owned and 362 leased) with 1,186 ac of easements of federally owned or leased land (USAF 2008a) at the eastern edge of Johnson County, Missouri, approximately 60 miles (mi) southeast of Kansas City (Figure 1). The base is located 2 mi south of Knob Noster, 9 mi east of Warrensburg, 22 mi west of Sedalia, and 12 mi north of Windsor, Missouri. Missouri Highway 23 borders the west side of the base and connects it to Interstate 70 to the north. Whiteman AFB was originally activated on 6 August 1942, as Sedalia Army Airfield. The base closed in December 1947 as part of the post World War II demobilization, but reopened in August 1951 as Sedalia AFB under the Strategic Air Command (SAC). In October 1955, Sedalia AFB was redesignated as Whiteman AFB to honor Lieutenant George A. Whiteman, a Sedalia native and one of the first American airmen killed in World War II during the Japanese attack on Pearl Harbor.

The host unit at Whiteman AFB is the AFGSC's 509th BW. Other units stationed at Whiteman AFB include the 442nd Fighter Wing (FW), the 1-135th Attack Aviation Battalion of the Missouri Army National Guard (MOANG), the Mobile Inshore Undersea Warfare Unit-114 (MIUWU) of the United States Navy Reserve, and the 303rd Fighter Unit. The primary mission at Whiteman AFB is to maintain pilot proficiency and a state of combat readiness in the resident B-2 bomber (509th BW), A-10 (Air Force Reserve Center [AFRC] 442nd FW), and AH-64 Apache helicopter (MOANG 135th Aviation) units. This is accomplished through daily training missions flown from the base.

The approximately 5.2-ac Bear Lake Storm Water Retention Pond is located in the southwest corner of Whiteman AFB and is within an approximately 144-ac parcel acquired by Whiteman AFB in 2003 for construction of new military housing (Figure 2). Prior to 2003, the Bear Lake Storm Water Retention Pond existed only as a farm pond used for livestock watering. Except for projects involving brush removal/erosion repair on the backside of the dam, and replacement of the overflow pipe with a concrete overflow structure (that maintained the

same water elevation), there has been no construction associated with, or maintenance of, the Bear Lake Storm Water Retention Pond since its acquisition in 2003.

The retention pond is a storm water management facility created by a dam across an unnamed tributary to Brewer Branch. The facility includes an outlet structure and spillway that sets the maximum water surface elevation and maintains base flows downstream. The retention pond is also an important recreational resource that provides opportunities for picnicking, hiking, bird watching, and fishing. The retention pond provides a visual amenity that serves as a focal point for the nearby military housing units.

1.2 PURPOSE AND NEED

The purpose of the proposed action is to perform necessary maintenance on the Bear Lake Storm Water Retention Pond. A properly maintained facility is necessary to protect the physical integrity of downstream aquatic habitats from the degradation that inevitably results from unmanaged storm water runoff.

Maintenance of the storm water facility is needed to comply with storm water management requirements and to protect downstream resources. The Bear Lake Storm Water Retention Pond is an important infrastructure component for the protection of downstream resources. The development of the landscape for essential human uses (e.g., development of residential housing) in the watershed of the pond increased the amount of impervious surfaces in the watershed. As streets and rooftops replaced forests and agricultural fields, the amount, timing, and duration of storm flows in the stream above the pond was altered. In general, unmanaged storm water runoff increases flooding to downstream properties. It also severely degrades downstream aquatic habitats and typically initiates a long cycle of channel erosion that can impair in-stream ecosystems for many decades. Federal, state, and often local regulations now require the management of storm water quantity and quality to protect the natural environment from these degradational processes, and to protect private property and public infrastructure from potential flood damage. Storm water retention ponds are engineered structures designed to meet such regulations and, properly maintained, they have a long history of improving water quality and protecting downstream resources.

As the name implies, storm water retention ponds retain high flows from storm water runoff. The water storage volume in the Bear Lake Storm Water Retention Pond should allow high flows to be managed so that the natural channel downstream is not damaged by erosion. However, many tons of sediment have washed into the pond from upstream, reducing the pond's capacity to store flood flows. The retention capacity is currently limited to freeboard resulting from evaporation, and it is likely that no freeboard exists during periods of high rainfall. For in-line storm water management facilities, such sediment accumulations are a common occurrence and periodic sediment removal is a necessary and routine maintenance activity. Therefore, to allow the storm water retention capacity of the facility to be realized, maintenance of the Bear Lake Storm Water Retention Pond is now warranted.

The proposed action is also needed to improve the aesthetic appeal and restore recreational opportunities impaired by the excess sediment now present in the Bear Lake Storm Water Retention Pond. The sediment accumulation has reduced water depth over most of the retention pond. Water in the southern (upstream) third of the retention pond, where most of the sediment has settled, is only one foot (ft) deep in many places. This has significantly increased turbidity and allowed invasive plants such as cattails (*Typha* sp.*)* to colonize much of the area. Sediment removal will restore the retention pond to depths that do not support such unsightly invasive species. Construction of the retaining wall will improve the aesthetic

appeal by establishing visual highlights consistent with the nearby developed landscape. The dredging will also significantly increase recreational values by allowing the pond to again support more and bigger fish.

Finally, the initial sediment removal and future maintenance dredging is needed to substantially reduce the risk to downstream ecosystems from catastrophic dam failure through retaining the sediment removing capabilities of the retention pond. In the unlikely event of a major dam breach, many tons of sediment would be evacuated down valley. The sediment would bury floodplains and in-stream habitats, smothering benthic animals and killing fish. Should there be a catastrophic failure of the dam, the proposed sediment removal would reduce the extent of sediment input to the downstream environment. The primary aquatic pollutant which would be released during such an event is the sediment itself which, following removal from the retention pond, will be deposited at an existing disposal site. The sediment to be removed does not currently contain contaminants (Appendix C).

In summary, the proposed project is needed to help restore the ecological and design functions and social values of the Bear Lake Storm Water Retention Pond and to protect downstream environmental resources.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE

2.1 PROPOSED ACTION

The proposed action includes three elements: removal and disposal of accumulated sediment, construction of retaining walls along portions of the shore, and periodic future maintenance to remove sediment accumulations. The elements are described in Table 1.

Removal of sediment from a body of water is referred to as dredging. Dredging at the Bear Lake Storm Water Retention Pond will be accomplished using mechanical means which are more cost-effective for relatively small projects and also reduce the environmental footprint of the work. An estimated 30,000 cubic yards of sediment would be removed.

To increase cost-efficiency and reduce potential adverse environmental impacts, some or all of the water in the Bear Lake Storm Water Retention Pond would be removed prior to sediment removal. Draw down of water currently in the retention pond would be accomplished by siphoning, pumping or by another similar method. To prevent introduction of sediment into the stream below the dam, the contractor will implement the conditions stipulated in the Clean Water Act (CWA) Section 404 Individual Permit (Appendix A), and will follow best management practices (BMPs) established in the Whiteman AFB 2007 National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharge Associated with Construction Activities (Appendix B) and the Storm Water Pollution Prevention Plan (SWPPP) (USAF 2005). The dam would not be breached in order to lower the water level. During the draw down, fish currently inhabiting Bear Lake would be removed and relocated to another pond on Whiteman AFB. Once the storm water pond is sufficiently dewatered, conventional earth moving equipment and machinery such as trackhoes and front end loaders will be used to dredge the sediment. Sediment removed from Bear Lake would be hauled to an existing on-base holding site where it will be stabilized with vegetation until it may be needed as fill for future projects on the base. The proposed sediment storage/disposal area is shown on Figures 2, 3, 4, and 5. The stockpile will be graded to not exceed 12 ft in height. The sediment to be removed was tested for pesticides and metals in June 2006 (Appendix C). No pesticides were detected, and the only metal detected above

Table 1. Tasks included in the proposed action.

Task	Name	Summary Description
1	Removal and Disposal of Accumulated Sediment	Draw down of water currently in the retention pond would be accomplished by siphoning, pumping or another similar method. During the draw down, fish currently inhabiting the Bear Lake Storm Water Retention Pond would be removed and relocated to another pond on Whiteman AFB. Once water is sufficiently removed, the retention pond would be dredged using mechanical equipment. An estimated 30,000 cubic yards of sediment would be removed. Sediment removed from Bear Lake would be hauled to an existing on-base holding site where it would be stabilized with vegetation until it may be needed as fill for future projects on the base.
2	Construction of Retaining Walls	Retaining walls would be constructed along the two sides of the pond adjacent to housing units to visually integrate the Bear Lake Storm Water Retention Pond into the neighborhood landscape, improve access for recreational fishing, and protect the banks from wave erosion. The walls would be constructed to have at least 2 ft of water on the wall at all times and have approximately 2 ft of free board. Retaining walls would be constructed of engineered blocks with the appearance of natural weathered limestone. Plans include approximately 550 linear ft of retaining wall located along the east side of the retention pond, and approximately 200 linear ft along the south side of the pond.
3	Maintenance	Periodic removal of sediment would occur as it accumulates in the future.

reporting limits was barium. However, the levels of barium detected were well below action levels dictated by the Missouri Department of Natural Resources (MDNR).

Retaining walls would be constructed along the east and south sides of the Bear Lake Retaining Pond (Figure 4). Because these walls would be visible from nearby military housing units, they would serve to aesthetically integrate the Bear Lake Storm Water Retention Pond into the neighborhood. Retaining wall design would follow recommendations outlined in the Missouri Pond Handbook (Missouri Department of Conservation [MDC] undated). The walls would be constructed to have at least 2 ft of water on the wall at all times and have approximately 2 ft of free board. Retaining walls would be constructed of engineered blocks with the appearance of natural weathered limestone.

Retaining wall construction would serve to stabilize adjacent hillslopes, improve recreational access, and establish aesthetics more consistent with the surrounding developed landscape, and provide erosion protection from prevailing northerly and westerly winds. It is anticipated that approximately 550 linear ft of retaining wall will be constructed along the east side of the pond and approximately 200 linear ft will be constructed along the south side.

2.2 NO ACTION ALTERNATIVE

Under this alternative, the proposed action would not be implemented. Sediment would not be removed (or disposed of) from the Bear Lake Storm Water Retention Pond, no retaining

wall would be constructed, and periodic removal of sediment would not occur. This alternative would limit the capability of Whiteman AFB to provide adequate recreational facilities, and would not meet the purpose and need for the proposed action.

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Throughout the alternative identification and screening process, as well as during the public and agency comment period, other alternatives were considered to support the purpose and need (as described in Section 1.2).

The Air Force initially considered implementing alternatives that would include the removal and disposal of accumulated sediment from the pond, but not include construction of retaining walls. Alternatively, retaining wall construction without periodic removal and disposal of sediment was considered. Finally, dredging only portions of the pond each year was considered. These alternatives, which would not meet the purpose or need of the proposed action, were not considered viable alternatives and were not carried forward for detailed analysis.

2.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

2.4.1 Environmental Assessment Process

The environmental impacts of all Air Force facility projects must be documented in accordance with the provisions of 32 CFR part 989, *et seq.*, *Environmental Impact Analysis Process*. This documentation satisfies requirements of the NEPA as implemented through CEQ regulations (40 CFR Part 1500-1508).

Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) is a federally mandated process for informing and coordinating with other governmental agencies regarding Federal proposed actions. CEQ regulations require intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the IICEP process, the USAF notifies relevant Federal, state, and local agencies and allows them sufficient time to make known their environmental concerns specific to a proposed action. Comments and concerns submitted by these agencies during the IICEP process are subsequently addressed in the analysis of potential environmental impacts conducted as part of the EA.

Agencies consulted for this EA were as follows: the United States Fish and Wildlife Service (USFWS), the United States Army Corps of Engineers (USACE) Kansas City District, United States Environmental Protection Agency (USEPA) Region 7, MDC, and MDNR (Appendix D). Information and comments provided by these agencies have been addressed in this EA.

Public comment will be invited for a period of thirty days following publication of a Notice of Availability of the EA in both the *Sedalia Democrat* and the *Warrensburg Daily Star-Journal*. The Notice will provide specific information identifying the project proponent and lead agency, a brief description of the project, where to find the EA, and how and when to provide comments.

2.4.2 Scope of Analysis

The decision to be made is whether or not Whiteman AFB should implement its proposed action. The EA identifies, documents, and evaluates effects to the human environment

associated with the proposed action and the no action alternative. Its purpose is to inform decision-makers and the public of the likely consequences of each.

In compliance with NEPA, CEQ, and USAF regulations and guidelines, this document focuses on those conditions and resource areas that are potentially subject to impacts. These resources include land use, soil resources, traffic, noise, hazardous materials and wastes, water resources, biological resources, air quality, socioeconomics, and safety. This EA also considers the cumulative effects of past actions, other ongoing actions, and reasonably foreseeable future actions, as they relate to the proposed action.

Some environmental resources and issues have been dismissed from detailed analysis in this EA. The following paragraphs identify these resources/issues and discuss the basis for such exclusions.

Geology. The proposed action would not disturb bedrock and would have no impact on geological resources. Whiteman AFB is located in an area of low seismic risk (Zone 1). The proposed action would not construct or modify structures that would pose a risk to surrounding populations if damaged during an earthquake.

Threatened and Endangered Species. No impacts to federally-listed or state-listed threatened and endangered animal or plant species or Critical Habitat are anticipated as a result of implementing the proposed action. No federally-listed threatened and endangered species, candidate species, or species proposed for listing are known to occur within 1 mi of Bear Lake Storm Water Retention Pond, within the boundaries of Whiteman AFB, within streams 5 mi downstream from the retention pond, or in Johnson County (USFWS 2009; MDNR 2009, Appendix E). No state-listed threatened and endangered species, and no federally or state designated or proposed Critical Habitat is located within 1 mi of Bear Lake Storm Water Retention Pond, within the boundaries of Whiteman AFB, or within streams 5 mi downstream from the retention pond (MDNR 2009, Appendix E).

Prime Farmland, Parkland, Wild and Scenic Rivers, and Floodplains. No prime or unique farmland, or any soils of statewide importance are present in the project area, and none will be impacted by the proposed action (USAF 2003). Additionally, no parklands, National Wild and Scenic Rivers, or floodplains are in the project area and none will be impacted by the proposed project (MDNR 2009, Appendix E; NPS 2009; USAF 2008b; FEMA 1990).

Cultural Resources. No historic architecture or archaeological resources are present in the project area and none will be impacted by the proposed action (USAF 1996b). Whiteman AFB has completed its Section 106 responsibilities for review of archeological resources on the entirety of the installation. No historic properties have been previously recorded on the base. No evidence of historic or prehistoric archeological sites were discovered during intensive base-wide pedestrian survey and systematic shovel testing conducted during the Cultural Resources Management Plan (CRMP) preparation (USAF 1996a). There will be no adverse effects on cultural of historical resources as a result of the proposed action.

Utilities. The proposed action would have no effect on the Whiteman AFB utility system, other than a very temporary and minor increase in the consumption of utilities, including electricity, potable water, fossil fuels, and sanitary sewer discharges. However, the base, in conjunction with local service providers, would have the capacity to meet these demands and no impacts are anticipated. Implementation of either alternative will not necessitate the development of new electric distribution lines or other infrastructure related to utilities.

Portable sanitary units would be installed as necessary and removed once project activities are complete.

Environmental Justice. The proposed action does not have the possibility to disproportionately affect low-income or minority residents. The construction footprint of the proposed action would be small and entirely within a large tract of government-owned land, and would therefore have a minimal impact on the adjacent areas. The census tracts that contain Whiteman AFB and the tracts directly adjacent to the installation do not have a disproportionately high percentage of minorities or low-income inhabitants. Therefore, there would be no potential for adverse impacts from construction or operation activities on any low-income or minority populations.

Airspace Management. Because the proposed action would not involve any flying or flying missions, there would be no new impacts on airspace, air traffic, or aircraft-related safety. Accordingly, the USAF has omitted detailed examination of airspace management from this EA.

2.4.3 Regulatory Compliance and Permit Requirements

This EA is consistent with the EIAP (32 CFR Part 989), and complies with NEPA, CEQ regulations, and Department of Defense (DoD) Instruction 4715.9, *Environmental Planning and Analysis*. Key potentially applicable Federal laws, regulations, Executive Orders (EOs), and state laws are listed in Table 2. Because all permit requirements will be met, the proposed action will not violate Federal, state, or local environmental law.

This EA considered all applicable laws and requirements in relation to the action alternative. In terms of permit requirements, the following discussion outlines those regulations directly applicable to the proposed action, and which may require a permit.

Clean Water Act Section 404

A field determination identifying jurisdictional waters of the United States within the area of the proposed action was performed by USACE, Kansas City District, on 17 September 2009. The investigation identified wetland areas totaling approximately 2.65 ac in, and immediately adjacent to, the retention pond (USACE 2009, Appendix F). These wetlands, which are regulated in part by requirements of the CWA (referred to as "jurisdictional" waters) were comprised of an approximately 1.6-ac area of palustrine emergent wetland in the southern (upstream) third of the pond, approximately 1 ac of fringe wetlands present around the perimeter of the northern (downstream) portion of the retention pond, and an approximately 0.05-ac wetland associated with the stream channel downstream of the pond. The USACE also determined that the open water within the retention pond was formed as a result of impounding a jurisdictional tributary and therefore the impounded waters in the retention pond are jurisdictional. As a result of this jurisdictional determination, implementation of the proposed action will require Whiteman AFB to obtain a permit under provisions of Section 404 of the CWA.

The proposed project will be completed under Section 404 CWA Individual Permit Number 2009-1568, as issued by the Regulatory Branch of the USACE, Kansas City District, on 19 July 2010 (Appendix A). Under this permit, the retention pond being utilized as a storm water facility for the adjacent residential developments will be dredged to remove accumulated sediments and restore lost storage capacity in the pond, and retaining walls along portions of

Table 2. Federal laws, regulations, Executive Orders, and state laws potentially applicable to the proposed action.

Resource Area	Potentially Applicable Laws/Regulations/EOs
Air Quality	Clean Air Act (CAA), as amended; AFI 32-7040, *Air Quality Compliance;* Missouri Code Title 10, Division 10, Chapter 3, Air Pollution Control Rules Specific to the Outstate Missouri Area.
Environmental Justice	EO 12898, Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations
Protection of Children	EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
Noise	The Noise Control Act of 1972 (Public Law [PL] 92-574) and Amendments of 1978 (PL 95-609)
Biological Resources	Endangered Species Act (ESA) of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-654); Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Bald Eagle Protection Act (16 United States Code [USC] §668a-d); Fish and Wildlife Conservation Act (USC §2901 et seq.); Missouri Conservation Regulations 3 Code of State Regulations (CSR) 10.
Water Resources	EO 11990, *Protection of Wetlands*; EO 11988, *Floodplain Management*; Emergency Wetlands Resources Act of 1986 (PL 99-645); North American Wetlands Conservation Act of 1989 (PL 101-233); Federal Water Pollution Control Act as amended by the CWA of 1977 (33 USC §1251); Lacey Act Amendments of 1981 (PL 97-79) Wetlands and Floodplains Section 401 and 404 of the Federal Clean Water Act; EO 11752, *Prevention, Control, and Abatement of Environmental Pollution*; Wild and Scenic Rivers Act (PL 90-542); EO 12088, *Federal Compliance with Pollution*; Soil Conservation Act (16 USC §590a *et seq.*); Rivers and Harbors Act of 1899; 10 CSR 20-7.031 Water Quality Standards for Missouri
Cultural Resources	National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.) (PL 89-865) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); EO 11593, *Protection and Enhancement of the Cultural Environment*; EO 13007, *Indian Sacred Sites*; American Indian Religious Freedom Act (AIRFA) of 1978 (PL 94-341); Antiquities Act of 1906; Archaeological Resources Protection Act of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601)

Table 2. Federal laws, regulations, Executive Orders, and state laws potentially applicable to the proposed action.

Resource Area	Potentially Applicable Laws/Regulations/EOs
Hazardous Materials and Hazardous Waste	Resource Conservation and Recovery Act of 1976 (PL 94-5800), as Amended by PL 100-582; EPA, subchapter I-Solid Wastes (40 CFR 240-280); Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (PL 94-496); USEPA, Subchapter R Toxic Substances Control Act (40 CFR 702-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 162-180); Emergency Planning and Community Right-to-Know Act (40 CFR 300-399).
Land and Vegetation Management	Federal Noxious Weed Act of 1974 (7 USC §2801 *et seq.*); Federal Pest Plant Act (7 USC §150a *et seq.*); EO 12865, Reduction of Pesticide Application by 50% by Fiscal Year (FY) 2000; EO 13112, Invasive Species; Missouri Noxious Weed Act (Revised Statutes Chapter 263, Insect Pests And Weeds); Missouri Seed Law (Revised Statutes Chapter 266, Seeds, Fertilizers and Feeds).

the pond/facility will be constructed. This permit also allows for the disposal of the accumulated sediment at an upland holding site (Appendix A).

The Individual Permit requires that a Section 401 Water Quality Certification be obtained from MDNR's Water Protection Program. This certification was obtained on 21 June 2010 and incorporated into the Individual Permit (Appendix A).

Execution of this project will require full compliance with both the General and Special conditions of the USACE CWA Section 404 Individual Permit (pp. 2-3 and 4-5 of the permit, Appendix A), and the conditions dictated by MDNR's CWA Section 401 Water Quality Certification (Appendix A).

Clean Water Act Section 402

It is anticipated that a NPDES construction disturbance permit, as administered and issued by the MDNR, will not be required because landward disturbance will be limited to less than 1 ac. Earthmoving activities necessary to implement the proposed action are subject to provisions of a SWPPP (USAF 2005) which specifies BMPs for runoff control during construction activities on Whiteman AFB.

2.5 COMPARISON OF ALTERNATIVES

Table 3 summarizes the potential environmental impacts of the proposed action and the No Action alternative, based on the detailed impact analyses presented in Section 4.

2.6 MITIGATION FOR THE PROPOSED ACTION

Potential impacts from the proposed action would be reduced with the implementation of the proposed on-site and off-site mitigation measures identified in this section. Mitigations use

Table 3. Summary of potential environmental consequences of the proposed action and the no action alternative.

Resources	Proposed Action	No Action Alternative
Land Use	Minor, net long term benefit	Minor, net long-term adverse effect
Traffic and Transportation	Minor, short term adverse effect	No effect
Water Resources	Minor, net long term benefit Minor, short term adverse effect	Minor, net long-term adverse effect
Biological Resources	Minor, net long term benefit Minor, short term adverse effect	Minor, net long-term adverse effect
Socioeconomics	Minor, net short and long term benefit	No effect
Hazardous Materials/ Hazardous Wastes	No effect	No effect
Air quality	Minor, temporary adverse effect	No effect
Noise	Minor, temporary adverse effect	No effect
Safety	Minor, temporary adverse effect	No effect

project design, configuration, and/or component location to reduce or eliminate potential impacts to resources. On-site measures to mitigate impacts include mitigation by avoidance. Mitigation by avoidance includes using existing information to avoid impacting resources. In addition, implementation of the BMPs described in this section would further reduce potential impacts. Off-site measures compensate for wetland loss and include the purchase of wetland bank credits.

Whiteman AFB has obtained a CWA Section 404 Individual Permit (Appendix A) and will comply with all permit conditions. Special conditions stipulated in this permit include: use of uncontaminated fill materials, use of appropriate disposal techniques, use of appropriate debris removal techniques, use of appropriate fuel handling and storage methods, minimizing vegetation clearance, and use of appropriate seeding/replanting techniques. Mitigation for impacts of the project to waters of the US will consist of the purchase of mitigation credit in the amount of 2.2 ac from the Sni-A-Bar Mitigation Bank.

To avoid, minimize, and/or compensate for short-term erosion and sedimentation impacts during dewatering, dredging, and retaining wall construction, the USAF will implement BMPs in accordance with the terms of the Whiteman AFB 2007 NPDES General Permit for Storm Water Discharge Associated with Construction Activities (Appendix B). All permit standards will be adhered to during all construction activities.

No construction work will take place at night; therefore, mitigating against the exposure of noise sensitive receptors to noise during night time hours.

Whiteman AFB will mitigate against degradation of air quality through application of the following measures: use appropriate dust suppression methods during on-site construction activities; maintain an appropriate speed to minimize dust generated by vehicles and equipment on unpaved surfaces; use electricity from established electrical power sources instead of generators whenever possible; and repair and service construction equipment according to the regular maintenance schedule recommended for each individual equipment type.

During the draw-down of the Bear Lake Storm Water Retention Pond, Whiteman AFB will mitigate for fish kills through relocating fish to a suitable on-base locality.

3.0 AFFECTED ENVIRONMENT

This section describes the existing physical, biological, social, and economic environment of the proposed action as of November 2009. The existing conditions are the baseline against which impacts of the proposed action and No Action alternatives are evaluated. The Region of Influence (ROI) for the purposes of this EA is individually defined for each resource described.

3.1 LAND USE RESOURCES

3.1.1 Definition of Resource

Land use resources addressed in this analysis include existing land use and visual resources. Existing land use addresses land use at Whiteman AFB, and land use on surrounding properties. Visual resources include the natural and manufactured features constituting the aesthetic qualities of the area.

The ROI for land use is defined as the Bear Lake Storm Water Retention Pond, a 200 ft buffer around the retention pond, and the sediment storage/disposal area. The sediment storage/disposal area is approximately 8 ac in size and is located in the north-central portion of the base, west of the runway.

3.1.2 Existing Conditions

3.1.2.1 Land Use

Land use surrounding Whiteman AFB is residential, commercial, recreational, and agricultural. Knob Noster State Park, a forested 3,500-ac conservation and recreation area, borders the base to the west. The Town of Knob Noster lies north of the base near the intersection of US 50 and State Route 23. Residential areas of Knob Noster border the base to the north. Agricultural land lies immediately east and south of the base, with some residential development east of the base along State Highway D (USAF 2003).

Whiteman AFB occupies approximately 5,419 ac (3,871 owned and 362 leased) with 1,186 ac of easements of federally owned or leased land (USAF 2008a). The western section of the base primarily is residential and recreational area, and supports base housing and associated facilities. This portion of the base extends west of Missouri Highway 23 and includes the base golf course and wastewater treatment plant (WWTP). The central section of the base consists primarily of administrative and industrial facilities, including operational activities and a

community center. The eastern portion of the base supports aircraft-related activities, including the airfield, aircraft operations and maintenance, and a weapons storage area.

The approximately 5.2-ac Bear Lake Storm Water Retention Pond is located in the southwest corner of Whiteman AFB and is within an approximately 144-ac parcel acquired by Whiteman AFB in 2003 for construction of new military housing (Figure 2). Prior to 2003, the Bear Lake Storm Water Retention Pond existed only as a farm pond used for livestock watering. The retention pond now is surrounded by base housing, including new residential development. The buffer area surrounding the retention pond is mowed grass with some shrubs and small trees along the edge of the pond. A riparian forested buffer adjoins the tributary stream that enters the pond from the southeast. The buffer varies in width from approximately 50 – 200 ft.

The sediment storage/disposal area is surrounded by maintained grass to the south and east, a lake approximately 750 ft to the southwest, predominantly forested areas to the west and northwest, and a commercial (off-base) facility to the north. Base housing is not located nearby. Much of the sediment storage/disposal area is bare dirt and relatively level, with cut faces along the north and east sides.

3.1.2.2 Visual Resources

Whiteman AFB is comprised of flat, rolling, and open field areas. Visual resources adjacent to the base include Knob Noster State Park to the west and agricultural areas to the south and east.

On Whiteman AFB and within the ROI the Bear Lake Storm Water Retention Pond is a dominant landscape feature visible from surrounding on-base housing. The sediment storage/disposal facility is dominated by bare ground, and is not visible from any housing area.

3.2 SOIL RESOURCES

3.2.1 Definition of Resource

Soil is defined as the unconsolidated mineral or organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants (NRCS 2009a). Soil resources focus on the ground-level substrate upon which Whiteman AFB is situated.

The ROI for soil resources is defined as the Bear Lake Storm Water Retention Pond, a 200 ft buffer around the retention pond, and the sediment storage/disposal area.

3.2.2 Existing Conditions

Soil within approximately 200 ft of the Bear Lake Retention Pond is classified as Gorin (GoC2) silt loam with a profile typically 2 to 4 ft thick (USAF 1996b). Erosion potential is high (Soil Conservation Service [SCS] 1980). Gorin silt loam is somewhat poorly drained, with medium runoff and slow permeability. In undisturbed areas, a perched water table has an upper limit at 1.5 to 2.5 ft during November to April during most years (NRCS 2009b).

The sediment to be removed during the proposed action was tested for pesticides and metals in June 2006 (Parson 2006, Appendix C). No pesticides were detected. The only metal

detected above reporting limits was barium. However, the levels of barium detected were well below action levels dictated by MDNR.

Soil in the sediment storage/disposal area is classified as Mandeville silt loam, 5 to 9 percent slopes (MdC) (SCS 1980). This soil is moderately well drained with moderate permeability and available water capacity, and surface runoff is medium. It is poor for sanitary facilities and building site development. Management that maintains an adequate plant cover and ground mulch helps to prevent excessive soil loss and improves the moisture supplying capacity by reducing runoff. The sediment storage/disposal area has been used as a borrow pit in the past, so much of the natural soils have been removed.

3.3 WATER RESOURCES

3.3.1 Definition of Resource

Water, or hydrologic, resources include groundwater and surface water. Evaluation of hydrologic resources examines the quantity and quality of the water and the demand for various purposes. Although water-related, wetlands are discussed within Section 3.3, Biological and Wetland Resources.

Groundwater consists of subsurface hydrologic resources. These essential resources are used for potable water consumption, agricultural irrigation, and industrial production.

Surface water includes lakes, rivers, streams, and the surface drainage system. Surface water contributes to the economic, ecological, recreational, and human health of a community or locale. Storm water quality is important because storm water can introduce contaminants including sediment that may degrade surface waters.

The ROI for groundwater and surface water encompasses Bear Lake Storm Water Retention Pond, its drainage area, and the sediment storage/disposal area. The ROI also includes the stream environment immediately below the dam to the confluence with Brewer Branch (a distance of approximately 0.5 mi).

3.3.2 Existing Conditions

3.3.2.1 Groundwater

The ROI and the entirety of Whiteman AFB are located within the Central Midwest Regional Aquifer System, and the regional aquifers are the Pennsylvanian and Mississippian. Groundwater aquifers in this area are composed of alluvium, glacial drift deposits, and carbonates. Groundwater recharge occurs principally by infiltration of precipitation into residual materials and then by diffuse recharge into the bedrock aquifers.

3.3.2.2 Surface Water

The ROI and Whiteman AFB are within the Missouri River Drainage Basin, the Lower Missouri River Subregion, and lie along a ridge that divides the watersheds of the Clear Fork Creek of the Blackwater River to the west from the Long Branch of Muddy Creek to the east (Figure 6). The Blackwater River and Muddy Creek both drain into the Lamine River, which subsequently drains into the Missouri River (USAF 2003, Figure 6).

The Whiteman AFB storm drainage system consists primarily of roadside ditches, cross road culverts, enclosed pipe drainage systems, and other drainage channels. Storm water from the western portion of the base drains to the Brewer Branch of the Clear Fork Branch of the Blackwater River. The middle and eastern portions of the base feed to the Long Branch of Muddy Creek (USAF 2005).

The Bear Lake Storm Water Retention Pond is one of five surface water reserves at Whiteman AFB, four of which are utilized for recreational resources. These provide shoreline fishing only and have been stocked with fish specifically for the purpose of enhancing recreational opportunities on the base. The approximately 5.1 ac Bear Lake Storm Water Retention Pond was created by damming a small tributary of Brewer Branch and constructing a spillway to regulate outflow and lake level (Figures 2, 3, 4, and 5). The lake has an outlet structure that includes an approximately 500 ft-long piped section that carries base flow to the north-northwest into Brewer Branch. The retention pond is used for shoreline fishing and is managed for recreational purposes under Whiteman AFB's Integrated Natural Resources Managemet Plan (INRMP) with respect to carrying capacity for fish and wildlife habitat (USAF 2008b). Through the field determination conducted on 17 September 2009 the USACE determined that the open water within the lake was formed as a result of impounding the tributary and therefore the retention pond is jurisdictional (USACE 2009, Appendix F). Jurisdictional waters are primarily lakes, rivers, and streams that the USACE considers to be "waters of the United States" and which therefore fall under the regulatory authority of the CWA.

The unnamed tributary flowing into the southeast corner of the retention pond was evaluated by the USACE Kansas City District on 17 September 2009 (USACE 2009, Appendix F, Figure 4). This evaluation determined that the unnamed tributary was a jurisdictional water of the United States, both upstream and downstream of the Bear Lake Storm Water Retention Pond, for a distance of 3,470 ft (USACE 2009, Appendix F). This portion of the unnamed tributary flows through a wooded riparian corridor typically less than 30 ft in total width along the majority of its length, with the exception of the two short segments immediately upstream and downstream of the retention pond (Figure 4). The portion of the stream upstream of the retention pond contains a more pronounced wooded riparian corridor approximately 100 ft in width which continues for a distance of approximately 1,000 ft upstream of the retention pond (Figure 4). The portion of the stream downstream (north) of the retention pond flows through an approximately 4-ac wooded area. This wooded area is located on both banks of the unnamed tributary and is approximately 1,000 ft in length (Figure 4).

Along the stream length (the "reach") defined by the USACE as being a water of the United States (USACE 2009, Appendix F), there is wide variability in stream bank heights and widths: Ordinary High Water Mark (OHWM) widths range from 4-8 ft and top-of-bank and stream depths vary greatly (USACE 2009, Appendix F). Tributary planform is relatively straight with an approximate average slope of 2 percent. The USACE noted that the upper and lowest stretches of the reach are "stable" but portions of the central segment above Summit Drive and below Kelly Road (Figure 4) are of "poorer quality" due to a headcut (USACE 2009, Appendix F). The presence of run/riffle/pool complexes was noted both upstream and downstream of the retention pond (USACE 2009, Appendix F). Downstream of the lake the estimated average tributary dimensions relative to top of bank are: width of 15 ft, mean depth of 3 ft, and side slopes of 2:1. The unnamed tributary in the vicinity of the retention pond has been previously impacted by development. Specifically, the stream has been manipulated for roadway crossings, a portion of the stream downstream of the retention pond is piped, and riparian buffers have been degraded or removed by the development of residential facilities.

During the 17 September 2009 field review the USACE determined through consultation with Region 7 of the Environmental Protection Agency that the unnamed tributary, a "non-relatively permanent water (non-RPW)" has a significant nexus to the Blackwater River, a Traditional Navigable Waterway (TNW) (USACE 2009, Appendix F). The determination noted that the unnamed tributary and associated wetlands (see following section) have the capacity to contribute hydrology and convey pollutants to receiving waters, provide habitat for aquatic organism life cycles, provide a natural filter for water quality improvement and supply a source of fresh water and organic materials to downstream waters.

Most of the drainage area around the retention pond and the entire tributary reach has been developed for base housing/residential use and or buffer/greenway recreational use.

No surface waters exist at the sediment storage/disposal area.

3.4 BIOLOGICAL AND WETLAND RESOURCES

3.4.1 Definition of Resource

Biological resources include native or naturalized plants and animals and the habitats (for example, wetlands, forests, and grasslands) in which they exist.

Wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. EO 11990 (Wetlands Management) requires all federal agencies to provide leadership in the protection of wetlands. Section 401 of the CWA requires that states issue or deny water quality certification for any federally permitted or licensed activity that may result in a discharge to waters of the United States. This requirement includes Section 404 permits issued by the USACE for dredge and fill activities. The MDNR is responsible for administering the state's 401 Water Quality Certification program. The USACE, Kansas City District, has jurisdictional authority over wetlands within the Lower Missouri River watershed, which includes the Whiteman AFB area. Jurisdictional wetlands are those regulated by the USACE under Section 404 of the CWA or the Swampbuster Provision of the Food Security Act. Non-jurisdictional wetlands are wetlands exempt from Federal regulatory authority of the CWA.

The Air Force goal for managing wetlands is that all wetlands are to be protected, as stipulated in EO 11990, "Protection of Wetlands." Additionally, the Air Force has a goal of ensuring no net loss of wetlands. Supporting these goals is the policy that all wetland impacts are to be assessed under provisions of the NEPA and nothing will be built in a wetland unless there is a finding of no practicable alternative (FONPA). If there is no practical alternative, then the appropriate mitigation measures must be taken.

The ROI for biological and wetland resources is considered to be Bear Lake Storm Water Retention Pond, a buffer area approximately 200 ft in all directions around the retention pond, and the sediment storage/disposal area.

3.4.2 Existing Conditions

3.4.2.1 Vegetation and Wildlife

Whiteman AFB lies along the outer boundaries of the tallgrass prairie, and most of the tall grasslands have been converted to agriculture. The base includes open prairie, mixed woods, and hardwood urban forests, green belt areas, streams, and ponds. According to the Whiteman AFB Ecological Survey and Study, 52 species of trees and 22 species of shrubs have been recorded on-base (USAF 2003). Wildlife specifically recorded from Whiteman AFB includes some 31 species of birds, 10 species of fish, 19 species of mammal, and 12 species of reptiles and amphibians (USAF 2003).

The ROI habitat includes the open water habitat of the retention pond, the emergent vegetation around the perimeter of the pond, maintained turf grass lawns adjacent to the retention pond, and the bare dirt/sparsely vegetated areas located at the proposed sediment storage/disposal area (Figure 4). These areas would be expected to provide habitat for common and widespread floating aquatic plants and other hydrophytic vegetation, early successional vegetation, and maintained lawn plant species. Some small riparian woodlots also occur around the perimeter of the Bear Lake Storm Water Retention Pond and along upstream and downstream portions of the unnamed watercourse dammed to create the pond (Figure 4). These woodlot areas consist of willow, green ash, and silver maple trees, as well as herbaceous species. Some small trees are present around the margins of the Bear Lake Storm Water Retention Pond.

Habitat within the ROI would be expected to support a variety of common and widespread, birds, fish, mammals, reptiles, and amphibians.

3.4.2.2 Wetlands

The 2003 Whiteman AFB INRMP documents a total acreage of 88.29 ac of "regulated wetland" located on the base (USAF 2003). This acreage was divided between the following wetland types: Palustrine Emergent (PEM) (41.58 ac), Palustrine Forested/Emergent (PF/EM) (20.48 ac); Palustrine Open Waters (Ponds or Lakes) (16.55 ac), and Palustrine Scrub Shrub (9.68 ac).

On 17 September 2009 the USACE, Kansas City District completed a wetland determination at Bear Lake Storm Water Retention Pond. The USACE identified wetland areas totaling approximately 2.65 ac in the vicinity of the retention pond. These jurisdictional wetlands comprise an approximately 1.6-ac area of palustrine emergent wetland in the southern (upstream) third of the pond, approximately 1 ac of fringe wetlands present around the perimeter of the northern (downstream) portion of the retention pond, and an approximately 0.05 ac wetland associated with the stream channel downstream of the pond and Kelly Road (USACE 2009, Appendix F). The locations and descriptions of these approximated wetland areas are described and documented fully in the USACE 2009 Approved Jurisdictional Determination Form, associated figures, and email coordination (USACE 2009, Appendix F). Overall wetland quality was evaluated as "good" by the USACE (USACE 2009, Appendix F), with a "diverse plant community including herbaceous and woody species, especially within the lake fringe." Per the USACE, the wetland acreage was estimated from various maps and aerial photographs. No detailed boundary delineation was performed by the USACE.

The 2.6 ac palustrine emergent wetland at the retention pond is a relatively new and transient feature on the landscape. Prior to the area's acquisition by Whiteman AFB for a new housing development, the area was in agriculture usage. Therefore, the palustrine emergent

wetlands now present likely developed on sediments trapped by the dam since its construction. It is probable that natural sediment supply rates from the catchment were accelerated in recent years by construction, therefore providing substrate for the wetlands to take hold and spread. In short, the creation of the storm water facility provided an opportunity for these wetlands to develop.

The 2009 USACE Jurisdictional Determination (USACE 2009, Appendix F) noted that the unnamed tributary and associated wetlands have the capacity to contribute hydrology and convey pollutants to receiving waters, provide habitat for aquatic organism life cycles, provide a natural filter for water quality improvement and supply a source of fresh water and organic materials to downstream waters.

The wetlands present within the upper portions of the lake and around the remaining fringe of the lake provide water quality filtration and biological productivity functions that contribute positive values for the tributary reach and downstream receiving waters.

There are no wetlands located at the sediment disposal area.

3.5 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

3.5.1 Definition of Resource

The Natural Resources Element of the 509th Civil Engineering Squadron (509 CES/CEAN) is responsible for hazardous materials and waste management at Whiteman AFB in conformance with the policies established by AFPD 32-70, *Environmental Quality*. Hazardous materials are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act. *Hazardous waste* is defined by the USEPA as a waste substance with properties that make it dangerous or potentially harmful to human health or the environment. Hazardous wastes can be liquids, solids, contained gases, or sludges. The Resource Conservation and Recovery Act (RCRA) defines hazardous waste as exhibiting at least one of four characteristics of ignitability, corrosivity, reactivity, or toxicity. In addition to materials exhibiting these properties, RCRA also provides a list of materials which, by inclusion on this list, are defined as hazardous waste. *The Environmental Restoration Program (ERP)* was developed by DoD to identify, investigate, and remediate potentially hazardous material disposal sites that existed on DoD property prior to 1984. The ERP requires each DoD installation to identify, investigate, and clean up hazardous waste disposal or release sites.

The ROI for hazardous materials and waste management is restricted to Bear Lake Storm Water Retention Pond, a buffer area approximately 200 ft in all directions around the retention pond, and the sediment storage/disposal area.

3.5.2 Existing Conditions

Hazardous materials at Whiteman AFB are managed in accordance with AFI 32-7086, *Hazardous Material Management*. The AFI established requirements for the procurement, handling, storage, and issuing of hazardous materials and the redistribution/reuse of hazardous materials. The majority of hazardous materials used by Air Force and contractor personnel at Whiteman AFB are controlled through an Air Force pollution prevention process called Hazardous Material Management Program (HMMP). The HMMP addresses hazardous materials that may be encountered during residential renovation or demolition activities such

as asbestos-containing material (ACM), lead-based paint (LBP), mercury containing switches, thermostats, and fluorescent lights; polychlorinated biphenyls light ballasts; petroleum; solvents; and pesticides.

The Whiteman AFB *Integrated Waste Management Plan* describes handling procedures and outlines management responsibilities for hazardous and special wastes according to Federal, state, and local laws and regulations as directed by AFI 32-7042. The plan documents procedures to ensure each step in the management of hazardous and special waste is carried out consistently and in accordance with all regulatory requirements. No generation, handling, or storage of hazardous waste occurs at the Bear Lake Sotem Retention Pond or in the surrounding residential areas.

The ERP at Whiteman AFB has identified 44 hazardous material sites since 1984 and these sites have for the most part been assessed and addressed. All sites have been closed, including the ERP site located immediately northeast of the Bear Lake Storm Water Retention Pond. No other ERP sites are located within the ROI for the proposed action (Figure 5).

No ACMs would be used during the construction of the retaining walls. In accordance with the Lead Contamination Control Act, no LBPs are used during the construction of new buildings and structures.

Samples of the sediment to be removed from Bear Lake Storm Water Retention Pond were collected and analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) by methods 6010/1311/2471 and pesticides by Method 8081A. No hazardous substances were found in materials evaluated during this investigation (Appendix C).

3.6 SOCIOECONOMICS

3.6.1 Definition of Resource

Evaluation of socioeconomic resources addresses population and economic activity. Assessing populations considers ethnicity, poverty status, educational attainment level, and other broad level indicators of the population. Economic activity considers employment, personal income, and industrial or commercial growth. The ROI for socioeconomics is defined as Whiteman AFB and the immediately surrounding communities.

3.6.2 Existing Conditions

Whiteman AFB is one of the region's largest employers. In fiscal year 2008, the base had 7,738 employees, including 2,492 civilian and contract employees; 3,352 active duty military; and 1,894 military reserve and guard personnel. The base supported approximately 4,792 military dependants; 1,742 of these resided on the base. In fiscal year 2008, approximately 70 percent of military personnel and dependants lived off-base (USAF 2008a). The base supports 3,617 military retirees living in the ROI (USAF 2008b).

The total Whiteman AFB payroll during fiscal year 2008 totaled $241,352,213, much of which is spent in the local region on housing, food, and other consumer goods and services. It is estimated that for every $1 spent by the base, there is an induced impact of approximately $5.21 generated in the local economy, resulting in a total economic impact within the ROI exceeding $529 million (USAF 2008a).

3.7 AIR QUALITY

3.7.1 Definition of Resource

Ambient air quality within an area can be characterized as to whether or not it complies with primary and secondary National Ambient Air Quality Standards (NAAQS). The CAA, as amended, requires the USEPA to set NAAQS for pollutants considered harmful to public health and the environment. NAAQS are provided for six principal pollutants, called "criteria pollutants" (as listed under Section 108 of the CAA): carbon monoxide (CO), lead (Pb), nitrogen oxides (NO_x), sulfur dioxide (SO_2), ozone (O_3), and particulate matter (PM). Particulate matter is further divided into two size classes: aerodynamic size less than or equal to 10 micrometers (PM10); and aerodynamic size less than or equal to 2.5 micrometers (PM2.5). Whiteman AFB in Johnson County, MO is located within an area that is in full attainment of both the NAAQS and state standards for all criteria pollutants (USAF 2008b). Title III of the CAA, as amended, provides for regulation of 188 specifically listed hazardous air pollutants (HAPs). Emission standards have been developed for sources that emit HAPs, but ambient air quality standards have not been developed.

The ROI for air quality is defined as the Bear Lake Storm Water Retention Pond, the roadway that will transport vehicles and the sediment to the sediment storage/disposal area, and the sediment storage/disposal area itself. Additionally, the ROI includes an adjacent buffer of approximately 200 ft around these locations.

3.7.2 Existing Conditions

Whiteman AFB is permitted as a minor emission source, which means that the quantity of criteria pollutants and HAPs released across the base are below levels which require a Title V permit under the CAA. This status permits the base to conduct voluntary reporting and monitoring. Under the self-policing and self-reporting permit, the base keeps track of all stationary fuel consuming equipment, emission points, and paint or chemical use. The state reviews the base's monitoring once each year (USAF 2008b). There are no regulated emission sources located within ROI.

3.8 TRAFFIC AND TRANSPORTATION

3.8.1 Definition of Resource

Traffic and transportation resources include roadway and street systems. Information provided below is summarized from the 2008 Environmental Assessment of Capital Improvement Projects (USAF 2008b).

The ROI for traffic and transportation is defined as those roadways on Whiteman AFB that will transport vehicles and sediment between the Bear Lake Storm Water Retention Pond and the sediment storage/disposal area, as well as the sediment storage/disposal area itself.

3.8.2 Existing Conditions

Missouri State Route 23 (SR 23) separates the western portion of the base, including the WWTP and the golf course, from the main base (Figure 2). SR 23 provides access to the Spirit Gate, the main access point onto Whiteman AFB. Secondary access to the base is provided on a limited basis via the LeMay Gate located on the south side of the base and along Highway D. An arterial street network connects the installation gates with the residential areas

surrounding the Bear Lake Storm Water Retention Pond. The on-base roadway system is shown on Figure 2.

The proposed action will utilize existing on-base transportation infrastructure to transport heavy equipment from originating locations to the retention pond, and to transport excavated sediment from the dredging area (i.e., Bear Lake Storm Water Retention Pond) to the sediment storage/disposal area.

3.9 NOISE

3.9.1 Definition of Issue

Noise is generally defined as unwanted sound. Noise may be intermittent or continuous, steady or impulsive. Human response to noise is extremely diverse and varies according to the type of noise source, the sensitivity and expectations of the person, the time of day, and the distance between the source and the person. The decibel (dB) is the accepted unit of measurement for noise level and uses a logarithmic scale. Weighting and averaging are used to refine sound measurements. The *A-weighted decibel* (dBA) is an adjusted dB that corresponds to the range of normal human hearing. The *Average Day-Night Sound Level* (DNL) represents sound levels measured by totaling and averaging levels during a 24-hour period. Because background sound levels tend to be lower at night, people are usually more sensitive to sounds during that time. A "penalty" added to sound levels occurring at night hours takes this into account.

For the purposes of this EA, the ROI for noise is defined as the portion of Whiteman AFB east of Highway 23, south of Summit Drive, and west of Vandenburg Avenue plus the multifamily residential units north of Summit Drive between McConnell Lane and VandenBerg Avenue (Figure 4). The ROI thus includes noise-sensitive areas around the Bear Lake Storm Water Retention Pond and between the retention pond and the proposed sediment disposal area. The proposed disposal area, although designated as an outdoor recreational area, is not considered to be a noise-sensitive area because it is bordered by training areas, industrial land uses, and airfield operations.

3.9.2 Existing Conditions

At Whiteman AFB, military aircraft operations are the primary source of noise. The Base 2004 Air Installation Compatible Use Zones (AICUZ) study (USAF 2004) documents the noise environment on and surrounding the base resulting from aircraft operations and ground engine run-ups, and provides recommended compatible land use activities within different noise zones.

Existing noise levels within the ROI and within the proposed disposal area are below 65 DNL dB. Residential units and other noise-sensitive land uses are considered "normally acceptable" in areas exposed to noise of 65 DNL or under. Activities which generate noise below DNL 65 dB are typically not restricted by the base in these areas.

3.10 SAFETY

3.10.1 Definition of Issue

For the purposes of this EA, safety refers to protection of the on-ground population at Whiteman AFB, including airmen and their families, employees, contractors, and visitors.

Issues such as flight safety, explosive safety, and antiterrorism/force protection (AT/FP) are not related to the proposed action and are not discussed in the EA.

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires each Federal agency to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

The ROI for safety includes the Bear Lake Retention Pond and the buffer area between it and existing development, the roadways between the retention pond and the sediment storage/disposal area, and the sediment storage/disposal area itself.

3.10.2 Existing Conditions

Day-to-day operations and maintenance activities completed by the 509th BW and their tenants, like the activities in the proposed action, are performed in accordance with applicable USAF and Air Combat Control (ACC) safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health (AFOSH) requirements (USAF 2008b).

Because families of airmen live on base, Whiteman AFB always has children present. As part of a residential and open space area, Bear Lake Storm Water Retention Plan has open access to everyone on base. The proposed disposal area is within an area designated for outdoor recreation and has open access (USAF 2008b).

4.0 ENVIRONMENTAL CONSEQUENCES

This portion of the Environmental Assessment evaluates potential effects to the human environment from the proposed action and no action alternatives. As described in Section 2, the proposed action will remove accumulated sediments from the Bear Lake Storm Water Retention Pond, install retaining walls adjacent to family housing areas to the south and east, and periodically remove future sediment accumulations to maintain the facility.

4.1 LAND USE RESOURCES

4.1.1 Existing Land Use

4.1.1.1 Proposed Action

The proposed action is consistent with the intent of existing land use within the ROI. The proposed action will improve Bear Lake Storm Water Retention Pond water quality, thereby enhancing its use as a recreational resource for picnicking, hiking, bird watching, and fishing. The proposed action will therefore result in long term positive impacts to existing land use on Whiteman AFB.

The proposed action will result in minor, short term and temporary negative impacts to existing land use. These impacts include loss of recreational use of Bear Lake Storm Water Retention Pond during maintenance dredging activities and during construction of retaining walls. Nearby housing units will be temporarily exposed to noise and other disturbances

associated with operation of heavy equipment. No long-term negative impacts to existing land use are expected as a result of implementing the proposed action.

4.1.1.2 No Action Alternative

No short term impacts to land use will occur from implementation of the no action alternative. However, if proposed dredging maintenance of the pond does not occur, accumulating sediment will degrade surface water quality in the ROI. Therefore, the long-term risk of implementing the no action alternative is continuously degrading water quality, resulting in limited recreational utility of Bear Lake Storm Water Retention Pond to airmen and women and their families. The no-action alternative would result in long-term negative impacts to existing land use.

4.1.2 Visual Resources

4.1.2.1 Proposed Action

The proposed action will result in minor and temporary negative impacts on visual resources within the ROI, specifically in and directly adjacent to Bear Lake Storm Water Retention Pond during maintenance dredging and construction of retaining walls, and during disposal of the sediment at the sediment storage/disposal area. The use of heavy equipment will temporarily disrupt the intent of these areas as an aesthetic and visual resource.

The proposed action will result in long-term positive impacts to visual resources within the ROI. Maintenance dredging to remove sediment accumulation will help restore the retention pond to depths that reduce turbidity and do not support invasive plant species (see Section 4.4.1.2). Construction of the retaining walls will establish visual highlights consistent with the nearby developed landscape. No long term negative impacts to visual resources are expected as a result of implementing the proposed action.

4.1.2.2 No Action Alternative

Short and long-term impacts to visual resources resulting from implementation of the no-action alternative include continuously degrading water quality, increased turbidity, and presence/proliferation of invasive plant species in Bear Lake Storm Water Retention Pond. The no-action alternative would therefore result in long-term negative impacts to Bear Lake Storm Water Retention Pond as the primary visual resource within the ROI. Implementation of the no-action alternative would not result in any short or long-term impacts to the sediment storage/disposal area.

4.2 SOIL RESOURCES

4.2.1 Proposed Action

During dewatering, dredging, and retaining wall construction, short-term negative impacts to soil resources have potential to occur. Erosion and sedimentation impacts can result from disturbance to vegetative cover, disturbance of the soil surface, and/or compaction. Subsequently, local soils could be more susceptible to short-term erosion by wind and surface runoff. However, such potential effects will be prevented through utilization of appropriate BMPs. In addition, the equipment staging area and access path from a hard-surface road to and around Bear Lake Storm Water Retention Pond will be de-compacted if necessary following completion of the proposed action, thus avoiding long-term negative impacts to soil

resources. Potential adverse impacts to soil resources from inadvertent releases of contaminants, such as fuel and other petroleum products, and other fluids from vehicles and equipment are unlikely. Construction equipment utilized for maintenance dredging and construction of retaining walls will be subject to permit conditions and BMPs (Appendix A) which minimize the potential for releases of such fluids.

No impacts to soils within the disposal area are expected; sediment will be placed atop previously disturbed soils stabilized with planted herbaceous vegetation and/or weeds.

The NPDES permit requires a SWPPP for construction projects disturbing 1 ac or more of earth. Therefore, should ground disturbance exceed this threshold, Whiteman AFB will comply with the existing SWPPP for Whiteman AFB (USAF 2005). Storm water runoff and erosion will be managed as needed using BMPs such as earthen berms, sedimentation basins, vegetative buffers and filter strips, and spill prevention and management techniques. The proposed action also will be executed in compliance with the base Spill Prevention, Control, and Countermeasures Plan (SPCCP). All personnel will be trained in Whiteman AFB spill response procedures.

Long-term beneficial impacts to soil resources are expected as a result of implementing the proposed action. Construction of retaining walls will minimize potential for future soil erosion on the east and south sides of the retention pond.

4.2.2 No Action Alternative

No short-term impacts to soil resources would occur under the no action alternative.

However, the long-term risk of implementing the no action alternative includes streambank erosion along the east and south sides of Bear Lake Storm Water Retention Pond from the prevailing northerly and westerly winds.

4.3 WATER RESOURCES

4.3.1 Proposed Action

4.3.1.1 Groundwater and Surface Waters

The proposed action includes no activities such as the installation of groundwater extraction wells which would affect groundwater. Potential adverse impacts to groundwater are unlikely from inadvertent releases of contaminants, such as fuel and other petroleum products, and other fluids from vehicles and equipment. Construction equipment utilized for the dredging will be subject to BMPs (Appendices A and B) which minimize the potential for releases of such fluids. No effects to groundwater are expected.

The proposed action alternative will have a long-term beneficial impact on surface waters in Bear Lake Storm Water Retention Pond through removal of accumulated sediment and shoreline protection through construction of retaining walls. The proposed action alternative will also have a long-term beneficial impact on the stream on which the pond was created by reducing sediment loads and dampening flood flows when heavy storm events occur. Furthermore, in the event of a catastrophic dam failure, the level of destruction of the downstream aquatic habitat would be substantially decreased by the implementation of the proposed action.

Short-term negative impacts to water quality within the retention pond would result from implementation of the proposed action, as substantial quantities of sediment will be released into the pond during the dredging. Following dredging, the sediment will be allowed to settle before water is released into the stream below the dam. Potential adverse impacts to water in the pond are unlikely from inadvertent releases of contaminants, such as fuel and other petroleum products, and other fluids from vehicles and equipment. Construction equipment utilized for the dredging will be subject to BMPs and other permit conditions (Appendices A and B) which minimize the potential for releases of such fluids.

Implementation of specific permit conditions and BMPs and adherence to Regulatory Requirements would be required for implementation of the proposed action alternative. Whiteman AFB will comply with the terms of its NPDES General Permit for Surface Water Discharge Associated with Construction Activity and with the terms of the Section 404 Permit (and all associated conditions) required under the CWA. During construction Whiteman AFB will use BMPs as discussed in Section 4.1.1 as well as implement all conditions itemized in the CWA Individual Permit. Long-term surface water protection will be accomplished by implementing BMPs and the SPCCP. Implementation of the permit conditions and BMPs would ensure impacts to the surface water resources within the ROI are maintained at *less-than-significant* levels.

4.3.2 No Action Alternative

No short-term impacts to water resources will occur from implementation of the no action alternative. However, in the event of a catastrophic dam failure, implementing the no action alternative would result in the release of substantial quantities of sediment and nutrients now retained by the pond. If proposed maintenance of the pond does not occur and the dam was to fail, the geomorphic response would affect upstream and downstream areas. In the event of a dam failure, substantial sediment and nutrient loads would be transported below the dam. This sediment would degrade surface water quality in the ROI. The release of heavy sediment loads would likely occur during all times when water was flowing into the pond from its watershed (i.e., during any storms), and the degradation of downstream water quality would continue over time.

4.4 BIOLOGICAL AND WETLAND RESOURCES

4.4.1 Proposed Action

4.4.1.1 Vegetation and Wildlife

The proposed action will have adverse short-term impacts to both common vegetation and common wildlife within the ROI. By the very nature of the proposed action the following vegetation will be removed or otherwise affected during implementation of the proposed action:

Approximately 1.8 ac	*Emergent aquatic vegetation*, primarily the aggressive *Typha sp*. (cattail) in shallow areas in the southern portion of the pond and along the periphery of the remaining portions of the pond
Less than 100 individuals	Small trees and shrubs (surrounding pond)
Approx. 2 ac	*Maintained grass* (equipment staging area)
Approx. 1 ac	Erosion control mix and weeds (disposal area)

The approximately 1.8 ac of emergent vegetation will be removed as the sediment it depends upon is dredged and removed from the pond. As sediment begins to accumulate in the years following the dredging, this emergent vegetation could return.

The small trees and shrubs at the ponds east and south edge will likely be removed during dredging and construction of the retaining walls. In the following years, this woody vegetation may return to the narrow strip along the water where it is commonly too wet for bush hogs and lawn mowers to access.

The equipment staging area and access path from a hard-surface road to, and around the pond will encompass less than approximately 2 ac. Vegetation in these areas consists of horticultural varieties of turf grass, weeds, and volunteer herbaceous species. This area will be de-compacted if necessary, and will be reseeded in accord with applicable BMPs (USAF 2005).

Sediment will be placed in the disposal area atop disturbed soil already stabilized with planted herbaceous vegetation and/or weeds. These herbaceous species are likely nearly identical to the erosion control seed mix which will be used to stabilize the sediment in the disposal area, and the volunteer herbaceous species (weeds) which will naturally occur there.

Implementation of the proposed action would have a short-term adverse effect on fish and other aquatic species that currently inhabit the open water/aquatic habitat in the pond. Some fish, which are the result of previous stocking, and other aquatic species (e.g., amphibians) may be injured and/or killed during dewatering and dredging although loss of fishes will be minimized via their pre-dredging relocation.

The dredging operations would temporarily disturb nearby wildlife species sensitive to noise generated by the dewatering operations and dredging, and loading of the sediment into trucks for transport. This would be a short-term, temporary impact, with no anticipated long-term effects on wildlife or waterfowl. In addition, avian species including waterfowl, and terrestrial wildlife in the immediate vicinity of the lake are adapted to urban conditions, are accustomed to frequent disturbances caused by current construction activities and recreational use of the areas around the lake, and are expected to be less sensitive to man-made disturbances. Wildlife species which are mobile will simply move away from the area of disturbance and return when the disturbance ceases. The proposed action is not anticipated to extirpate local wildlife populations.

Following completion of the project, aquatic wildlife including fish will have additional open water habitat available to them relative to pre-project conditions. Bear Lake Storm Water Retention Pond will be re-stocked with fish though implementation of a multi-year fish re-stocking program. Project implementation will enhance the sediment-removal function of the retention structure, and thereby deliver enhanced water quality to downstream portions of the ROI relative to conditions likely if the no action alternative is implemented.

4.4.1.2 Wetlands

The proposed action would have an adverse impact on the approximately 1.6 ac of wetland area (USACE 2009, Appendix F) within the southern (upstream) portion of the retention pond. For purposes of this assessment it is assumed most of the sediment and vegetation will be removed from the entire 1.6-ac area. Following project implementation, the increased water depth would likely result in the beneficial elimination of invasive plants (e.g., cattails) in the areas currently occupied by transient wetland and associated vegetation.

Short-term adverse impacts may also occur to the approximately 1.0 ac of fringe wetlands (USACE 2009, Appendix F) around the perimeter of the northern portion of the retention pond during dewatering and dredging activities.

Implementing the proposed action would avoid impacts to wetlands more likely to occur under the no action alternative including: breeching of the dam which would cause loss of wetlands in the pond area due to the decreased wetland hydrology as the creek incises through accumulated sediment and the dam to reach the base stream level. The proposed action would also avoid impacts of heavy sediment deposition in downstream wetlands along the stream should the dam breech.

There is no practical alternative to removing the accumulated sediment if the retention pond is to continue to function as a storm water facility. To remove this sediment, wetland impact is unavoidable, and therefore a FONPA is appropriate. Mitigation for this wetland loss includes the purchase of off-site mitigation bank credits for 2.2 acres of wetlands from the Sni-A-Bar Mitigation Bank (Appendix A). Mitigation for this wetland loss also includes minimizing vegetation damage/loss, and preventing fuels reaching the wetland soils through appropriate and required BMPs. A detailed description of proposed mitigation is included in Section 2.6 and Appendix A.

Following implementation of the proposed action sediment will again begin accumulating in the pond, and emergent wetland vegetation could colonize the southern portion of the pond, and emergent herbaceous and woody wetland plants will likely become re-established along the fringe of the pond.

4.4.2 No Action Alternative

No short-term impacts to vegetation, threatened and endangered species, or wetlands would occur under the no action alternative.

However, implementation of the no action alternative would result in the continued degradation of the retention pond's biological resources due to sediment accumulation. Furthermore, fish and wildlife resources would continue to be adversely affected by the decrease in open water habitat, increased water temperature due to the water's minimal depth, and overall diminishing water quality in the retention pond and in the stream below the dam.

However, in the event of a catastrophic dam failure, implementing the no action alternative could result in the release of substantial quantities of sediment and nutrients now retained by the pond. If proposed maintenance of the pond does not occur and the dam were to breech, the stream flowing through the pond could rapidly incise in the area of the pond, a headcut could be established, and the stream would carry substantial sediment loads below the dam. This sediment would degrade stream-side wetlands below the dam. The release of heavy sediment loads would likely occur during all times when water was flowing into the pond from its watershed (i.e., during any storms), and the degradation of downstream water quality would continue over time. The incised stream cutting through the accumulated sediment in the pond would reduce surface and groundwater levels and wetlands currently present in and around the fringe of the pond would be lost as the wetland hydrology changes.

4.5 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

4.5.1 Proposed Action

Under the proposed action alternative, no significant adverse effects are anticipated with respect to hazardous materials and waste management. Impacts associated with implementation of the proposed action will be kept at insignificant levels through implementation of and adherence to standard BMPs and permit conditions. Implementation of the proposed action will not substantially affect the base's hazardous materials storage and handling procedures, hazardous waste disposal processes, or pesticide waste program.

The proposed action will produce short-term minor increases in the handling, storage, use, transportation, and disposal of hazardous materials and hazardous waste associated with operating construction equipment. The anticipated increases will result from vehicle and equipment use, dredging, and construction of the retaining walls. These activities will result in minor increases in consumption of operating fluids, including fuel, and maintenance materials.

The sediment to be removed from the retention pond was tested for pesticides and metals. No pesticides were detected, and the only metal detected (above the relative reporting limits) was barium. However, the levels of barium detected were well below those levels the action levels dictated by MDNR. Therefore, there will be no impacts relating to the disposal of contaminated sediment from the proposed action.

4.5.2 No Action Alternative

Standard BMPs and Base compliance activities would remain in place under the no action alternative. Implementation of the no action alternative is expected to result in no impact from hazardous materials or hazardous waste.

4.6 SOCIOECONOMICS

4.6.1 Proposed Action

Implementation of the proposed action is expected to result in minor short term positive impacts on socioeconomics within the ROI. Short-term impacts include creation of private sector jobs associated with maintenance dredging and construction of retaining walls, positively affecting local employment, household income(s), and potential spending in local markets.

The proposed action would not displace businesses, increase enrollment in area schools, increase permanent population, increase the need for permanent housing, or disproportionately affect children.

4.6.2 No Action Alternative

Implementation of the no action alternative would not affect socioeconomic resources within the ROI; however, temporary jobs created as a result of implementing the proposed action would not be created.

4.7 AIR QUALITY

4.7.1 Proposed Action

There will be minor, temporary impacts to air quality as a result of the project, primarily from fugitive dust and vehicular engine emissions. Air emissions generated from the proposed action would have minor direct, short-term adverse impacts to the existing air quality environment in the ROI. However, no significant adverse effects to local or regional air quality are anticipated.

Air quality impacts from a proposed activity or action would be significant if they increase ambient air pollution concentrations above any NAAQS; contribute to an existing violation of any NAAQS; interfere with or delay timely attainment of NAAQS; or impair visibility within any federally mandated Federal Class I Area. According to the USEPA's General Conformity Rule (40 CFR Part 51, Subpart W), any proposed federal action that has the potential to cause violations in a NAAQS non-attainment or maintenance area must undergo a conformity analysis. However, as described in Section 3.7, Whiteman AFB is located in a full attainment area and no conformity analysis is needed.

Dredging, dewatering, and retaining wall construction equipment will create minor temporary impacts to air quality in the vicinity of the project. The primary source of air emissions will be the various equipment used to dredge and transport the sediment to the disposal site. Diesel engines are common on the excavators and the dump trucks used to transport sediment. Carbon emissions from the trucks and other equipment will depend upon the amount of fuel used, the type of fuel used, engine maintenance and condition, and the number of vehicle miles traveled.

A temporary, minor increase in fugitive dust from construction and traffic within the ROI is expected. The amount of fugitive dust will depend upon the dryness of the sediments and soils at the time they are disturbed. Whiteman AFB will ensure that dust control associated with project implementation is conducted in accordance with state and local requirements. To minimize the potential for adverse air quality impacts, Whiteman AFB will implement procedures for ensuring the consistent usage of the following typical dust control BMPs, as needed (see Section 2.6).

4.7.2 No Action Alternative

Under the no action alternative, no air quality impacts would occur.

4.8 TRAFFIC AND TRANSPORTATION

4.8.1 Proposed Action

Minor and intermittent negative short-term impacts to traffic and transportation on Whiteman AFB roadways will result during implementation of the proposed action. This will result from slowed traffic resulting from heavy equipment use of roadways during project activities. On Whiteman AFB, temporary increases in heavy equipment and truck traffic has the potential to affect other routine base operations. Whiteman AFB personnel will coordinate operations to avoid mission conflicts. No long-term negative or positive impacts to traffic and transportation will occur as a result of implementing the proposed action.

4.8.2 No Action Alternative

Under the no action alternative, no impacts to traffic and transportation would occur.

4.9 NOISE

4.9.1 Proposed Action

Under the proposed action, minor, short-term, adverse effects to noise-sensitive receptors within the ROI may occur. Sources of potential elevated noise levels include the dredging equipment and the trucks used to transport the dewatered material for placement. Noise levels generated by dredging operation will vary according to the size and type of the equipment used.

The short-term adverse impact of the noise generated by the project will be dependent upon the time of day (people are more sensitive to noise at night) and the distance from the source. At distances greater than 50 ft from a point source such as the dredging equipment, doubling the distance decreases the noise by approximately 6 dB. Generally speaking, peak noise levels within 50 ft of active construction areas and material transportation routes would most likely be considered "striking" or "very loud." At approximately 200 ft, peak noise levels would be loud, approximately comparable to a garbage disposal or vacuum cleaner at 10 ft. Further than 1,000 ft, construction noise levels would generally be considered insignificant, although transient noise levels may be noticeable. The nearest noise sensitive receptors (i.e., houses to the west of the Bear Lake Storm Water Retention Pond) are approximately 150 ft from the dredging equipment point source. However, most of the noise sensitive receptors (i.e., the housing development which surrounds the Bear Lake Storm Water Retention Pond) are greater than 200 ft from the dredging equipment point source.

Use of protective gear will avoid adverse effects of noise exposure by workers during construction. To meet standard accepted noise levels (above which long-term hearing damage may occur) of 85 dB, a minimum 90 ft buffer zone around the construction site will be maintained. At distances less than this, hearing-protective gear will be used by workers during construction.

For other sources of sound exposure, controlling the hours of operation is the best available method to avoid or reduce adverse noise effects from the dredging operation. BMPs will be implemented to ensure that no construction work will take place at night, therefore reducing the impact on the adjacent noise sensitive receptors within the ROI.

4.9.2 No Action Alternative

Implementation of the no action alternative would have no effects on the current local noise environment. Training and operations at Whiteman AFB would continue under current conditions at current locations and levels.

4.10 SAFETY

4.10.1 Proposed Action

The base is fully enclosed by a perimeter fence, and no effect on public health and safety outside of the installation boundary is anticipated.

A temporary and short term adverse effect of implementing the proposed action will be an increase in traffic-related safety concerns within the ROI.

The Bear Lake Storm Water Retention Pond is adjacent to family housing and normally accessible to children. The proposed dewatering and dredging operations would be a curiosity that could attract attention and pose a disproportionate risk to children. However, access to the in-progress maintenance operations will be restricted and secured through fencing and locked gates or guard. As such, no disproportionate risks to children are anticipated.

4.10.2 No Action Alternative

The no action alternative would have no effect on base safety.

5.0 CUMULATIVE EFFECTS

As defined by CEQ regulations in 40 CFR Part 1508.7, cumulative impacts are those which "result from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions, without regard to the agency (federal or non-federal) or individual who undertakes such other actions." Cumulative impact analyses capture the effects that result from the proposed action(s) in combination with the effects of other past, ongoing, and reasonably foreseeable future actions in the same geographic area. NEPA requires the analysis of cumulative environmental effects of a proposed action, or set of actions, on resources that may often be manifested only at the cumulative level, such as traffic congestion, air quality, noise, biological resources, cultural resources, utility system capacities, and others. This document assesses the cumulative impacts of each of the affected environment resources, namely land use, soil resources, water resources, biological and wetland resources, hazardous materials and management, socioeconomics, air quality, traffic and transportation, noise, and safety.

An effort has been made to identify all actions that are being considered or that are in the planning phase at this time. To the extent that details regarding such actions exist and the actions have a potential to interact with the proposal, these actions are included in the cumulative analysis. Recent past and ongoing military action in the area were considered as part of the baseline or existing conditions. This includes construction of military family housing in the area (USAF 1996b). As noted in the discussion of existing conditions, the impervious surfaces created by the housing area potentially produces storm water quantity and quality issues. The retention pond protects the natural environment from the potential degradational processes related to the impervious surfaces. The proposed action when considered in conjunction with the housing project would have beneficial cumulative consequences on soil resources, water resources, and biological and wetland resources.

Whiteman AFB operates under a General Plan that formalizes the USAF's vision for developing Whiteman AFB to fulfill its military training role. Proposed development projects are listed, prioritized, and given a preliminary location based on projected use and known environmental constraints. The vision outlined within the Whiteman AFB Master Plan will include a long-range plan, extending out 10 or more years. The continuing use of the Bear Lake Storm Water Retention Pond as a recreational area is consistent with the General Plan. The areas within the watershed that drain to the retention pond are already fully developed or are being developed under existing projects. No negative cumulative effects are anticipated as a result

of the implementation of the proposed action in combination with past, present, or reasonably foreseeable projects.

6.0 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

CEQ guidelines (40 CFR Part 1502.16) specify that environmental analyses must address "…the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity." Special attention should be given to impacts that narrow the range of beneficial uses of the environment in the long-term or pose a long-term risk to human health or safety. This section evaluates the short-term benefits of the proposed action compared to the long-term productivity derived from not pursuing the proposed action. Short-term effects to the environment are generally defined as a direct consequence of a project in its immediate vicinity. Short-term benefits of the proposed action include protection and enhancement of water quality, protection of wetlands and aquatic resources below the Bear Lake dam, improved recreational opportunities, and minor short term socioeconomic benefits. Protection of long-term productivity is one of the key attributes of the proposed action in that it allows for periodic maintenance of the storm water retention pond such that short term benefits realized through implementation of the proposed action are repeated over time, and result in benefits and protection of the human environment over the long term.

7.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action.

Because the proposed action is maintenance of an existing structure designed to benefit the environment, few issues involving irreversible and irretrievable commitment of resources are of concern. Non-renewable fuels and other petroleum products will be expended by earthmoving equipment, but the expenditure is minor, and it is reasonable to expect that if a contractor weren't completing the earthmoving activities on Whiteman AFB, their equipment would be put to use on another project with similar expenditures of non-renewable petroleum products. The retaining walls would be built of an abundant natural product (limestone), which can be considered a resource which is renewable over geologic time.

All natural resources subject to the non-significant effects caused by implementation of the project, will recover over time and benefits of these resources will be available for future generations.

8.0 LIST OF PREPARERS

<u>Whiteman AFB</u>

Glenn Golson
Natural Resources Manager

BHE Environmental, Inc.

David Bell, PhD
Doctor of Philosophy in Ecology
Years of Experience: 13

Christa Stumpf
Masters of Science in Forest Resources and Land Use Planning
Years of Experience: 14

Michael Ellison
Bachelor of Science in Geology
Years of Experience: 20

Rebecca Sabraoui, AICP
Bachelor of Science in Engineering (Chemical)
Years of Experience: 16

Becky A. Braeutigam
Master of Science in Zoology
Years of Experience: 4

9.0 LITERATURE CITED

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FIGURES

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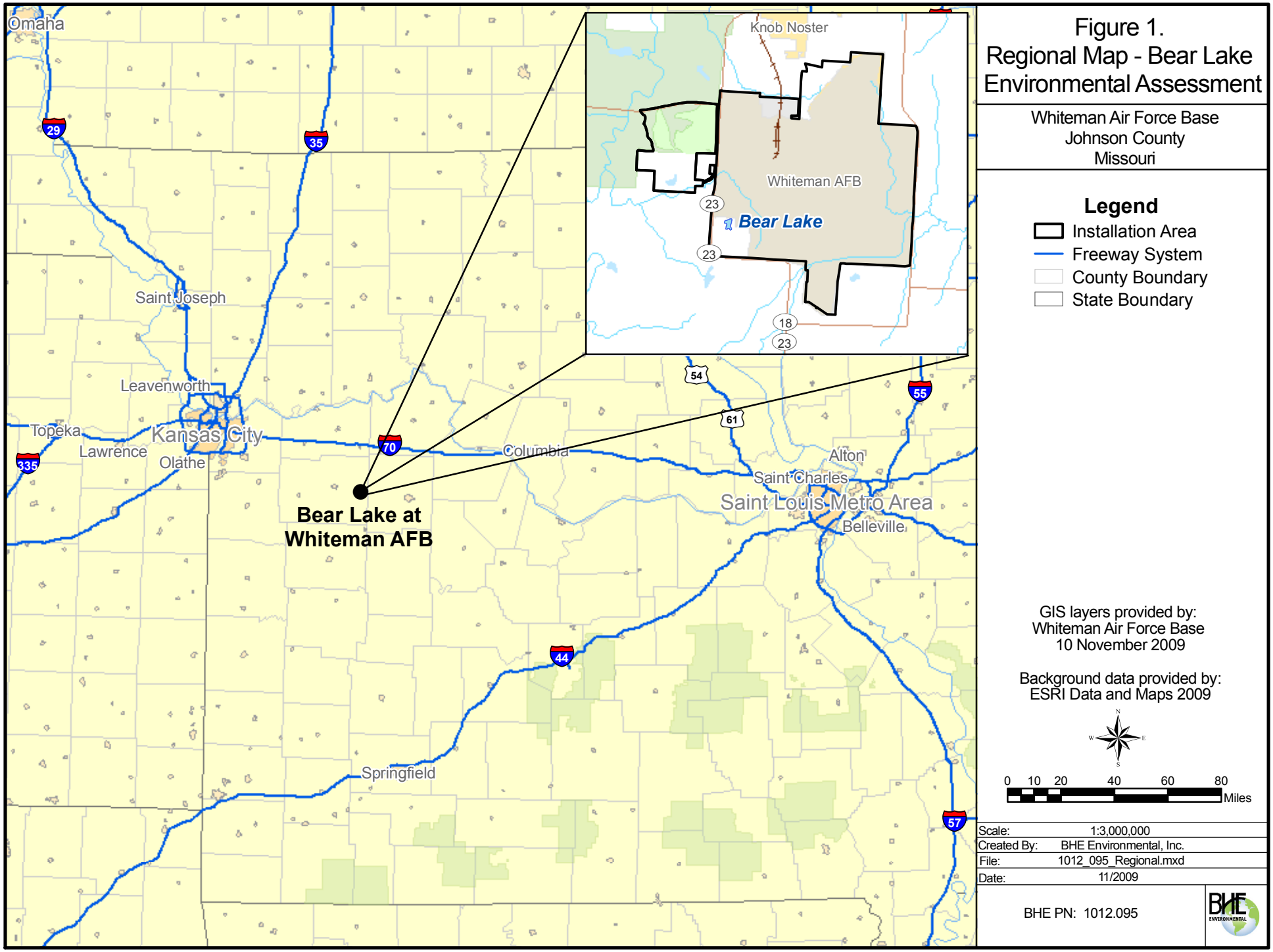

Figure 1.
Regional Map - Bear Lake
Environmental Assessment

Whiteman Air Force Base
Johnson County
Missouri

Legend

- Installation Area
- Freeway System
- County Boundary
- State Boundary

GIS layers provided by:
Whiteman Air Force Base
10 November 2009

Background data provided by:
ESRI Data and Maps 2009

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Miles

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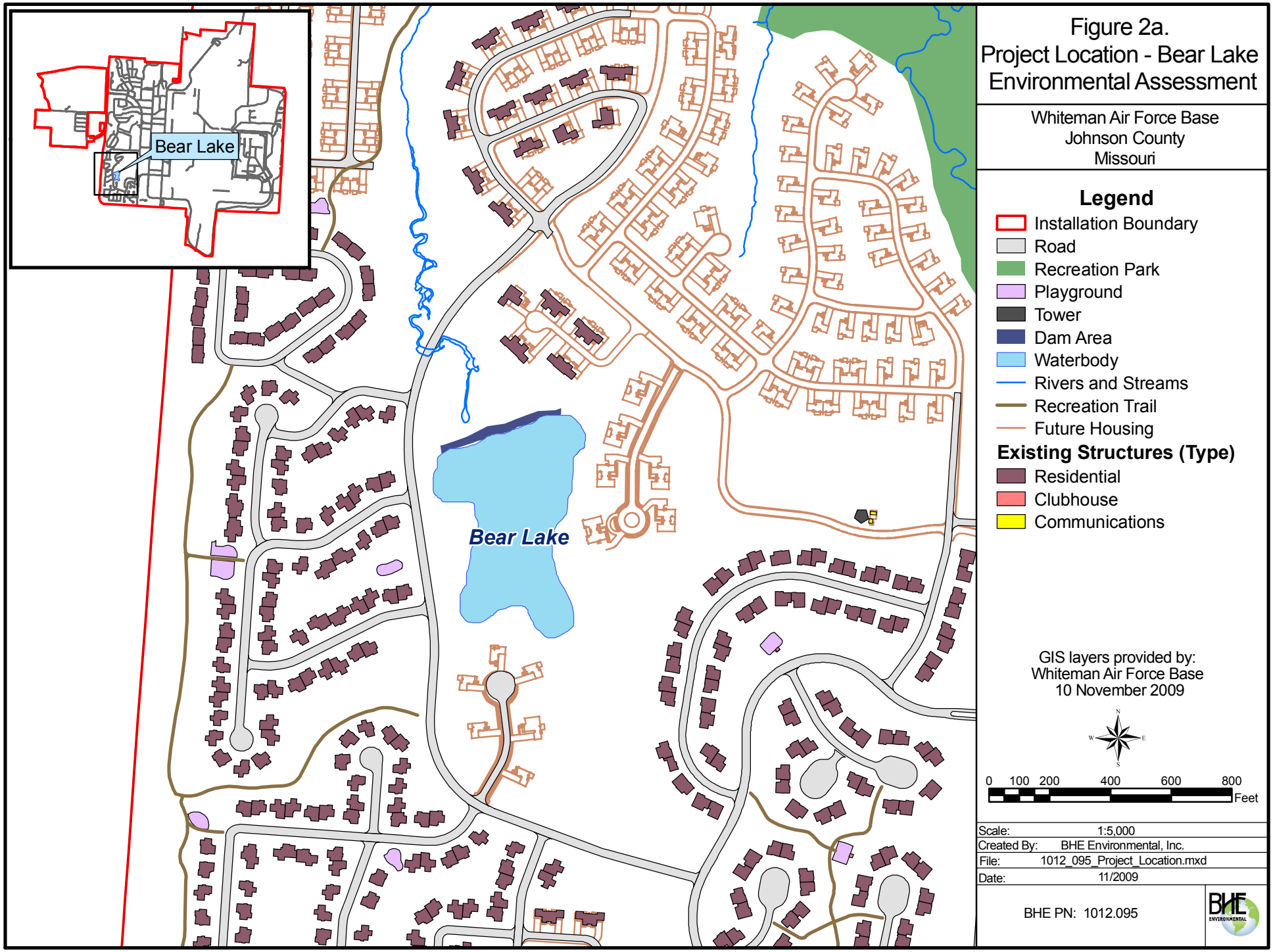

Figure 2a.
Project Location - Bear Lake
Environmental Assessment

Whiteman Air Force Base
Johnson County
Missouri

Legend

- Installation Boundary
- Road
- Recreation Park
- Playground
- Tower
- Dam Area
- Waterbody
- Rivers and Streams
- Recreation Trail
- Future Housing

Existing Structures (Type)

- Residential
- Clubhouse
- Communications

GIS layers provided by:
Whiteman Air Force Base
10 November 2009

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BHE PN: 1012.095

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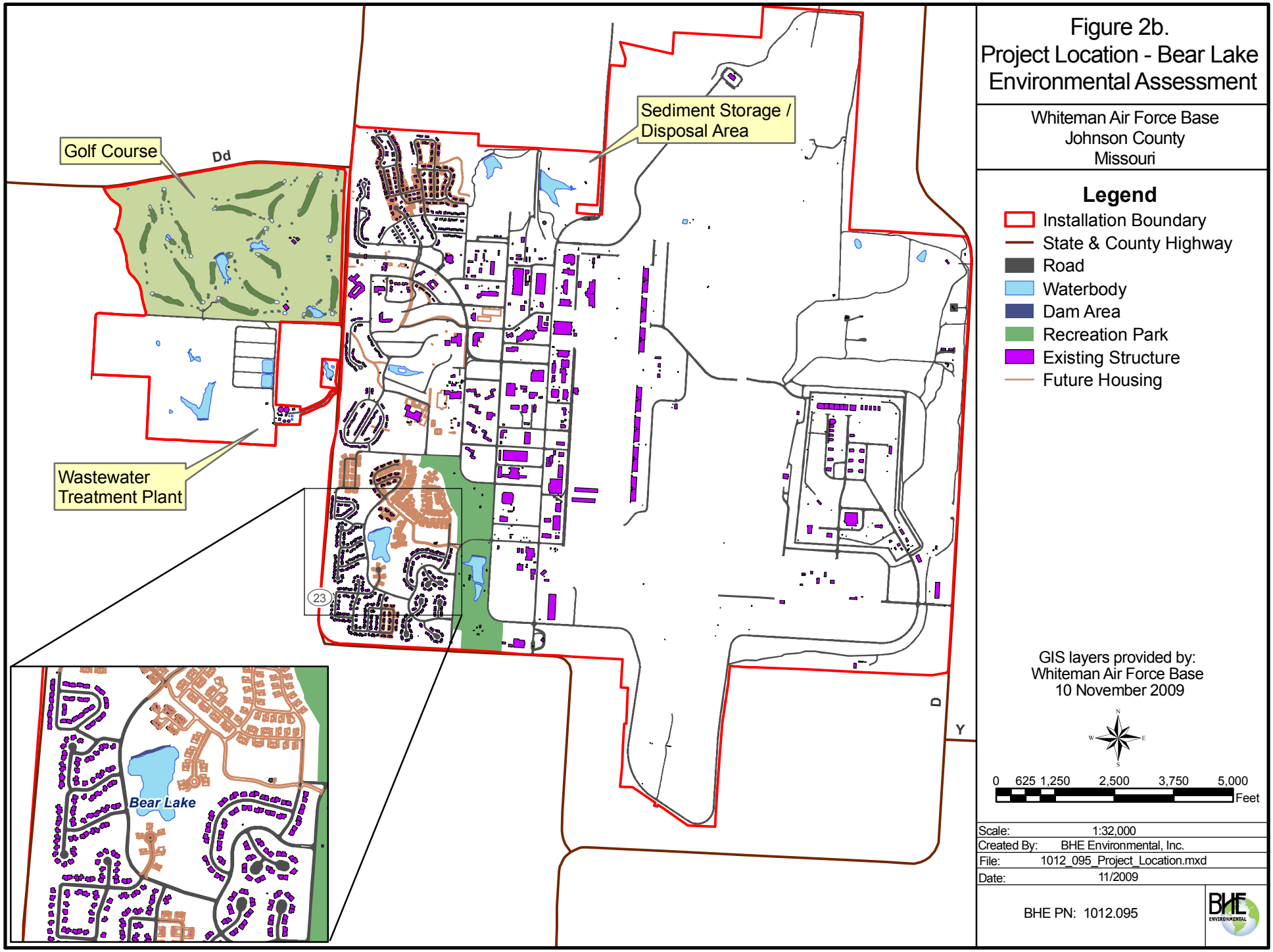

Figure 2b.
Project Location - Bear Lake Environmental Assessment

Whiteman Air Force Base
Johnson County
Missouri

Legend

- Installation Boundary
- State & County Highway
- Road
- Waterbody
- Dam Area
- Recreation Park
- Existing Structure
- Future Housing

GIS layers provided by:
Whiteman Air Force Base
10 November 2009

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Feet

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File:	1012_095_Project_Location.mxd
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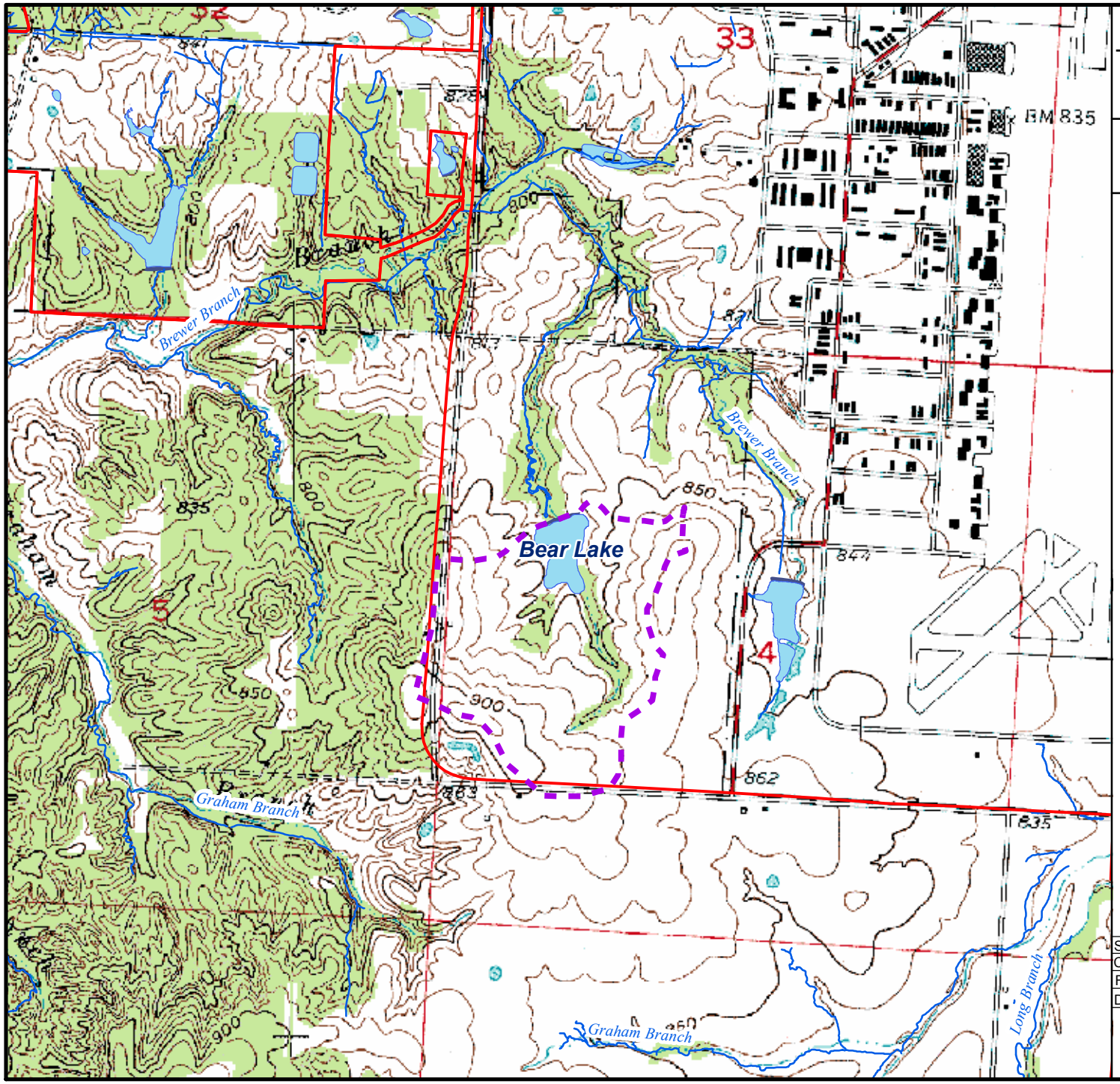

Figure 3.
Topographic Map - Bear Lake Environmental Assessment

Whiteman Air Force Base
Johnson County
Missouri

Legend

- Installation Boundary
- Dam Area
- Drainage Area
- Waterbody
- Rivers and Streams

GIS layers provided by:
Whiteman Air Force Base
10 November 2009

Topographic map provided by:
USGS - Burtville Quad

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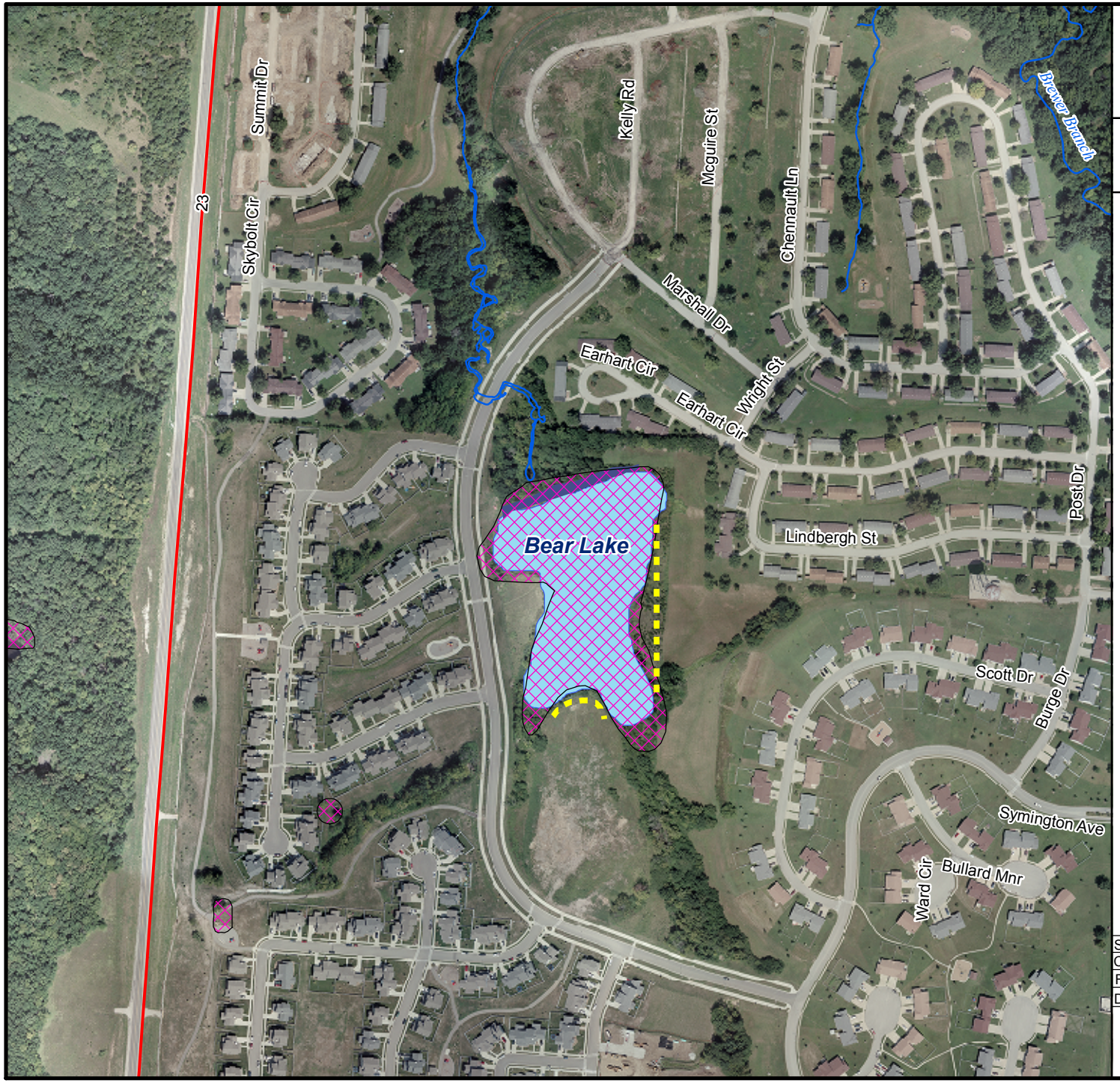

Figure 4.
Aerial Map - Bear Lake Environmental Assessment

Whiteman Air Force Base
Johnson County
Missouri

Legend

- Installation Boundary
- Dam Area
- Waterbody
- Rivers and Streams
- Proposed Retaining Wall (Approximate Location)
- Freshwater Pond (NWI)

GIS layers and aerial provided by:
Whiteman Air Force Base
10 November 2009

Wetland data provided by:
U.S. FWS National Wetland Inventory

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Feet

Scale:	1:5,000
Created By:	BHE Environmental, Inc.
File:	1012_095_Aerial.mxd
Date:	11/2009

BHE PN: 1012.095

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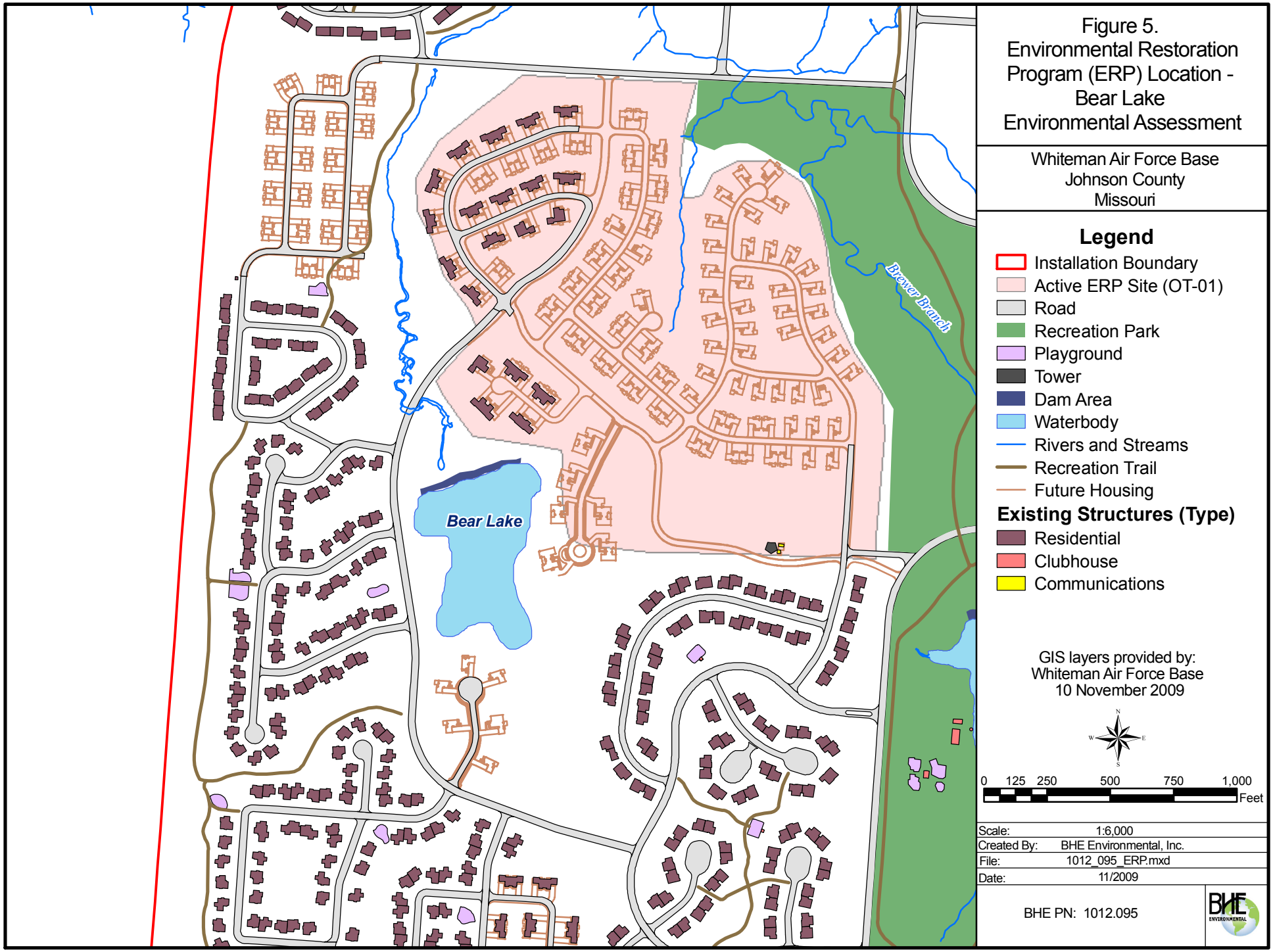

Figure 5. Environmental Restoration Program (ERP) Location - Bear Lake Environmental Assessment

Whiteman Air Force Base
Johnson County
Missouri

Legend

- Installation Boundary
- Active ERP Site (OT-01)
- Road
- Recreation Park
- Playground
- Tower
- Dam Area
- Waterbody
- Rivers and Streams
- Recreation Trail
- Future Housing

Existing Structures (Type)

- Residential
- Clubhouse
- Communications

GIS layers provided by:
Whiteman Air Force Base
10 November 2009

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File:	1012_095_ERP.mxd
Date:	11/2009

BHE PN: 1012.095

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APPENDIX A

Whiteman AFB 2010 Clean Water Act Section 404 Individual Permit

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DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, KANSAS CITY DISTRICT
635 FEDERAL BUILDING
601 E 12TH STREET
KANSAS CITY MO 64106-2824

REPLY TO
ATTENTION OF

CENWK-OD-R

19 July 2010

MEMORANDUM FOR 509 CES/CEAN, 660 10th Street, Suite 125, Whiteman AFB, MO 65305

SUBJECT: Permit Application No. 2009-1568 for Bear Lake located at Whiteman Air Force Base (AFB)

1. Permit No. NWK-2009-1568 has been executed. One copy is enclosed for your records and one copy has been retained for our files. When you are ready to begin work, it is necessary that you contact Brian Donahue at (816) 389-3703 to ensure all permit conditions have been met before proceeding with work within jurisdictional waters of the U.S. at the project site.

2. Special condition "a" of the permit requires you to sign and return the enclosed "Compliance Certification" upon completion of the authorized work and required mitigation.

Sincerely,

for
David R. Hibbs
Regulatory Program Manager
Regulatory Branch

Enclosures

Copies Furnished (electronically w/enclosures):

Environmental Protection Agency,
Watershed Planning and Implementation Branch
U.S. Fish and Wildlife Service,
Columbia, Missouri
Missouri Department of Natural Resources,
Water Protection Program
Missouri Department of Conservation

DEPARTMENT OF THE ARMY PERMIT

Permittee Whiteman Air Force Base

Permit No. NWK-2009-1568

Issuing Office U.S. Army Engineer District, Kansas City

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below, and with the plans and drawings attached hereto which are incorporated in and made a part of this permit.

Project Description: The removal and disposal of accumulated sediments from the lake and the construction of retaining walls along 750 feet of the lake shoreline. An estimated 30,000 cubic yards of sediment would be removed, ranging in depths from 3-6 feet. Sediment removed from Bear Lake would be hauled to an existing upland holding site elsewhere on base property Approximately 550 linear feet of retaining wall will be constructed along a portion of the east side of the lake and an additional 200 linear feet will be constructed along the south side of the lake. The retaining walls would be constructed to a depth two feet below the normal pool elevation of the lake and have approximately 2 feet of free board to the top of the wall.

Permit Drawings: Location map, plan view, cross section, Sheets 3 of 3, dated 1July 2010

Project Location: In Section 4, Township 45 north, Range 24 west, Johnson County, Missouri.

(38.7208 / -93.5744)

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on 31 December 2012. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

See continuation sheets, pages 4 and 5, of this document.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorization required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Glenn S. Golson — 13 Jul 10

(PERMITTEE) (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

for D. R. Bibb — 19 July 2010

(DISTRICT ENGINEER) (DATE)
ROGER A. WILSON, JR., COLONEL
BY: DAVID R. HIBBS, REULATORY PROGRAM MANAGER

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) (DATE)

Special Conditions:

a. You must sign and return a "Compliance Certification" after you complete the authorized work and any required mitigation. Your signature will certify that you completed the work in accordance with this permit, including general and specific conditions, and that any required mitigation was completed in accordance with the permit conditions.

b. You must mitigate for the impact of the project to wetlands by the purchase of wetland mitigation credit in the amount of 2.2-acres from an approved mitigation banking authority within the service area of this project. Written verification to this office that credits have been purchased must be received prior to beginning work in waters of the U.S.

c. Your responsibility to complete the required compensatory mitigation as set forth in Special Condition " b" will not be considered fulfilled until you have received written verification from the U.S. Army Corps of Engineers.

d. If any part of the authorized work is performed by a contractor, before starting work you must discuss the terms and conditions of this permit with the contractor; and, you must give a copy of this entire permit to the contractor.

e. You must use clean, uncontaminated materials for fill in order to minimize excessive turbidity by leaching of fines, as well as to preclude the entrance of deleterious and/or toxic materials into the waters of the United States by natural runoff or by leaching.

f. You must dispose of excess concrete and wash water from concrete trucks and other concrete mixing equipment in a non-wetland area above the ordinary high water mark and at a location where the concrete and wash water cannot enter the water body or an adjacent wetland area.

g. You must excavate, dredge and/or fill in the watercourse in a manner that will minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation.

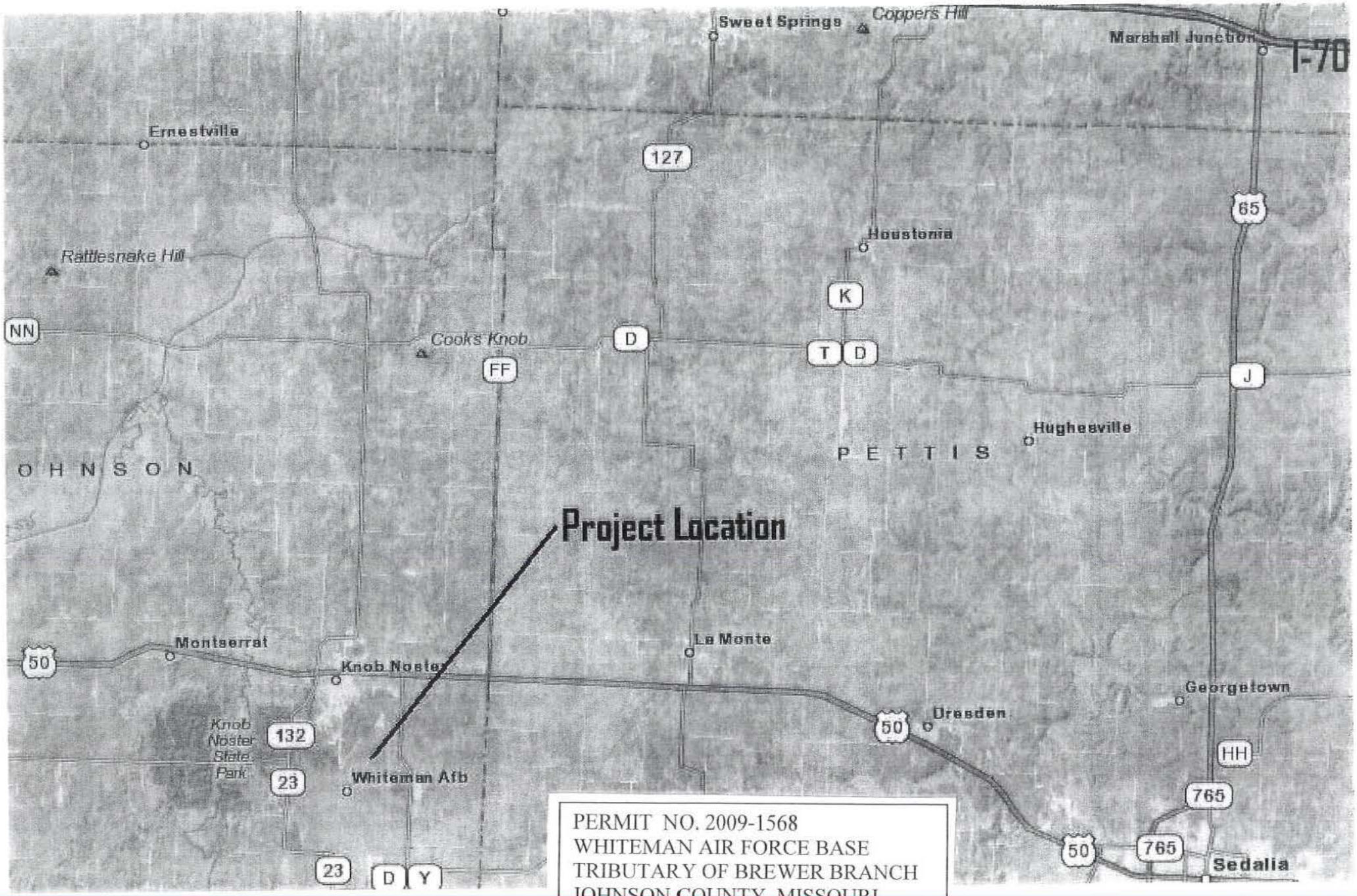
h. You must immediately remove and properly dispose of all debris during every phase of the project in order to prevent the accumulation of unsightly, deleterious and/or toxic materials in or near the water body.

i. You must not dispose of any construction debris or waste materials below the ordinary high water mark of any water body, in a wetland area, or at any location where the materials could be introduced into the water body or an adjacent wetland as a result of runoff, flooding, wind, or other natural forces.

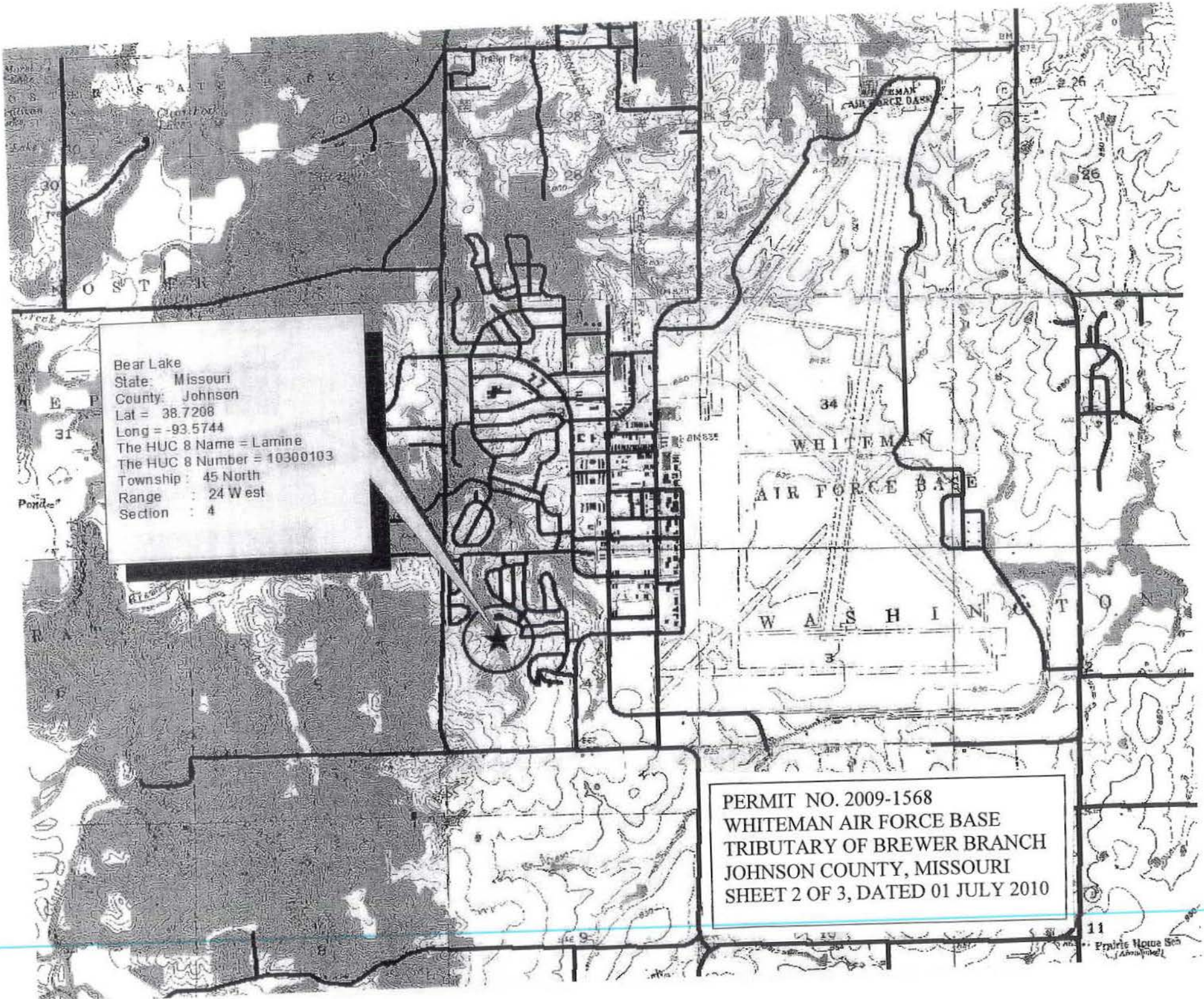
j. You must store all construction materials, equipment, and/or petroleum products, when not in use, above anticipated high water levels.

k. You must restrict the clearing of timber and other vegetation to the absolute minimum required to accomplish the work. Clearing, grading and replanting should be planned and timed so that only the smallest area necessary is in a disturbed, unstable or unvegetated condition.

l. Upon completion of earthwork operations, you must seed, replant or otherwise protect from erosion all fills in the water or on shore, and other areas on shore disturbed during construction. If seeding does not successfully vegetate the disturbed areas by the end of the first growing season, you must implement alternate measuresto protect the disturbed areas from further erosion. You must contact the Kansas City District, Regulatory Branch prior to beginning work on any additional erosion control measures so that a determination can be made whether further authorization is required.

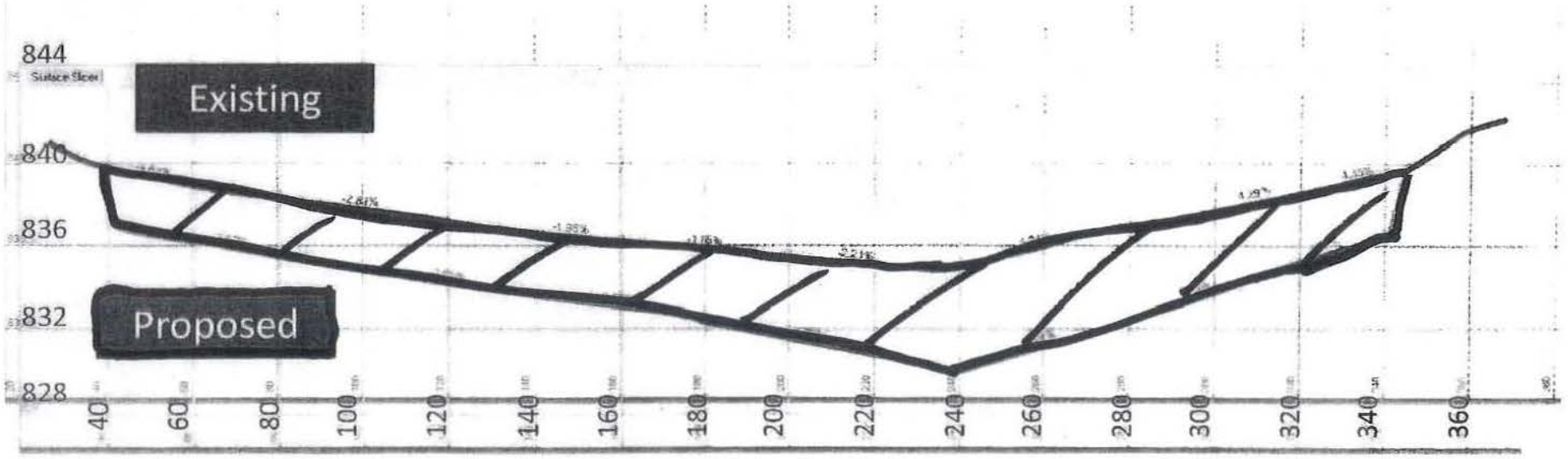


PERMIT NO. 2009-1568
WHITEMAN AIR FORCE BASE
TRIBUTARY OF BREWER BRANCH
JOHNSON COUNTY, MISSOURI
SHEET 1 OF 3, DATED 01 JULY 2010


Bear Lake
State: Missouri
County: Johnson
Lat = 38.7208
Long = -93.5744
The HUC 8 Name = Lamine
The HUC 8 Number = 10300103
Township : 45 North
Range : 24 West
Section : 4
WHITEMAN
AIR FORCE BASE
WASHINGTON
PERMIT NO. 2009-1568
WHITEMAN AIR FORCE BASE
TRIBUTARY OF BREWER BRANCH
JOHNSON COUNTY, MISSOURI
SHEET 2 OF 3, DATED 01 JULY 2010

VIEW TO SOUTH/UPSTREAM
AT THE MIDPOINT

Bear Lake Contours



PERMIT NO. 2009-1568
WHITEMAN AIR FORCE BASE
TRIBUTARY OF BREWER BRANCH
JOHNSON COUNTY, MISSOURI
SHEET 3 OF 3, DATED 01 JULY 2010

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Mark N. Templeton, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

JUN 2 1 2010

Mr. Glenn Golson
Whiteman Air Force Base
660 10th St., Ste. 125
Whiteman AFB, MO 65305

Johnson County
PN09-1568/CEK006648

Dear Mr. Golson:

The Missouri Department of Natural Resources' Water Protection Program (Department) has reviewed Public Notice No. PN09-1568/CEK006648 in which Whiteman Air Force Base (applicant) has proposed action including removal and disposal of accumulated sediment and construction of retaining walls along portions of the shore of an existing 4-acre lake. The impoundment is referred to locally as Bear Lake. Drawdown of water currently in the lake would be accomplished by siphoning, pumping or by another similar method. The contractor would follow best management practices to prevent introduction of sediment into the stream below the dam during this operation. During the drawdown, fish currently inhabiting Bear Lake would be removed and relocated to another pond on Whiteman Air Force Base. Once the lake is sufficiently dewatered, conventional earth moving equipment and machinery such as track-hoes and front end loaders will be used to dredge the sediment. An estimated 30,000 cubic yards of sediment would be removed, ranging in depths from 3-6 feet. Sediment removed from Bear Lake would be hauled to an existing upland holding site elsewhere on base property where it will be stabilized with vegetation. The sediment to be removed was tested for pesticides and metals in June 2006. No pesticides were detected, and all metals detected were well below action levels set by the Missouri Department of Natural Resources. Retaining walls would be constructed along the east and south sides of the lake. The walls would be constructed to have at least 2 feet of water on the wall at all times and have approximately 2 feet of free board. The retaining walls would be constructed of engineered blocks with the appearance of natural weathered limestone. Approximately 550 linear feet of retaining wall will be constructed along the east side of the pond and approximately 200 linear feet will be constructed along the south side.

The total estimated impact to wetlands as a result of the proposed work is 2.2 acres. Approximately 1.6 acres of wetland within the upper extent of the lake would be impacted by the dredging activities as well as an additional 0.60 acre of wetland fringe along the east and west side of the lake as a result of the dredging and retaining wall construction activities.

To avoid, minimize and/or compensate for short-term erosion and sedimentation impacts during dewatering, dredging and retaining wall construction, the U.S. Air Force will implement best management practices in accordance with the terms of the Whiteman Air Force Base's 2007 National Pollutant Discharge Elimination System (NPDES) General Permit for "Storm Water

Discharge Associated with Construction Activities." Permit standards will be adhered to during all construction activities. During the drawdown of the lake, Whiteman Air Force Base will mitigate for fish kills by relocating fish to a suitable on-base locality. Unavoidable impacts to wetlands will be mitigated through an approved mitigation fee provider.

The project area is located at Whiteman Air Force Base in Section 4, Township 45 North, Range 24 West in Johnson County, Missouri.

This office certifies that the proposed project will not cause the general or numeric criteria to be exceeded nor impair beneficial uses established in the Water Quality Standards, 10 CSR 20-7.031, provided the following conditions are met:

1. The applicant shall purchase the appropriate credits from the Sni-A-Bar Mitigation Bank for adverse impacts to 2.2 acres of wetlands. A copy of the purchase document shall be provided to Ms. Carrie Schulte, Missouri Department of Natural Resources, Water Protection Program, NPDES Permits and Engineering Section, P.O. Box 176, Jefferson City, MO 65102-0176.

2. Care shall be taken to keep machinery out of the waterway as much as possible. Fuel, oil and other petroleum products, equipment and any solid wastes shall not be stored below the ordinary high water mark at any time or in the adjacent floodway beyond normal working hours. All precautions shall be taken to avoid the release of wastes or fuel to streams and other adjacent water bodies as a result of this operation.

3. Petroleum products spilled into any water body or on the banks where the material may enter waters of the state shall be immediately cleaned up and disposed of properly. Any such spills of petroleum shall be reported as soon as possible to the Department's 24-hour Environmental Emergency Response number at (573) 634-2436.

4. Acquisition of a Clean Water Act Section 401 Water Quality Certification (certification) shall not be construed or interpreted to imply the requirements for other permits are replaced or superseded. Any National Pollutant Discharge Elimination System Permits, Land Disturbance Permits, or other requirements shall be complied with. Any land disturbance activities disturbing one or more of total acres for the entire project requires a storm water permit. Applicants with questions are encouraged to call the Department's Regional Office in your area. A regional office map with contact information can be located at www.dnr.mo.gov/regions/regions.htm.

Pursuant to Chapter 644.052.9, RSMo, commonly referred to as the Missouri Clean Water Law, this certification shall be valid only upon payment of a fee of seventy-five dollars ($75.00). The enclosed invoice contains the necessary information on how to submit your fee. Payment must be received within fifteen (15) days of receipt of this certification. Upon receipt of the fee, a copy of the certification will be mailed to the applicable office of the Army Corps of Engineers to inform them the certification is now in effect and final.

You may appeal to have the matter heard by the Administrative Hearing Commission (commission). To appeal, you must file a petition with the commission within thirty (30) days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the commission.

This certification is part of the Army Corps of Engineers' permit. Water Quality Standards must be met during any operations authorized by these permits. If you have any questions, please contact Ms. Carrie Schulte by phone at (573) 751-7023, by e-mail at carrie.schulte@dnr.mo.gov, or by mail at the above referenced address. Thank you for working with the Department to protect our environment.

Sincerely,

WATER PROTECTION PROGRAM

Scott B. Totten
Acting Director

SBT:csp

Enclosure

c: Mr. Brian Donahue, Army Corps of Engineers, Kansas City District
Ms. Dorothy Franklin, Kansas City Regional Office
Ms. Sunny Wellesley, Kansas City Regional Office
File Copy

COMPLIANCE CERTIFICATION

Special condition "a" of this permit document requires that you submit a signed certification regarding the completed work and any required mitigation. This certification page satisfies this condition if it is provided to the Kansas City District at the address shown at the bottom of this page upon completion of the project.

APPLICATION NUMBER: NWK-2009-1568

APPLICANT: Whiteman Air Force Base

PROJECT LOCATION: Excavation and fill within Bear Lake located in Section 4, Township 45 north, Range 24 west, Johnson County, Missouri.

a. I certify that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.

b. I certify that any required mitigation was completed in accordance with the permit conditions.

c. Your signature below, as permittee, indicates that you have completed the authorized project as certified in paragraphs a and b above.

_____ _____

(PERMITTEE) (DATE)

Return this certification to:

U.S. Army Corps of Engineers
Kansas City District
601 East 12th Street, Suite 402
Kansas City, MO 64106-2896

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APPENDIX B

Whiteman AFB 2007 NPDES General Permit for Storm Water Discharge Associated with Construction Activities

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STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

GENERAL PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-R80F035
Owner:	US Air Force, Whiteman AFB
Address:	509 CES/CEV, 660 10th Street, Ste 211, Whiteman AFB, MO 65305
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	USAF, Whiteman Air Force Base
Facility Address:	509 CES/CEV, 660 10th Street, Ste 211, Whiteman AFB, MO 65305
Legal Description:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

All Outfalls – Airports, SIC code #45XX

Stormwater runoff from airports that use de-icers or conduct uncovered vehicle or aircraft maintenance, washing, or fueling.

This permit authorizes only wastewater, including storm waters, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

October 5, 2007
Effective Date

November 16, 2007
Issue Date

Doyle Childers

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

October 4, 2012
Expiration Date

Karl Fett, Director, Kansas City Regional Office

FACILITY DESCRIPTION (continued)

Outfall #001 -Airport
Stormwater runoff.
Design flow is .240 MGD.
Actual flow depends upon precipitation.
Legal Description: NW ¼, NE ¼, Sec. 2, T45N, R24W, Johnson County
Latitude/Longitude: +3843206/-09331470
Receiving Stream: Long Branch (C)
First Classified Stream and ID: Long Branch (C)(00857)
USGS Basin & Subwatershed No: (10300103-04002)

Outfall #002 -Airport
Stormwater runoff.
Design flow is 59 MGD.
Actual flow depends upon precipitation.
Legal Description: SE ¼, SE ¼, Sec. 32, T46N, R24W, Johnson County
Latitude/Longitude: +3843489/-09334550
Receiving Stream: Brewer Branch (U)
First Classified Stream and ID: Clear Fork (P)(00935)
USGS Basin & Subwatershed No.: (10300104-040002)

Outfall #003 -, Airport
Stormwater Runoff.
Design flow is 2.6 MGD.
Actual flow depends upon precipitation.
Legal Description: SE ¼, NW ¼, Sec. 27, T46N, R24W, Johnson County
Latitude/Longitude: +3845017/-09333120
Receiving Stream: Unnamed Tributary to Clear Fork (U)
First Classified Stream and ID: Clear Fork (P) (00935)
USGS Basin & Subwatershed No.: (10300104-040002)

Outfall #004 - Airport
Stormwater Runoff.
Design flow is 48 MGD.
Actual flow depends upon precipitation.
Legal Description: SE ¼, SW ¼, Sec. 28, T46N, R24W, Johnson County
Latitude/Longitude: +3844383/-09334177
Receiving Stream: Unnamed Tributary to Clear Fork (U)
First Classified Stream and ID: Clear Fork (P) (00935)
USGS Basin & Subwatershed No: (10300104-040002)

APPLICABILITY

1. This permit authorizes the discharge of stormwater runoff from airports to waters of the state. This permit is for, but not limited to, establishments with Standard Industrial Classification (SIC) code 45.

2. Holders of current site specific permits who desire to apply for inclusion under this general permit should contact the department for application requirements.

3. Airports that do not use chemical deicing on the runways or aircraft and do not conduct uncovered vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or equipment cleaning operations do not need to secure a permit for their stormwater runoff.

4. This permit does not authorize the discharge of waters other than stormwater.

5. Before a general permit may be issued for a new airport, the proposed permit must be public noticed for 30 days [10 CSR 20-6.020(1)(C)2.]. For a renewal of the permit for an [redacted] must be public noticed for 30 days only if the facility has been in significant noncompliance during the time of the previous permit [10 CSR 20-6.020(1)(C).4.].

6. If at any time the Missouri Department of Natural Resources determines that the quality of waters of the state may be better protected by requiring the owner of an airport to apply for an individual permit, the department may do so.

7. If at any time the owner of an airport should desire to apply for an individual permit, the owner may do so.

8. This permit cannot be used for St. Louis Lambert Airport or Kansas City International Airport.

9. Airports that use more than 100,000 gallons of glycol-based deicing/anti-icing chemicals and/or 100 tons of Urea or calcium chloride per year, combined, are not eligible for this general permit and must apply for a site-specific permit.

10. This permit does not apply to storm water discharges:
    (a) Within 1,000 feet upstream of waters that have been identified as a losing stream, sinkhole, or other direct conduit to groundwater, or an outstanding state resource water*;
    (b) Within the watersheds of streams or lakes listed as an outstanding national resource water* or their tributaries;
    (c) Within 100 feet upstream of a wetland, of a major reservoir (Class L2*), permanently flowing stream (Class P*) or intermittent stream (Class C*);
    (d) Within two stream miles upstream of biocriteria reference locations*;
    (e) Within two stream miles upstream of streams, lakes or reservoirs with the designated use of drinking water supply; or
    (f) Within two stream miles upstream of streams, lakes, or reservoirs identified as critical habitat for endangered species.

    * Identified or described in 10 CSR 20, Chapter 7. These regulations are available at many libraries and online at www.sos.mo.gov, or may be purchased from MDNR by calling the Water Protection Program.

11. Facilities that discharge directly to a combined sewer system are exempt from permit requirements.

12. This general permit does not apply to land disturbance activities. A separate general permit must be applied for to cover those activities.

13. Facilities that are located within the watershed of the 303(d) listing of impaired waters will need to be evaluated, on a case-by-case basis, for inclusion under this general permit. Facilities that are found to be discharging the listed pollutant(s) of concern for an impaired water may be required to obtain a site-specific permit.

REQUIREMENTS

1. This permit requires yearly sampling, but the primary requirementof this permit is the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For new facilities that have been issued coverage under this general permit for the first time, the SWPPP must be prepared within 30 days and implemented within 60 days of the permit issuance **For existing facilities**, the SWPPP, including the assessments and evaluations noted below, must be revisited and revised (if necessary) within 30 days of reissuance of coverage under this Master General Permit. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

   Storm Water Management For Industrial Activities, Developing Pollution Prevention Plans and Best Management Activities (Document number EPA 832-R-92-006) published by the United States Environmental Protection Agency (USEPA) in September 1992.

   The SWPPP must include the following:
   (a) An assessment of all storm water discharges associated with aircraft vehicle and maintenance (including aircraft and vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning, and chemical deicing/anti-icing activities. This must include a list of potential contaminants and an annual estimate of amounts that will be used in the described activities.
   (b) An assessment of all aspects of runway deicing/anti-icing operations, including types of deicing/anti-icing chemicals, quantities used and stored, as well as application, handling and storage procedures are required to be addressed under the conditions of this section. This assessment must include an evaluation of source reduction and recycling of deicing chemicals. Runway deicing/anti-icing includes both deicing and anti-icing operations conducted on runways, taxiways and ramps. Runway deicing/anti-icing commonly involves either the application of chemical fluids such as ethylene glycol or solid constituents such as pelletized urea.
   (c) A listing of Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter stormwater, especially deicing chemicals.
   (d) A schedule for implementing the BMPs, if necessary.
   (e) The SWPPP must include a schedule for monthly site inspections and a brief written report. The inspections must include observation and evaluation of BMP effectiveness, deficiencies, and corrective measures that will be taken. Deficiencies must be corrected within seven days and the Department must be notified by letter. Any corrective measure that necessitates major construction may also need a construction permit. Inspection reports must be kept on site with the SWPPP. These must be made available to DNR personnel upon request.
   (f) A provision for designating an individual to be responsible for environmental matters.

2. The purpose of the SWPPP and the BMPs listed therein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR20-2.010(56)] of waters of the state, and corrective action means the facility took steps to eliminate the deficiency.

3. Discharge of deicing/anti-icing chemicals is only authorized as part of deicing/anti-icing activities. Dumping of unused, out of specification, rinsate or product directly into waters of the state is prohibited.

4. Collection facilities shall be provided on-site, and arrangements made for proper disposal of, waste products which may be exposed to storm water. This includes, but is not limited to petroleum waste products, solid waste, deicing/anti-icing products, and solvents.

5. All fueling facilities present on-site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.

6. Substances regulated by federal law under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that are transported, stored, or used for maintenance, cleaning or repair shall be managed according to the provisions of RCRA and CERCLA.

REQUIREMENTS (continued)

7. All paint, solvents, petroleum products and petroleum waste products (except fuels), shall be stored so that these materials are not exposed to storm water. Spill prevention, control, and/or management shall be provided sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.

8. Water Quality Standards
   (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

9. Report as no-discharge when a discharge does not occur during the report period.

10. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

REQUIREMENTS (continued)

11. Changes in Discharges of Toxic Substances
The permittee shall notify the Director as soon as it knows or has reason to believe:
(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
(1) One hundred micrograms per liter (100 ug/L);
(2) Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
(3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
(4) The level established in Part A of the permit by the Director.
(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.
(c) Toxic pollutants shall consist of, but are not limited to, pollutants listed in 10 CSR-20, Chapter 7, Table A, or 40 CFR 122, Appendix D.

12. All outfalls must be clearly marked in the field.

13. The permittee shall submit an annual report by October 31st of each year detailing the volume or pounds of each deicer, anti-icer, or solvent used at the facility. The annual report will include the chemical types, such as "Urea" or "Sodium Chloride", the concentrations used, such as "10%", and the total volume or mass of the deicer used from October 1st through August 31st.

STORMWATER SAMPLING REQUIREMENTS

This permit requires yearly sampling. The sampling should take place the first time runoff occurs after the use of deicers. If deicers are not used at the facility, sampling may take place at any time during the year.

PERMIT NUMBER MO-R80F035

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
All Outfalls						
Flow	MGD	*		*	once/year**	24 hr. estimate
Chemical Oxygen Demand (COD)	mg/L	120		90	once/year**	grab****
Biochemical Oxygen Demand$_5$ (BOD)	mg/L	90		60	once/year**	grab****
pH - Units	SU	***		***	once/year**	grab****
Total Suspended Solids	mg/L	70		70	once/year**	grab****
Ethylbenzene	mg/L	0.32		0.32	once/year**	grab****
Oil and Grease	mg/L	15		10	once/year**	grab****
Ammonia as N	mg/L	*		*	once/year**	grab****
Nitrate	mg/L	*		*	once/year**	grab****
Chloride	mg/L	*		*	once/year**	grab****

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2008. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** One sample must be taken during the first runoff after deicing chemical are used.

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

**** A representative grab sample shall be taken 30 to 60 minutes after storm water discharge begins.

PERMIT TRANSFER

This permit may be transferred to a new owner by submitting an "Application for Transfer of Operating Permit" signed by the seller and buyer of the facility, along with the appropriate modification fee.

TERMINATION

In order to terminate this permit, the permittee shall notify the department by submitting Form H, included with the State Operating Permit. The permittee shall complete Form H and mail it to the department at the address noted in the cover letter of this permit. Proper closure of any storage structure is required prior to permit termination. A closure plan shall be submitted to the department and approved prior to initiating closure activities.

PERMIT RENEWAL REQUIREMENTS

Unless this permit is terminated, the permittee shall submit an application for the renewal of this permit no later than six (6) months prior to the permit's expiration date. Failure to apply for renewal may result in termination of this permit and enforcement action to compel compliance with this condition and the Missouri Clean Water Law.

DUTY OF COMPLIANCE

The permittee shall comply with all conditions of this general permit. Any noncompliance with this general permit constitutes a violation of Chapter 644, Missouri Clean Water Law, and 10 CSR 20-6. Noncompliance may result in enforcement action, termination of this authorization, or denial of the permittee's request for renewal.

This permit authorizes only the activities described in this permit. Compliance with this permit may not be considered a shield from compliance with any local ordinance, State Regulation or State Law.

APPENDIX C

2006 Assessment of Contaminants in Bear Lake Sediment and Water

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PARSONS

July 5, 2006 Serial Letter No: SO 152

Mr. James D. Rudy, PE
US Army Corps of Engineers
Whiteman Project Office
P.O. Box 7003
Whiteman AFB, MO 65305

RE: Replace Family Housing – Task 1 (FY03 and FY04)
Contract DACA41-03-D-0014 (0001)

Subject: Pond Sediment and Metals Report

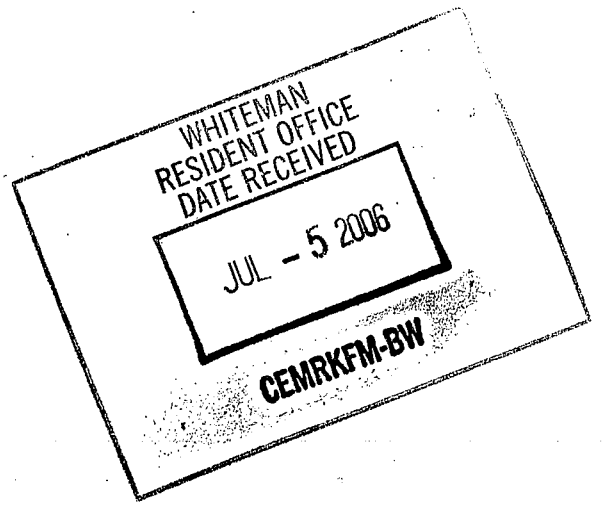
Dear Mr. Rudy:

Attached is the most recent Pestcides, Metals, and Sediment report for the project. We will continue to forward test results to you on a monthly basis.

Should you need additional information regarding this matter I may be reached at (660) 563-3289.

Sincerely,

Hoss Hamann, Senior Construction Manager
Parsons Construction Group, Inc.
Whiteman Air Force Base, MO



Limited Pesticides/Metals Exploration and Sediment Study
Whiteman AFB Pond
Knob Noster, Missouri

Presented to:

Mr. Joe Kendrick
Parsons Evergreene, LLC

Prepared by:

Bob Bettinger
Otto J. Kruger, P.E.

KTI
Lenexa, Kansas

KTI Project No. 105092E
June 29, 2006

KTI

GEOTECHNICAL ■ ENVIRONMENTAL ■ TESTING ■ INSPECTION
14705 WEST 114TH TERRACE ■ LENEXA, KANSAS 66215 ■ VOICE 913-498-1114 ■ FAX 913-498-1116 ■ EMAIL KTIKC@KTIONLINE.COM

June 29, 2006

Mr. Joe Kendrick
Parsons Evergreene, LLC
253 SE 23rd Highway
Knob Noster, Missouri 65336

Re: Limited Pesticides/Metals Sampling and
Sediment Study
Whiteman AFB Pond
Knob Noster, Missouri
Project No. 105092E

Dear Mr. Kendrick:

Kruger Technologies, Inc. (KTI) has completed the authorized limited pesticides/metal sampling and sediment study at the above referenced site. The purpose of the exploration was to determine if there were residual pesticides or metals in the pond and to document the depth of sediment in the pond. This was the sixth time the sediment depths were measuredand second time sediment and water were laboratory analyzed.

Location

The pond is located in southern Knob Noster, Missouri east of Highway 23 on the Whiteman Air Force Base.

Field Work

On June 12, 2006, representatives of KTI sampled the sediment within the pond for TCLP metals and pesticides. A water sample was also taken for laboratory analyses of metals and pesticides. One sediment sample (S-5) was taken within the northeast cove of the pond using a shovel to obtain the sediment sample. The water sample (WS-2) was also taken in the northeast cove of the pond. The number of samples taken for laboratory analyses, locations of the samples and analytes tested for were determined by the Army Corp of Engineers (sample locations are illustrated on Figure 2 in Appendix A).

The sediment and water samples were properly labeled, placed in an ice-cooled chest and transported to AM Laboratory in Olathe, Kansas for analyses of TCLP metals by Methods 6010/1311/2471 and pesticides by Method 8081A .

In addition to taking water and sediment samples, KTI representatives measured the depth of the sediment at 14 locations in the pond (see SS-1 thru SS-14 in Table 1 of

Appendix A). Sediment depth was measured by using 20 feet of 3/4-inch metal conduit which was marked at 1 foot increments. A flatbottom boat was used to float across the pond. The pipe was lowered into the water until the silt was encountered. After encountering the silt, the pipe was manually pushed until the pipe would no longer advance. Measurements were taken when the pipe initially encountered the silt and after the pipe was advanced to refusal into the silt.

Results of the sediment sampling indicated the pond contained between 1.0 and 3.0 feet of silt. Table 1 and Figure 1 in Appendix A illustrate the depth of the sediment and approximate location where each sample was taken.

The pond appeared to be at normal level the day of the latest sampling event. Comparing the latest measuring event to the initial event, the average sediment depth has increased 0.42 feet. Comparing the most recent measuring event to the previous sediment measuring event, the sediment depth has increased 0.12 feet. The average silt depth is approximately 0.40 feet deeper than the initial measuring depth.

Laboratory Results and Discussion

Results of the pesticide analyses performed on the sediment and water samples indicated no pesticides were detected in either the soil or water sample above their respective minimum detection limit.

The only metal detected in the sediment and water samples was Barium. Barium was detected in the water sample at .073 mg/L. The sediment sample S-5 contained 1.62 mg/L Barium. The action level for Barium in the State of Missouri is 2,800 mg/L. A complete copy of the laboratory analyses is included in Appendix B.

The Missouri Department of Natural Resources (MDNR) has established cleanup guidelines for pesticides and metals under their Cleanup Levels for Missouri (CALM) document. Based on a residential scenario, which is the most conservative, the State of Missouri would allow 2800 ppm barium prior to initiating any remedial activity. Complete analytical results are included in Appendix B. Since development is occurring on three sides of the pond, KTI recommends monthly monitoring of the silt levels in the pond and analytical testing for TCLP metals and pesticides.

General Comments

In connection with the tasks performed for this project, KTI exercised reasonable efforts to accomplish these tasks employing professional standards applicable in the industry today. To the extent that the services required judgment, there can be no assurance that fully definitive or desired results were obtained, or if any results were obtained, that they would be supportive of any given course of action. The services have included the application of judgment to scientific principles; to that extent, certain results of this work may be based on subjective interpretation. KTI makes no warranties, expressed or implied, including without limitation, warranties as to

merchantability for fitness for a particular purpose. The information provided in this report is not to be construed as legal advice.

Lack of knowledge of prior uses affects the ability of KTI to completely assess risks or hazards at the site. Further, KTI assumes no risk for the consequential effects that may result from this assessment that conformed to reasonable professional standards applicable in the industry at the time the work was performed.

This report has been prepared for the exclusive use of our client for specific application to the project discussed. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions of this report modified or verified in writing by Kruger Technologies, Inc.

Closure

We appreciate the opportunity to work with you on this project. If you have any questions regarding this report, please do not hesitate to contact us.

Respectfully submitted,

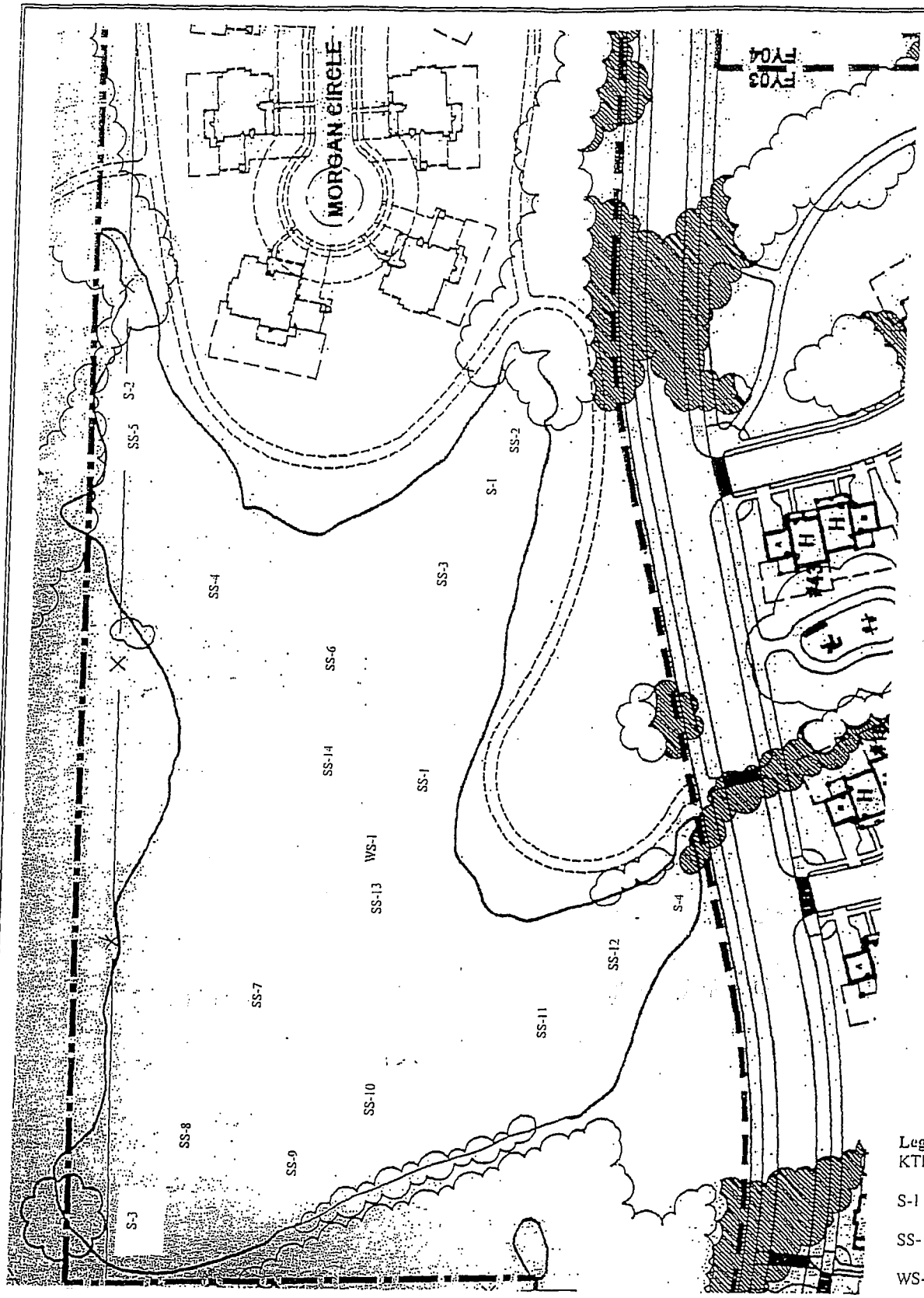
KTI - Kruger Technologies, Inc.

Bob Bettinger
Environmental Services Manager

Otto J. Kruger, Jr., P.E.
Vice President

APPENDIX A

Figures



Legend
KTI Project #105092E

S-1 thru S-4 Sediment Samples

SS-1 thru SS-14 Silt Measurements

WS-1 Water Sample

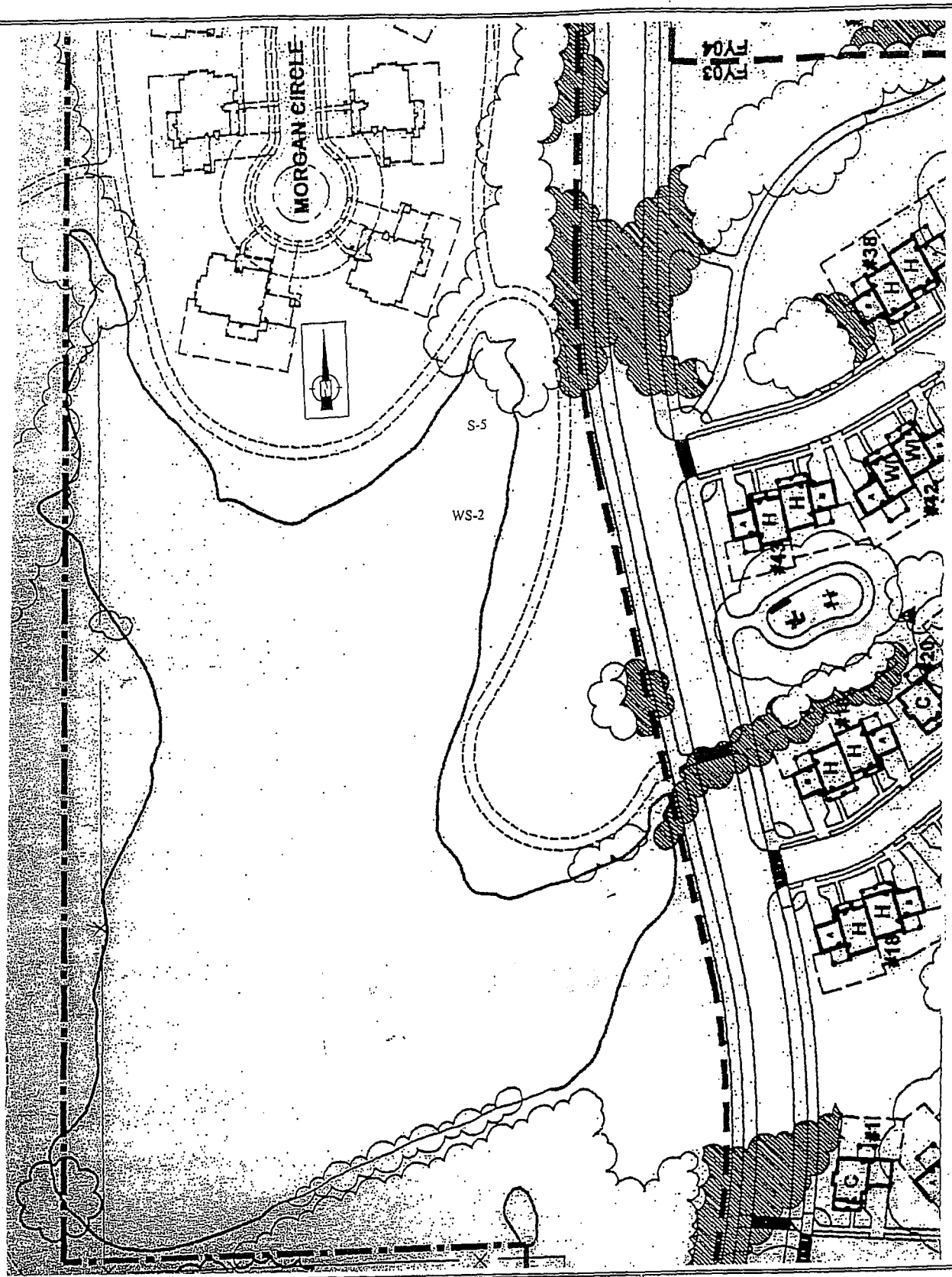
Sample Locations
Whiteman AFB Pond
Knob Noster, Missouri

Figure 1

Drawn: RMB	Date: 06/03/05	Job No.: 105092E

KTI

kruger technologies, inc.



Sample Locations-6/12/06
Whiteman AFB Pond
Knob Noster, Missouri

Figure 2

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Drawn: RMB	Date: 06/28/06	Job No.: 105092E

TABLE 1

Water and Sediment Depths
Whiteman AFB Pond
Knob Noster, Missouri
KTI Project No. 105092E

Sample Number	Water Depth (ft)						Sediment Depth (ft)					
	5/14/05	11/15/05	11/7/05	3/14/06	4/27/06	6/14/06	5/14/05	10/15/05	11/7/05	3/14/06	4/27/06	6/14/06
SS1	7.00	5.00	5.00	6.30	5.00	5.00	1.75	3.00	1.50	3.00	2.00	2.00
SS2	1.50	2.00	1.50	1.00	1.00	1.00	3.00	2.20	2.50	2.00	1.50	2.70
SS3	2.00	1.20	2.00	2.00	1.50	2.00	2.50	2.90	3.00	2.50	2.00	2.50
SS4	3.0	3.00	3.00	3.00	2.00	3.00	1.50	2.00	2.50	2.00	2.00	3.00
SS5	1.50	1.50	1.50	4.50	3.50	1.50	1.50	1.50	1.50	2.00	2.00	2.50
SS6	3.75	4.50	3.75	4.00	3.00	3.50	2.50	3.00	2.00	3.00	2.50	2.50
SS7	5.50	3.00	3.00	3.00	2.50	3.00	1.00	1.50	1.00	1.00	2.00	2.00
SS8	1.50	2.00	1.50	1.50	1.25	1.50	1.50	1.00	1.50	0.50	0.50	0.50
SS9	7.50	8.00	7.00	7.50	6.50	7.00	2.50	2.50	1.50	2.50	2.00	2.25
SS10	12.00	11.00	12.50	13.00	12.50	12.50	1.00	1.50	2.50	2.50	2.50	2.50
SS11	16.00	19.50	15.50	18.00	16.80	18.00	1.00	1.00	1.00	2.00	1.75	2.50
SS12	5.00	5.00	5.00	5.00	4.00	5.00	1.75	1.50	1.50	2.00	2.00	2.00
SS13	8.50	8.00	8.00	8.50	7.50	6.00	2.00	2.00	2.50	3.00	3.00	2.00
SS14	4.00	5.00	5.00	5.00	4.00	5.00	1.00	1.00	2.00	2.50	2.50	1.50
					Average Sediment Depth		1.75	1.90	1.89	2.35	2.05	2.175

APPENDIX B

Analytical Data

Analytical Management Laboratories, Inc
est. 1990

Certificate of Analysis

June 27, 2006

Bob Bettinger
KTI
14705 W. 114th Terrace
Lenexa, KS 66215
Phone: 913-498-1114
Fax: 913-498-1116

Dear Bob:

Client Project Name: **Whiteman Air Force Base**
AML Project Number: **0606065**

Attached, please find the hardcopy analytical report for environmental samples collected by KTI for the project described above. All analyses were prepared and analyzed within analytical holding time. Problems encountered, if any, in the analysis of these samples are documented where applicable. Please feel free to contact me by phone (913-829-0101-ext. 23), fax (913-829-1181) or email (jahlvin@amlabinc.com) if you have any questions.

Respectfully Submitted,

Joe Ahlvin
Project Manager

The test results contained within this report meet or exceed the requirements of NELAC and/or the specific certification program that is applicable. NELAP Accrediting Authority : Kansas Department of Health and Environment

- Safe Drinking Water Act (Drinking Water)
- Clean Water Act (Waste Water)
- Soil/Hazardous Waste

Certificate Number: E-10254 - Effective Date: 05/01/2006 - Expiration Date: 04/30/2007
Florida: E87892 North Carolina: 627 South Carolina: 76003001

Analytical Management Laboratories, Inc.
est. 1993

Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

Client Sample ID: WS-2 Date Collected: 06/14/06
Lab Sample ID: 0606065-01 Date Received: 06/14/06

Metals Analysis By 1311/3050B/6010B

Date Analyzed: 06/20/06 Analyst: MA Method 1311/6010B

TCLP Analyte	Results	Units	Reporting Limit
Arsenic	ND	mg/L	0.300
Barium	0.073	mg/L	0.010
Cadmium	ND	mg/L	0.020
Chromium	ND	mg/L	0.020
Lead	ND	mg/L	0.200
Selenium	ND	mg/L	0.300
Silver	ND	mg/L	0.030

Client Sample ID: WS-2 Date Collected: 06/14/06
Lab Sample ID: 0606065-01 Date Received: 06/14/06

Metals Analysis By 1311/3020A/6020A

Date Analyzed: 06/22/06 Analyst: ZZZ Method 1311/6020A

TCLP Analyte	Results	Units	Reporting Limit
Mercury	ND	mg/L	0.00050

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Certificate of Analysis

Kruger Technology Inc.

Client Project ID: Whiteman Air Force Base — Lab Project Number: 0606065

Client Sample ID: WS-2 — Date Collected: 06/14/06
Lab Sample ID: 0606065-01 — Date Received: 06/14/06

Pesticides

Date Analyzed: 06/26/06 Analyst: JMB Method 8081A

Analyte	Results	Units	Reporting Limit
4,4'-DDD	ND	ug/L	0.103
4,4'-DDE	ND	ug/L	0.103
4,4'-DDT	ND	ug/L	0.103
Aldrin	ND	ug/L	0.0515
alpha-BHC	ND	ug/L	0.0515
Chlordane (Technical)	ND	ug/L	1.03
alpha-Chlordane	ND	ug/L	0.0515
beta-BHC	ND	ug/L	0.0515
delta-BHC	ND	ug/L	0.0515
Dieldrin	ND	ug/L	0.103
Endosulfan I	ND	ug/L	0.0515
Endosulfan II	ND	ug/L	0.103
Endosulfan sulfate	ND	ug/L	0.103
Endrin	ND	ug/L	0.103
Endrin aldehyde	ND	ug/L	0.103
Endrin ketone	ND	ug/L	0.103
gamma-BHC (Lindane)	ND	ug/L	0.0515
gamma-Chlordane	ND	ug/L	0.0515
Heptachlor	ND	ug/L	0.0515
Heptachlor epoxide	ND	ug/L	0.0515
Methoxychlor	ND	ug/L	0.515
Toxaphene	ND	ug/L	1.03
DCB (surrogate)	80.1	%	
TCMX (surrogate)	90.3	%	

Analytical Management Laboratories, Inc.
est. 1993

Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

Client Sample ID: S-5 Date Collected: 06/14/06
Lab Sample ID: 0606065-02 Date Received: 06/14/06

Metals Analysis By 1311/3050B/6010B

Date Analyzed: 06/20/06 Analyst: MA Method 1311/6010B

TCLP Analyte	Results	Units	Reporting Limit
Arsenic	ND	mg/L	0.300
Barium	1.62	mg/L	0.010
Cadmium	ND	mg/L	0.020
Chromium	ND	mg/L	0.020
Lead	ND	mg/L	0.200
Selenium	ND	mg/L	0.300
Silver	ND	mg/L	0.030

Client Sample ID: S-5 Date Collected: 06/14/06
Lab Sample ID: 0606065-02 Date Received: 06/14/06

Metals Analysis By 1311/3020A/6020A

Date Analyzed: 06/22/06 Analyst: ZZZ Method 1311/6020A

TCLP Analyte	Results	Units	Reporting Limit
Mercury	ND	mg/L	0.00050

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Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

Client Sample ID: S-5 Date Collected: 06/14/06
Lab Sample ID: 0606065-02 Date Received: 06/14/06

Pesticides

Date Analyzed: 06/26/06 Analyst: JMB Method 8081A

Analyte	Results	Units	Reporting Limit
4,4'-DDD	ND	ug/kg	6.61
4,4'-DDE	ND	ug/kg	6.61
4,4'-DDT	ND	ug/kg	6.61
Aldrin	ND	ug/kg	3.32
alpha-BHC	ND	ug/kg	3.32
Chlordane (Technical)	ND	ug/kg	66.1
alpha-Chlordane	ND	ug/kg	3.32
beta-BHC	ND	ug/kg	3.32
delta-BHC	ND	ug/kg	3.32
Dieldrin	ND	ug/kg	6.61
Endosulfan I	ND	ug/kg	3.32
Endosulfan II	ND	ug/kg	6.61
Endosulfan sulfate	ND	ug/kg	6.61
Endrin	ND	ug/kg	6.61
Endrin aldehyde	ND	ug/kg	6.61
Endrin ketone	ND	ug/kg	6.61
gamma-BHC (Lindane)	ND	ug/kg	3.32
gamma-Chlordane	ND	ug/kg	3.32
Heptachlor	ND	ug/kg	3.32
Heptachlor epoxide	ND	ug/kg	3.32
Methoxychlor	ND	ug/kg	33.2
Toxaphene	ND	ug/kg	66.1
DCB (surrogate)	52.7	%	
TCMX (surrogate)	62.7	%	

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Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

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Quality Control

Method Blank

Metals Analysis By 1311/3020A/6020A

Date Analyzed: 06/22/06 Analyst: ZZZ Method 1311/6020A

TCLP Analyte	Results	Units	Reporting Limit
Mercury	ND	mg/L	0.00025

Metals Analysis By 1311/3050B/6010B

Date Analyzed: 06/20/06 Analyst: MA Method 1311/6010B

TCLP Analyte	Results	Units	Reporting Limit
Arsenic	ND	mg/L	0.150
Barium	ND	mg/L	0.005
Cadmium	ND	mg/L	0.010
Chromium	ND	mg/L	0.010
Lead	ND	mg/L	0.100
Selenium	ND	mg/L	0.150
Silver	ND	mg/L	0.015

Metals Analysis By 1311/3050B/6010B

Date Analyzed: 06/20/06 Analyst: MA Method 1311/6010B

TCLP Analyte	Results	Units	Reporting Limit
Arsenic	ND	mg/L	0.300
Barium	ND	mg/L	0.010
Cadmium	ND	mg/L	0.020
Chromium	ND	mg/L	0.020
Lead	ND	mg/L	0.200
Selenium	ND	mg/L	0.300
Silver	ND	mg/L	0.030

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Certificate of Analysis

Kruger Technology Inc.

Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

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Quality Control

Method Blank

Pesticides

Date Analyzed: 06/26/06 Analyst: JMB Method 8081A

Analyte	Results	Units	Reporting Limit
4,4'-DDD	ND	ug/L	0.100
4,4'-DDE	ND	ug/L	0.100
4,4'-DDT	ND	ug/L	0.100
Aldrin	ND	ug/L	0.0500
alpha-BHC	ND	ug/L	0.0500
Chlordane (Technical)	ND	ug/L	1.00
alpha-Chlordane	ND	ug/L	0.0500
beta-BHC	ND	ug/L	0.0500
delta-BHC	ND	ug/L	0.0500
Dieldrin	ND	ug/L	0.100
Endosulfan I	ND	ug/L	0.0500
Endosulfan II	ND	ug/L	0.100
Endosulfan sulfate	ND	ug/L	0.100
Endrin	ND	ug/L	0.100
Endrin aldehyde	ND	ug/L	0.100
Endrin ketone	ND	ug/L	0.100
gamma-BHC (Lindane)	ND	ug/L	0.0500
gamma-Chlordane	ND	ug/L	0.0500
Heptachlor	ND	ug/L	0.0500
Heptachlor epoxide	ND	ug/L	0.0500
Methoxychlor	ND	ug/L	0.500
Toxaphene	ND	ug/L	1.00
DCB (Surrogate)	80.0	%	
TCMX (Surrogate)	105	%	

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Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

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Quality Control

Method Blank

Pesticides

Date Analyzed: 06/26/06 Analyst: JMB Method 8081A

Analyte	Results	Units	Reporting Limit
4,4'-DDD	ND	ug/kg	3.33
4,4'-DDE	ND	ug/kg	3.33
4,4'-DDT	ND	ug/kg	3.33
Aldrin	ND	ug/kg	1.67
alpha-BHC	ND	ug/kg	1.67
Chlordane (Technical)	ND	ug/kg	33.3
alpha-Chlordane	ND	ug/kg	1.67
beta-BHC	ND	ug/kg	1.67
delta-BHC	ND	ug/kg	1.67
Dieldrin	ND	ug/kg	3.33
Endosulfan I	ND	ug/kg	1.67
Endosulfan II	ND	ug/kg	3.33
Endosulfan sulfate	ND	ug/kg	3.33
Endrin	ND	ug/kg	3.33
Endrin aldehyde	ND	ug/kg	3.33
Endrin ketone	ND	ug/kg	3.33
gamma-BHC (Lindane)	ND	ug/kg	1.67
gamma-Chlordane	ND	ug/kg	1.67
Heptachlor	ND	ug/kg	1.67
Heptachlor epoxide	ND	ug/kg	1.67
Methoxychlor	ND	ug/kg	16.7
Toxaphene	ND	ug/kg	33.3
DCB (Surrogate)	72.4	%	
TCMX (Surrogate)	94.9	%	

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Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

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Quality Control

Laboratory Control Standard

TCLP Analyte	Amt. Spiked	LCS - Amount Found	LCS Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Mercury	0.00500	0.00571	114	80-120

TCLP Analyte	Amt. Spiked	LCS - Amount Found	LCS Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Arsenic	1.00	0.984	98.4	80-120
Barium	2.00	1.97	98.5	80-120
Cadmium	0.500	0.493	98.6	80-120
Chromium	0.500	0.511	102	80-120
Lead	1.00	1.04	104	80-120
Selenium	1.00	1.03	103	80-120
Silver	0.500	0.484	96.8	80-120

Analyte	Amt. Spiked	LCS - Amount Found	LCS Recovery	Control Limits
	(ug/L)	(ug/L)	%	
4,4'-DDD	0.700	0.735	105	25-150
4,4'-DDE	0.700	0.730	104	35-140
4,4'-DDT	0.700	0.705	101	45-140
Aldrin	0.350	0.330	94.3	25-140
alpha-BHC	0.350	0.325	92.9	60-130
alpha-Chlordane	0.350	0.380	109	65-125
beta-BHC	0.350	0.335	95.7	65-125
delta-BHC	0.350	0.340	97.1	45-135
Dieldrin	0.700	0.695	99.3	60-130
Endosulfan I	0.350	0.390	111	50-110
Endosulfan II	0.700	0.780	111	30-130
Endosulfan sulfate	0.700	0.785	112	55-135
Endrin	0.700	0.690	98.6	55-135
Endrin aldehyde	0.700	0.755	108	55-135
Endrin ketone	0.700	0.775	111	75-125
gamma-BHC (Lindane)	0.350	0.325	92.9	25-135
gamma-Chlordane	0.350	0.370	106	60-125
Heptachlor	0.350	0.385	110	40-130
Heptachlor epoxide	0.350	0.390	111	60-130
Methoxychlor	3.50	3.48	99.4	55-150

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Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

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Quality Control

Laboratory Control Standard

Analyte	Amt. Spiked	LCS - Amount Found	LCS Recovery	Control Limits
	(ug/kg)	(ug/kg)	%	
4,4'-DDD	23.3	24.5	105	30-135
4,4'-DDE	23.3	24.2	104	70-125
4,4'-DDT	23.3	23.3	100	45-140
Aldrin	11.7	11.3	96.6	45-140
alpha-BHC	11.7	11.3	96.6	60-125
alpha-Chlordane	11.7	12.8	109	65-120
beta-BHC	11.7	11.3	96.6	60-125
delta-BHC	11.7	11.5	98.3	55-130
Dieldrin	23.3	23.2	99.6	65-125
Endosulfan I	11.7	13.2	113	15-135
Endosulfan II	23.3	25.7	110	35-140
Endosulfan sulfate	23.3	25.8	111	60-135
Endrin	23.3	22.8	97.9	60-135
Endrin aldehyde	23.3	24.7	106	35-145
Endrin ketone	23.3	25.7	110	65-135
gamma-BHC (Lindane)	11.7	11.2	95.7	60-125
gamma-Chlordane	11.7	12.3	105	65-125
Heptachlor	11.7	13.2	113	50-140
Heptachlor epoxide	11.7	13.2	113	65-130
Methoxychlor	117	116	99.1	55-145

Analytical Management Laboratories, Inc.
est. 1993

Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

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Quality Control

Laboratory Control Standard Duplicate

TCLP Analyte	Amt. Spiked	LCSD - Amount Found	LCSD Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Mercury	0.00500	0.00507	101	80-120

TCLP Analyte	Amt. Spiked	LCSD - Amount Found	LCSD Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Arsenic	1.00	1.01	101	80-120
Barium	2.00	1.98	99.0	80-120
Cadmium	0.500	0.492	98.4	80-120
Chromium	0.500	0.511	102	80-120
Lead	1.00	1.03	103	80-120
Selenium	1.00	1.05	105	80-120
Silver	0.500	0.489	97.8	80-120

Analyte	Amt. Spiked	LCSD - Amount Found	LCSD Recovery	Control Limits
	(ug/L)	(ug/L)	%	
4,4'-DDD	0.700	0.745	106	25-150
4,4'-DDE	0.700	0.750	107	35-140
4,4'-DDT	0.700	0.715	102	45-140
Aldrin	0.350	0.355	101	25-140
alpha-BHC	0.350	0.340	97.1	60-130
alpha-Chlordane	0.350	0.390	111	65-125
beta-BHC	0.350	0.345	98.6	65-125
delta-BHC	0.350	0.345	98.6	45-135
Dieldrin	0.700	0.710	101	60-130
Endosulfan I	0.350	0.405	116	50-110
Endosulfan II	0.700	0.795	114	30-130
Endosulfan sulfate	0.700	0.795	114	55-135
Endrin	0.700	0.705	101	55-135
Endrin aldehyde	0.700	0.775	111	55-135
Endrin ketone	0.700	0.790	113	75-125
gamma-BHC (Lindane)	0.350	0.335	95.7	25-135
gamma-Chlordane	0.350	0.375	107	60-125
Heptachlor	0.350	0.405	116	40-130
Heptachlor epoxide	0.350	0.405	116	60-130
Methoxychlor	3.50	3.51	100	55-150

Analytical Management Laboratories, Inc.
est. 1993

Certificate of Analysis

Kruger Technology Inc.

Client Project ID: Whiteman Air Force Base

Lab Project Number: 0606065

****

Quality Control

Laboratory Control Standard Duplicate

Analyte	Amt. Spiked	LCSD - Amount Found	LCSD Recovery	Control Limits
	(ug/kg)	(ug/kg)	%	
4,4'-DDD	23.3	25.5	109	30-135
4,4'-DDE	23.3	25.3	109	70-125
4,4'-DDT	23.3	24.3	104	45-140
Aldrin	11.7	12.0	103	45-140
alpha-BHC	11.7	11.7	100	60-125
alpha-Chlordane	11.7	13.5	115	65-120
beta-BHC	11.7	12.0	103	60-125
delta-BHC	11.7	11.8	101	55-130
Dieldrin	23.3	24.2	104	65-125
Endosulfan I	11.7	13.8	118	15-135
Endosulfan II	23.3	27.2	117	35-140
Endosulfan sulfate	23.3	27.3	117	60-135
Endrin	23.3	23.7	102	60-135
Endrin aldehyde	23.3	26.2	112	35-145
Endrin ketone	23.3	27.2	117	65-135
gamma-BHC (Lindane)	11.7	11.7	100	60-125
gamma-Chlordane	11.7	13.0	111	65-125
Heptachlor	11.7	13.8	118	50-140
Heptachlor epoxide	11.7	13.8	118	65-130
Methoxychlor	117	124	106	55-145

Analytical Management Laboratories, Inc.
est. 1993

Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base
Lab Project Number: 0606065

Quality Control

Matrix Spike

TCLP Analyte	Amt. Spiked	MS - Amount Found	MS Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Mercury	0.0100	0.0106	106	75-125

TCLP Analyte	Amt. Spiked	MS - Amount Found	MS Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Arsenic	2.00	1.98	99.0	80-120
Barium	4.00	5.62	100	80-120
Cadmium	1.00	0.987	98.7	80-120
Chromium	1.00	1.01	101	80-120
Lead	2.00	2.05	102	80-120
Selenium	2.00	2.04	102	80-120
Silver	1.00	0.967	96.7	80-120

Analytical Management Laboratories, Inc.
est. 1993

Certificate of Analysis

Kruger Technology Inc.
Client Project ID: Whiteman Air Force Base Lab Project Number: 0606065

****

Quality Control

Matrix Spike Duplicate

TCLP Analyte	Amt. Spiked	MSD - Amount Found	MSD Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Mercury	0.0100	0.0123	123	75-125

TCLP Analyte	Amt. Spiked	MSD - Amount Found	MSD Recovery	Control Limits
	(mg/L)	(mg/L)	%	
Arsenic	2.00	2.02	101	80-120
Barium	4.00	5.69	102	80-120
Cadmium	1.00	0.982	98.2	80-120
Chromium	1.00	1.01	101	80-120
Lead	2.00	2.05	102	80-120
Selenium	2.00	2.21	110	80-120
Silver	1.00	0.973	97.3	80-120

AML
Analytical Management Laboratories, Inc.
15130 South Keeler
Olathe, Kansas 66062
Phone (913) 829-0101
Fax (913) 829-1181

40423

Page ____ of ____

Chain of Custody Record / Request for Analysis

Client Contact Name: Bob Bettinger
Company Name: ETI
Address: 14705 W 114th Terr
City, State, Zip: Lenexa, Ks. 66215
Phone #: (913) 498-1114 Ext:
Fax #: (913) 498-1116
Email:

Project Name: Whiteman Air Force Base
Project Number:
Purchase Order Number:
Project Due Date:
Project Comments:
Print Sampler's Name: Bob Bettinger

Laboratory Project Number: 0606065

Analysis/Method to be Performed (Check all that apply)

Specify method # -->

Lab ID	Sample Description	Date	Time	Matrix	Total # Containers	Preservative: HCl	HNO_3	NaOH	H_2SO_4	Unpreserved	4° C	VOCs	SVOCs	Pesticides	PCBs	Herbicides	Metals (specify)	DRO	GRO	Explosives	Anions (specify)	TCLP Metals			Comments:
0606065-01	WS-2	6/14/06	1147	SW	2									✓	✓							✓			*Per conversation
0606065-02	SS-5	"	"	SW	2									✓								✓			w/ Bob Bettinger, Sample
3																									Description should
4																									read SS-5
5																									not WS-5
6																									
7																									
8																									
9																									
10																									

- Please include any information that may be useful in the analysis of the sample.
- Example: high concentration List analytes MS/MSD

CUSTODY						
Relinquished By:	Bob Bettinger	Date/Time:	6-14-06 1:45	Received By:		Date/Time:	6/14/06 1345
Relinquished By:		Date/Time:		Received By:		Date/Time:	

By signing the request (chain of custody) you are ordering work from Analytical Management Laboratories, Inc. which constitutes the acceptance of the terms and conditions on the back of this form.

Delivery Method	Custody Seals	Coolant	Cooler Temp.	Receiving Comments:
☑ Delivered in Person ☐ Courier ☐ Airbill #	☐ Yes ☐ No ☐ Intact ☐ Broken	☐ Ice ☐ Blue Ice ☐ None	4.0°C ☐ Temp. Blank ☐ Cooler	AT

PARSONS

July 5, 2006 Serial Letter No: SO 152

Mr. James D. Rudy, PE
US Army Corps of Engineers
Whiteman Project Office
P.O. Box 7003
Whiteman AFB, MO 65305

RE: Replace Family Housing – Task 1 (FY03 and FY04)
Contract DACA41-03-D-0014 (0001)

Subject: Pond Sediment and Metals Report

Dear Mr. Rudy:

Attached is the most recent Pestcides, Metals, and Sediment report for the project. We will continue to forward test results to you on a monthly basis.

Should you need additional information regarding this matter I may be reached at (660) 563-3289.

Sincerely,

Hoss Hamann, Senior Construction Manager
Parsons Construction Group, Inc.
Whiteman Air Force Base, MO

APPENDIX D

Agency Scoping Letters and Distribution List

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Whiteman AFB Agency Scoping Contacts

Mark Frazier, Chief
Regulatory Branch
Kansas City District, Corps of Engineers
601 East 12th Street
Kansas City, Missouri 64106

Joe Kothem
Environmental Review Coordinator
USEPA Region 7
901 North 5th Street
Kansas City, KS 66101

Mr. Charlie Scott, Field Supervisor
Columbia Ecological Services Field Office
U.S. Fish and Wildlife Service
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0057
Phone: 573-234-2132
Email: ColumbiaES@fws.gov

Mr. Larry Rizzo
Missouri Department of Conservation
Kansas City Regional Office
3424 N.W. Duncan Road
Blue Springs, MO 64015
(816) 655-6250

To Whom It May Concern
Missouri Department of Natural Resources
Watershed Protection Section
P.O. Box 176
Jefferson City, MO 65102
(573) 751-7428

11733 Chesterdale Road, Cincinnati, Ohio 45246 513.326.1500 / Fax 513.326.1550

October 27, 2009

Charlie Scott, Field Supervisor
Columbia Ecological Services Field Office
U.S. Fish and Wildlife Service
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0057

RE: Agency Scoping Letter
Environmental Assessment for the Maintenance of the Bear Lake Stormwater Retention Pond

Dear Mr. Scott:

The Kansas City District of the U.S. Army Corps of Engineers (KCCOE) has contracted with BHE Environmental, Inc. (BHE) to prepare an Environmental Assessment (EA) for maintenance of the Bear Lake Stormwater retention pond located on Whiteman Air Force Base in Missouri. The project will consist of the removal and disposal of approximately 30,000 cubic yards of accumulated sediment. In addition, a retaining wall will be constructed adjacent to an existing family housing area. This EA will also address periodic removal of sediment as it accumulates in the near future. During sediment removal activities the pond will be drawn down prior to sediment removal activities.

The study area for the EA will include Whiteman Air Force Base, Bear Lake, and its tributaries. Preliminary information supplied by the KCCOE indicates that water resources within the project area include non-wetland waters consisting of 3,470 linear feet of tributaries, 2.65 acres of wetlands, and 3.9 acres of impounded waters. Included for your review are a USGS quadrangle map (Burtville, MO quad) and an aerial photograph showing the project area.

The EA will be prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) Regulations, 40 CFR Parts 1500-1508, and Title 32 Chapter VII, Part 989, "Environmental Impact Analysis Process (EIAP)". The EA will identify and evaluate environmental impacts of the proposed action (maintenance of the stormwater retention pond). Effects of alternatives, including the No-Action Alternative, will also be evaluated.

The purpose of this letter is to invite participation of your agency in the development of the EA. We request any information your agency may have that is pertinent to our analysis, as well as your comments on issues that you feel should be considered in the EA process. If you have questions or need clarification regarding this request, please contact David Bell (BHE) by phone: (513) 326-1540; e-mail: dbell@bheenvironmental.com; or U.S. Mail: *11733 Chesterdale Road, Cincinnati, Ohio 45246-3405*. The KCCOE and BHE appreciate your time and assistance.

Sincerely,

David Bell
Biologist and Project Manager

APPENDIX E

Missouri Department of Conservation Natural Heritage Database Request - Response

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Missouri Department of Conservation

Heritage Review Report

Policy Coordination Unit
P. O. Box 180
Jefferson City, MO 65102
Prepared by: Shannon Cave
shannon.cave@mdc.mo.gov
573-522-4115X3250

David Bell
BHE Environmental, Inc. 11733
Chesterdale Road
Cincinnati, OH 45246

Email: dbell@bheenvironmental.com

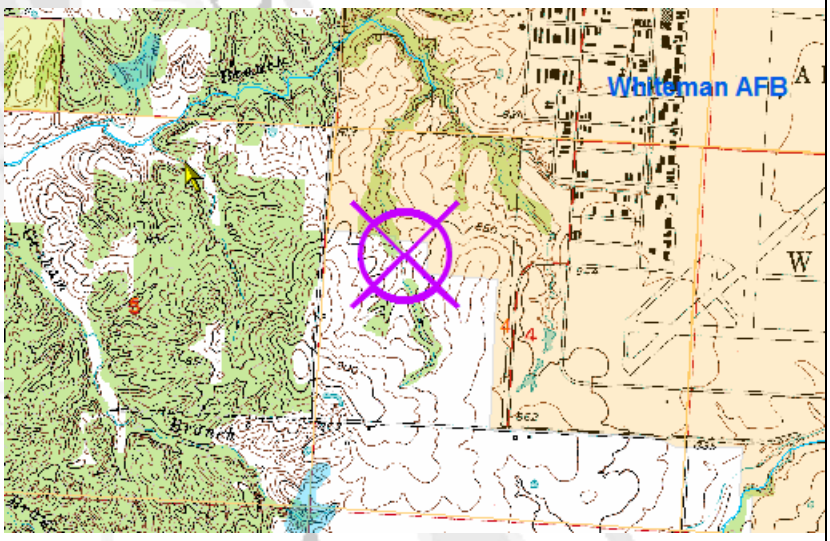
Project type:	Lake maintenance
Location/Scope:	Section 4 of T45N R24W
County:	Johnson
Query reference:	Bear Lake Stormwater Retention Pond
Query received:	November 16, 2009

Authenticity may be confirmed by Policy Coordination Unit, Missouri Department of Conservation, 573-522-4115.

This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project. *On-site verification is the responsibility of the project. Heritage records were identified at some date and location. This report considers records near but not necessarily at the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean a protected species will not be encountered. These records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed in order to avoid or minimize impacts. More information may be found at www.mdc.mo.gov/nathis/endangered/ and mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx. Contact information for the department's Natural History Biologist is online at http://www.mdc.mo.gov/nathis/contacts/.*

Level 3 and Level 2issues:

Records of federal-listed or state-listed species or critical habitats near the project site:



Heritage records identify no designated wilderness areas or critical habitats, no state or federal endangered-list species records

- within one mile of Bear Lake,
- in public land survey section l4 of T45N R24W or sections adjacent,
- within the boundaries of Whiteman AFB, in sections including part of the boundary or sections adjeacent to them; or
- in streams five miles downstream from the project site.

Knob Noster State Park is slightly less than a mile away and would qualify as a wildlife reserve. Affects to the Park should be considered and coordinated with Park managers.

The project should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions. Revegetate areas in which the natural cover is disturbed to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Pollutants, including sediment, can have significant impacts far downstream. Use silt fences and/or vegetative filter strips to buffer streams and drainages, and monitor those after rain events and until a well-rooted ground cover is reestablished.

FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. ***Consult with the U.S. Fish and Wildlife Service*** *(101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132).*

Level 1 concerns: Unlisted species/habitats tracked due to their rarity, but not listed as endangered or threatened or subject to special regulations.

Species	Common Name	State Rank	Twp/Rng	Sec	Date Last
Limestone glade		S2	T46N R24W	19	1987
Mustela frenata	Long-tailed Weasel	S2	T45N R24W	2	2000
Platanthera flava var. herbiola	Northern Rein Orchid	S2	T46N R24W	29	2002
Symphyotrichum subulatum var. ligulatum	Saltmarsh Aster	S2	T46N R24W	31	1988
Lithobates areolatus circulosus	Northern Crawfish Frog	S3	T45N R24W	4	1994
Lithobates areolatus circulosus	Northern Crawfish Frog	S3	T45N R24W	2	2006
Tyto alba	Barn Owl	S3	T45N R24W	2	2005
	Wet bottomland forest	S3	T46N R24W	29	1999
Wolffia columbiana	Columbia Water-meal	SU	T46N R24W	29	1988
State Rank codes are S1 (Critically imperiled); S2 (Imperiled), S3 (Rare and uncommon), and SU (unusual, but statewide status uncertain at this time). These are tracked due to their rarity, but are informational and not subject to special regulations.					

These records indicate the quality of natural systems in some parts of this area. The northern crawfish frog record in bold was found upstream from Bear Lake before some of the current housing was developed. If it persists in the area, fishless pools and surface depressions may be critical to its breeding success. See the attached information sheet .

The state tracks species not listed as endangered, but sufficiently rare or challenged that special efforts to conserve them may be important to their survival and to avoid future listing. There are no regulatory requirements associated with these, but we encourage conservation of them if encountered at the project site.

General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific heritage records):

- The project area is in a county with known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area. See http://mdc.mo.gov/nathis/caves/manag_construc.htm for best management information
- Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. Best management recommendations relating to streams and rivers may be found at http://mdc.mo.gov/79.
- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
  - Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
  - Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
  - When possible, wash and rinse equipment thoroughly with hard spray or HOT water (≧104° F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

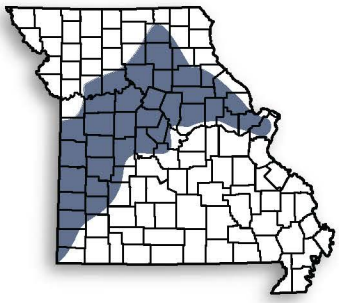
These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Heritage records largely reflect only sites visited by specialists in the last 30 years. This means that many privately owned tracts could host remnants of species once but no longer common.

Northern Crawfish Frog

Rana areolata circulosa

This is Missouri's second largest species of frog. Northern crawfish frogs live in native prairies and grasslands near small creeks or marshes. Coloration is tan or light gray, with numerous brown or black spots. There is a faint ridge of raised skin along each side of the back. Northern crawfish frogs range from 3 to 4 inches in head-body length. This species is seldom seen because of its secretive nature. Crawfish frogs take shelter in crayfish burrows or other animal burrows. This prairie species eats a variety of insects, spiders and small crayfish. Breeding takes place in early spring after heavy rains. This species is considered rare in Missouri due to destruction of native prairie and temporary pools. Fishless ponds are selected as breeding sites, and the deep, loud, snoring *gwwaaa* can be heard from a considerable distance.

Missouri Distribution:
Prairie areas in the northern, central and western sections of Missouri



JEFFREY T. BRIGGLER

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APPENDIX F

2009 USACE Jurisdictional Determination

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David Bell

From: Frazier, Mark D NWK [Mark.D.Frazier@usace.army.mil]
Sent: Thursday, October 22, 2009 11:35 AM
To: Gehrt, Alan K NWK
Cc: glenn.golson@whiteman.af.mil; David Bell; Kely Mertz; Donahue, Brian T NWK; Hibbs, David R NWK
Subject: RE: Bear Lake, Whiteman AFB, Wetlands Delineation
Attachments: 2009-10-22 JD Transmittal Email.pdf

Alan, attached is the Jurisdictional Determination Brian Donahue prepared for this project.

He identified the following waters:
- Non-wetland waters: 3,470 linear feet of tributary & linear feet: Avg. of 6 ' width (ft) and/or 0.48 acres.
- Wetlands: 2.65 acres.
- Impounded Waters: 3.9 acres.

The wetland acreage is estimated from various maps and aerial photographs.
No detailed boundary delineation was performed.

Mark D. Frazier
Chief, Regulatory Branch
Kansas City District Corps of Engineers
816-389-3664 (Voice)
816-896-5657 (Cell)
816-389-2032 (FAX)
http://www.nwk.usace.army.mil/regulatory/regulatory.htm
~~~~~~
Complete our Regulatory Service Survey at:
http://per2.nwp.usace.army.mil/survey.html
~~~~~~

-----Original Message-----
From: Gehrt, Alan K NWK
Sent: Thursday, October 22, 2009 9:51 AM
To: Frazier, Mark D NWK
Cc: 'glenn.golson@whiteman.af.mil'; 'David Bell'; 'Kely Mertz'
Subject: Bear Lake, Whiteman AFB, Wetlands Delineation

Mark-
Understand that you've done the wetland determination for this effort - has a delineation also been done?

Alan K. Gehrt, Project Manager
Environmental Branch, DERA Section
Kansas City District, Corps of Engineers
601 East 12th Street
Kansas City, Missouri 64106
Phone: 816.389.3142
Cell: 816.377.9974
FAX: 816.389.2023
http://www.nwk.usace.army.mil

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 8 October 2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City District, Bear Lake - Whiteman AFB, NWK-2009-1568

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: MO County/parish/borough: Johnson City:
Center coordinates of site (lat/long in degree decimal format): Lat. 38.72084° **N**, Long. -93.57446° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: **Tributary of Brewer Branch and Bear Lake**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Blackwater River
Name of watershed or Hydrologic Unit Code (HUC): **10300103**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **17 September 2009**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply): [1]

☐ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
☒ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☒ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 3,470 linear feet of tributary & linear feet: Avg. of 6 ' width (ft) and/or 0.48 acres.
Wetlands: 2.65 acres
Impounded Waters: 3.9 acres.

c. Limits (boundaries) of jurisdiction based on: **1987 Delineation Manual**

Elevation of established OHWM (if known): Presence of a OHWM also used in conjunction with the 1987 Wetland Manual.

2. Non-regulated waters/wetlands (check if applicable):[3]

☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: **Blackwater River**.

Summarize rationale supporting determination: **Historical information indicates that portions of the Blackwater River, as well as the downstream Lamine River, were used for commercial transportation. According to information provided by the Missouri Department of Conservation (MDC), there is currently frequent usage of both rivers of a recreational nature for small craft. On the Blackwater River, there is public river access area with a boat launch ramps at Missouri Highway K (Mile 6.7), Missouri Highway EE (Mile 38.2), Missouri Highway CC (Mile 52.7), and Missouri Highway 23 (Mile 58.2). The presence of boat launch ramps indicated that the Blackwater River has sufficient flow up to mile 58.2 to qualify as Traditional Navigable Water**.

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **acres**
Drainage area: 158 **acres**
Average annual rainfall: 30-38 inches
Average annual snowfall: 15-20 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **10-15** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **5-10** aerial (straight) miles from TNW.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: NO.

Identify flow route to TNW[5]: Reach flows to Brewer Branch which flows to Clear Fork which then flows to the Blackwater River.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The tributary reach has been manipulated for roadway crossings, portion of stream downstream of Bear Lake is piped, riparian and wooded buffers reduced and influenced by upland development.

Tributary properties with respect to top of bank (estimate):
Average width: 15 feet
Average depth: 3 feet
Average side slopes: **2:1.**
There is wide variability in stream bank heights and widths along the tributary reach. OHWM widths range from 4 feet to 8 feet and top of bank and depths vary greatly. Headcut present along central portion of tributary downstream of Kelly Road.
Primary tributary substrate composition (check all that apply):

☒ Silts	☐ Sands	☐ Concrete
☒ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Upper and lowest stretches of the reach are stable but portions of the central segment above Summit Street and below Kelly Rd. somewhat poor due to headcut.
Presence of run/riffle/pool complexes. Explain: Riffle pool complexes present in upper and lower segments.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:
Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: Flow observed during site visit, but no rain events during prior 6 days of visit. Unusally wet/cool summer season, duration and extent of flow in tributary during an average year unknown .
Other information on duration and volume: Evidence of low volume flow in channel during site visit. Local report regarding adjacent groundwater presence and past construction/engineering abatement and considerations taken in response to these conditions in the area.

Surface flow is: **Confined.** Characteristics: Defined channel evident with exception of short section just upstream of headcut where wetlands have temporarily formed.

Subsurface flow: **Unknown**. Explain findings: Not checked.
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☒ the presence of litter and debris
☐ changes in the character of soil	☒ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☒ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .

Identify specific pollutants, if known: No pollutants observed, water within stream channel was clear.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): Very narrow wooded corridor(less than 30 feet in total width is present along majority of stream reach with exception of two short segments below Kelly Road and above the lake. There is a four acre wooded area adjacent to the tributary downstream of Kelly Road below the lake. A more pronounced stream buffer approximately 100 feet in width is present along the tributary upstream of the lake for a distance of about 800 - 1000 linear feet.

☒ Wetland fringe. Characteristics: A small segment of the tributary upstream of the headcut exhibited saturated soils and obligate wetland vegetation, total area approximately 20 feet wide by 100 feet long or about 0.05 acres in size.

☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Total wetland area is 2.65 acres

Wetland type. Explain: 2.6-acres of palustrine emergent and also some fringe floating aquatics present around perimenter of the lake. The downstream .05-acre wetland is all emergent herbaceous and woody species located above the present site of the headcut.

Wetland quality. Explain:Good quality, diverse plant community including herbaceous and woody species, especially within the lake fringe.

Project wetlands cross or serve as state boundaries. Explain: NO.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: Small volume of flow observed during site visit 17 Sep 2009.

Surface flow is**: Confined**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting (Wetlands located above the head-cut downstream of Kelly road and lake)

☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☒ Separated by berm/barrier. Explain: Embankment of lake is a barrier but a there is piped conveyance downstream of the lake via a 500 ft long piped outlet structure.

(d) Proximity (Relationship) to TNW

Project wetlands are **10-15** river miles from TNW.

Project waters are **5-10** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Drainage area around lake and the entire tributary reach has been mostly developed for base housing residential use and or buffer/greenway recreational trail use.

Identify specific pollutants, if known: No known pollutants although some amounts are anticipated due to stormwater conveyence from streets and parking lots. Lawn and garden herbicides and pesticides in limited amounts are expected because the majority of the drainage area for the tributary reach has been developed for base housing.

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width):Minimal buffer around perimenter of the lake (10-20 ft width) and other wet location above headcut consisting of willow, green ash and silver maple trees, as well as obligate and faculative herbaceous species.

☒ Vegetation type/percent cover. Explain:See above.

☐ Habitat for:

☐ Federally Listed species. Explain findings: No federally listed species identified by reference check MDC website.

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **2**

Approximately (2.65) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
yes, fringe lake and stream wetlands	2.6	yes, headcut wetlands	.05

Summarize overall biological, chemical and physical functions being performed: **The wetlands present within the upper portions of the lake and around the remaining fringe of the lake provide water quality filtration and biological productivity functions that contribute positive values for the tributary reach and downstream receiving waters**. The wetlands above the head-cut area have some limited functions for silt control and filtering a portion of overland sheetflow.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **The unnamed non-RPW and adjacent wetlands maintain a significant nexus to the TNW through direct**

hydrologic connectivity to Brewer Branch, Clear Fork Creek and the Blackwater River (TNW). Hydrologic connectivity refers to the flow that transports organic matter, nutrients, energy, pollutants and aquatic organisms throughout the tributary system. There is no interruption of flow or hydrologic connectivity between the tributary, wetlands and the downstream receiving waters. Headwater stream systems such as this one can provide necessary habitat for a variety of birds, mammals, reptiles, and amphibious species populations. These stream types have catchment areas that can represent unique habitats for aquatic and terrestrial animals and organisms. The reach has the capacity to carry surface flow and pollutants via a confined channel to the RPW, then to the TNW. The non-RPW and associated wetlands maintain hydrologic connectivity to the TNW. Based on these observed conditions and through consultation with Region 7 of the Environmental Protection Agency, it has been determined that the non-RPW and wetlands associated with the reach have a significant nexus to the TNW.

3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:
- ☐ TNWs: linear feet width (ft), Or, acres.
- ☐ Wetlands adjacent to TNWs: acres.

2. RPWs that flow directly or indirectly into TNWs.
- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
- ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
- ☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
- ☒ Tributary waters: **3,470** linear feet **6** width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: **.**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
- ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

- ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

[8]See Footnote # 3.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☒ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: **2.65** acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☒ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

3.9 acres of open water within the lake were formed as a result of impounding the tributary and is jurisdictional

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: Burtville Quad map .
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS hydric soilsWeb maps.
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date):1999 Arcview datum and web-based aerial photography from Google Earth and Bing maps.
  or ☒ Other (Name & Date):Site visit photo's taken on 17 Sep 2009.
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☒ Other information (please specify):Draft TNW memorandum and guidance.

B. ADDITIONAL COMMENTS TO SUPPORT JD: The unnamed tributary and wetlands have the capacity to contribute hydrology and convey pollutants to receiving waters, provide habitat for aquatic organism life cycles, provide a natural filter for water quality improvement and supply a source of fresh water and organic materials to downstream waters. Based on these environmental connections and through consultation with Region 7 of the Environmental Protection Agency, it has been determined that the non-RPW has a significant nexus to the TNW.
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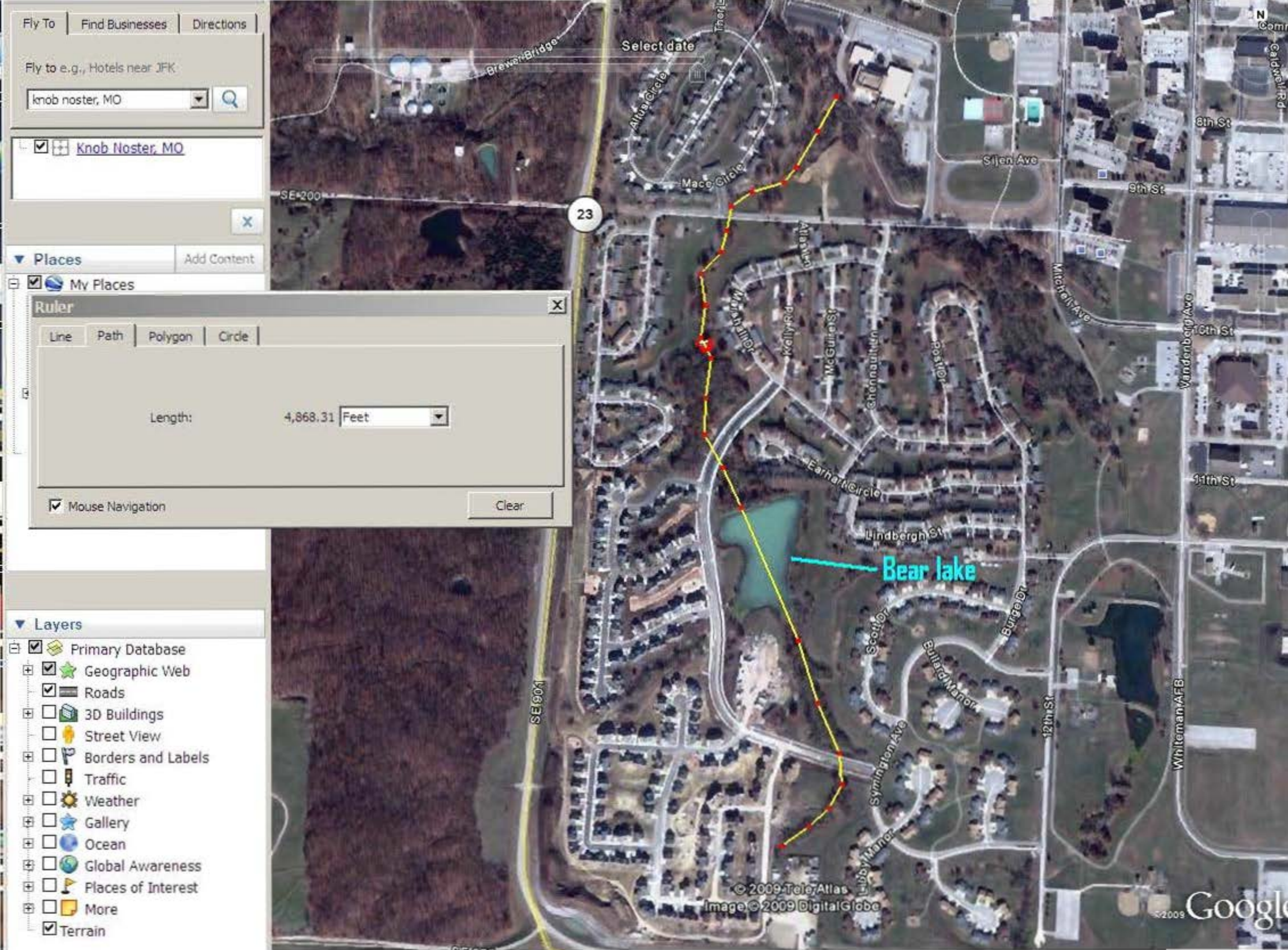
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Burge Dr
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Symington Ave
Lubin Manor
12th St
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David Bell

From: Donahue, Brian T NWK [Brian.T.Donahue@usace.army.mil]
Sent: Tuesday, November 10, 2009 4:53 PM
To: David Bell
Subject: Bear Lake,Wetlands Delineation, JD # 2009-1568
Attachments: wet1.pdf

David - Estimated figures from Google Pro used to gauge wetland size from aerial and on-site observations. Fringe area was about an acre and additional
1.6 was estimated in the upper end of the pond/arms. The extra .05 wetland acreage is from a small wetland associated with the stream channel downstream of the pond and roadway.

Brian T. Donahue
Regulatory Project Manager
Corps of Engineers
Kansas City District
(816) 389-3703

-----Original Message-----
From: David Bell [mailto:dbell@bheenvironmental.com]
Sent: Tuesday, November 10, 2009 2:48 PM
To: Donahue, Brian T NWK
Subject: FW: RE: Bear Lake, Whiteman AFB, Wetlands Delineation

Brian,

As discussed, if you could forward the figure associated with the attached that would be great!

See below also re original email from Mark Frazier, that arrived with us through Al Gehrt. If you need, my full contact details are at the bottom of this email.

Good to talk to you, have a great day!

Dave

-----Original Message-----
From: Frazier, Mark D NWK [mailto:Mark.D.Frazier@usace.army.mil]
Sent: Thursday, October 22, 2009 11:35 AM
To: Gehrt, Alan K NWK
Cc: glenn.golson@whiteman.af.mil; David Bell; Kely Mertz; Donahue, Brian T NWK; Hibbs, David R NWK
Subject: RE: Bear Lake, Whiteman AFB, Wetlands Delineation

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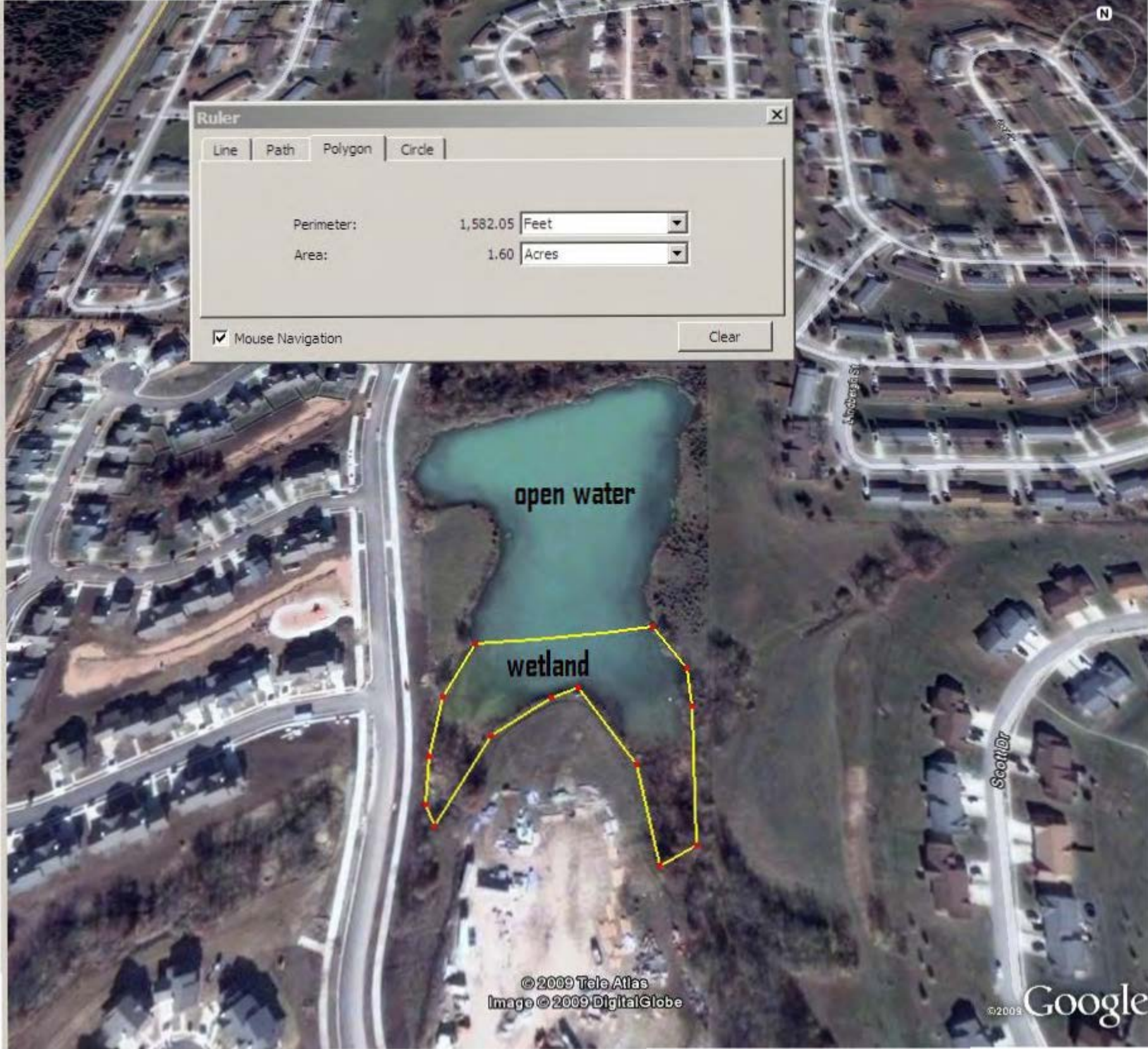
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