

Draft Environmental Assessment

Arkansas Game and Fish Commission

Hurricane Lake WMA Office Relocation

FEMA 1975-DR-AR (PW 4413)

White County, Arkansas

May, 2014



FEMA

Federal Emergency Management Agency
Department of Homeland Security
500 C Street, SW
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DRAFT
ENVIRONMENTAL ASSESSMENT
HURRICANE LAKE WMA OFFICE RELOCATION
White County, Arkansas

ENERCON Project Number: NEPA0410

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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|--------|---|
| ADEQ: | Arkansas Department of Environmental Quality |
| AGFC: | Arkansas Game and Fish Commission |
| ANHC: | Arkansas Natural Heritage Commission |
| ASL: | Above Sea Level |
| BGEPA: | Bald and Golden Eagle Protection Act |
| BMPs: | Best Management Practices |
| CWA: | Clean Water Act |
| DEM: | Department of Emergency Management |
| EA: | Environmental Assessment |
| EHP: | Environmental and Historic Protection |
| EIS: | Environmental Impact Statement |
| EJ: | Environmental Justice |
| EO: | Executive Order |
| EPA: | Environmental Protection Agency |
| ESA: | Endangered Species Act of 1973, as amended |
| FEMA: | Federal Emergency Management Agency |
| FONSI: | Finding of No Significant Impact |
| IPaC: | USFWS Information, Planning, and Conservation |
| MBTA: | Migratory Bird Treaty Act |
| NAD83: | North American Datum 1983 |
| NEPA: | National Environmental Policy Act |
| NPDES: | National Pollutant Discharge Elimination System |
| NRCS: | Natural Resources Conservation Service |
| OHWM: | Ordinary High Water Mark |
| OSHA: | Occupational Safety and Health Administration |
| SHPO: | State Historic Preservation Office |
| SWPPP: | Storm Water Pollution Protection Plan |
| TMDL: | Total Maximum Daily Load |
| TNW: | Traditionally Navigable Water |
| WMA: | Wildlife Management Area |
| USACE: | United States Army Corps of Engineers |
| USDA: | United States Department of Agriculture |
| USFWS: | United States Fish and Wildlife Service |

1.0 INTRODUCTION

The Arkansas Game and Fish Commission (AGFC) proposes to construct a new office facility within an existing, maintained picnic area in White County, Arkansas. This project will relocate the wildlife management area (WMA) administrative offices from a flood-prone area to a higher elevation. The new office will be located across the street from the present office. The proposed new office location is above typical flood elevations.

AGFC is the State fish and wildlife management agency responsible for the sustainable management of those resources and associated habitat in Arkansas. AGFC contracted with Enercon Services, Inc. (ENERCON) to prepare this Environmental Assessment (EA). ENERCON used FEMA Region 6 EA Writing Guidance (Ver.2.0) for preparation of this document.

AGFC plans to submit a grant application to the Federal Emergency Management Agency (FEMA) (through the Arkansas Department of Emergency Management (DEM) for funding the construction of the proposed project. FEMA is considering this request. Before FEMA can take a Federal action (i.e. approve a loan application), it is required to conduct an environmental review in accordance with the National Environmental Policy Act (NEPA) and FEMA implementing regulations, environmental policies and procedures. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality regulations to implement NEPA (40 Code of Federal Regulations Parts 1500-1508), and FEMA's regulations implementing NEPA (44 CFR Part 10). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to analyze the potential environmental impacts of the proposed office relocation project. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

2.0 PROJECT DESCRIPTION

2.1 *Location and Project Characteristics*

The proposed project area is mapped on United States Geological Survey (USGS) topographic quadrangle Georgetown, AR (7.5-minute series). Coordinates for the center of the project area are 35.232117, -91.482642 (NAD 83). Legal description of the site is Part of the Northwest ¼ of the Southwest ¼ of the Northwest ¼ of Section 18, Township 7 North, Range 4 West. The proposed project consists of the construction of an office facility, gravel parking area, and associated infrastructure. The project will be constructed 7.3 miles southeast of the town of Bald Knob in White County, Arkansas (Figure 1). The proposed project area is approximately

115 feet wide and 205 feet in length encompassing approximately 0.54 acres. The project area will encompass the office facility, associated driveway and parking, and necessary infrastructure (utilities, septic tank and field, etc.). This part of White County is a rural area characterized by a mixture of row crop agriculture, forestry, and recreational land use. At the time of field studies, the proposed project area contained no urban development. However, a single-family residence (area manager's house) was located to the north and another single-family residence and saw mill is located to the west across Glaise Creek Road. The existing office facilities are located on the south side of Glaise Creek Road and the current picnic area and boat trailer parking area is located to the east. Site photographs are included as Appendix A.

The proposed office facility will be within an existing maintained lot that was historically used for picnic tables and primitive camping. The layout and location of the proposed office facility are shown in the attached topographic and aerial site maps (Figures 2 and 3). Table 1 summarizes the proposed office facility technical characteristics.

Table 1: Proposed Project Technical Information

| CHARACTERISTIC | SPECIFICATION |
|--|----------------------------|
| Area Length | 205 feet |
| Area Width | 115 feet |
| Project Area | 0.54 acres |
| Top of Pad Elevation (above current elevation) | 1 feet |
| Embankment Slope | 3:1 |
| Gravel Parking Area | 4,750 sq. ft. (0.11 acres) |
| Office Facility Area | 960 sq. ft. (0.02 acres) |
| Brush and Tree Removal | 6,200 sq. ft. (0.14 acres) |

2.2 Construction

The office facility construction will be within the existing picnic and camping area of the WMA. The proposed project will require construction of an elevated earthen pad with 3:1 slopes. Chain-link fencing will be installed around the entire perimeter encompassing approximately 0.54 acres. An existing mapped drainage ditch that lies on the west side of the project site will be crossed by a culvert from the west boundary. This will provide an entrance to the site from Hurricane Lake Road.

Total project area ground disturbance will be approximately 0.27 acres. Since the site is maintained, clearing of brush and trees will be limited to only those required for facility and parking construction, installation of the septic field lines, and any required for safe construction operations. Approximately 0.14 acres of tree and brush removal will be required of the 0.27 acres of total ground disturbance.

During construction, erosion and sediment control measures will be implemented following industry best management practices (BMPs). Following construction, a rerouted drainage ditch will be restored by re-establishment of native vegetation. Construction debris and trash will be properly disposed of following construction.

2.3 Maintenance

Periodic activities will be required to maintain the office facility area. These activities include hand clearing, herbicide application, and mowing as needed. Periodic maintenance of the office exterior structure may also be required, but at less frequent intervals.

2.4 Preliminary Schedule

Table 2: Proposed Preliminary Schedule

| ACTIVITY | SCHEDULE |
|---|-----------------|
| Office facility Design Completion | December 2012 |
| Completion of FEMA NEPA Process | January 2013 |
| RFP for Office facility Construction | February 2013 |
| Office facility Construction Contract Awarded | April 2013 |
| Office facility Construction Begins | TBD |

3.0 PURPOSE AND NEED FOR THE PROJECT

The Hurricane Lake WMA office is a central office for other AGFC WMAs in the area. This office provides workspace for up to four AGFC personnel, which provide services to three WMAs in the immediate vicinity. AGFC relies on this facility to operate and provide logistical support to the State-owned lands within the region.

The current WMA office building has been flooded at least five different times since it was constructed in the early 1980's. The lower section of this office building flooded in 1982, 1989, March 2008, April 2008, and in 2011. During each of these flood events, this office facility had sustained substantial damage.

The construction of the office facility at the proposed location will prevent operational delays resulting from repeated annual flooding. Additionally, construction at the new location will result in a decrease in cost associated with furniture, computer and equipment replacement, and equipment clean-up time following potential future flooding events.

4.0 ALTERNATIVES

AGFC evaluated three (3) options for this project:

No Action Alternative: Under this option, future flooding events will continue to cause additional expenses in equipment repair and replacement, employee displacement, and lost employee service hours to the public. This option does not meet the purpose and need of the proposed project.

Alternate Location Alternative: Move the location of the proposed office facility to another location on the WMA. This option was not chosen for the following reasons:

- Office would not be at the entrance of the WMA (as desired).
- All other locations within the WMA experience the same flooding regime.
- Placing the office facility elsewhere on the WMA would impact jurisdictional wetlands and wildlife habitat through permanent conversion and potentially interfere with continued land use within the immediate vicinity.

Because the proposed project's purpose and need is specific, and available land and existing infrastructure is limited to the project area, little potential for development of alternatives was available. If alternative locations were selected, additional flood events would repeatedly damage the structure, there would be a potential for higher environmental impacts, and the project would have a substantially higher cost. Therefore, alternative locations were not selected and will not be discussed any further in this EA.

Proposed Project Alternatives: Construct the proposed project as shown in Figures 2 and 3. The proposed project would be constructed on a site that has not experienced flooding over the past 10 years, is located at the entrance of the WMA, and is not within a wetland. This land is also already owned by AGFC and habitat is disturbed through lawn maintenance practices on and around the proposed site. The proposed location was selected because it (1) minimizes affects on the human environment, (2) minimizes affects on the natural environment, and (3) meets the stated project purpose and need.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

5.1 Land Use

The project location is approximately seven miles southeast of Bald Knob, Arkansas in White County. Land use in the area is dominated by row crop agriculture (consisting of soybean, corn, and rice production), forestry, and recreation (hunting and fishing) (Figure 4). The only industrial activity present within the vicinity is a sawmill located west of the proposed project area. The primary land use at the project location is recreational activities.

No Action Alternative: No change in the current land use would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be no change of the current land use. The location of the proposed project will have no short-term, construction related positive or negative impacts to the land use of the WMA or surrounding area. Long-term, positive impacts include providing a better infrastructure for AGFC personnel and allow the AGFC to more efficiently administer natural resource management applications affecting land use (natural resource recreation) without displacement of personnel or equipment due to flood events.

5.2 Floodplains

Executive Order 11988, Floodplain Management, was issued on May 24, 1977 in order to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of the floodplain and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. This includes an eight-step decision-making process documented in or as part of this EA for compliance with FEMA's 24 CFR Part 9.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for White County is printed on panel number 05145C0525E (May 2, 2012) and the entire panel is within flood zone "A". Despite the specific site characteristics of the project area (i.e. significant flooding not observed within the three flood events over the past ten years), the project area is located within a mapped Zone A flood zone (areas of 100-year flood) (Figure 5). Therefore, a floodplain construction permit will be required for construction of the proposed project.

A public notice concerning the location of the project site within a floodplain will be posted in The Daily Citizen newspaper serving Searcy and the White County, Arkansas area. This public notice will included with the notice concerning public involvement and comment regarding this EA.

Consultation with the regional floodplain administrator resulted in the disclosure of previous base flood elevations of 207.3 feet ASL at the current office location. The recommended

“bottom of floor” elevations for this area of White County is 208.5 feet ASL. Elevation surveys of the proposed site revealed the ground elevation is 208.5 feet ASL with a projected bottom of floor elevation at 209 feet ASL.

Construction on the selected site will not have any impact on the natural function of the floodplain. This office facility is not part of a multiple phase development and expansion from this project further into the floodplain is not expected. Additionally, construction of the proposed office facility will not impact the floodwater on or around the proposed facilities due to the higher elevation at the proposed project location. Construction at the selected location should not cause any collection of debris, impoundment, or diversion of rising or receding floodwaters during a major flood event. Therefore, the project will not disrupt floodplain function by changing water levels, and the project will not reduce wildlife habitat within the floodplain.

No Action Alternative: No impacts or change in floodplain function will be experienced under this alternative. Negative impacts from this alternative include continued property damage and displacement of personnel during flood events on the floodplain.

Proposed Project Alternative: Under this alternative, there will be no change in floodplain functions. Positive impacts from this alternative include disruption free operation, maintenance, and management of natural resources on the floodplain within the WMA and region. No other alternative locations are available within the WMA for the relocation of the office facility.

In accordance with EO 11988, FEMA’s Eight-Step Planning Process for Floodplains was completed to identify, minimize, and mitigate floodplain impacts.

Step 1: Determine whether the Proposed Action is located in a wetland and/or the 100-year floodplain (500-year floodplain for critical actions), and whether it has the potential to affect or be affected by a floodplain or wetland.

According to the FIRM, the project site is located within Flood Zone A, a special flood hazard area (100-year floodplain) with water surface elevations determined (Community Panel Number 05145C0525E, Effective May 2, 2012). A review of the USFWS National Wetland Inventory (NWI) and a site evaluation as specified by the 1987 USACE Wetland Delineations Manual (USACE, 1987) verified that no wetlands are located within the project site. No direct or indirect impacts to wetlands are anticipated.

Step 2: Notify public at earliest possible time of the intent to carry out an action in a floodplain, and involve the affected and interested public in the decision-making process.

An Early Notice of a Proposed Activity in a 100-year Floodplain and Notice of Availability for the Draft Environmental Assessment for the project will be published in the regional newspaper informing the public of FEMA's involvement with the project.

Step 3: Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain.

No other alternative locations were considered viable due to the lack of available land White County that is located outside of the 100-year floodplain. This project will relocate the wildlife management area (WMA) administrative offices from a flood-prone area to a higher elevation. The new office will be located across the street from the present office. The proposed new office location is above typical flood elevations.

Step 4: Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains, and the potential direct and indirect support of floodplain development that could result from the Proposed Action.

Consultation with the regional floodplain administrator resulted in the disclosure of previous base flood elevations of 207.3 ASL at the current office location. The recommended "bottom of floor" elevations for this area of White County is 208.5 feet ASL. Elevation surveys of the proposed site revealed the ground elevation is 208.5 feet ASL with a projected bottom of floor elevation at 209 feet ASL.

Construction on the selected site will not have any impact on the natural function of the floodplain. This office facility is not part of a multiple phase development and expansion from this project further into the floodplain is not expected. Additionally, construction of the proposed office facility will not impact the floodwater on or around the proposed facilities due to the higher elevation at the proposed project location. Construction at the selected location should not cause any collection of debris, impoundment, or diversion of rising or receding floodwaters during a major flood event. Therefore, the project will not disrupt floodplain function by changing water levels, and the project will not reduce wildlife habitat within the floodplain.

Step 5: Minimize the potential adverse impacts from work within floodplains (identified under Step 4), restore, and preserve the natural and beneficial floodplain values.

The project will not impact floodplain elevations or velocities. No minimization is necessary. Appropriate BMPs, including the installation of silt fences and the revegetation of disturbed soils will be implemented to minimize soil erosion and reduce off-site sediment transport to adjacent surface waters and wetland areas. All conditions in the Floodplain Development Permit (Appendix E) will be implemented.

Step 6: Reevaluate the Proposed Action to determine: 1) if it is still practicable in light of its exposure to flood hazards; 2) the extent to which it will aggravate the hazards to others; 3) its potential to disrupt floodplain values.

The project remains practicable in light of its exposure to flood hazards and the extent to which it will aggravate hazards to others. The construction of the office facility at the proposed location will prevent operational delays resulting from repeated annual flooding. Additionally, construction at the new location will result a decrease in cost associated with furniture, computer and equipment replacement, equipment clean-up time following flood events. The action will have no potential to disrupt floodplain values.

Step 7: If the agency decides to take an action in a floodplain, prepare and provide the public with a finding and explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process.

A Final Floodplain Notice for the project will be published in the regional newspaper informing the public of FEMA's decision to proceed with the project. The purpose and need of the project is to provide the Arkansas Game and Fish Commission with a facility that will be less susceptible to flooding, in efforts to maintain operations during further storm events.

No other alternative locations were considered viable due to the lack of available land within White County that is located outside of the 100-year floodplain. The loss of floodplain in the vicinity of the project is considered a minimal adverse effect; flooding within White County is predominantly driven by extensive floodplains associated with the White River and Little Red River. The project will not likely result in appreciable increases in flood velocities or elevations upstream or downstream. Indirect impacts include supporting the ongoing occupancy of the floodplain that occurs within White County.

Step 8: Review the implementation and post-implementation phases of the Proposed Action to ensure that the requirements of the EOs are fully implemented.

The project will be constructed in accordance with federal, state and local floodplain requirements. This step is integrated into the NEPA process and FEMA project management and oversight functions.

5.3 Wetlands and Other Waters of the United States

Section 404 of the Clean Water Act (CWA) prohibits the discharge or redistribution of dredged or fill material into waters of the United States (US). Generally speaking, waters of the US include navigable waters, their tributaries, and adjacent wetlands. Impacts to these waters require a permit issued by the US Army Corps of Engineers (USACE).

Executive Order 11990, Protection of Wetlands, was issued on May 24, 1977 in order to avoid, to the extent possible, the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. This Order applies to both jurisdictional and non-jurisdictional wetlands.

Field investigations were conducted to evaluate the proposed location for wetlands and other waters of the US. A formal Section 404 delineation was not prepared for submittal to the USACE; however, an evaluation of the proposed project area for Section 404 wetlands as specified by the *1987 USACE Wetlands Delineation Manual* (USACE, 1987) and applicable regional supplement (i.e. *Atlantic and Gulf Coastal Plain Region; USACE, 2010*) was performed. Findings are presented on the basis of best professional judgment and extensive wetland experience in this part of Arkansas. With regard to other waters of the US, site reconnaissance was conducted to document the presence of streams, ponds, and other surface water features with a potential for Corps regulation under Section 404. Brief summaries of the findings are provided below.

Wetlands

Wetland evaluations conducted on site revealed that hydrophytic vegetation was present (bottomland hardwood tree species), but wetland hydrology and hydric soil indicators were lacking. Therefore, no Section 404 jurisdictional or non-jurisdictional wetlands were identified within the proposed project area.

Other Waters of the US

One linear drainage feature was identified within the project area. One drainage ditch lies adjacent to the west boundary of the proposed project area. This feature is a channelized, ephemeral roadside drainage ditch and is not mapped on the USGS topographic quadrangle. This drainage runs north to south, entering the northwest corner of the project area and exiting at the southwest corner of the project area. The total length of this ditch within the project area is 115 linear feet. Since this stream has no ordinary high water mark (OHWM) and is not traditionally navigable water (TNW), this stream is not likely within USACE jurisdiction as a water of the US. This ditch will only be crossed by the west access drive and will have a 10' X 24" diameter culvert and associated fill installed for the driveway crossing.

No Action Alternative: No change in wetland status or function of other waters would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be no change in the wetland status of the site or surrounding areas. Wetland assessment data and concurrence from the USACE Little Rock District confirm that no Section 404 resources will be impacted and

no permits will be required. The existing road-side drainage ditch will also experience some short-term negative impacts to these features will include placement of fill material (soil, shale, gravel) to construct the proposed office facility access drive. Positive impacts under this alternative, including debris removal, and proper culverting to promote drainage and storm water flow.

5.4 Geology, Soils, and Seismicity

The proposed project area is located in the Western Lowlands Pleistocene Valley Trains subset of the Mississippi Alluvial Plain ecoregion of Arkansas (73g). The Western Lowlands Pleistocene Valley Trains subset consists of alluvial windblown loess, sand sheets, or sand dunes with occasional interdunal depressions. Elevations are generally higher than adjacent parts of the Northern Holocene Meander Belts (73a) and Western Lowlands Holocene Meander Belts (73f) with upland rarely, if ever flooded (Woods et al., 2004).

Soils mapped by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) on the proposed project area include Dewitt silt loam, 0-1 percent slopes. This soil is usually associated with uplands on floodplain terraces and is comprised of loamy alluvium. Drainage is poor with low available water capacity. However, no flooding usually occurs within this mapped soil unit. The water table is generally 6 to 18 inches below the surface depending on season. Dewitt silt loam is classified as prime farmland if drained and cleared (USDA NRCS, 2013). However, no prime farmland according to the Farmland Protection Policy Act (FPPA) was determined on site according to the NRCS (Appendix B).

Studies completed in White County, Arkansas by the Arkansas Geological Survey (AGS) revealed some seismic activity within the western portion of the County from 1965 to 2011. This seismic activity as attributed to earthquakes with magnitudes from 0.0 to 3.9 on the Richter Scale. However, no seismic activity has been detected within the eastern portions of the County or within proximity of the proposed project site (AGS, 2012).

No Action Alternative: No impacts to geology, soils, or seismicity would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be no adverse impacts to area geology, soils or seismicity.

5.5 Cultural Resources

Executive Order 11593, Protection and Enhancement of the Cultural Environment, was issued on May 13, 1971. This EO directs federal agencies to inventory their cultural resources and establish policies and procedures to ensure the protection, restoration, and maintenance of

federally owned sites, structures, and objects of historical, architectural, or archeological significance. Additionally, numerous laws require the identification and protection of archeological and culturally significant sites by local, state, and federal agencies including the National Historic Preservation Act of 1966 (as amended), Archeological and Historic Preservation Act of 1974, Archaeological Resources Protection Act of 1979, and Historic Sites Act of 1935.

Consultation letters to the State Historic Preservation Office (SHPO), and FEMA Region 6, Environmental and Historic Preservation (EHP) were sent to solicit comment and recommendations concerning cultural resources on the project area. The EHP suggested that the presence of archaeological resources is possible. Therefore, a Phase I Cultural Resources Survey was completed by Panamerican Consultants, Inc. in September 2012 with negative findings. Upon review of the report, Arkansas SHPO concurred that no archeological or cultural sites currently or historically existed on the project area. The SHPO response is included in Appendix B, and a copy of the Phase I Cultural Resources Review is included as Appendix C.

No Action Alternative: No impacts to cultural resources would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be no impacts to cultural resources. Results from a Phase I Cultural Resources Survey and written concurrence from the Arkansas SHPO support this conclusion.

In the event that archeological deposits, including any Native-American pottery, stone tools, bones, or human remains, are uncovered, the project shall be halted, and the applicant will stop all work immediately in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. All archeological findings will be secured and access to the sensitive area restricted. The applicant will inform FEMA immediately, and FEMA will consult with the SHPO or THPO, and the Tribe. Work in the sensitive areas cannot resume until consultation is completed, and appropriate measures have been taken to ensure that the project is in compliance with the NHPA

5.6 Wildlife and Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 prohibits any person from “take” (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, relocate, or collect or attempt to engage in any such conduct) of any Federally listed threatened or endangered species. Habitat modification or degradation that results in death or injury to Federally protected species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering is also prohibited. Administration and enforcement of the ESA are the responsibility of the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service.

Literature and database reviews as well as an on-site assessment of the project area were conducted to identify potential impacts to listed species. In order to determine which species could possibly occur in or near the project area, the USFWS Information, Planning, and Conservation (IPaC) System official list of threatened, endangered, and candidate species and designated critical habitat areas for White County was reviewed. This information is located on the USFWS, Environmental Conservation Online System (USFWS, 2012). The Arkansas Natural Heritage Commission (ANHC) State-protected species list was also reviewed. This review resulted in a list of six (6) Federally listed and five (5) State-listed species known to occur within White County (Table 3). For those species occurring or suspected to occur within or near the project area, searches of the scientific literature were conducted to determine confirmed occurrence locations and specific habitat requirements for each species. On-site assessment consisted of attempts to observe individuals of listed species or sign indicating their presence (including but not limited to tracks, scat, relict shells, and nests). Plant community structure and composition, as well as edaphic and hydrologic characteristics of the site were also assessed in order to identify potential habitats for the various species considered.

Table 3: Federally -Listed Species and State Species of Conservation Concern for White County, Arkansas

| SPECIES | FEDERAL STATUS | STATE STATUS |
|---|----------------|--------------|
| BIRDS | | |
| Piping plover (<i>Charadius melodus</i>) | T | NL |
| bald eagle (<i>Haliaeetus leucocephalus</i>) ¹ | D | D |
| MAMMALS | | |
| gray bat (<i>Myotis grisescens</i>) | E | NL |
| MUSSELS | | |
| Fat pocketbook (<i>Potamilus capax</i>) | E | NL |
| Pink mucket (<i>Lampsilis abrupta</i>) | E | E |
| Speckled pocketbook (<i>Lampsilis streckeri</i>) | E | NL |
| Rabbitsfoot (<i>Quadrula cylindrical cylindrical</i>) | T | E |
| Scaleshell mussel (<i>Leptodea leptodon</i>) | E | NL |
| PLANTS | | |
| Purple fringeless orchid (<i>Platanthera peramoena</i>) | NL | T |
| T = Threatened, E = Endangered, D = Delisted, NL = Not Listed | | |

None of the species listed in Table 3 were observed at the time of the site visit. Species fact sheets and additional information are included as Appendix D.

Piping Plover

The piping plover (*Charadrius melodus*) is a small, stocky shorebird found in wide, flat, open, sparsely vegetated sandy beaches during summer and breeding seasons. They are approximately 7 inches in length with predominantly pale sand-colored back with showy black

¹ The bald eagle is Federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

bands on the head and neck. Arkansas is between the breeding and wintering range of piping plovers, where they use preferred habitats as stopover locations during migration.

Determination of Effects: The proposed project area is located within the known migration corridor of the piping plover. No large sand bars are located within the Hurricane Lake WMA. No plovers were observed during the site visit, and no adequate habitat is present to support piping plovers during part, or all of each year on the project area. No direct effects are expected because there is no suitable habitat in the project location. Because of this, there will be no effect on the piping plover.

Gray Bat

The gray bat (*Myotis grisescens*) is an almost exclusive cave dwelling species except during feeding and migration. While White County has caves with potential populations of gray bats, no geology is present within the project area that would support karst features. No critical habitat has been designated for the gray bat.

Determination of Effects: Based upon the absence of suitable habitat within the proposed project area, this project is not expected to impact the gray bat. No direct effects are expected because there is no suitable habitat in the project location. Because of this, there will be no effect on the gray bat.

Fat Pocketbook

The fat pocketbook (*Potamilus capax*) is a freshwater mussel preferring stable sand, mud, and fine gravel bottoms of large rivers. These mussels are relatively large (up to 5 inches in length) and bury themselves in substrate in water ranging in depth from a few inches up to eight feet. No critical habitat has been published for the fat pocketbook.

Determination of Effects: The proposed project area is located within the White River drainage basin, where fat pocketbook mussels are known to occur. No stream or river is within the project area that is directly connected to the White River. No adequate habitat is present to support fat pocketbook mussels. No direct effects are expected because there is no suitable habitat in the project location. Because of this, there will be no effect on the fat pocketbook.

Pink Mucket

The pink mucket (*Lampsilis abrupta*) is a thick, inflated, yellow-brown freshwater mussel preferring sand, mud, or gravel bottoms of large rivers and tributaries. These mussels bury themselves in substrate in water ranging in depth from one inch up to five feet deep. No critical habitat has been published for the pink mucket.

Determination of Effects: The proposed project area is located within the White River drainage basin, where pink mucket is known to occur. No stream or river is within the project area that is directly connected to the White River. No adequate habitat is present to support the pink mucket. No direct effects are expected because there is no suitable habitat in the project location. Because of this, there will be no effect on the pink mucket.

Speckled Pocketbook

The speckled pocketbook (*Lampsilis streckeri*) is a medium-sized (3.5 inches in length), thin, dark yellow-brown freshwater mussel with chevron-like spots and chain-like rays. These mussels prefer coarse to muddy sand bottom rivers and tributaries with constant flow. No critical habitat has been published for the speckled pocketbook.

Determination of Effects: The proposed project area is located within the White River drainage basin, where speckled pocketbook is known to occur. No stream or river is within the project area that is directly connected to the White River. No adequate habitat is present to support the speckled pocketbook. No direct effects are expected because there is no suitable habitat in the project location. Because of this, there will be no effect on the speckled pocketbook.

Scaleshell Mussel

The scaleshell mussel (*Leptodea leptodon*) is a relatively small (3-4 inches in length), thin yellow-brown freshwater mussel with faint green rays. This mussel prefers stable, sand or gravel bottoms of large rivers and tributaries. No critical habitat has been designated for the scaleshell mussel.

Determination of Effects: The proposed project area is located within the White River drainage basin where scaleshell mussels are known to occur. However, no stream or river within the project area is directly connected to the White River. No direct effects are expected because there is no suitable habitat in the project location. Because of this, there will be no effect on the scaleshell mussel.

Rabbitsfoot

The scaleshell mussel (*Leptodea leptodon*) is a medium-sized (4-6 inches in length), elongated mussel with dark-colored chevron markings. This mussel prefers shallow, gravel bottoms of rivers and tributaries. No critical habitat has been designated for the scaleshell mussel in Arkansas.

Determination of Effects: The proposed project area is located within the White River drainage basin where rabbitsfoot mussels are known to occur. However, no stream or river within the project area is directly connected to the White River. No direct effects are expected because

there is no suitable habitat in the project location. Because of this, there will be no effect on the rabbitsfoot mussel.

Bald Eagle

According to the Federal Register, the bald eagle (*Haliaeetus leucocephalus*) was federally delisted on August 8, 2007. However, the bald eagle continues to receive protection from the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). These acts do not provide the same level of protection as the ESA, but protect the eagle from take of their offspring, eggs, parts, or nests. These acts also provide protection to the bald eagle from direct harm; this includes behavioral changes. The MBTA and BGEPA are enforced by the USFWS. The AGFC still considers the bald eagle to be a species of conservation concern for the state (AGFC, 2004). No active bald eagle nests are within or near the proposed project area. Likewise, the project area does not support bald eagle nesting habitat including mature trees in or directly adjacent to a large, open body of water. While wintering bald eagles may frequent the area and even utilize the WMA, this project is not expected to impact the bald eagle.

Purple Fringeless Orchid

This orchid is a short (12-39 inches) plant, bearing loose, spike inflorescences of violet to pink flowers. It is found in open, swampy places along forest openings and meadow, vernal pools, and other areas with acidic soil.

Determination of Effects: The proposed project area is located within the White River drainage basin where the purple fringeless orchid is known to occur. However, no suitable habitat for the purple fringeless orchid is within the project area or immediately adjacent area. No direct effects are expected because there is no suitable habitat in the project location. Because of this, there will be no effect on the purple fringeless orchid.

Consultation with the USFWS as well as the ANHC seeking concurrence with the above-described findings has been completed. Both agencies responded in writing and agreed that the proposed project will not affect threatened or endangered species. Correspondence documenting these consultations is included in Appendix B of this report.

No Action Alternative: No impacts to wildlife, threatened or endangered species will occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be no impacts to threatened or endangered species. Short-term negative impacts to other wildlife species may include displacement of songbirds, small mammals, reptiles and amphibians. However, these species will likely return to the project area after construction and experience no long-term negative impacts.

5.7 Vegetation

The area surrounding the project site consists of row crop agricultural land, timberland, and maintained lawns associated with residential structures. The project area consists of maintained open woodland. The project area supports vegetation typical of bottomland hardwood areas in central Arkansas. Species observed include white oak (*Quercus alba*), cherrybark oak (*Q. falcata*), and Shumard oak (*Q. shumardii*). Herbaceous vegetation was largely lacking due to canopy coverage, leaf litter coverage, and periodic maintenance through mowing. Drainage ditches and bank slopes supported limited vegetation, but were dominated by bermudagrass (*Cynodon dactylon*) and crabgrass (*Digitaria ciliaris*).

No Action Alternative: No change in the current vegetation community would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be a slight change of the current vegetation community. Negative impacts include some mature tree and herbaceous vegetation clearing. However, this will be limited mostly to the septic field due to the maintained, open woodland on site. Permanent clearing of vegetation for the driveway, parking area, and office foundation will occur with this alternative. Additional impacts will include a shift from lacking herbaceous cover, to a maintained grass lawn around the constructed facilities and parking area. Areas outside of the maintained lawn will revert back to open woodland over the long-term.

5.8 Air Quality

The project is in an EPA attainment area for all criteria air pollutants. Heavy equipment will be required to construct the project. Use of such equipment can produce dust during dry weather. Wind also contributes to dust related air quality problems. Dust suppression techniques will be implemented as needed to minimize discharge of dust into the atmosphere.

No Action Alternative: No change in the current air quality would occur under this option.

Proposed Project Alternative: Under this alternative only minor, but short-term impacts on air quality in the area are expected. Mitigation of air-borne dust during construction will include spraying water on exposed, dry soil, and covering of trucks hauling any removed, or imported soils.

5.9 Water Quality

Construction of this project will be in compliance with all regulations of the CWA, as amended. The preparation and implementation of a SWPPP will be completed in order to apply for a construction storm water discharge permit under the National Pollutant Discharge Elimination System (NPDES) issued by the Arkansas Department of Environmental Quality (ADEQ). The SWPPP will include all specifications and BMPs needed for control of erosion and sedimentation including installation of silt fencing and check dams. During the construction phase, prevention measures will be utilized to reduce the threat of petroleum based fuels and lubricants from heavy equipment from leaking or being spilled on soils or surface waters. Fueling and servicing of such equipment will be done in a manner consistent with BMPs for these activities. The SWPPP will be prepared when final project planning has been completed in order to best integrate the BMPs with the project design.

According to the Arkansas Department of Health, the project area is not within a public drinking water system's Wellhead Protection Area (Appendix B). No impacts to public or private drinking water supplies are anticipated from the proposed project.

Arkansas has developed BMPs for waters with reported TMDLs. The United States Environmental Protection Agency (USEPA) has not determined TMDLs for Glaise Creek (USEPA 2008). According to the ADEQ, Glaise Creek is listed on the 2012 State 303(d) List of impaired waters and is located approximately 4,123 linear feet east of the proposed project area (ADEQ, 2012). Zinc from agricultural sources was identified as the impairment but no TMDLs have been developed for this pollutant. This project will not increase the daily load of zinc or any other pollutants.

No Action Alternative: No change in the current water quality would occur under this alternative.

Proposed Project Alternative: Under this alternative, sedimentation generated during construction may possibly result in localized, short-term adverse water quality impacts. Other potential sources of water quality impacts include leaks or spills of petroleum products from construction equipment. Mitigation to prevent sediment transport during construction includes BMPs such as installation of silt fencing and check dams. Additional mitigation efforts include prevention measures to reduce the threat of petroleum based fuels and lubricants from heavy equipment from leaking or being spilled on soils or entering surface waters.

5.10 Visual Resources

The project area is within an established public wildlife management area. Two residences were observed within, or in the immediate vicinity of, the proposed project area. The project is relatively small and visually similar to the current facility (which is also within view of these

residences); therefore, the project will not change or impair local aesthetics. Additionally, one of the residences within the vicinity is owned by the AGFC and is used for the area manager residence working at the proposed office facility. Considering these factors, no issues with regard to visual resources are anticipated.

No Action Alternative: No change in the area's visual resources would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be no change of the visual resources of the area.

5.11 Transportation

The proposed project will not cross any transportation or roadways during or after construction. However, some temporary traffic congestion or impediment may occur during equipment transport into and out of the project area. This impediment will not affect the overall ingress and egress of traffic through the general area.

No Action Alternative: No change in the current land use would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will be only minor and temporary traffic impediments through ingress and egress of equipment. On- and off-site staging areas will be utilized when needed to avoid any traffic delays associated with equipment loading and unloading during construction.

5.12 Noise

Executive Order 12088, Federal compliance with pollution control standards, was issued on October 13, 1978. This EO directs federal agencies to ensure that all necessary actions are taken to prevent, control, and abate environmental pollution with respect to Federal facilities and activities under the control of the agency.

Temporary increases in noise levels will occur during construction of the project. Because the project is located adjacent to a sawmill and away from any sensitive receptors, it should not adversely affect noise levels. The increased noise levels from the proposed project are anticipated to be minimal and temporary.

No Action Alternative: No change in the area noise levels would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will only be minor short-term noise impacts associated with construction of the facility. The existing sawmill activities

adjacent to the project area will likely generate higher noise levels over the long-term and other receptors of noise are largely absent.

5.13 Human Health and Safety

Compliance with all applicable Occupational Safety and Health Administration (OSHA) requirements will occur to prevent hazardous exposures to employees during construction and maintenance of this project. Construction and operational activities are conducted in a manner that prevents hazardous exposure to the public.

No Action Alternative: No change in the human health and safety would occur under this alternative.

Proposed Project Alternative: Under this alternative, normal AGFC personnel operations currently conducted will occur and there will be no change of the human health and safety.

5.14 Socioeconomics

White County, Arkansas is a predominantly rural county with approximately 78, 493 residents. The majority of the population is white (92.6%) and median household income is \$41,618 per year. Approximately 16.4% of the population lives below the poverty level. Estimates in 2011 are 22,911 people employed by nonfarm business. The immediate area of the project is dominated by row-crop agriculture and recreational, state-owned lands with little to no urban development (U.S. Census Bureau, 2012)

Two public roadways (Hurricane Lake Road and Lone Star Road) provide access to the project site and surrounding residential and saw mill properties. Temporary disruption of traffic, temporary noise, and minimal project area clearing are not expected to negatively impact commercial, cultural, or recreational activities supporting the socioeconomic structure of the area.

No Action Alternative: No change in the area socioeconomics would occur under this alternative.

Proposed Project Alternative: Under this alternative, there will only be minor, short-term traffic delays associated with construction of the facility. Any temporary transportation disruption will not impact local employment or other socioeconomic factors within the project area.

5.15 Environmental Justice

This document is in compliance with the requirements of EO 12898 - Federal Action to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations. The EO

requires that minority and low-income populations not receive disproportionately high or adverse human health or environmental effects. Should the proposed office facility be constructed, the land use would be consistent with current land uses in the area and would not affect the current life styles and habits of residents. Any activities that currently take place in the vicinity of the site would not be affected as a result of the proposed project. Therefore, no change in the quality of life of the local population is expected. Some disadvantages associated with the proposed project may include temporary traffic congestion during equipment transport to the site and increased noise levels within the immediate area during construction. Some of the advantages of the proposed project would be increased public service ability within the WMA during flood events and continued man-hours on-site for public agency employees paid by taxpayer dollars.

No Action Alternative: No change in the area’s minority or low-income population activities, lifestyle, human health or environment is expected under this alternative.

Proposed Project Alternative: Under this alternative, there will be no disproportionate impact to the human health or environment of minority or low-income populations within the project area. The facility is not one to either promote or inhibit significant socioeconomic growth.

6.0 CUMULATIVE IMPACTS

| Affected Environment/ Resource Area | Impacts | Agency Coordination /Permits | Mitigation/ BMPs |
|--|--|---------------------------------|--------------------------------------|
| Land Use | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |
| Floodplains | No Action Alternative: Continued property damage | Floodplain Development Permit | Floor Elevation above 208.5 feet ASL |
| | Proposed Project Alternative: No Impacts | | |

| Affected Environment/ Resource Area | Impacts | Agency Coordination /Permits | Mitigation/ BMPs |
|--|---|--------------------------------------|--|
| Wetlands and Waters | No Action Alternative: No Impacts | ADEQ Construction NPDES Permit | Construction SWPPP and BMPs |
| | Proposed Project Alternative: No Impacts | | |
| Soils, Geology, Seismicity | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |
| Cultural Resources | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |
| Wildlife and T&E Species | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |
| Vegetation | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: Hardwood conversion to herbaceous lawn on limited area | | |
| Air Quality | No Action Alternative: No Impacts | N/A | Watering of dry soils during construction and covered transport trucks hauling soil. |
| | Proposed Project Alternative: Temporary dust during construction | | |
| Water Quality | No Action Alternative: No Impacts | ADEQ Construction NPDES Permit | Construction SWPPP and BMPs |
| | Proposed Project Alternative: No Impacts | | |
| Visual Resources | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |

| Affected Environment/ Resource Area | Impacts | Agency Coordination /Permits | Mitigation/ BMPs |
|--|---|---------------------------------|--|
| Transportation | No Action Alternative: No Impacts | N/A | Quick entry and exit with equipment and trucks |
| | Proposed Project Alternative: Temporary traffic congestion | | |
| Noise | No Action Alternative: No Impacts | N/A | No practical BMPs available or needed. |
| | Proposed Project Alternative: Temporary construction noise | | |
| Human Health and Safety | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |
| Socioeconomics | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |
| Environmental Justice | No Action Alternative: No Impacts | N/A | N/A |
| | Proposed Project Alternative: No Impacts | | |

7.0 AGENCY CORRESPONDENCE

Consultation with various state and Federal agencies was initiated regarding the proposed project. Consultation letters were sent out on November 5, 2012 to the United States Corps of Engineers-Memphis District, U.S. Fish and Wildlife Service-Conway Field Office, Arkansas Department of Natural Heritage-State Historic Preservation Office, White County Department of Emergency Management, and Arkansas Department of Emergency Management. The results of this correspondence are included in Appendix B.

8.0 LITERATURE CITED

Arkansas Department of Environmental Quality (ADEQ). 2012. 2012 303(d) List Information. [http://www.adeq.state.ar.us/water/branch_planning/303d/pdfs/draft_2012_303\(d\)_list.pdf](http://www.adeq.state.ar.us/water/branch_planning/303d/pdfs/draft_2012_303(d)_list.pdf). [Accessed: 11/07/2012].

- United States Department of Agriculture Natural Resources Conservation Service (NRCS). 2013. Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> [Accessed: 6/10/2013].
- United States Department of the Army, Corps of Engineers (USACE). November 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*. ERDC/EL TR-10-20.
- United States Department of the Army, Corps of Engineers (USACE). 1987. *Corps of Engineers, Wetlands Delineation Manual*. Wetlands Research Program Technical Report Y-87-1.
- United States Environmental Protection Agency (USEPA). Arkansas Water Quality Assessment Report, Assessed Waters of Arkansas by Watershed: Glaise Creek (2008). http://ofmpub.epa.gov/waters10/attains_index.search_wb?p_area=AR&p_cycle=2008. [Accessed: 11/07/2012]
- United States Fish and Wildlife Service (USFWS). 2012. Information, Planning, and Conservation System (IPac). <http://ecos.fws.gov/ipac/>. [Accessed: 10/23/2012].

9.0 LIST OF PREPARERS

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Senior Biologist
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Oklahoma City, Oklahoma

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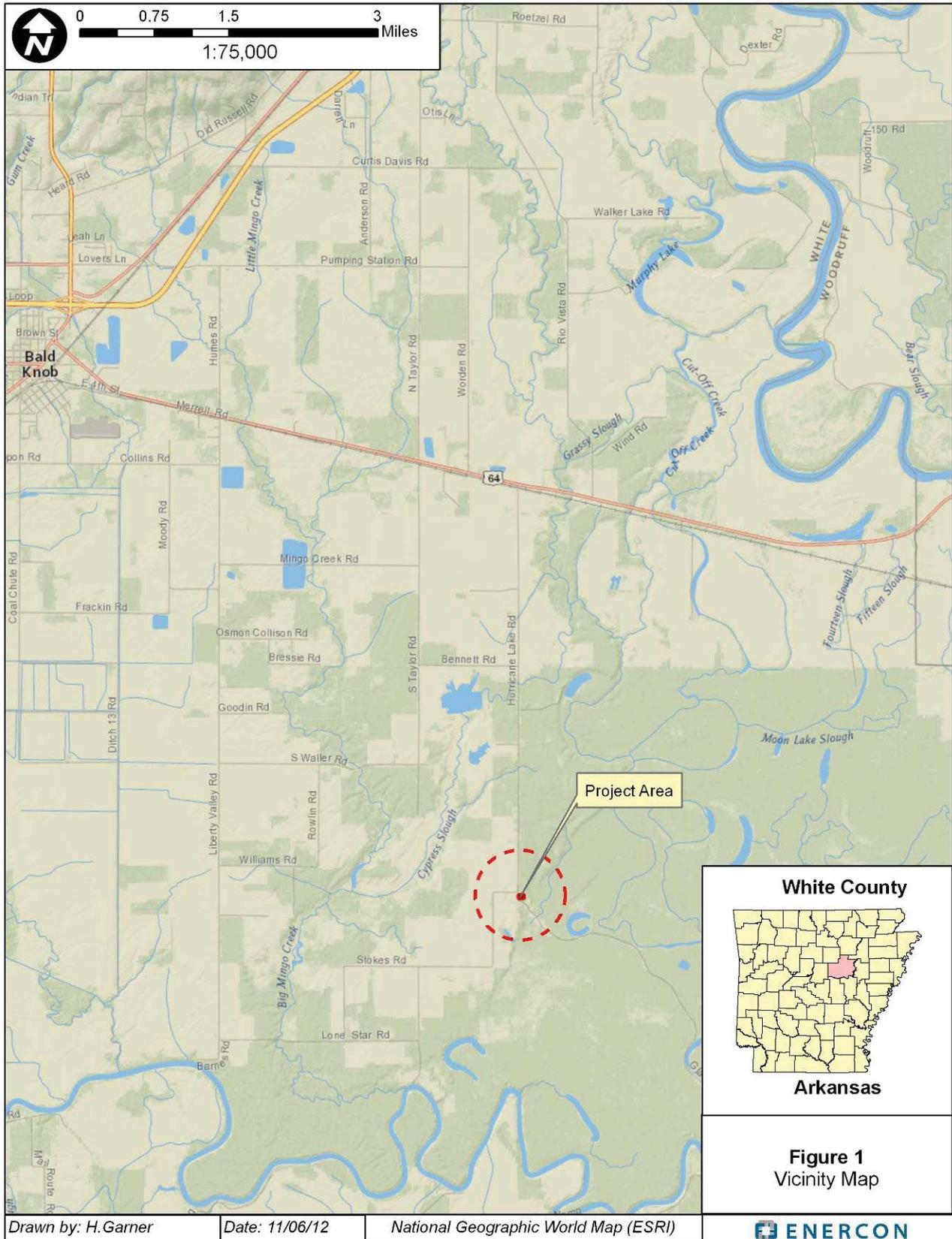
Kevin Jaynes

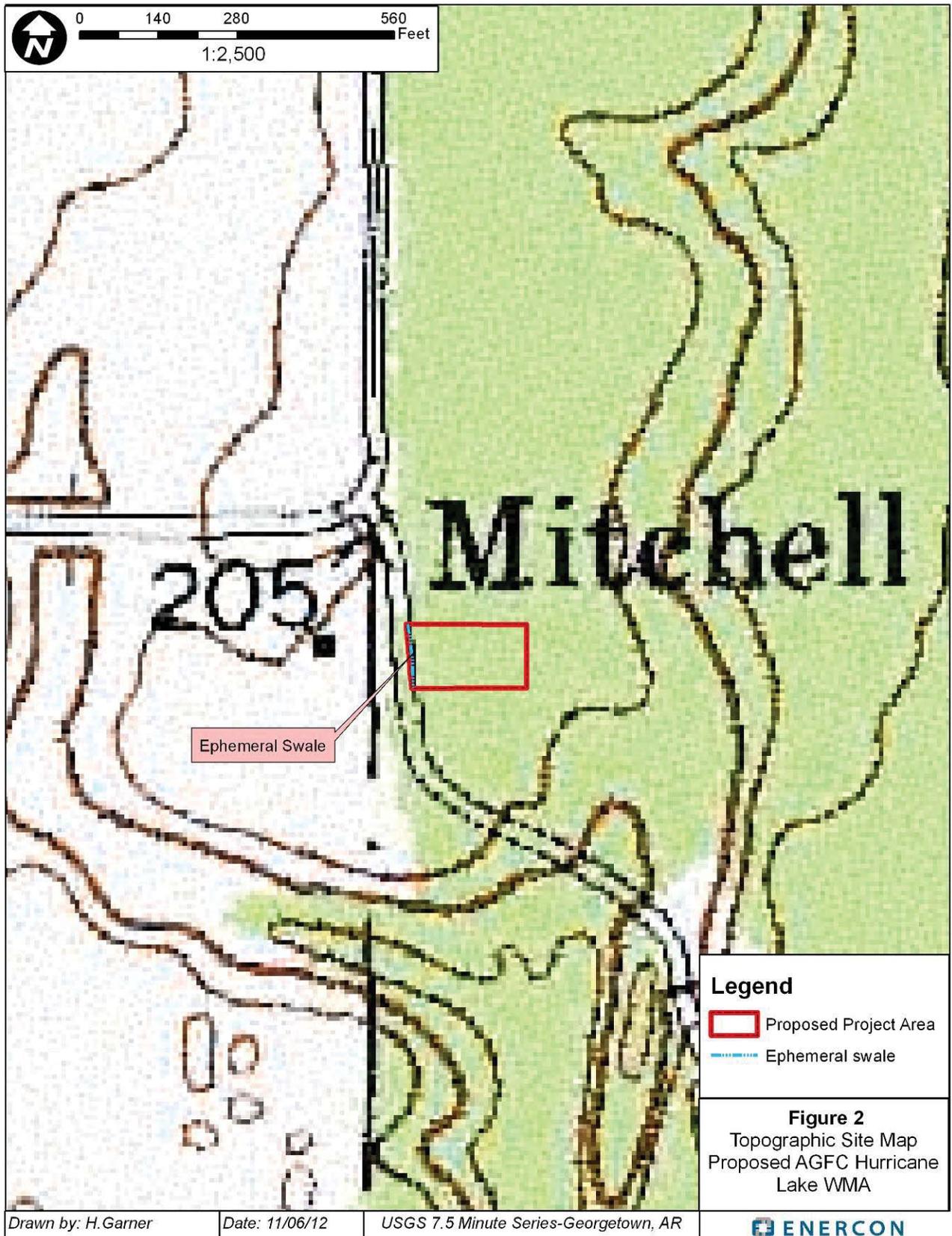
Regional Environmental Officer, Region VI
Federal Emergency Management Agency
Denton, Texas

Alan Hermely

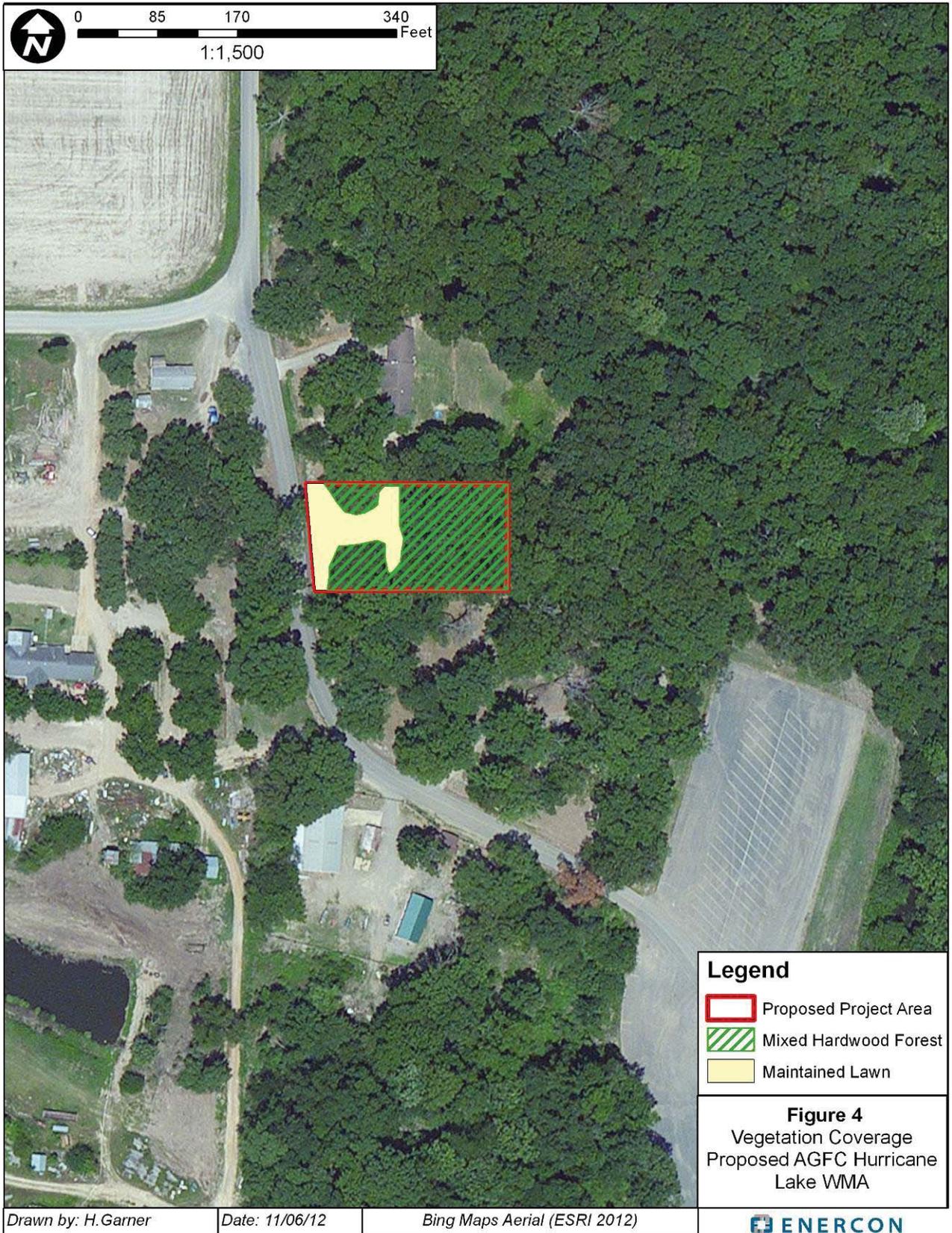
Environmental Specialist, Region VI
Federal Emergency Management Agency
Denton, Texas

FIGURES

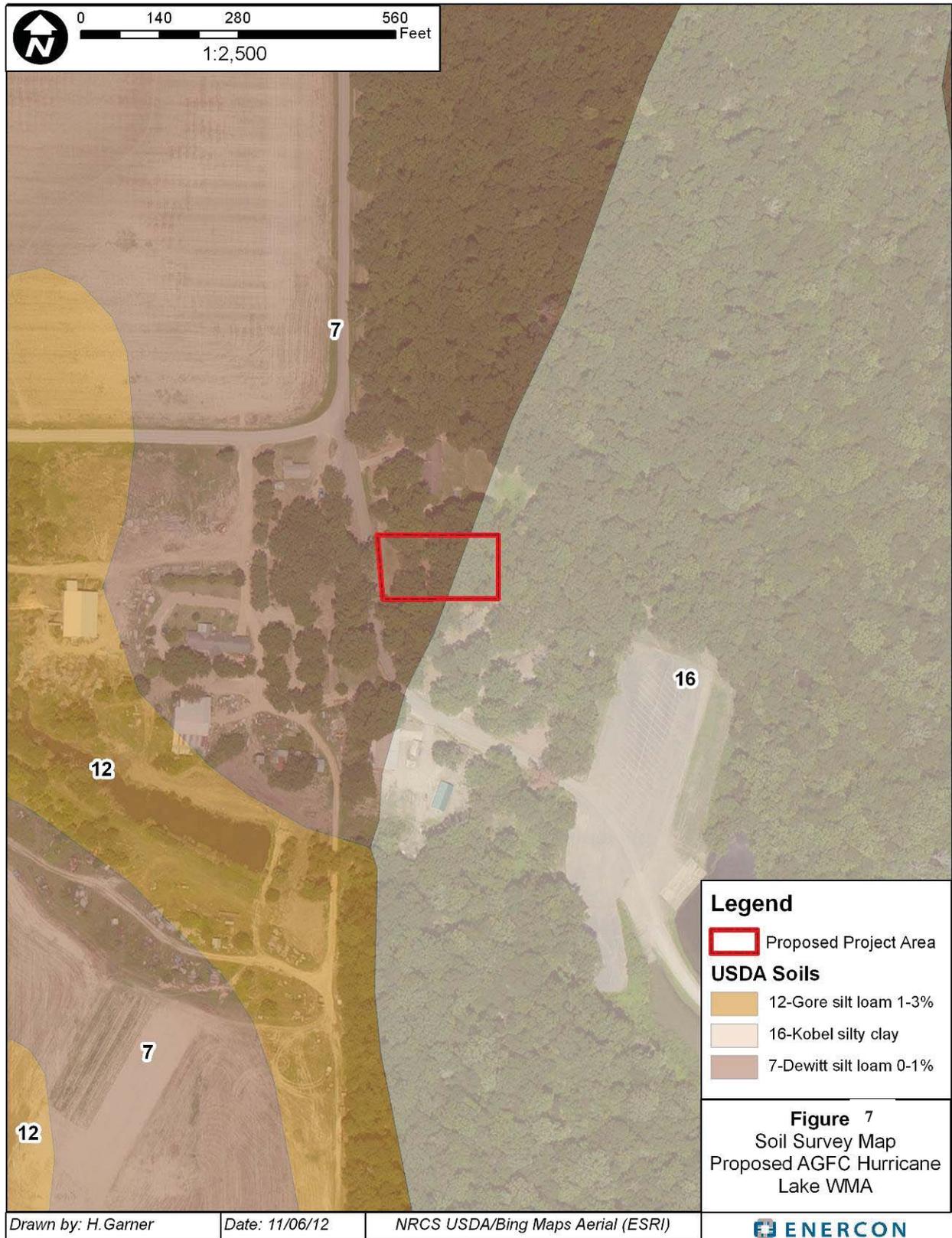












APPENDIX A
Representative Site Photographs



Photo 1. Proposed project area facing south towards existing office facility



Photo 2. Proposed project Area facing north showing existing area manager residence



Photo 3. Glaise Creek Road facing north showing access to the proposed project area.



Photo 4. Glaise Creek Road facing south showing existing office facility and unmapped drainage swale.



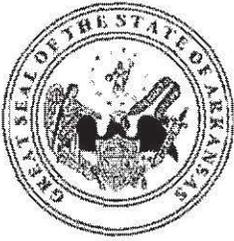
Photo 5. Representative photograph of bottomland hardwood (non-wetland) on the east side of the proposed project area.



Photo 6. Picnic area adjoining east of the proposed project area (facing southeast from site)

APPENDIX B

Agency Correspondence



MIKE BEEBE
GOVERNOR

STATE OF ARKANSAS
DEPARTMENT OF EMERGENCY MANAGEMENT



DAVID MAXWELL
DIRECTOR

August 17, 2012

RECEIVED

AUG 20 2012

Mr. Dale Gunter, PE – Chief
Arkansas Game and Fish Commission
Ecological and Engineering Bureau
#2 Natural Resources Drive
Little Rock, AR 72205

Ecological & Eng. Servs.

RE: FEMA 1975-DR-AR
Environmental Review
Project Worksheet 4413

Dear Mr. Gunter,

FEMA Region 6, Environmental and Historic Preservation (EHP) section, has reviewed the alternate project request for project worksheet 4413. They advised, the project is new construction in a new location and the presence of archaeological resources is possible; therefore, it does not qualify as a categorical exclusion and an Environmental Assessment (EA) is required.

Attached is a copy of the EA writing tips for reference. Once the requested EA is completed, please submit to our office. We will review and forward to FEMA Region 6 for review and approval. If you have EA specific questions, please contact Cheryl Brown, FEMA Environmental Specialist, at (940) 383-7286 or by email at Cheryl.brown@fema.dhs.gov.

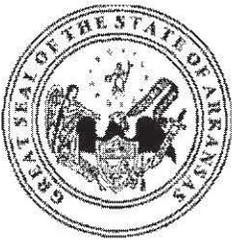
If you have general questions on these projects or need further information, please contact Clay Bewley at (501) 683-6700 or at recoverybranch@adem.arkansas.gov.

Sincerely,

Scott Bass
Disaster Management Division Director

SB:cb

Enclosures



MIKE BEEBE
GOVERNOR

**STATE OF ARKANSAS
DEPARTMENT OF EMERGENCY MANAGEMENT**



DAVID MAXWELL
DIRECTOR

August 17, 2012

Mr. Dale Gunter, PE - Chief
Arkansas Game and Fish Commission
#2 Natural Resources
Little Rock, AR 72205

RE: Extension Request DR 1975

Dear Mr. Gunter:

This letter is in reference to your request for an extension on Project Worksheet (PW) 4413 dated August 10, 2012. An alternate project has been requested for this PW and FEMA Environmental and Historic Preservation is requiring an Environmental Assessment (EA) be completed. Due to the fact that this PW will require an EA, we agree that an extension of time is necessary. As the grantee of the Public Assistance program we authorize a 12-month extension until November 16, 2013. This is your first extension. Please ensure that all future time extension requests are made in advance of the November 16, 2013 deadline.

Arkansas Game and Fish Commission has 18 months from the date White County was designated a disaster area (5/16/11) to complete your permanent work. An extension can be authorized from the State of Arkansas up to 30 months. Any extension beyond that 48 month deadline (5/16/15) must be submitted through the state in order to obtain approval from FEMA Region VI. Quarterly reports are required on all large projects. Please ensure that reports are submitted in a timely manner.

If you need additional information, please contact Clay Bewley at (501) 683-6700 or the Recovery Branch Staff at recoverybranch@adem.arkansas.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Bass".

Scott Bass
Disaster Management Division Director

SB:cb

Heath Garner

From: Andres Mariani [amarianioem@gmail.com]
Sent: Thursday, November 08, 2012 1:59 PM
To: Heath Garner
Subject: AGFC office relocation project, White Co., AR

Mr. Garner:

Here is the contact information for Mr. Borengasser with the Arkansas Natural Resources Commission. Hope this will aid you in your endeavor. If I can be of further assistance please contact me.

Michael Borengasser, CFM, NFIP Coordinator 501-682-3969
michael.borengasser@arkansas.gov

--

Andres R. Mariani
White Co. OEM Deputy Director/Floodplain Manager
2301 Eastline Rd.
Searcy AR 72143
Office: 501-279-6277
Fax: 501-279-6278

Heath Garner

From: MSCServices [mscservices@riskmapcds.com]
Sent: Friday, November 02, 2012 9:14 AM
To: Heath Garner
Subject: RE: Map viewing error (Customer Number-92855)
Attachments: image001.gif; image002.gif; image003.gif; image004.jpg

We are responding as a representative of the Department of Homeland Security, Federal Emergency Management Agency (FEMA), to your e-mail message, below. Please reference your customer number, which is 92855, in any future correspondence to mscservices@riskmapcds.com.

The subject panel is a non-printed panel, meaning that a physical panel has not been printed for the defined area and is only shown on the Flood Insurance Rate Map (FIRM) Index Map for reference. We will work to remove the icon from the website. According to the FIRM Index, Panel 05145C0525E is located entirely within Zone A.

In order to access the FIRM Index Map, go to the Map Service Center (MSC) website, <http://msc.fema.gov>, and then click on Product Catalog button, located in the main toolbar on the home page of the MSC website. Select the Effective FIRMs/FHBMs button and follow the subsequent prompts. The index map, typically located at the top of the generated list, always has the letters IND within the map number. Please note an area may have more than one index map.

We hope this information has addressed the concerns raised in your e-mail. If you need additional information or assistance, please reply to this message and reference your customer number, 92855. You may also contact the FEMA Map Information eXchange (FMIX), toll-free, at (877) 336-2627, option 2, or visit the FEMA Map Service Center website at <http://msc.fema.gov>.

NOW OFFERING LIVE CHAT! To chat, visit us on the web at <http://msc.fema.gov>.

From: Heath Garner [mailto:hgarner@enercon.com]
Sent: Friday, October 26, 2012 11:00 AM
To: MSCservices@riskmapcds.com
Subject: Map viewing error (Customer Number-92855)

Dear Sir or Madam:

The following flood insurance rate map (FIRM) is does not open for production of a FIRMETTE.

| | | | |
|-------------|---------------------------------|------------|---|
| 05145C0525E | FLOOD INSURANCE RATE MAP (FIRM) | 05/02/2012 |   |
|-------------|---------------------------------|------------|---|

It provides the following message when the view button is selected---“**ERROR: File type is not defined as viewable**”. All other maps open as intended. However, we are performing an environmental assessment on a project within that specific flood insurance map for FEMA and the documented information is necessary to complete the environmental review. Any assistance and/or correction of the map data for this FIRM would be greatly appreciated.

Cordially,

Heath Garner
Senior Biologist/Environmental Scientist
Phone: [870-219-1721](tel:870-219-1721)

hgarner@enercon.com



Please consider the environment before printing this e-mail.



OFFICE OF EMERGENCY MANAGEMENT

2301 Eastline Rd.
Searcy, Arkansas 72143
(501) 279-6277 Fax-(501) 279-6278
amarianioem@gmail.com



White County, Arkansas

Andres Mariani, OEM Deputy Director / Floodplain Manager

November 20, 2012

To: Heath Garner
Senior Biologist, Environmental Scientist
ENERCON Services, Inc.

From: Andres Mariani
White County Floodplain Manager

RE: Proposed AGFC Hurricane Wildlife Management Office Relocation Project
Section 18 – T7N – R4W
White County, Arkansas

In regards to your letter; I spoke with the Arkansas Natural Resources Commission and was able to learn that since this is a State building being placed on State lands, most of the paperwork you will need for this project will probably come from state. However being that this is the AGFC they do not necessarily fall under the overview of the Arkansas Building Authority. There may be a contact person within the AGFC who handles their permits and will be more aware of any other necessary steps.

As far as White County, I have included here the Flood Zone Permits and a copy of a FIRM for the area in question. I hope that this will help you along in the construction of the property. Please contact me and we can discuss the paperwork and what areas I will need to have completed. If there is anything else I can help you with please contact me at anytime.

Sincerely;

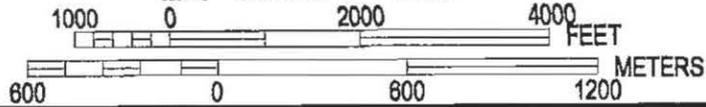
Andres R. Mariani
White Co. Floodplain Manager
Deputy Director WCOEM

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 2000'



N
F
I
P

PANEL 0525E

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
WHITE COUNTY,
ARKANSAS
AND INCORPORATED AREAS

PANEL 525 OF 675

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| <u>COMMUNITY</u> | <u>NUMBER</u> | <u>PANEL</u> | <u>SUFFIX</u> |
|---------------------|---------------|--------------|---------------|
| GEORGETOWN, TOWN OF | 050605 | 0525 | E |
| WHITE COUNTY | 050467 | 0625 | E |

AUG 19 2008

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
05145C0525E

EFFECTIVE DATE

Federal Emergency Management Agency

rogram. It
from local
should be

levations
to consult
Elevations
companies
represent
insurance
of flood
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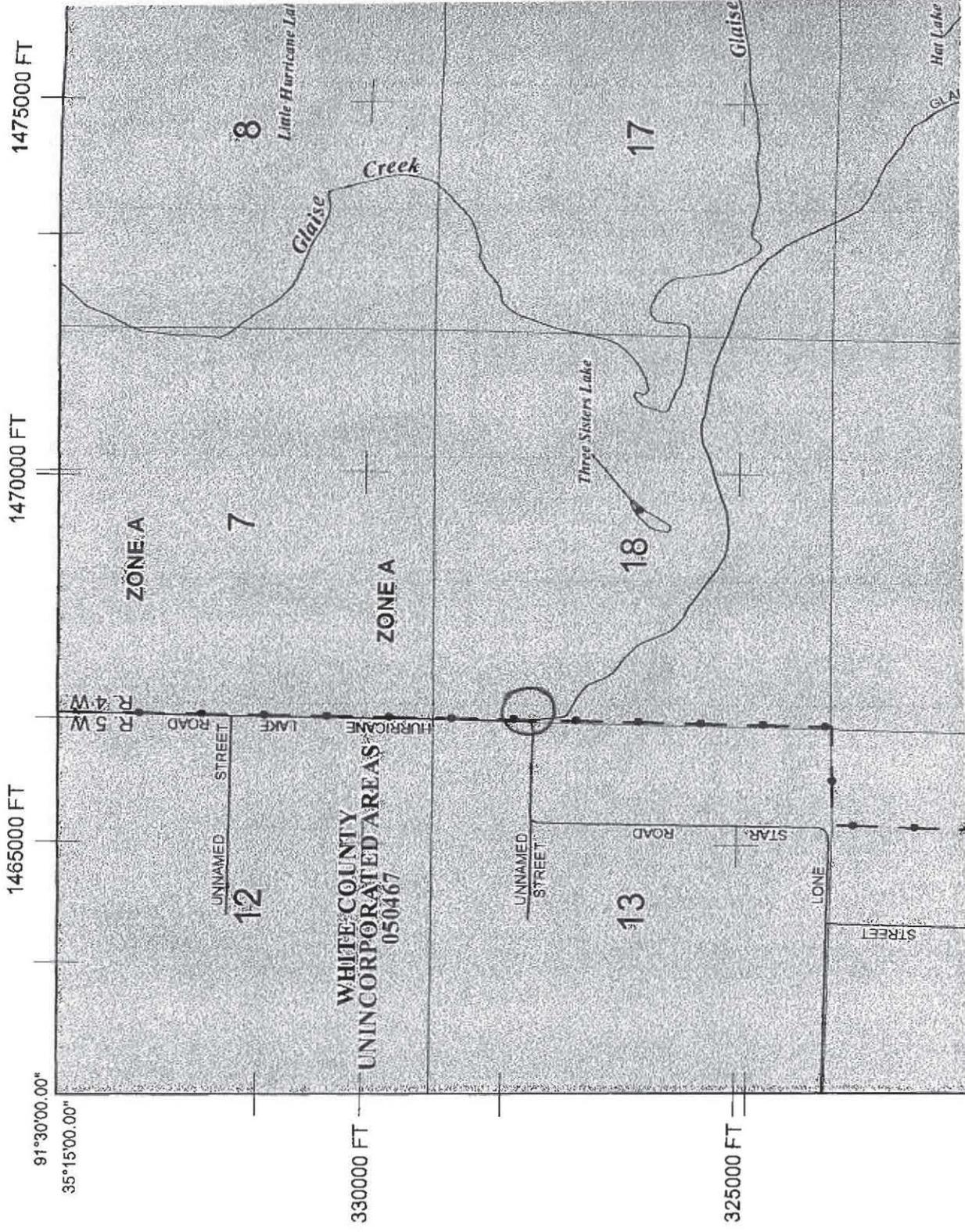
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Heath Garner

From: George McCluskey [George@arkansasheritage.org]
Sent: Friday, November 09, 2012 8:58 AM
To: Heath Garner
Subject: RE: Section 106 review for AGFC Hurricane Lake WMA Office Relocation
Attachments: image001.gif; image002.jpg

Thanks. We will log in the project and proceed with our review.

From: Heath Garner [mailto:hgarner@enercon.com]
Sent: Thursday, November 08, 2012 3:10 PM
To: George McCluskey
Subject: Section 106 review for AGFC Hurricane Lake WMA Office Relocation

Dear Mr. McCluskey-

Please find attached a copy of a letter requesting comment from the Arkansas SHPO regarding the relocation of an AGFC office in the Hurricane Lake WMA. This project has resulted in a request for an environmental assessment through FEMA due to the potential for archaeological and cultural resources. A Phase I Cultural Resources Review was completed by Panamerican Consultants, Inc. and is attached for your review and concurrence as well. As stated in the attached letter, a copy of this letter is being sent via USPS certified mail as well. Thank you for your expeditious review and response.

Cordially,

Heath Garner
Senior Biologist/Environmental Scientist
Phone: 870-219-1721
hgarner@enercon.com



Please consider the environment before printing this e-mail.

DISCLAIMER:

Emails sent to or received from this agency are subject to the Freedom of Information Act, Ark. Code Ann. Sec. 25-15-201 et. seq.



The Department of
**Arkansas
Heritage**

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

Arkansas Natural Heritage
Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum



Arkansas Historic
Preservation Program

323 Center Street, Suite 1500

Little Rock, AR 72201

(501) 324-9880

fax: (501) 324-9184

tdd: (501) 324-9811

e-mail:

info@arkansaspreservation.org

website:

www.arkansaspreservation.org

An Equal Opportunity Employer



November 29, 2012

Mr. Heath Garner
Senior Biologist
Enercon
6525 North Meridian, Suite 400
Oklahoma City, Oklahoma 73116

Re: White County – General
Section 106 Review – FWS
Final Report Titled “*Cultural Resources Survey of a Proposed AFGC
Facility within the Henry Gray-Hurricane Lake WMA White County,
Arkansas*”
PCI Report Number 32189
AHPP Tracking Number 83645

Dear Mr. Garner:

The staff of the Arkansas Historic Preservation Program has reviewed the above-referenced cultural resources survey report. This report documents fieldwork for construction of a small AFGC facility and is acceptable. Based on the information in this report, we concur that the proposed undertaking will have no effect on historic properties.

Thank you for the opportunity to review this undertaking. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Eric Gilliland of my staff at 501-324-9880.

Sincerely,

Frances McSwain
Deputy State Historic Preservation Officer

cc: Mr. C. Andrew Buchner, Panamerican Consultants, Inc.
Mr. Michael Cantrell, AGFC
Dr. Ann Early, Arkansas Archeological Survey
Dr. Andrea A. Hunter, Osage Nation
Mr. Richard Kanaski, U.S. Fish and Wildlife Service
Ms. Jean Ann Lambert, Quapaw Tribe of Oklahoma

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IN REPLY REFER TO

United States Department of the Interior



FISH AND WILDLIFE SERVICE

110 S. Amity Road, Suite 300

Conway, Arkansas 72032

Tel.: 501/513-4470 Fax: 501/513-4480

November 13, 2012

Heath Garner
Enercon
6525 North Meridian
Suite 400
Oklahoma City, OK 73116

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ENERCON SVCS

Dear Mr. Garner:

The Fish and Wildlife Service (Service) has reviewed your letter dated November 5, 2012, concerning the proposed relocation and construction of the AGFC Hurricane Wildlife Management Area office building, gravel parking and septic systems on Hurricane WMA in White County, Arkansas. Our comments are submitted in accordance with the Fish and Wildlife Coordination Act (FWCA; 16 U.S.C. 661-667e) and the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d).

The Service concurs with your determination that the proposed construction of the office building with associated parking and septic is not likely to adversely affect the pink mucket (*Lampsilis abrupta*), gray bat (*Myotis grisescens*), scaleshell (*Leptodea leptodon*), piping plover (*Charadrius melodus*), and fat pocketbook (*Potamilus capax*) and would not have any significantly adverse impacts on any non-listed species.

While our records do not indicate any bald eagle nests in the project area, bald eagle guidelines should be followed in accordance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d).

We appreciate the opportunity to provide these comments.

Sincerely,

Jim Boggs
Project Leader



THE DEPARTMENT OF ARKANSAS
HERITAGE

Mike Beebe
Governor

Martha Miller
Director

Arkansas Arts Council

*
Arkansas Historic
Preservation Program

*
Delta Cultural Center

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Mosaic Templars
Cultural Center

*
Old State House Museum

*
Historic Arkansas Museum



Arkansas Natural Heritage
Commission



323 Center Street, Suite 1500
Little Rock, AR 72201

(501) 324-9619
fax: (501) 324-9618
tdd: 711

e-mail:
arkansas@naturalheritage.com
website:
www.naturalheritage.com

An Equal Opportunity Employer

Date: October 7, 2013
Subject: Elements of Special Concern
Proposed Wildlife Management Office Relocation
Hurricane Lake Wildlife Management Area
ANHC No.: S-AGFC-13-006

Mr. Garrick Dugger
Arkansas Game and Fish Commission
2 Natural Resources Drive
Little Rock, AR 72205

Dear Mr. Dugger:

Staff members of the Arkansas Natural Heritage Commission have reviewed our files for records indicating the occurrence of rare plants and animals, outstanding natural communities, natural or scenic rivers, or other elements of special concern within or near the following site:

| <u>Project Name</u> | <u>County</u> | <u>Quad. Name</u> | <u>Location</u> |
|------------------------|---------------|-------------------|-----------------|
| Office Relocation Site | White | Georgetown 7.5' | T07N/R04W/S18 |
| Hurricane Lake WMA | | | |

We find no records at present time.

A White County Element list is enclosed for your reference. Represented on this list are elements for which we have records in our database. The list has been annotated to indicate those elements known to occur within a one and a five mile radius of the project site. A legend is enclosed to help you interpret the codes used on this list.

Please keep in mind that the project area may contain important natural features of which we are unaware. Staff members of the Arkansas Natural Heritage Commission have not conducted a field survey of the study site. Our review is based on data available to the program at the time of the request. It should not be regarded as a final statement on the elements or areas under consideration. Because our files are updated constantly, you may want to check with us again at a later time.

Thank you for consulting us. It has been a pleasure to work with you on this study.

Sincerely,

Cindy Osborne
Data Manager/Environmental Review Coordinator

Enclosures: Legend
White County Element List (annotated)

9/19/2013

Arkansas Natural Heritage Commission
Department of Arkansas Heritage
Inventory Research Program
White County

| Scientific Name | Common Name | Federal Status | State Status | Global Rank | State Rank |
|---|---------------------------------|----------------|--------------|-------------|------------|
| Animals-Invertebrates | | | | | |
| <i>Allocrangonyx hubrichti</i> | Hubricht's long-tailed amphipod | - | INV | G2G3 | S1? |
| <i>Cyprogenia aberti</i> | western fanshell | - | INV | G2G3Q | S2 |
| <i>Lampsilis abrupta</i> | pink mucket | LE | SE | G2 | S2 |
| <i>Obovaria olivaria</i> | hickorynut | - | INV | G4 | S3 |
| <i>Pleurobema cordatum</i> | Ohio pigtoe | - | INV | G4 | S1 |
| <i>Quadrula cylindrica cylindrica</i> | rabbitsfoot | LT | SE | G3G4T3 | S2 |
| <i>Quadrula metanevra</i> | monkeyface | - | INV | G4 | S3S4 |
| <i>Toxolasma lividum</i> | purple lilliput | - | INV | G3Q | S2 |
| Animals-Vertebrates | | | | | |
| ✓ <i>Corynorhinus rafinesquii</i> | Rafinesque's big-eared bat | - | INV | G3G4 | S3 |
| <i>Etheostoma autumnale</i> | autumn darter | - | INV | G4 | S2 |
| <i>Eudocimus albus</i> | White Ibis | - | INV | G5 | S1B |
| ✓ <i>Haliaeetus leucocephalus</i> | Bald Eagle | - | INV | G5 | S2B, S4N |
| <i>Lithobates areolatus circulosus</i> | northern crawfish frog | - | INV | G4T4 | S2 |
| ✓ <i>Myotis austroriparius</i> | southeastern myotis | - | INV | G3G4 | S3 |
| <i>Notropis maculatus</i> | taillight shiner | - | INV | G5 | S3 |
| <i>Ophisaurus attenuatus attenuatus</i> | western slender glass lizard | - | INV | G5T5 | S3 |
| <i>Pantherophis emoryi</i> | Great Plains ratsnake | - | INV | G5 | S3 |
| <i>Plethodon angusticlavius</i> | Ozark zigzag salamander | - | INV | G4 | S3 |
| ✓ <i>Polyodon spathula</i> | paddlefish | - | INV | G4 | S2? |
| <i>Pseudacris streckeri</i> | Strecker's chorus frog | - | INV | G5 | S2 |
| <i>Scaphiopus hurterii</i> | Hurter's spadefoot | - | INV | G5 | S2 |
| Plants-Vascular | | | | | |
| <i>Dennstaedtia punctilobula</i> | hay-scented fern | - | INV | G5 | S2 |
| <i>Philadelphus hirsutus</i> | hairy mock orange | - | INV | G5 | S2S3 |
| <i>Platanthera peramoena</i> | purple fringeless orchid | - | ST | G5 | S2 |
| <i>Polygala incarnata</i> | pink milkwort | - | INV | G5 | S1S2 |
| <i>Stenanthium gramineum</i> | featherbells | - | INV | G4G5 | S3 |
| Special Elements-Other | | | | | |
| Colonial nesting site, water birds | | - | INV | GNR | SNR |

* - No elements of special concern have been recorded within one mile of the proposed office relocation site.

✓ - These elements of special concern have been recorded within five miles of the proposed office relocation site.

LEGEND

STATUS CODES

FEDERAL STATUS CODES

| | | |
|--------------|---|---|
| C | = | Candidate species. The U.S. Fish and Wildlife Service has enough scientific information to warrant proposing this species for listing as endangered or threatened under the Endangered Species Act. |
| LE | = | Listed Endangered; the U.S. Fish and Wildlife Service has listed this species as endangered under the Endangered Species Act. |
| LT | = | Listed Threatened; the U.S. Fish and Wildlife Service has listed this species as threatened under the Endangered Species Act. |
| -PD | = | Proposed for Delisting; the U.S. Fish and Wildlife Service has proposed that this species be removed from the list of Endangered or Threatened Species. |
| PE | = | Proposed Endangered; the U.S. Fish and Wildlife Service has proposed this species for listing as endangered. |
| PT | = | Proposed Threatened; the U.S. Fish and Wildlife Service has proposed this species for listing as threatened. |
| T/SA E/SA | = | Threatened (or Endangered) because of similarity of appearance. |

STATE STATUS CODES

| | | |
|-----|---|---|
| INV | = | Inventory Element; The Arkansas Natural Heritage Commission is currently conducting active inventory work on these elements. Available data suggests these elements are of conservation concern. These elements may include outstanding examples of Natural Communities, colonial bird nesting sites, outstanding scenic and geologic features as well as plants and animals, which, according to current information, may be rare, peripheral, or of an undetermined status in the state. The ANHC is gathering detailed location information on these elements. |
| WAT | = | Watch List Species; The Arkansas Natural Heritage Commission is not conducting active inventory work on these species, however, available information suggests they may be of conservation concern. The ANHC is gathering general information on status and trends of these elements. An "*" indicates the status of the species will be changed to "INV" if the species is verified as occurring in the state (this typically means the agency has received a verified breeding record for the species). |
| MON | = | Monitored Species; The Arkansas Natural Heritage Commission is currently monitoring information on these species. These species do not have conservation concerns at present. They may be new species to the state, or species on which additional information is needed. The ANHC is gathering detailed location information on these elements |
| SE | = | State Endangered; this term is applied differently for plants and animals. Animals – These species are afforded protection under Arkansas Game and Fish Commission (AGFC) Regulation. The AGFC states that it is unlawful to import, transport, sell, purchase, hunt, harass or possess any threatened or endangered species of wildlife or parts. The AGFC lists as endangered any wildlife species or subspecies endangered or threatened with extinction, listed or proposed as a candidate for listing by the U.S. Fish and Wildlife Service or any native species or subspecies listed as endangered by the Commission. Plants – These species have been recognized by the Arkansas Natural Heritage Commission as being in danger of being extirpated from the state. This is an administrative designation with no regulatory authority. |
| ST | = | State Threatened; These species have been recognized by the Arkansas Natural Heritage Commission as being likely to become endangered in Arkansas in the foreseeable future, based on current inventory information. This is an administrative designation with no regulatory authority. |

DEFINITION OF RANKS

Global Ranks

| | | |
|----|---|---|
| G1 | = | Critically imperiled globally. At a very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors. |
|----|---|---|

- G2 = Imperiled globally. At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3 = Vulnerable globally. At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4 = Apparently secure globally. Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5 = Secure globally. Common, widespread and abundant.
- GH = Of historical occurrence, possibly extinct globally. Missing; known from only historical occurrences, but still some hope of rediscovery.
- GU = Unrankable. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- GX = Presumed extinct globally. Not located despite intensive searches and virtually no likelihood of rediscovery.
- GNR = Unranked. The global rank not yet assessed.
- GNA = Not Applicable. A conservation status rank is not applicable.
- T-RANKS= T subranks are given to global ranks when a subspecies, variety, or race is considered at the state level. The subrank is made up of a "T" plus a number or letter (1, 2, 3, 4, 5, H, U, X) with the same ranking rules as a full species.

State Ranks

- S1 = Critically imperiled in the state due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors making it vulnerable to extirpation.
- S2 = Imperiled in the state due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it vulnerable to extirpation.
- S3 = Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 = Apparently secure in the state. Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 = Secure in the state. Common, widespread and abundant.
- SH = Of historical occurrence, with some possibility of rediscovery. Its presence may not have been verified in the past 20-40 years. A species may be assigned this rank without the 20-40 year delay if the only known occurrences were destroyed or if it had been extensively and unsuccessfully sought.
- SU = Unrankable. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- SX = Presumed extirpated from the state. Not located despite intensive searches and virtually no likelihood of rediscovery.
- SNR = Unranked. The state rank not yet assessed.
- SNA = Not Applicable. A conservation status rank is not applicable.

General Ranking Notes

- Q = A "Q" in the global rank indicates the element's taxonomic classification as a species is a matter of conjecture among scientists.
- RANGES= Ranges are used to indicate a range of uncertainty about the status of the element.
- ? = A question mark is used to denote an inexact numeric rank.
- B = Refers to the breeding population of a species in the state.
- N = Refers to the non-breeding population of a species in the state.

Heath Garner

From: Bradley Jones [Bradley.Jones@arkansas.gov]
Sent: Tuesday, September 24, 2013 2:07 PM
To: Heath Garner
Cc: Dugger, Garrick; Darcia Routh
Subject: RE: Hurricane Lake WMA office relocation wellhead protection area documentation
Attachments: image001.gif; image002.jpg; image003.jpg; Enercon AGFC Offices.pdf

Mr. Garner, there are no wellhead protection areas within the vicinity of this proposed site (see attached map). The closest is 7.3 miles away. If you would like a map showing any well or wellhead protection areas we will require you to sign a data agreement due to the information being considered sensitive by the State of Arkansas.

*Brad Jones
Environmental Health Specialist
Source Water Protection
Engineering, Slot 37
Arkansas Department of Health
4815 West Markham Street
Little Rock, AR 72205
(501) 661-2067*



From: Heath Garner [mailto:hgarner@enercon.com]
Sent: Tuesday, September 24, 2013 11:07 AM
To: Bradley Jones
Cc: Dugger, Garrick
Subject: Hurricane Lake WMA office relocation wellhead protection area documentation

Mr. Jones-

Thank you for taking my call this morning and providing the information regarding documentation of wellhead protection areas in Arkansas.

The Arkansas Game and Fish Commission (AGFC) proposes to construct a new office facility within an existing, maintained picnic area in White County, Arkansas. This project will relocate the wildlife management area (WMA) administrative offices from a flood-prone area to a higher elevation. The new office will be located across the street from the present office. The proposed new office location is above typical flood elevations. AGFC plans to submit a grant application to the Federal Emergency Management Agency (FEMA) (through the Arkansas Department of Emergency Management (DEM)) for funding the construction of the proposed project. FEMA is considering this request. Before FEMA can take a Federal action (i.e. approve a loan application), it is required to conduct an environmental review in accordance with the National Environmental Policy Act (NEPA) and FEMA implementing regulations, environmental policies and procedures. Enercon Services, Inc. (ENERCON) has prepared a draft environmental

assessment (EA) that is currently under review and comment by FEMA. They have requested documentation of the site within (or not) a wellhead protection area.

The proposed project area is mapped on United States Geological Survey (USGS) topographic quadrangle Georgetown, AR (7.5-minute series). Coordinates for the center of the project area are 35.232117 x -91.482642 (NAD 83). Legal description of the site is Part of the Northwest ¼ of the Southwest ¼ of the Northwest ¼ of Section 18, Township 7 North, Range 4 West. The proposed project consists of the construction of an office facility, gravel parking area, and associated infrastructure. The project will be constructed 7.3 miles southeast of the town of Bald Knob in White County, Arkansas (Figure 1 attached).

Please provide documentation of the proposed project within proximity of any wellhead protection area in White County. If you have any questions or need any additional information, please feel free to contact me via phone or email at any time. Thank you again for your time and information.

Cordially,

Heath Garner

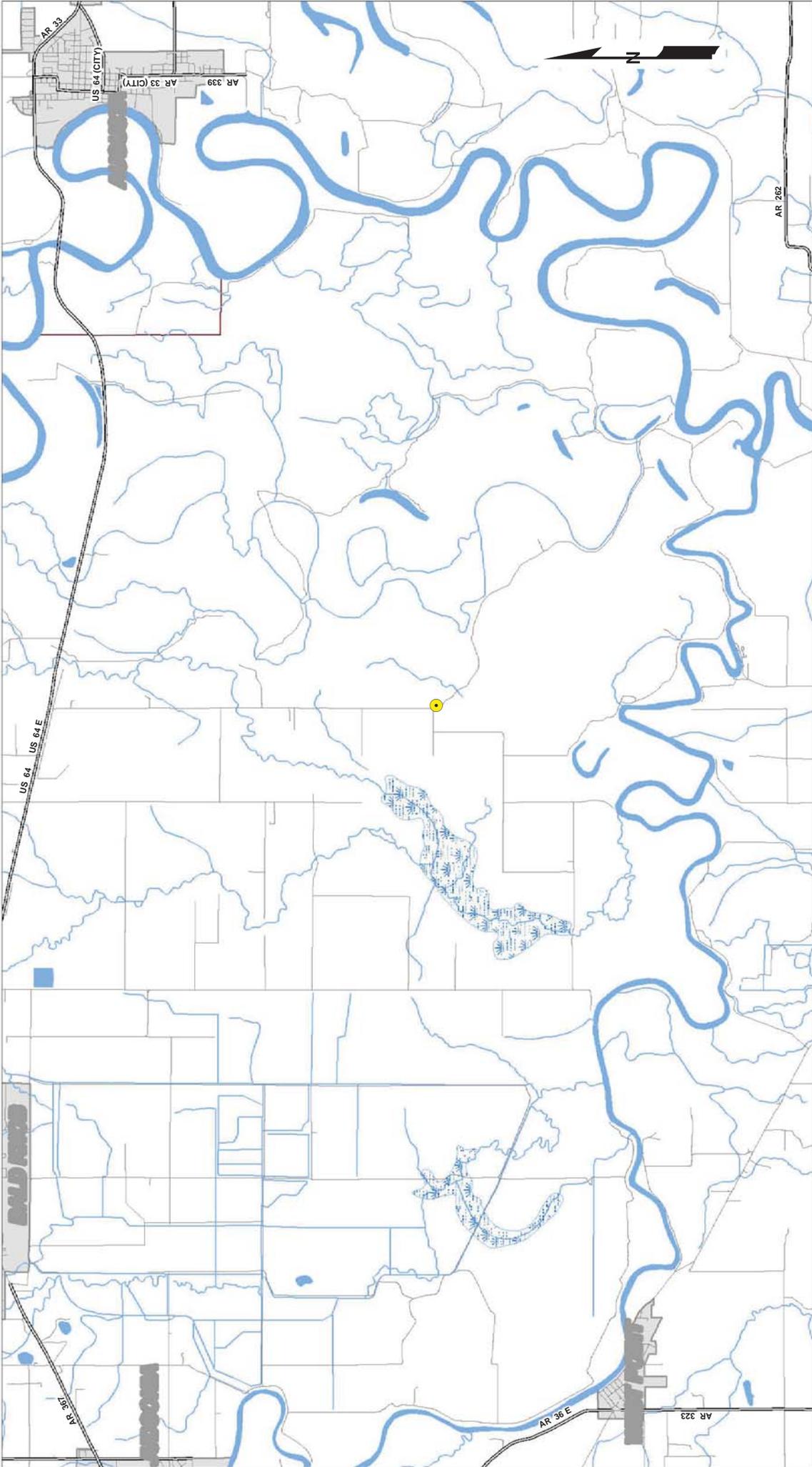
Senior Biologist/Environmental Scientist

Phone: 870-219-1721

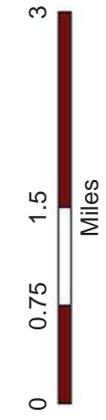
hgarner@enercon.com



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Any locational data pertaining to public water sources in this map is considered sensitive information and is exempt from freedom of information requests per Act 235 of 2013. Dissemination of this data outside of the agency is limited to individuals/organizations that have signed the agency's data agreement to prevent unauthorized dissemination.
 Drawn by Brad Jones September 24, 2013.



- Interstate
- Highway
- Road
- Water Body
- Swamp/Marsh
- Stream
- Counties
- City Limits
- Proposed Location





Natural Resources Conservation Service
3407 S. Caraway Suite 5
Jonesboro, AR 72404

November 5, 2012

Mr. Heath Gardner
6525 North Meridian Suite 400
Oklahoma City, OK 73116

Mr. Gardner:

Re: Proposed AGFC Hurricane Wildlife Management Office Relocation Project

Enclosed is a completed AD-1006 Farmland Conversion Impact Rating for the above mentioned project. I have found that no prime farmland would be impacted with this project.

If you have any questions regarding this matter, please contact me at (870)972-4671 extension 141

Sincerely,

A handwritten signature in blue ink that reads "David Hargis".

DAVID HARGIS
Resource Soil Scientist

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FARMLAND CONVERSION IMPACT RATING

| | | | | | |
|--|--|--|--|---|-------------------|
| PART I (To be completed by Federal Agency) | | Date Of Land Evaluation Request 11/5/12 | | | |
| Name Of Project AGFC Hurricane Wildlife Management Office Relo | | Federal Agency Involved FEMA | | | |
| Proposed Land Use Management Office Relocation | | County And State White, Arkansas | | | |
| PART II (To be completed by NRCS) | | Date Request Received By NRCS 11/5/12 | | | |
| Does the site contain prime, unique, statewide or local important farmland? <i>(If no, the FPPA does not apply -- do not complete additional parts of this form).</i> | | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Acres Irrigated | Average Farm Size |
| Major Crop(s) | Farmable Land In Govt. Jurisdiction Acres: % | Amount Of Farmland As Defined in FPPA Acres: % | | | |
| Name Of Land Evaluation System Used | Name Of Local Site Assessment System | Date Land Evaluation Returned By NRCS | | | |
| PART III (To be completed by Federal Agency) | | Alternative Site Rating | | | |
| | | Site A | Site B | Site C | Site D |
| A. Total Acres To Be Converted Directly | | | | | |
| B. Total Acres To Be Converted Indirectly | | | | | |
| C. Total Acres In Site | | 0.0 | 0.0 | 0.0 | 0.0 |
| PART IV (To be completed by NRCS) Land Evaluation Information | | | | | |
| A. Total Acres Prime And Unique Farmland | | | | | |
| B. Total Acres Statewide And Local Important Farmland | | | | | |
| C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted | | | | | |
| D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value | | | | | |
| PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted <i>(Scale of 0 to 100 Points)</i> | | 0 | 0 | 0 | 0 |
| PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(These criteria are explained in 7 CFR 658.5(b))</i> | | Maximum Points | | | |
| 1. Area In Nonurban Use | | | | | |
| 2. Perimeter In Nonurban Use | | | | | |
| 3. Percent Of Site Being Farmed | | | | | |
| 4. Protection Provided By State And Local Government | | | | | |
| 5. Distance From Urban Builtup Area | | | | | |
| 6. Distance To Urban Support Services | | | | | |
| 7. Size Of Present Farm Unit Compared To Average | | | | | |
| 8. Creation Of Nonfarmable Farmland | | | | | |
| 9. Availability Of Farm Support Services | | | | | |
| 10. On-Farm Investments | | | | | |
| 11. Effects Of Conversion On Farm Support Services | | | | | |
| 12. Compatibility With Existing Agricultural Use | | | | | |
| TOTAL SITE ASSESSMENT POINTS | | 160 | 0 | 0 | 0 |
| PART VII (To be completed by Federal Agency) | | | | | |
| Relative Value Of Farmland <i>(From Part V)</i> | | 100 | 0 | 0 | 0 |
| Total Site Assessment <i>(From Part VI above or a local site assessment)</i> | | 160 | 0 | 0 | 0 |
| TOTAL POINTS <i>(Total of above 2 lines)</i> | | 260 | 0 | 0 | 0 |
| Site Selected: | | Date Of Selection | | Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/> | |
| Reason For Selection: | | | | | |

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step 4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

Total points assigned Site A = $\frac{180}{200} \times 160 = 144$ points for Site "A."

Maximum points possible 200



Excellence—Every project. Every day.

MV/m - 2012-530

TLD 4/6/12



November 5, 2012

U.S. Army Corps of Engineers
Memphis District Regulatory Branch
167 North Main, Room B-202
Memphis, TN 38103-1894
901-544-0736

**RE: Proposed AGFC Hurricane Wildlife Management Office Relocation Project
Section 18 – T7N – R4W
White County, Arkansas**

To Whom It May Concern:

Enercon Services, Inc. (ENERCON) is in the process of preparing an environmental assessment (EA) on behalf of the Arkansas Game and Fish Commission (AGFC) for the Federal Emergency Management Agency (FEMA). This report will provide details with regard to environmental impacts for the above-referenced project. Construction activities will entail clearing a 215-foot by 115-foot area (0.55 acres) for construction of a Wildlife Management Area (WMA) office building. An approximate 24-foot by 40-foot building, associated gravel parking, and septic systems will be constructed within the project area. The project purpose is to move the office and administrative facility to a higher elevation to avoid continued flooding and property losses experienced at the current location. Construction of these facilities will also permit continued operation of the WMA during 100-year flood events. Attached is the U.S. Geological Survey Topographic Map that shows the approximate project footprint. The proposed action is expected to have minimal environmental impact.

A delineation of potential Section 404 resources (*i.e.* wetlands and other waters of the US) documented one un-mapped roadside drainage swale within the proposed project ROW. No wetlands or waters of the U.S. were identified within the project corridor. The project will not involve relocating this storm water drainage. Storm water best management practices (BMPs) will be implemented prior to construction to ensure that sediment is not discharged into the receiving waters.

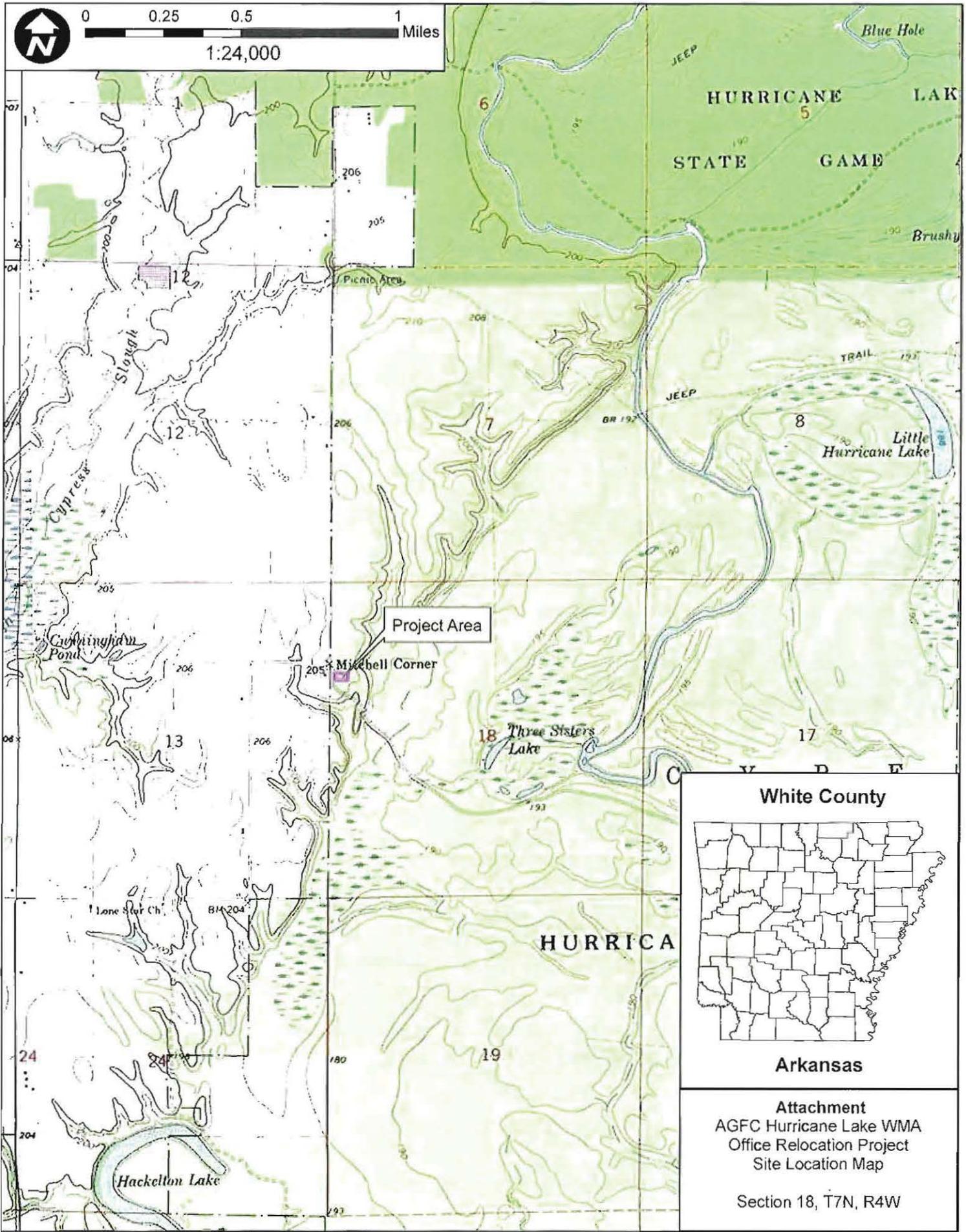
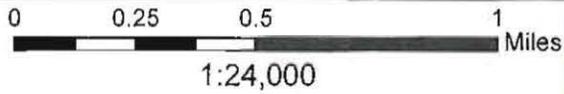
The AGFC would like to start construction on this project as soon as possible. We would appreciate your response within 30 days. If AGFC does not hear from your agency within the 30 days we will assume you have no comments regarding the project. If you have any questions or need further information please call me at (870) 219-1721 or contact me by email at hgarner@enercon.com.

Sincerely,

Heath Garner-Senior Biologist, Environmental Scientist

Copy: Michael Cantrell, AGFC
Garrett Dugger, AGFC

Attachments: U.S. Geological Survey Topographic Map



Attachment
AGFC Hurricane Lake WMA
Office Relocation Project
Site Location Map

Section 18, T7N, R4W



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT CORPS OF ENGINEERS
167 NORTH MAIN STREET B-202
MEMPHIS, TENNESSEE 38103-1894

November 26, 2012

Operations Division
Regulatory Branch

Mr. Heath Garner
6525 North Meridian
Suite 400
Oklahoma City, OK 73116

Dear Mr. Garner:

This is in reference to your request for environmental clearance from the U.S. Army Corps of Engineers concerning the proposed construction of a WMA office building in White County, Arkansas.

Your proposed project falls within the boundaries of the Little Rock District Corps of Engineers (SWL). A copy of this letter along with the original request will be forwarded to SWL for review.

Sincerely,

A handwritten signature in blue ink that reads "Damon McDermott".

Damon McDermott
Biologist
Regulatory Branch

Enclosures



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867
www.swl.usace.army.mil/

June 17, 2013

Regulatory Division

FILE No. 2013-00210

Enercon
Attn: Mr. Heath Garner
6525 North Meridian, Suite 400
Oklahoma City, Oklahoma 73116

Dear Mr. Garner:

Please refer to your request on June 10, 2013, on behalf of the Arkansas Game and Fish Commission, concerning Corps of Engineers permit requirements pursuant to Section 404 of the Clean Water Act. You propose clearing a 215-foot by 115-foot (0.55 acres) area for construction of a Wildlife Management Area office building. The proposed project is located in the NW 1/4 of section 18, T. 7 N., R. 4 W., White County, Arkansas.

A site evaluation by Corps of Engineers personnel indicates that this area does not meet the definition of wetlands and waters of the United States, as determined by the 1987 Corps of Engineers Wetlands Delineation Manual, Regional Supplements, appropriate guidance, and Department of the Army regulations. Therefore, a Section 404 Department of the Army permit is not required.

This letter contains an Approved Jurisdictional Determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (C.F.R.) Part 331. Enclosed you will find a Notification of Appeals Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA to the Southwest Division Office at the following address:

Mr. Elliott Carman
Administrative Appeals Review Officer (CESWD-PD-O)
U.S. Army Corps of Engineers
1100 Commerce Street, Suite 831
Dallas, Texas 75242-1317

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete; that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

This approved jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision of the determination before the expiration date.

Please be advised that the discharge of dredged or fill material in waters of the United States, including wetlands, requires a Department of the Army permit prior to beginning work in most situations. A permit is required pursuant to Section 404 of the Clean Water Act and Corps of Engineers implementing regulations, 33 C.F.R. 320 - 332. The clearing of wetlands with mechanized equipment; landleveling; construction of ditches, dikes, and dams; placement of fill to raise the elevation of a site; and stabilization of banks are examples of activities that routinely require a permit. All of these activities involve the discharge of dredged or fill material in waters of the United States.

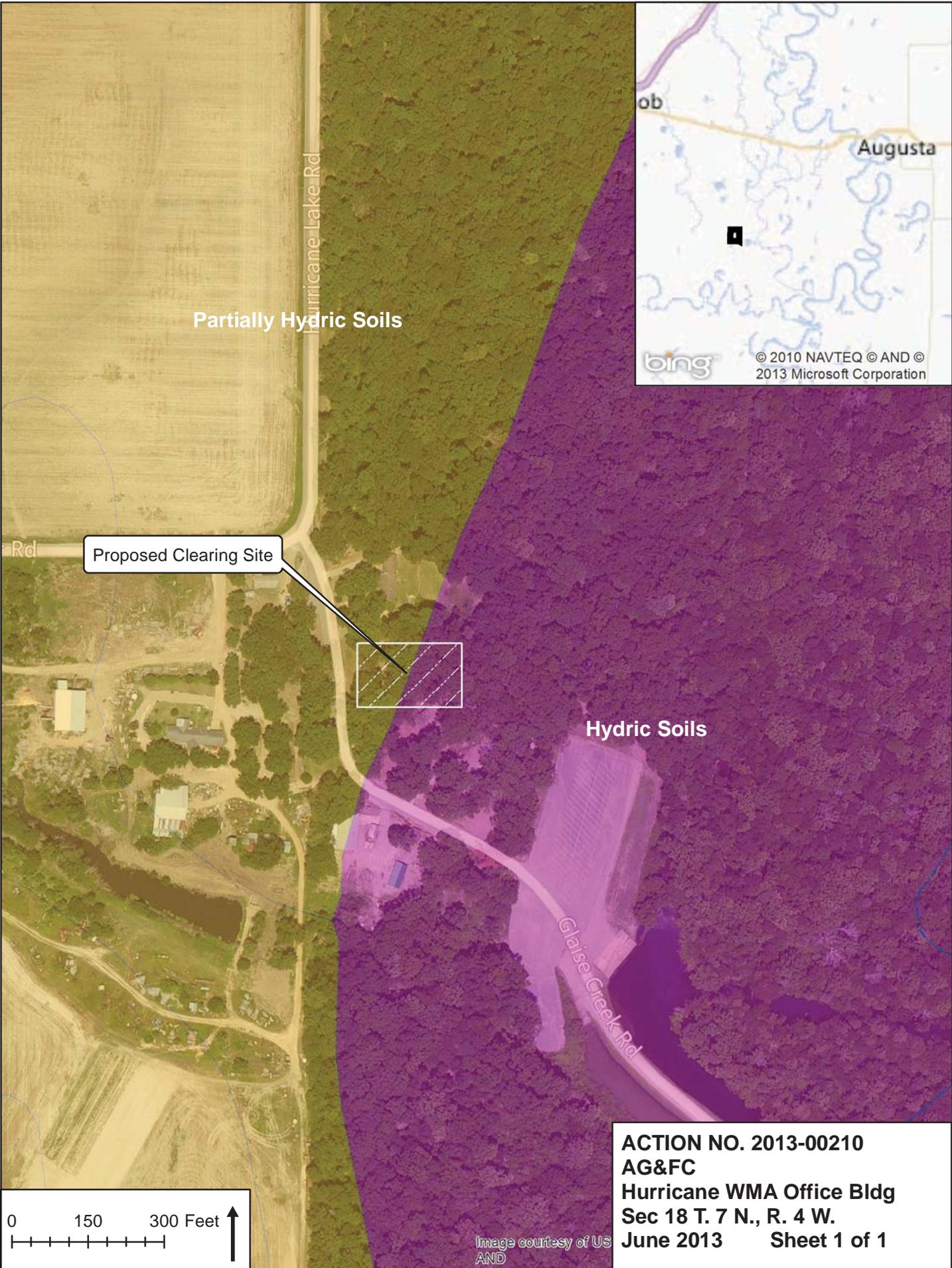
Your cooperation in the Regulatory Program is appreciated. If you have any questions, please contact me at (501) 324-5295 and refer to Permit No. **2013-00210**.

Sincerely,

Gerald Dickson
Environmental Protection Specialist

Enclosure

Copy Furnished:
Greers Ferry PO, w/cy dwgs
Ch, Regulatory Enf, w/cy dwgs



Partially Hydric Soils

ob

Augusta

bing

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2013 Microsoft Corporation

Rd

Proposed Clearing Site

Hydric Soils

Glaise Creek Rd

ACTION NO. 2013-00210
AG&FC
Hurricane WMA Office Bldg
Sec 18 T. 7 N., R. 4 W.
June 2013 **Sheet 1 of 1**

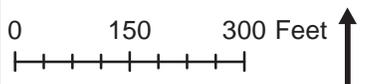


Image courtesy of US
AND

APPENDIX C

Phase I Cultural Resource Survey Report



PCI REPORT No. 32189

PANAMERICAN CONSULTANTS, INC.

**CULTURAL RESOURCES SURVEY OF A PROPOSED AGFC FACILITY
SITE WITHIN THE HENRY GRAY-HURRICANE LAKE WMA
WHITE COUNTY, ARKANSAS**



PREPARED FOR:

**ARKANSAS GAME AND FISH COMMISSION
PO BOX 729
CALICO ROCK, AR 72519**

PREPARED BY:

**PANAMERICAN CONSULTANTS, INC.
91 TILLMAN STREET
MEMPHIS, TENNESSEE 38111**

**NEGATIVE FINDINGS
FINAL REPORT
SEPTEMBER 2012**

NEGATIVE FINDINGS FINAL REPORT
CULTURAL RESOURCES SURVEY OF A PROPOSED AGFC FACILITY SITE
WITHIN THE HENRY GRAY-HURRICANE LAKE WMA
WHITE COUNTY, ARKANSAS

Prepared for:

**Arkansas Game and Fish Commission
PO Box 729
Calico Rock, AR 72519**

Prepared by:

**Panamerican Consultants, Inc.
91 Tillman Street
Memphis, Tennessee 38111
Project No. 32189**

Written by:

C. Andrew Buchner and Andrew Saatkamp



**C. Andrew Buchner, RPA
Principal Investigator**

SEPTEMBER 2012

ABSTRACT

At the request of the Arkansas Game and Fish Commission (AGFC) Panamerican Consultants, Inc. (Panamerican) performed a Phase I cultural resources survey of an approximately 0.82 ac. tract located at the Henry Gray Hurricane Lake WMA in White County, Arkansas. This tract is the proposed location of 24-x-40 ft. building, and an associated parking lot and septic system. The purpose of survey was to identify any cultural resource that is listed on, eligible for, or potentially eligible for the National Register of Historic Places (NRHP). The survey tract is a roughly triangular area that is bounded by Hurricane Lake Road on the west and south, by a fenced residence to the north, and by the designated camping area and boat ramp parking lot to the east.

A two-person crew conducted the fieldwork on August 22, 2012. The tract was investigated via the excavation of shovel tests at 20 m intervals, and surface inspection of bare areas with good surface visibility. During the fieldwork 13 shovel tests locations were documented. Ten were excavated and sterile. Three tests were not dug to due their falling on gravel drives or a roadside ditch.

The intensive survey produced negative findings. Because there are no NRHP listed, eligible, or potentially eligible archaeological sites or historic properties within the proposed project area, no further cultural resources investigations are necessary prior to constructing the new facility.

ACKNOWLEDGEMENTS

Panamerican Consultants, Inc. appreciates the opportunity to have provided the Arkansas Game and Fish Commission (AGFC) with these cultural resources services. Mike Cantrell was our contact with AGFC during the project, and it was a pleasure working with him during this investigation.

Panamerican personnel that contributed to the project included the following. The fieldwork was conducted by the Authors. Ms. Kate Gilow provided administrative support during the project, and prepared the site sketch map.

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I. INTRODUCTION

At the request of the Arkansas Game and Fish Commission (AGFC) Panamerican Consultants, Inc. (Panamerican) performed a Phase I cultural resources survey of a tract located at the Henry Gray Hurricane Lake WMA in White County, Arkansas. The purpose of survey was to identify any cultural resource that is listed on, eligible for, or potentially eligible for the National Register of Historic Places (NRHP). The project was conducted to assist AGFC in complying with Federal statutes including Section 106 of the National Historic Preservation Act of 1966, as amended; Executive order 11593, and the Advisory Council's "Protection of Historic Sites (36 CFR Part 800)", effective June 17, 1999. All field and office work was conducted in accordance with the Standards and Guidelines established in 36 CFR Part 66, Recovery of Scientific, Prehistoric, Historic, and Archaeological Data: Methods, Standards and Reporting Requirements (Federal Register, Volume 42, Number 19-Friday, January 18, 1977), and Appendix B of the Arkansas State Plan: *Guidelines for Archeological Fieldwork and Report Writing in Arkansas* (Revised Version in effect as of 1 January 2010).

UNDERTAKING DESCRIPTION

The proposed undertaking involves constructing a new 24-x-40 ft. building, and an associated parking lot 40-x-40 in front (to the west), and septic system. The new facility will be located north of the existing facility, on the opposite side of Hurricane Lake Road. This existing facility flooded last year, and the new facility is proposed on slightly higher ground that did not flood. The proposed building will be located near a chain link fence that surrounds a brick residence to the north of the survey tract.

PROJECT LOCATION

White County is located in central Arkansas and the eastern portion of the county, where the facility is proposed, is located on the Mississippi Alluvial Plain. The survey tract is located on the western edge of the Henry Gray Hurricane Lake WMA at Mitchell Corner, near the end of the Hurricane Lake Road blacktop. This location can be identified on the Georgetown, AR 7.5-min. quad (Figures 1-01 and 1-02).

The survey tract is a roughly triangular area 110 m (360 ft.) north-south by 60 m (200 ft.) east-west that is bounded by Hurricane Lake Road on the west and south, by a fenced residence to the north, and by the designated camping area and boat ramp parking lot to the east. The tract covers an estimated 0.82 ac. in the Northeast $\frac{1}{4}$ of Section 18 Township 7 North Range 4 West (T7N R4W). It is a wooded tract with no undergrowth beyond grass that is primarily used as an overflow camping area by duck hunters during the winter.

REPORT OUTLINE

The technical report that follows is organized in the following manner (see also Table of Contents). The most salient aspects of the local environmental setting area are outlined in Chapter II. Prior archaeological investigations this area of Arkansas and a discussion of the local cultural sequence are provided in Chapter III. The results of the literature and records search are presented in Chapter V. The field methods and results are presented in Chapter V. Chapter VI provides a summary and recommendations. The report concludes with a references cited section, and the biography of the Principal Investigator/Field Director.

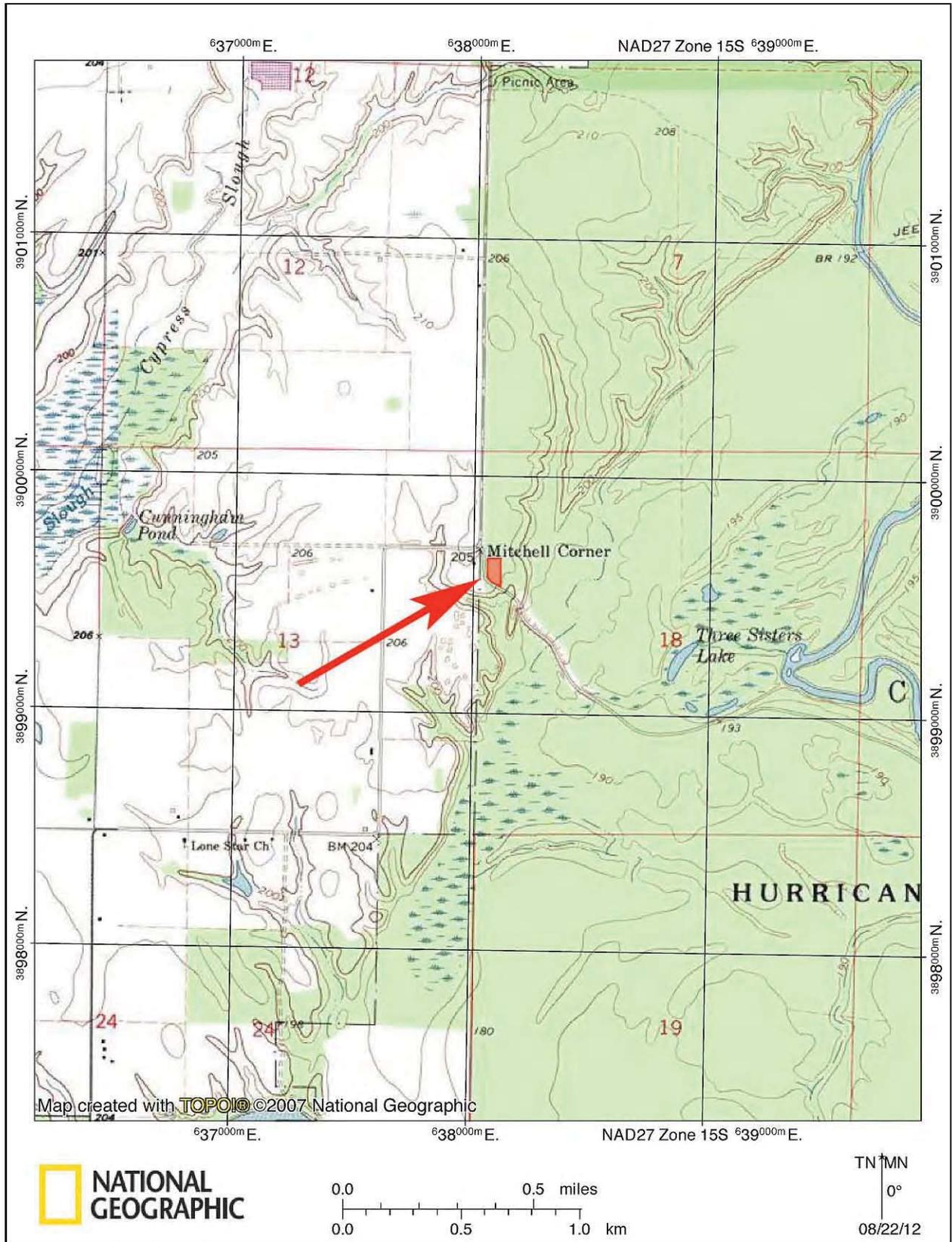


Figure 1-01. Quad map locator for the study area (base map: Georgetown, AR 7.5 min. quad, 1990 edition).

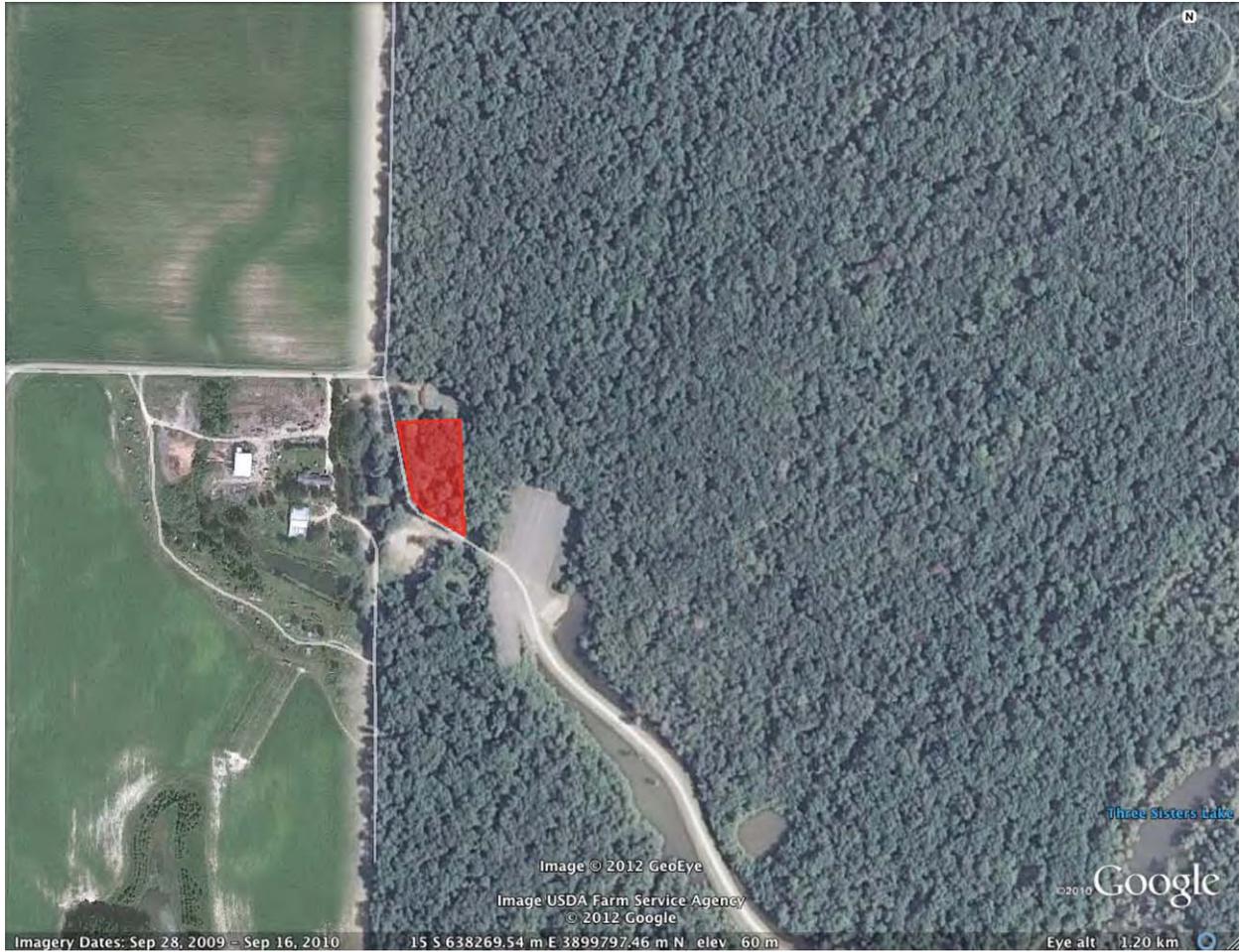


Figure 1-02. Google Earth image showing the study area.

II. ENVIRONMENTAL SETTING

PHYSIOGRAPHY

The project area is located within the Western Lowlands division of the Lower Mississippi Valley (Saucier 1994:I:25), and within the Western Lowlands Pleistocene Valley Train (a level III ecoregion; Woods et al. 2004) (Figure 2-01). The Western Lowlands is a low-lying basin covers 6,800 square miles in southeast Missouri and northeast Arkansas. It is bounded by Crowley's Ridge on the east, the Ozark escarpment to the west and north, and by the Grand Prairie to the south. Within it tributary streams and drainages have incised numerous narrow valleys and floodplains. The highest elevations are found near Crowley's Ridge and "decline in a step-like fashion to the west" (Saucier 1994:I:25).

The Western Lowlands were created during the waning Early Wisconsin glacial stage when large volumes of glacial outwash were deposited (Saucier 1994:I:231). The so-called valley train surface, or braided stream surface, was laid down in levels, or terraces. Three levels are recognizable in the Western Lowlands. The majority of the Western Lowlands is composed of Early Wisconsin Stage valley train Levels 2 and 3 (designated Pve 2 and Pve 3 on geomorphic maps, see Saucier 1994:II:Plate 5). The Hurricane Lake WMA survey area is located on the Early Wisconsin Stage valley train Level 2 surface (Saucier 1994:Plate 6). These terraces have a minimum age of 25,000 years, and may be as old as 60,000 years (Saucier 1994:I:231). The Early Wisconsin surface in the Western Lowlands is well-known archaeologically for the concentration of Dalton period (8,500-7,900 B.C.) sites on them (Morse and Morse 1983:80). The third terrace present in the Western Lowlands is, the Late Wisconsin Stage valley train Level 1 (Pvl 1), is not extensive. This terrace is younger, and dated 18,000 to 12,000 years B.P.

The Western Lowlands also contains two areas of sand dune fields (Saucier 1994:I:136). The dunes are located on valley train deposits, and are estimated have formed from 12,000 to 30,000 years BP. The largest area of dunes is located near the Ozark escarpment east of the meander belts of the Current, Spring, and White rivers. The second area of dunes is located along the Cache River, and a belt of these dunes is located north of the project area.

The terrain immediately east of Early Wisconsin Stage valley train Level 2 terrace at the study area is a broad swampy lowland that extends eastward to the White River and southward to the Little Red River. In geomorphic terms it is characterized by backswamp deposits (Hb) and point bar (meander scroll) deposits of minor streams (Saucier 1994:Plate 6). This lowland is drained by Glaise Creek, which empties into the White River just above the confluence with the Little Red River.

SOILS

The project area is on the Jackport-Crowley-Gore soil association, one of ten major soil associations recognized in White County, Arkansas (Gore and Harris 1981:General Soil Map). This association is described as "Poorly drained, somewhat poorly drained, and moderately well drained, level and nearly level, loamy soils with clayey subsoil's; on terraces" (Gore and Harris 1981:6). The association occurs on "broad, flat areas and depressions" (Gore and Harris 1981:6).

The tract under investigation is specifically mapped as occurring on Crowley silt loam, 0 to 1 percent slopes (Gore and Harris 1981:Sheet 46). This soil is found on broad flat area on the higher portions of old terraces. It is described as a "deep, somewhat poorly drained soil" with very slow permeability" (Gore and Harris 1981:17). A representative profile of Crowley silt loam, 0 to 1 percent slopes is described as follows:

Because soils are indicators of past environments, soil types and/or phases can be used to predict a given tract's potential for containing archaeological deposits. The Natural Resources Conservation Service's capability unit is a measure of the limitations of each soil type that can restrict its use. The capability unit can be used by archeologists as indicators of the potential that a given soil type has for containing an archaeological deposit, because soils with few limitations are more likely to yield evidence of human occupation than soils with moderate or severe limitations.

From an archaeological standpoint, capability unit are generally evaluated as followed:

- Class I soils have few limitations that restrict their use, and are considered to have a high probability of containing archaeological resources.
- Class II soils have moderate limitations, and are considered to have a moderate probability of containing archaeological resources.
- Class III and IV soils have severe limitations, and are considered to have a low probability of containing archaeological resources.
- Class V and VI soils have very severe limitations, and are considered to have little probability of containing archaeological resources.

Because the survey tract is on a capability unit IIIw-2 soil, this location is assessed as having a low probability of containing archaeological resources

PRESENT CLIMATE

The current climate of Arkansas is classified as humid subtropical, and it is relatively uniform across the state. The summers are long, hot, and humid while the winters are short, cool, and mild. Precipitation generally falls in the form of rain, with more in the spring, fall, and winter than in the summer. The growing season in Arkansas is long, and averages from a high of 240 days a year in southeastern Arkansas to a low of less than 200 days in uplands of the Ouachitas and Ozarks (Hanson and Moneyhon 1989:7). White County is located in Plant Hardiness Zone 7a (0° to 5° F average annual minimum temperature).

In White County, July is, on average, the warmest month, with a mean daily maximum temperature of 93.4°F, and an average daily minimum temperature of 69.5°F (Gore and Harris 1981:Table 1). The coldest month is, on average, January, with an average daily maximum temperature of 50.1°F, and an average daily minimum temperature of 28.8° F (Gore and Harris 1981:Table 1).

Precipitation in White County averages 51.39 in. per annum, and precipitation is heaviest in late spring and early summer (Gore and Harris 1981:Table 1). The wettest month is March, when an average of 5.59 in. of precipitation falls. Fall is the dry season, and the driest month is October, when an average of 2.67 in. of precipitation falls. Frontal systems associated with areas of low pressure provide the area with the majority of its rainfall.

PALEOENVIRONMENT

Paleoenvironmental conditions were substantially different in the late Pleistocene through the middle Holocene. Important regional sites with Quaternary plant fossil records include the Pemiscot Bayou and Big Lake corings in Mississippi County (Scott and Aasen 1987); the Hood Lake coring in Pointsett County (Delcourt and Delcourt 1989); the Old Field site in Stoddard County, Missouri (King and Allen 1977); and the Nonconnah Creek Mastodon site in Shelby County, Tennessee (Delcourt et al. 1980). Delcourt, Delcourt, and Saucier (1997) have recently

synthesized current data and mapped vegetation reconstructions for the Central Mississippi Valley for various temporal intervals.

Post-glacial warming began about 10,500 B.C., and a cool-temperate spruce-fir-larch forest gave way to a warm-temperate mixed oak deciduous forest (Morse and Morse 1983:8). By 7,000 B.C. the mixed oak deciduous forest was firmly established in the Central Mississippi Valley, and the Mississippi River had diverted through Thebes Gap and changed from braided to meandering. The period from ca. 7,000 to 3,000 B.C. (or possibly 8,000 to 4,000 B.C., see Morse and Morse 1983) was warm and dry and is referred to as the Hypsithermal. Modern floristic regions developed after 3,000 B.C. with the return of wetter conditions.

LITHIC RESOURCES

Within the Western Lowlands, lithic deposits can best be described as sparse, due to the alluvial origin of the surface. However, regional archaeological assemblages do exhibit a wide range in the number and variety of lithic resources. These resources and their possible sources are reviewed below.

The Citronelle gravel beds, associated with Crowley's Ridge, offered the closest and most readily available source of lithic resources for the inhabitants of prehistoric northeast Arkansas (Brockington et al. 1992:7.1-7.2). Known prior to 1955 as Lafayette chert (see Stallings 1989), these gravels originated in the Ozark region prior to being redeposited via erosion during the late Pliocene or early Pleistocene (Brockington et al. 1992:7.1-7.2). Aboriginal use of this lithic material for tool production is well documented in the archaeological literature regarding prehistoric sites in northeastern Arkansas (see House 1975:81-84; Morse and Million 1980:15-26). Citronelle gravels are used today for road surfaces.

Pitkin chert outcrops within the Upper Mississippian Pitkin Limestone Formation along the White River and its southern tributaries in the Boston range of the Ozark Mountains (Haley 1976; House 1975; Morse and Million 1980). This chert occurs infrequently on prehistoric sites west of Crowley's Ridge (House 1975). The rarity of Pitkin chert in northeastern Arkansas archaeological assemblages can best be understood by considering the time and energy investment necessary for aboriginal peoples to procure this resource (Brockington et al. 1992:7.3).

Sandstone is another lithic resource available from Crowley's Ridge Tertiary deposits. The abundance of this resource may account for the heavy use of it by aboriginal peoples of the eastern lowlands (Brockington et al. 1992:7.9). Sandstone was utilized by the aboriginal inhabitants of the eastern lowlands primarily to make processing tools, including abraders, mortars, and anvils.

Orthoquartzite is also available along Crowley's Ridge, especially along its northern extremity (Morse and Million 1980:15-22). Presumably, orthoquartzite was gathered and used in a similar manner as sandstone.

Hematite, a highly variable mineral, can be gathered within eroded areas along the margins of Crowley's Ridge (Morse and Million 1980:15). This mineral can occur in a grayish black hard form, or a dark red soft form resembling compressed soil. The latter form is known as red ochre and is the most common form of hematite associated with prehistoric cultural manifestations (Vanders and Kerr 1967).

Igneous rock, used principally for axes, mauls, and other heavy tools, was available from two major sources. The Ste. François Mountains in south-central Missouri readily yield a variety of igneous materials, including rhyolite and coarse-grained granites (Haworth 1975[1888]:21).

FLORA AND FAUNA

East Arkansas was covered by dense virgin forests in the nineteenth century when settlers began clearing to open the territory for agriculture. GLO plat maps and field notes document the early to mid-nineteenth century conditions by Township and Section. The most extensive drainage projects and timber booms took place after the Civil War and into the 1940s. Today the Hurricane Lake WMA is one of the largest tracts of intact woodland that remains.

The forests of the Mississippi Alluvial Plain are placed by Braun (1950) within the Southeastern Evergreen Forest Region. The vegetation of this region is described as “warm temperate-subtropical” and is composed of a “variety of different forest communities” which are directly related to “diverse environmental conditions” (Braun 1950:282). The swamps of the Western Lowlands are considered alluvial or bottomland forest, which are subdivided into three ecozones: swamp forests or sloughs; hardwood bottoms; and ridge bottoms or cane ridges (Braun 1950:291). In Lewis’ (1974) ecological approach, floodplain environments are classified into ten biotic communities. Applying this model to the study area allows for a more detailed portrait of the local environmental conditions to emerge.

The sandy interfluvial “islands” in and near the project area would have been covered by sweetgum-elm “Cane Ridge” forest (Lewis 1974:21-24). Dominant canopy species include American elm (*Ulmus* sp.) 23 percent; sweetgum (*Liquidambar styraciflua*) 20 percent; hackberry (*Carya occidentalis*) 12 percent; and ash (*Fraxinus* sp.) 11 percent. Undergrowth included extensive areas of cane. Other undergrowth species included pawpaw (*Asimina triloba*), spice bush (*Lindera benzoin*), black haw, redbud, greenbrier (*Smilax* sp.), and grape vines.

The sweetgum-elm “Cane Ridge” forest would have supported a large number of fauna important to human subsistence; indeed, Lewis (1974:23) remarks “more so in fact than other plant communities in the floodplain.” No doubt this is why early settlers noted an abundance of game. Large mammals including white-tailed deer (*Odocoileus virginianus*) and black bear (*Ursus americanus*) frequented this forest type. Smaller mammals such as gray fox, red fox, fox squirrels, gray squirrels, raccoons, opossums, eastern cottontail (*Sylvilagus floridanus*) and striped skunk would have flourished here as well. Common avian fauna would have included wild turkey (*Meleagris gallapavo*), ruffed grouse, prairie chicken and passenger pigeon.

The sinuous relic stream channels that cross cut the Western Lowlands would have been covered by Lewis’ (1974:25-26) Cypress Deep Swamp. GLO surveyors reference these biotic communities as “sunk lands” or “cypress sloo” [sic]. Maple Slough appears to be located within a cypress “sloo” or brake. In the Cypress Deep Swamp biotic community, bald cypress (*Taxodium distichum*) is the dominant canopy species (50 percent). Willow (18 percent), Honey Locust (14 percent) and red haw are the chief associated canopy species. Undergrowth is very sparse, but cattails (*Typha latifolia*) were noted by GLO surveyors.

Fauna was much more restricted in Cypress Deep Swamp environments. Larger mammals and predators would have only penetrated the fringes or areas of shallow water. In contrast, raccoons were well adapted to this setting. Fur-bearing aquatic mammals such as otter (*Lutra canadensis*), beaver (*Casor canadensis*) and muskrat (*Ondatra zibethicus*) would have been abundant. Migratory waterfowl such as ducks (*Anas* sp.) and geese (*Branta* sp.) undoubtedly also frequented these communities on a seasonal basis.

The region would have also offered open lake habitat (Lewis 1974:27). Lakes, bayous, and swamps would have also supported a very high seasonal biomass of fishes (Limp and Reidhead 1979). Riverine species within these communities would have included fish species such as bass (*Micropterus* sp.), catfish (*Ictalurus* sp.), sunfish (*Lepomis* sp.), drum (*Aplodinotus grunniens*), and gar (*Leisosteus* sp.).

III. CULTURAL HISTORY

INTRODUCTION

The study area is located within an archaeological region referred to as the White River Lowland. This region is defined in the *State Plan* (Davis 1982:SE4) as the area from “where the White River leaves the Ozarks at Newport and extends south to the mouth of Big Creek.” This area is located along the southwestern flank of the Northeast Arkansas AAS station (Arkansas State University [ASU]) territory. The Morses’ (1983) *Archaeology of the Central Mississippi Valley* summarized some information regarding the prehistory of this reach of the White River, but their text is largely written from an ‘eastern and western lowlands’ perspective and the White River data, while important, is more or less ancillary. For many years there was not a modern synthesis of the archaeology of the White River Lowland, but as a result of a proposed navigation project, in 2001 Panamerican prepared a detailed culture history and navigation history for this region (Buchner and Krivor 2001). The review below is drawn from this source.

PALEOINDIAN (>10,000-8500 B.C.)

Paleoindian occupations represent the earliest occurrence of humans along the Lower White River. The key diagnostic artifacts are fluted lanceolate points. An AMASDA map of the distribution of Paleoindian sites (Gillam 1996:Figure 20.2) reveals no Paleoindian sites within the Lower White River study area.

In the upper reach of the Lower White River one Paleoindian site is documented just above the Black River confluence (Gillam 1996:Figure 20.2). Regionally, the Paleoindian population is focused in northeast Arkansas, on the upper Cache River and on the eastern flank of Crowley’s Ridge, where impressive concentrations of fluted points are reported (Morse and Morse 1983:61; McNutt 1996:189).

DALTON (8500-7500 B.C.)

The Dalton period is transitional between the Paleoindian and Archaic traditions. The dates offered for the Dalton period follow Morse and Morse (1983). The key diagnostic is the Dalton point. This point is associated with exploitation of white-tailed deer and smaller animals (i.e., not megafauna). Based on specimens from the Sloan site in Greene County, Morse (1997) indicates there are several Dalton variants including Sloan, Large Dalton, Beveled Dalton, and Unbeveled Dalton.

Dalton components are better represented along the Lower White River than the preceding Paleoindian components. Morse’s (1997:127) illustration of the distribution of Dalton sites in the Cache River basin reveals about a dozen scattered components in and near the Lower White River. One buried Dalton site on Big LaGrue Bayou (3PR3) has been tested (Redfield 1971). Only two sites within one km of the Lower White River have actually yielded Dalton points: 3JA38 and 3JA552 (Buchner and Krivor 2001: Figure 9.08).

EARLY ARCHAIC (7500-5500 B.C.) AND MIDDLE ARCHAIC (5500-3500 B.C.)

These subperiods are discussed together following the Morses’ (1983:99) and McNutt’s (1996:193, 195) wise avoidance of rigidly distinguishing between the two. After the late Wisconsin glaciation and during the Early Archaic, average temperatures rose to normal levels. However, the warming trend continued beyond today’s average temperature and this ca. 7000-3000 B.C. period of increased warmth is referred to as the Hypsithermal. The warmer and drier conditions resulted in the decline of forests and their related fauna, while prairie environments expanded. These environmental changes had an impact on human adaptation, and for this reason Morse and Morse (1983) refer to this period as the “Hypsithermal Archaic Disruption.”

The Morses' (1983:104) northeast Arkansas projectile point sequence initiates with the "Early Corner-Notched Horizon" dated 7500-7000 B.C. Points diagnostic for this period include San Patrice, Kirk Cluster, St. Charles, and Thebes, as well as some possible side-notched forms (Hardaway Dalton and Big Sandy). The distribution of these types is weighted to the upper Cache River, and overall is quite similar to the Dalton pattern, suggesting continuing occupation of the same territories (Morse 1997:Figure 9.6).

The next horizon in northeast Arkansas, the "Hardin and Early Stemmed Period" dated 7000-6000 B.C., is associated with an "influx of Plains-like styles," namely forms related to Scottsbluff (Morse and Morse 1983:106). McNutt (1996:194) remarks that "we can see several projectile points coming into the [Central Mississippi] Valley from the west and north, probably in conjunction with the prairie expansion and dry eoniches during the Hypsithermal." Hardin points are fairly rare in the Central Valley and have a distribution similar to Dalton points (Morse and Morse 1983:107). The distribution of Hardin points in east-central Arkansas is described as "confined to the Wisconsin-age terraces east of the White River" (House 1996:140).

The chief diagnostics for the period (6000-5000 [B.C.]) are Rice series (lanceolate, contracting stemmed, and lobed) points (Morse and Morse 1983:108). Rice points are typically smaller than the preceding stemmed forms. The Morses (1983) propose that the western lowlands of northeastern Arkansas were largely abandoned ca. 6000-4000 B.C. in favor of the uplands (Ozark Plateau and its escarpment).

The Morses' (1983:108) use of a "Basal-Notched Horizon" for the period 5000-4000 B.C. has been criticized and probably should be re-evaluated before being considered a fixture of the Lower White River archaeological sequence. The criticism revolves around several factors, primarily the restricted distribution of Eva Basal Notched (Tennessee Valley) and the occurrence of Calf Creek basal notched points in zones below Rice points at the Calf Creek site in Searcy County, Arkansas (McNutt 1996:195-196).

The final horizon in the northeast Arkansas Hypsithermal point sequence is the "Side-Notched Horizon," dated 4000-3000 B.C. (Morse and Morse 1983:110). Hickory Ridge points are placed in this period. Some Cache River points may date to this interval (Morse and Morse 1983:110), but this type is currently considered contemporary with San Patrice (Morse 1997).

LATE ARCHAIC (3500-1500 B.C.)

The Late Archaic begins after the Hypsithermal period as the modern climate and natural communities became established. There is a dramatic proliferation in the number of sites along the Lower White River, as well as regionally, and for this reason the Morses (1983:115) dub this period the "Archaic Expansion," while McNutt (1996:199) favors Archaic "Resurgence" or "Renaissance." The Late Archaic is characterized by a substantial increase in the number of sites, cultural elaboration, and widespread trade. Late Archaic developments may have occurred later, in a regional sense, in areas—such as the Western Lowland adjoining the Lower White River—where the Hypsithermal prairie adaptation was more "entrenched" (McNutt 1996:199).

During the Late Archaic there is an increased human adaptation to lowland meander belt systems such as the Lower White River. This trend is referred to as "maximum riverine efficiency" and it contrasts with the "maximum forest efficiency" that characterized earlier lifeways (Caldwell 1958; McNutt 1996). Unfortunately, little is known regarding the Lower White River meander belt system sequence beyond Saucier's (1994:I:269) remarks that the Lower White River developed into a meandering regime after 10,000 B.C. Thus any of the hundreds of cutoffs located in the White River lowlands could well yield Late Archaic components of significant geomorphic interpretive value.

One of the hallmarks of the Late Archaic is the evidence for more sedentary lifeways, with the possible practice of horticulture. Sunflower, squash, and other cultivated native starchy seed annuals appear in the archaeobotanical record at this time in other areas of the Southeast. Late Archaic settlement models typically have a seasonal round aspect. There is evidence that the substantial villages, typically located on major streams and once interpreted as winter aggregation sites, were actually occupied year round.

Thus it appears the Lower White River remained more-or-less unoccupied during the initial Late Archaic period (ca. 3500-3000 B.C.). The record suggests that the Lower White River began to be reoccupied ca. 3000 B.C. and the cultural connections appear strongest to the northeast, similar to the principal pre-Hypsithermal influence. In northeast Arkansas Morse and Morse (1983:118) suggest subdivision of the Late Archaic into three subperiods, each named for a distinctive point type: Big Creek (3000-2000 B.C.), Burkett (2000-1000 B.C.) and Weems (1000-500 B.C.). Weems point utilization continues into the Early Woodland, as does the related contracting stemmed Gary point. Probably the best documented Late Archaic assemblages (although minimal) from the Lower White River are from the Jacks Bay locality: the Roland Mound (Scholtz 1991).

POVERTY POINT (1500-500 B.C.)

Across the southeast, the Poverty Point period is considered one of three cultural peaks in prehistoric studies. In the core area in northeastern Louisiana, Poverty Point components are distinguished by the appearance of earthworks, clay balls or “Poverty Point Objects,” microlithics, lapidary work, figurines, raw material trade, and specialized manufacturing sites (Gibson 1996; McNutt 1996:201). The clay balls are thought to be a substitute for boiling stones, and have considerable time depth, apparently extending into the early Middle Woodland, and cannot be used exclusively as Poverty Point component markers.

In a recent description of the Late Archaic/Poverty Point period research in northeast Arkansas, Morse and Morse (1996:124) offered the following: “Despite the large numbers of sites ... very little fieldwork has been accomplished. This is partly due to the appearance that such sites are pretty much like those in neighboring states, where the expressions seem more exotic and better defined.” Regarding settlements, the Morses (1983:130) noted a “pattern of sites located within the lowlands adjacent to the meander belt,” and used the Cairo Lowlands in southeast Missouri as an example.

The Lower White River is included within the overall distribution of Poverty Point sites within the Central Mississippi Valley, but only one known area of “exotic artifact concentration” is indicated on the Lower White River: this is the vicinity of Newport (Morse and Morse 1983:Figure 6.1). The Morses (1996) apparently consider northeast Arkansas Poverty Point sites Frierson phase components. It is probably unwise to extend the loosely defined Frierson phase (Morse and Morse 1996:131), that is based on data from the Frierson site near Jonesboro (Morse and Morse 1983:128-129), westward to Newport and the White River. An important Poverty Point midden mound, Little Turkey Hill (3IN53), was excavated by Moore (1910) near the confluence of the Strawberry and Black Rivers. If a Poverty Point phase is defined for the northern portion of the Lower White River, it should rely on data from Little Turkey Hill, Harter Knoll (3IN54), and Perkin’s Field (Morse and Morse 1983:128).

A variety of stemmed projectile points are characteristic of the period in northeast Arkansas (see Late Archaic Burkett [2000-1000 B.C.] and Weems [1000-500 B.C.] points above), including Burkett-Etley-Gary forms, similar to Ledbetter-Pickwick-Mulberry Creek points, and the Weems-Wade-Dyroff-McIntire forms that lead into the Early Woodland (Morse and Morse 1983:118). Small adzes and celts, lapidary artifacts, and, rarely, crescent shaped bifaces, are also considered diagnostics in northeast Arkansas.

WOODLAND

Intensification in horticultural methods, construction of earthworks, elaboration of artistic expression, and burial rituals are all thought to be interrelated with a reorganization of social structure during the Woodland period (500 B.C.-A.D. 1000; Griffin 1967). For at least part of the year, a sedentary group was needed to perform horticultural activities. Sedentism and communal labor efforts promoted territorial circumscription. Archaeologically, the hallmarks of this period are the introduction of ceramics and construction of burial mounds. Variability in ceramic technology is the primary consideration in interpreting settlement patterns and chronological progression during the Woodland period. Considerable archaeological attention has been focused on these ceramic cultures, and several Woodland phases have been proposed for the Lower White River.

EARLY WOODLAND (500-1 B.C.)

Early Woodland components along the Lower White River are referred to as Tchula (Phillips et al. 1951). No Tchula sites have been excavated, nor have any Tchula phases been proposed, along the entire length of the Lower White River study area (House 1996; Morse and Morse 1983; Phillips 1970). In general Tchula diagnostics are rare, leading Morse and Morse (1996:126) to propose that the population was dispersed in hamlets and small villages.

Morse and Morse (1983:145) suggest that “Tchula sites should be widespread in the Western Lowlands.” The Early Woodland Grimes phase, located upstream of the study area in Missouri along the Black River, is the nearest Tchula phase within the White River Basin. The best documented Tchula assemblage in northeast Arkansas is from the McCarty site (3PO467), the type-site for the McCarty phase, an Eastern Lowlands Tchula expression (Morse and Morse 1983; Morse 1986).

MIDDLE WOODLAND (1 B.C.-A.D. 400)

The Middle Woodland features elaborate burial ceremonialism and artistic expression, and represents the second major cultural peak in the prehistoric Southeast. In the Ohio Valley the Middle Woodland period is referred to in terms of Hopewell, while in the Lower Mississippi Valley this period is characterized as Marksville.

The late Middle Woodland Cow Mound phase is proposed for the Lower White River from roughly the mouth of the Black River to the mouth of the Cache River (Morse and Morse 1983:Figure 6.1). The phase is based on collections from the Cow Mound site, on Bayou DeView near Brinkley, and the Adams site, near Newport. The grog-tempered ceramics include zoned incised, rocker-stamped, punctated, incised, brushed, and cord-impressed, but most of the pottery is plain (Morse and Morse 1983:175). Points include Gibson and Steuben types. The Morses (1996:126) suggest that identified Middle Woodland components are rare as a result of the population being dispersed in hamlets and small villages, and “masking” by subsequently more intensive occupations at major sites.

Middle Woodland components are reported as weakly represented at six sites on the Lower White River (Buchner and Krivor 2001). At 3WH77, Figley reported one possible Marksville Incised sherd (3WH77 site form). The 3WH77 Marksville component falls within the Morses’ (1983:Figure 8.1) hypothesized Cow Mound phase.

INITIAL LATE WOODLAND BAYTOWN (A.D. 400-700)

Baytown is an “overburdened” term due to a number of archaeological uses and definitions thereof, including: (1) the Late Woodland Baytown phase (Phillips 1970); (2) a ceramic tradition, or “Baytown culture” centered on the Baytown site (Phillips 1970:903); and (3) the Baytown period, a now-outdated major subdivision of the prehistoric sequence that subsumed the Marksville, Baytown, and Coles Creek periods of this sequence (Phillips et al. 1951).

During the initial Late Woodland many of the traits associated with the Marksville period disappeared (Morse and Morse 1983:181) and pottery decoration is characterized as reaching a “low ebb” (Phillips 1970:901). In the Central Mississippi Valley two contrasting ceramic traditions, sand-tempered (Barnes) and clay/grog-tempered (Baytown), mark this period. The regional emphasis on temper is interpreted as reflective of “basic tribal differences” (Morse and Morse 1983:182). However, Anderson et al. (1989:61) caution that due to limited evidence inferences about social organization are “speculative.”

Baytown ceramics characterize Late Woodland sites along the Lower White River, while Barnes ceramics are restricted to sites well to the northeast on the valley train surface. Indeed Baytown sites are a hallmark of Lower White River archaeology; Late Woodland components are the most frequent prehistoric type along the Lower White River (Buchner and Krivor 2001).

LATE WOODLAND COLES CREEK (A.D. 700-1000)

During the Coles Creek period the dominant influence on the Lower White River can be viewed as deriving from the Plum Bayou culture that flourished to the southwest in the Arkansas River Valley around the Toltec Mounds site (3LN42). This is a significant shift, as with the exception of the early Hypsithermal, the predominant influences on the cultures of the Lower White River more typically flow down from northeast Arkansas. The possible presence of a competing tribal entity (Barnes tradition) in northeast Arkansas during the preceding Baytown period may have created a social boundary that fostered increased interaction between Central Arkansas and Lower White River populations during the Coles Creek period.

A widespread technological development during this period is the introduction of the bow and arrow ca. 700 A.D. (Blitz 1988), which may have led to a dispersal of the regional populations. This latter may be reflected in the settlement pattern, as Late Woodland period sites are typically small, low density, and occur on a variety of landforms (House 1982:42). Initial arrow points along the Lower White River are corner-notched (House 1996), and include types such as Agee (Schultz 1991). To the northeast, the Morses (1983:224) report the related Sequoyah and Scallorn arrow point types for this period.

In Rolingson’s (1998) assessment of the Late Woodland “neighbors” of Plum Bayou culture, two Late Woodland Coles Creek phases are proposed for the Lower White River. Sites along the White and adjacent rivers are grouped into a tentative Chandler Phase. White River sites included in this tentative phase are the White Oak Cutbank and Chandler Landing. Dogtown (3WO25, 3WO26, and 3WO103) and Maberry (3WO27) on the Cache and the Soc site (3WH34) on the Lower Little Red Rivers are also named as part of the tentative Chandler phase. Rolingson (1998:117) notes that “the White-Black Rivers system may have provided a corridor for communication and travel between the Arkansas River and the Central Mississippi Valley region.” Downstream, sites in the Lower Arkansas and Lower White River region, including the Roland Mound, Baytown Mounds, Massey, and Menard-Hodges are grouped into the Roland Phase.

Buchner and Krivor’s (2001) inventory revealed that Late Woodland is the most frequent prehistoric component type (n=41, or 40.2 percent of all sites) within 2 km of the Lower White River. Due to the difficulties in distinguishing Baytown and Coles Creek assemblages mentioned above, these components were lumped for distributional analysis. In general, Late Woodland components are more-or-less evenly distributed along the Lower White River (Buchner and Krivor 2001:Figure 9.10). This absence of spatial clustering may present a problem in discriminating Chandler and Roland phases sites from one another in the future.

Buchner and Krivor (2001) also found a strong relationship between Late Woodland components and mounds along the Lower White River. Of the 20 mound sites, most (n=16, or 75 percent) have assemblages that suggest intensive Late Woodland occupations. In contrast, Mississippian components at these sites are weak or non-existent. The implication is that earthwork construction peaked during the Late Woodland along most of the Lower White River.

If the so-called “mixed” Baytown and Cole Creek site assemblages—so typical of the area—are actually Coles Creek components (as the White Oak Cutbank data imply), then the most prolific period of mound construction along the Lower White River can be viewed as a Coles Creek phenomenon. Recent interpretations of the nine mound Baytown site stress a major Coles Creek component there (House 1996; Rolingson 1998:115); this likely accounts for the Toltec-like mound alignment as well. Such a pattern would articulate nicely with the regional development summarized by House (1996:145), as “The picture that is emerging from these [Toltec and vicinity] studies is that sometime after A.D. 700 in Plum Bayou culture, platform mound construction and settlement hierarchy developed in a manner paralleling but preceding that in Mississippian culture.” Moore’s (1910) Chandler Landing mound investigations are interpreted as evidence that Plum Bayou Coles Creek culture expanded up the White River at least as far as Augusta (Morse and Morse 1998; Rolingson 1998). The problematic presence of high frequencies of Mulberry Creek Cord Marked in the Lower White River Coles Creek Chandler phase assemblages may be a localized hangover resulting from this river valley being the homeland of Baytown culture while embracing a Plum Bayou cultural radiation.

MISSISSIPPI PERIOD (A.D. 1000-1541)

Regionally, the Mississippi period marks the third and final peak of native cultural development; however, this is not really the case along the Lower White River. Diagnostic Mississippian traits include shell-tempered ceramics, inter-regional exchange of exotic items, population nucleation on the floodplain, emphasis on corn agriculture, public architecture, the development of a distinctive elite iconography, and the rise of chiefdoms. In northeast Arkansas, the sequence of Mississippian developments has been the topic of considerable research (Morse and Morse 1990b). However, while Mississippian culture was developing in northeast Arkansas during the Early Mississippian Big Lake phase (A.D. 700-1000), Coles Creek culture was climaxing along the Lower White River.

From A.D. 1050-1200 the adjoining western lowlands were home to the early Middle Mississippian Cherry Valley phase (Phillips 1970:929-930; Morse and Morse 1983). The Cherry Valley phase may be linked with a trickle of Mississippian development into the Lower White River.

The spatial distribution of the Mississippi period components along Lower White River is presented by Buchner and Krivor (2001:Figure 9.11). Of these 28 components, nine represent initial occupations (i.e., they have not produced Woodland diagnostics). These sites include: 3AR183, 3MO56, 3PR15, 3PR32, 3PR65, 3WO10, 3WO13, 3WO14, and 3WO239. Schiffer and House (1975:160) reported a “north-south dichotomy” in the distribution of Mississippian components along the Cache River that we felt should also be reflected in the Lower White River Mississippian settlement pattern. Unfortunately, the impression that Mississippian components are more frequent in the northern section of the study corridor (i.e., closer to northeast Arkansas and the Cairo Lowlands) is not apparent. However, if we examine the relative strength of the component (in terms of numbers of diagnostics), then in terms of occupational intensity, the pattern does appear to shift to the north.

The Greenbrier phase has not been well described (Morse and Morse 1983:298-300), but excavations at the Greenbrier site (Morrow 2000) should improve our understanding. The phase is centered on Batesville, just beyond the Ozark Escarpment and west of the study area.

Late Mississippian occupations have been intensively studied and are characterized by a number of phases contemporary to Greenbrier in eastern and northeastern Arkansas (Phillips 1970; Morse and Morse 1983:Figure 12.1). Highly nucleated and fortified towns are present in some areas (“St. Francis” type sites; see Phillips et al. 1951), while other regions, possibly including much of the Lower White River, are apparently uninhabited. Depopulated areas are interpreted as “buffer zones” between competing chiefdoms.

Late Mississippian and/or Protohistoric components are poorly represented within the Lower White River study corridor (n=4) (Buchner and Krivor 2001:Figure 9.12). The two northernmost sites, Old Barn and Haralson Place, may represent Greenbrier phase components. These sites appear to reflect continuing use of the strongest, or core, area of the general Mississippian settlement pattern mentioned above

THE DESOTO EXPEDITION IN THE WHITE RIVER VALLEY (1541-1543)

The de Soto expedition spent relatively little time in the White River valley. Hudson’s (1993) proposed route has the expedition first encountering the White River where it emerges from the Ozark Uplift at an aboriginal polity referred to as the “Province of Coligua.” Morse and Morse (1990:204) and Dye (1993:52) suggest that a Greenbrier phase site, the Magness Site (3IN8), was the main Coligua town visited by the expedition on September 4, 1541. One of the de Soto narratives (Bourne 1904:2:147) describes Coligua as “a pretty village, between some ridges along the gorge of a great river,” evidently the White River. Rankin’s (1993:218) linguistic analysis of the word Coligua indicates that there is a “strong possibility” that this group may be the Koroa of the later French texts. The next day, the expedition left Coligua and the White River valley and headed south across the mountains to Calpista, located at a salt spring (Akridge 1986; Dye 1993:53; Morse and Morse 1990:204).

The only Spanish artifact reported from the Lower White River is a halberd pulled from the riverbed by a mussel fisherman named Byner ca. 1905-1906 (Dickinson 1987).

PROTOHISTORIC (1541-1686)

This period marks the appearance of Europeans into Arkansas, opening with the Spanish de Soto expedition and closing with the establishment of Arkansas Post by the French. Stewart-Abernathy and Watkins (1982:12) consider this a period of indirect contact. The diagnostic trait of Protohistoric sites is the presence of low frequencies of European trade goods, such as iron and copper items and glass beads, in association with Late Mississippian artifact types.

Menard complex assemblages (Quapaw components) are rare on the Lower White River. The Pfenninghausen Ridge site assemblage is described by House as “... a very interesting collection, definitely late Mississippi or protohistoric with formal similarities to the Quapaw phase” (3PR32 site file, 1983 supplement). Protohistoric diagnostics illustrated by Buchner and Krivor (2001:Figures 8.29-8.31) from this site include a perforated ceremonial ground stone axe and a sherd with an unusual perforated rim mode. A second possible Quapaw site near the Lower White River is the East Lake No. 1 site (3MO59). It includes a two stage mound and an aboriginal cemetery and has yielded a Keno Incised bottle with an hour-glass neck, a small bowl with human head rim rider, and a flaring rim bowl (3MO59-60 site files, 1983 supplement).

The Morses’ (1990:Figure 13-1) map of Protohistoric sites in Arkansas reveals no components on the Lower White River below the mouth of the Cache, except for the Big Eddy Spanish Halberd find. Proceeding upstream from the Cache, Pfenninghausen Ridge and East Lake No. 1 appear paired with sites farther from the river. At the mouth of the Little Red River a small cluster of five protohistoric sites are mapped, including one town. A second more impressive cluster is located between Newport and Batesville and appears to represent the Greenbrier phase.

COLONIAL PERIOD (1686-1804)

Presently there are no archaeological sites reported with colonial period (1686-1804) components within the Lower White River study corridor. Diagnostic artifacts should include French, English, and Spanish trade goods dating from the late-seventeenth century to late-eighteenth century. Stewart-Abernathy and Watkins (1982:12) consider the early portion of this interval (ca. 1660-1720) a period of direct contact and the latter portion (ca. 1720-1770) a period of coexistence between native Arkansas and Euro-Americans.

No French land grants were made along the White River, but a few settlements are suggested to have existed by the late-eighteenth century. Any late colonial period traders, or *couris du bois*, operating along the White River and possibly maintaining seasonal camps at Des Arc, Clarendon and the series of Grand Prairie bluffs to the south would likely have been sanctioned by or included Francis d'Armond, a "rich merchant and fur trader" who founded a trading post in 1766 (Thomas 1930:30). The location of d'Armond's settlement, known as Montgomery Point, was at the mouth of the White River. Additionally, Thomas (1930:32) reports that "the Gravieres" had settled on the Black River (a major tributary of the White River with its mouth at Newport) by 1793 and that "John Baptiste Janis and a few other Frenchmen" had settled at Clover Bend on the Black River before 1800. These settlers would have repeatedly ascended and descended the river to trade and re-supply, and these are possibly the Frenchmen responsible for assigning the French places still in use today on the Lower White River.

Along the Lower White River, Buchner and Krivor (2001) suggest that colonial components can, minimally, be predicted to occur within the study area at the four special survey tracts that represent U.S. government-approved Spanish concessions. These concessions are located at St. Charles, Clarendon (n=2), and Georgetown. Several other Spanish concessions are located outside of Buchner and Krivor's (2001) the study corridor; for example, at Indian Bay and on the lower Cache River (Sayger 1990). Additionally, a Spanish land grant was issued to Don Joseph Valliere in the 1790s that included the entire White River from its mouth to its source, but this claim was invalidated in 1847 on the grounds that the necessary settlements had not been made (Thomas 1930:30). At this point we can only offer that undocumented French *couris du bois* habitations or camps are most likely to be preserved on less populated bluffs overlooking the White River between St. Charles and Des Arc. Colonial components are quite possibly masked by nineteenth- and/or twentieth-century occupational debris, and may only be identifiable through excavations at complex multi-component sites.

TERRITORIAL (1804-1836) & ANTE-BELLUM (1836-1861) PERIOD

The colonial period ends with the Jefferson Purchase in 1803. Formal transfer of authority took place at Arkansas Post in 1804 (Arnold 1991). Arkansas was part of the Louisiana District from 1804 to 1805 and until 1812 was part of the Louisiana Territory. In 1808 the Osage ceded 14 millions acres in east Arkansas, including the entire Lower White River, to the U.S. government (Hanson and Moneyhon 1989:19). From 1812-1819 Arkansas was part of the Missouri Territory. On March 2, 1819, President James Monroe signed a bill creating "Arkansas Territory," which included present-day Arkansas and Oklahoma (Hanson and Moneyhon 1989:28).

The naturalist Thomas Nuttall briefly visited the mouth of the White River in January 1819, and recorded some botanical and social observations. Two hunters informed him "... of the existence of a considerable settlement on the banks of the White River" that may have been a reference to St. Charles or Crocketts Bluff (Nuttall 1999[1821]:71). Nuttall mentions a "house of entertainment" or tavern at the mouth of the White River operated by Neil McLane. This site has not been archaeologically identified, but is probably on the White River NWR. Nuttall spent two days ascending the White River and the bayou that connected the White and Arkansas Rivers, and then proceeded to Madame Gordon's near the Menard Mound.

Arkansas Post was the territorial capital until 1819, but in 1820 the political center of gravity shifted west to Little Rock. At this time steamboats began to open up the Lower White River for development (Buchner and Krivor (2001). In 1836, Arkansas became the twenty-fifth state. The population was 52,240, of which 19 percent were black slaves (Hanson and Moneyhon 1989:38). Our combined “Territorial (1804-1836) & Ante-Bellum (1836-1861) Period” falls within Stewart-Abernathy and Watkins’ (1982) pioneer activity period (1780-1850).

The status of Territorial & Ante-Bellum Period archaeology along the Lower White River is similar to the colonial period: no sites have been excavated. The town of Davidsonville is probably the best-known territorial period archaeological site in northeast Arkansas (Stewart-Abernathy 1980). This town existed from 1815-1830 on the edge of the Ozark Highlands, near the Natchitoches Trace.

The GLO began surveying east Arkansas into townships in 1815 and this work continued up to the Civil War. The initial objective was to lay out two million acres for distribution to veterans of the War of 1812 (Christensen 1971). The policy of surveying public land into six mile square townships that were subdivided into 36 numbered sections of 640-a. had been established by the Ordinance of 1785 (Fehrenbacher 1969:40). The distribution of GLO cultural features along the Lower White River is interesting—it is heavily weighted toward the area above the Memphis and Little Rock Road at Clarendon. No significant GLO features were mapped along the Lower White River below Jelsons Improvement at Crocketts Bluff (RM 68), except for Pedro Petuis’s Spanish concession at St. Charles. This articulates nicely with C.B. Moore’s (1910:339) comment that the lower 60 miles of the White River lacked any “high ground,” save for Indian Bay. More generally, the trend is interpreted as a reflection of a general preference of early American settlers to avoid frequently flooded and mosquito-infested areas such as the lower reaches of the White River (i.e., the White River Basin). Possibly for such reasons, in December 1818 Schoolcraft (1955[1821]:85) encountered a family living near Sugar-Loaf Prairie in the Ozarks “who had two weeks before emigrated from the lower parts of the White River.”

CIVIL WAR AND RECONSTRUCTION (1861-1874)

The Arkansas convention voted to secede in May 1861. All of the delegates from the Lower White River counties favored secession except for White County (Hanson and Moneyhon 1989:41). There are ten reported Civil War archaeological sites/components on the Lower White River (Buchner and Krivor 2001:Figure 9.13). The nearest to the study area are the located at DeValls Bluff: the Remount Camp (3PR29), DeValls Bluff/Fort Lincoln (3PR84), and the Cavalry Depot (3PR37). There should be some Civil War military sites near Augusta; for example, Camp Tucker, located opposite Jacksonport, was used by the Ninth Illinois Cavalry in May 1862 (Official Records 1885:83). More generally, the best documented Civil War engagement in White County, the Battle of Whitney’s Lane, took place to the west near Searcy on May 19, 1862 (Akridge and Powers 1996). This battle halted the Union Army’s advance on Little Rock. An archaeological survey of this battle site (3WH567) is documented and selected artifacts are illustrated (Akridge and Powers (1996:Appendix I).

In Arkansas Reconstruction lasted from 1865 to 1874. The unique archaeological attributes of Reconstruction-era historic components, if there are any, remain uninvestigated. Due to lawlessness, some areas remained under martial law for several years after the end of the war. As a result some Civil War military components may represent Reconstruction period components as well (probably for this reason Stewart-Abernathy and Watkins [1982:17] consider the Civil War activity period to extend to 1875).

TENANT FARM ACTIVITY PERIOD (1870-1950)

The interval from 1870 to 1950 is known as the tenant activity period (Stewart-Abernathy and Watkins 1982), and is named for the sharecropping or tenant farm labor system that was a significant characteristic of southern U.S. agriculture after the Civil War. The decentralization of the former plantation system developed during the Reconstruction period as a means of stabilizing labor relations between freedmen and landowners. The importance of the tenant farm period in the archaeological record is that it probably represents the maximum occupation of the Grand Prairie and Western Lowlands prior to the recent development of non-farm rural settlement. Stewart-Abernathy and Watkins (1982:18) suggest that there are between 30,000 and 50,000 tenant period sites in eastern Arkansas. Tenant settlement patterns can be clearly observed on 1930s-era quadrangle sheets and aerial photographs, with structures aligned along roads and bayous at regular spacings (100 m to 400 m). The dispersed settlement pattern of the tenant period contrasts sharply with the clustered settlement pattern prior to 1865 (Orser and Nekola 1985:68). The archaeological characteristics of tenant period domestic sites—as inferred from eastern lowland site data—include high frequencies of Kitchen Group artifacts (up to 85 percent), primarily bottle glass and ceramics, all dating from the late-nineteenth century to the mid-twentieth century (Buchner 1992).

EXTRACTIVE INDUSTRY (1880-2000) ACTIVITY PERIOD

Along the Lower White River archaeological sites associated with two types of extractive industry have been recorded: logging (timber) and musseling. The Des Arc Mill Ruins (3PR209) are significant for being the only recorded archaeological deposit along the Lower White River associated with the lumber industry (Buchner and Krivor 2001). Archival research is needed to document this mill's period of activity. Stewart-Abernathy and Watkins (1982:19) note two major periods of logging in Arkansas, an initial 1880-1920 boom followed by a second phase in the 1930s. The Des Arc Mill Ruins exhibit an “industrial” character (Buchner and Krivor 2001).

Thus far the only recorded archaeological deposit associated with the historically important mussel industry on the Lower White River is the Augusta Button Factory Waste Pile (3WO235) (Buchner and Krivor 2001). The site consists of a scatter of mussel shells with perforations; these are referred to as “button holes” (Buchner and Krivor 2001:Figure 8.39). Other towns on the White River, including Newport and Clarendon (Classen 1994), had button blank cutting factories, and similar waste piles should be identifiable at these locations. Classen (1994:32) indicates that “Pearl mania in Arkansas began on the White River, particularly in White County in 1897.” From 1930 to 1947 Arkansas was the leading mussel producer for the button industry (Classen 1994:36). Most Lower White River button blanks were shipped to button finishing companies in Muscatine, Iowa. Finished buttons occur at farmstead sites throughout the southeast; one is reported from Moser (3BE311; Stewart-Abernathy 1986:114).

HENRY GRAY-HURRICANE LAKE WMA

Henry Gray-Hurricane Lake consists of 17,000 acres of prime bottomland hardwoods habitat that serves as a wintering area for waterfowl, and is managed primarily for deer and waterfowl and secondarily for small game (Arkansas Game and Fish Commission 2012). It was made into a game refuge ca. 1941 when owned by Fisher Body Company. AFGC purchased the area 1958 and created the WMA. It was formerly called Hurricane Lake WMA, but in 1985 the name was changed to Henry Gray-Hurricane Lake WMA to honor Mr. Gray being instrumental in the initial purchase of the area.

IV. LITERATURE & RECORDS SEARCH

ARKANSAS ARCHEOLOGICAL SURVEY

Ms. Leslie Walker conducted a review of the records and files at the Arkansas Archeological Survey (AAS) office in Fayetteville for this project. A standard site files check was performed, and prior archaeological work in and near the study area was researched. The search radius was a 2 km halo around the project area.

Importantly, the site files research revealed that no archaeological sites have been previously recorded within the project area. Within 2 km of the project area there are 18 previously recorded sites (Table 4-01).

Table 4-01. Previously recorded archaeological sites within 2 km of the project area.

| Trinomial | Cultural Affiliation | Brief Site Description | NRHP Status |
|---|---|---|--|
| 3WH1 (Hollingsworth Place) | Mississippian | mound site | not stated |
| 3WH2 (Hollingsworth Place) | Middle Archaic; Late Archaic/Woodland; Woodland/Mississippian | mound site | not stated |
| 3WH8 | Woodland/Mississippian | mound site | not stated |
| 3WH20 | Late Woodland/Mississippian | mound site | not stated, but site "almost totally destroyed" |
| 3WH21 | Late Woodland/Mississippian | mound site | not stated |
| 3WH33 | Late Woodland/Mississippian | mound site | not stated |
| 3WH34 (Soc Site) | Woodland/Mississippian | mound site | not stated, but site has been disturbed and pot-hunted |
| 3WH168 (Glaze Creek Access) | Baytown | small mound site | not stated |
| 3WH177 | Archaic | hunting station | not eligible |
| 3WH423 | nineteenth century | farmstead (based on GLO plat) | not stated |
| 3WH424 (Buster's Farm/Arnold Cemetery) | nineteenth/twentieth century | farmstead (based on GLO plat); cemetery | not stated |
| 3WH556 (Osman) | Woodland/Mississippian | open habitation | undetermined |
| 3WH557 | Mississippian | open habitation | undetermined |
| 3WH558 | Woodland/Mississippian | open habitation | undetermined |
| 3WH559 | Mississippian | open habitation | undetermined |
| 3WH560 | Woodland/Mississippian | open habitation | undetermined |
| 3WH562 | nineteenth century | salt works | undetermined |
| 3WH845 | unknown prehistoric | lithic scatter | undetermined |

The nearest site to the project area is 3WH177, which is located about 200 m south of the project area. The site was recorded by AGFC personnel in 1970; one broken point and some debitage were reported. 3WH177 was recommended as not eligible for listing in the NRHP.

PREVIOUS INVESTIGATIONS

AMASDA FILES

Review of Automated Management of Archeological Site Data in Arkansas (AMASDA) files reveals that there has been one prior study in the project vicinity. The Village Creek Project (AMASDA #406) was a large-scale assessment of the nature and significance of archaeological sites within the Village Creek Basin conducted in 1976 (Klinger 1986). The project employed a problem oriented research design and a multilevel statistically based sampling program. Fieldwork for the survey utilized a combination of randomly selected cross-basin transects, randomly selected units within the direct impact one, statistically high probability zones, and locations based on local informants. A total of 525 archaeological sites, spanning the entire range of human occupation in North America, were identified during the study. The identification of these sites brought the total number of known archaeological sites within the basin to 684. Using data from the statistical sample units, an estimated minimum total of 21,188 archaeological sites within the Village Creek Basin was derived. Similarly, densities of 40 to 375 sites per square mile were predicted. The project also formulated a multistage testing program to determine site-specific significance on those sites lying within the direct impact zone surveyed and remaining channel sections not yet investigated (Klinger 1986).

NATIONAL ARCHEOLOGICAL DATABASE

The National Archeological Database (NADB) is a bibliographic inventory of over 350,000 reports on archeological investigation and planning, mostly of limited circulation (i.e., “gray literature”) (National Archeological Database 2012). NADB was last updated in August 2004. We searched NADB for White County, Arkansas literature, and this query resulted in 32 “hits”. None of these reports document investigations in the immediate vicinity of the study area.

AHPP STRUCTURE FILES

F. Preston Buchner, Esq. conducted a review of the records and files at the Arkansas Historic Preservation Program (AHPP) office in Little Rock for this project on August 17, 2012. This research revealed that there are no properties recorded within the project area. Within 2 km of the study area is there one previously recorded structure. It is the Lone Star School (AHPP #WH381), a ca. 1920 schoolhouse that is listed on the National Register of Historic Places. It is located 1.95 km to the southwest of the project area, and will not be affected by the proposed work.

NRHP LISTINGS

Importantly, there are no NRHP listed properties in project area. As of this writing, there are 198 NRHP-listed properties in White County, Arkansas (National Register of Historic Places 2012). No archaeological site in White County is NRHP listed. Within White County, NRHP listed properties are mostly concentrated at Searcy, the county seat.

The nearest NRHP listed property is the Lone Star School, which is 1.95 km to the southwest of the project area (see above).

ARCHIVAL MAPS

GLO PLAT MAPS

The earliest detailed map of the study area is the 1843 General Land Office (GLO) plat map for T7N R5W (Figure 4-01). There are no cultural features depicted in the project area, or near by for that matter, although there are several named fields and roads south of the Little Red River on the southern portion of the plat.

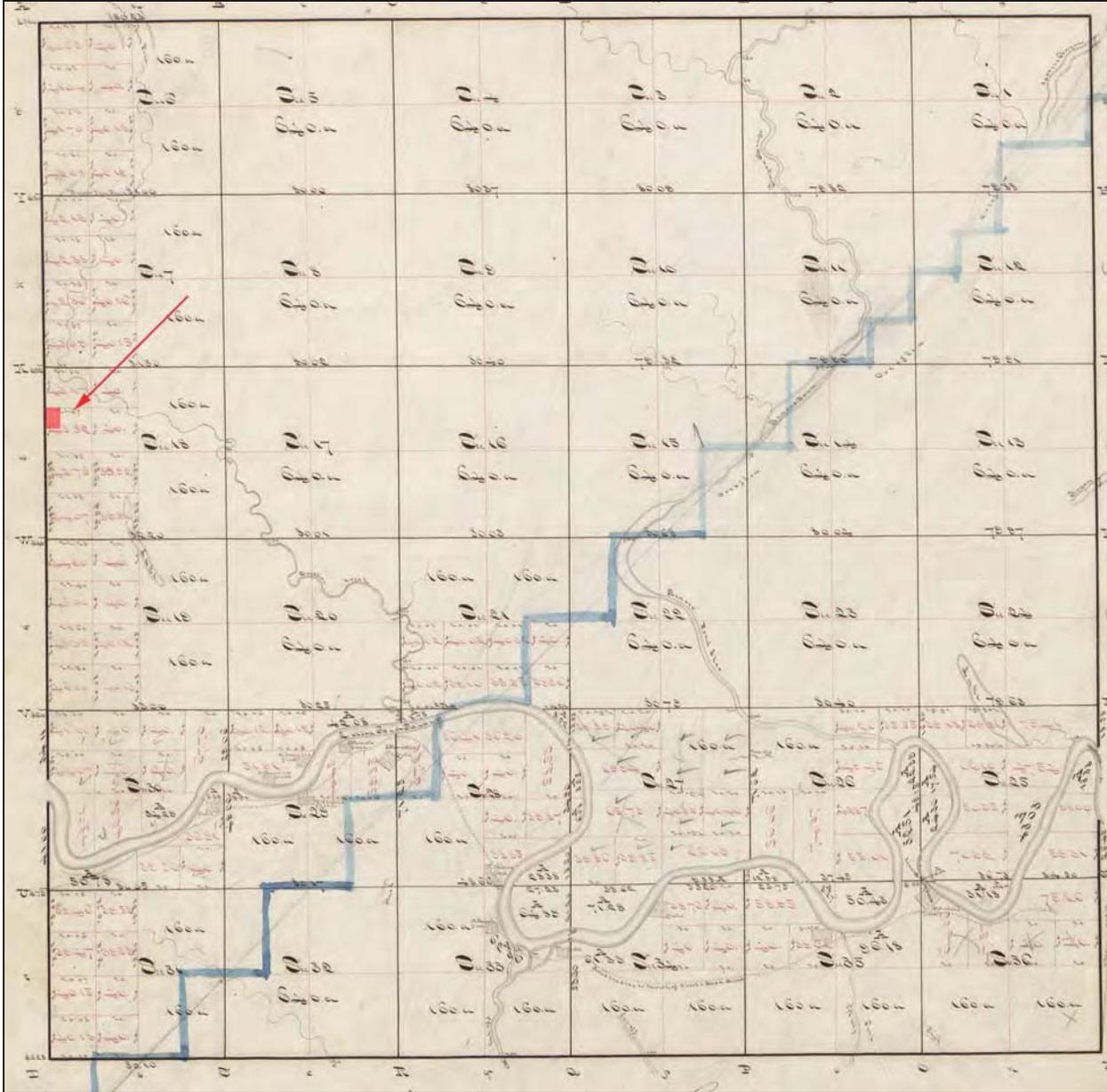


Figure 4-04. The 1843 T7N R5W plat map with the proposed project area in red.

Aside from the Little Red River, there are several named drainages depicted on the 1843 plat, including an “overflow creek”, which appears to be what is now Glaise Creek, which is north and east of the project area. There is also a “Lake” mapped to the south and east of the project area that may correspond with Three Sisters Lake or another area of low ground.

1957 GREGORY, AR 15-MIN. QUAD

The 1957 Gregory, AR 15-min. quad, which includes the project area was examined. There are no structures or other developments shown within the project area, although there are two structures to the west, across the road.

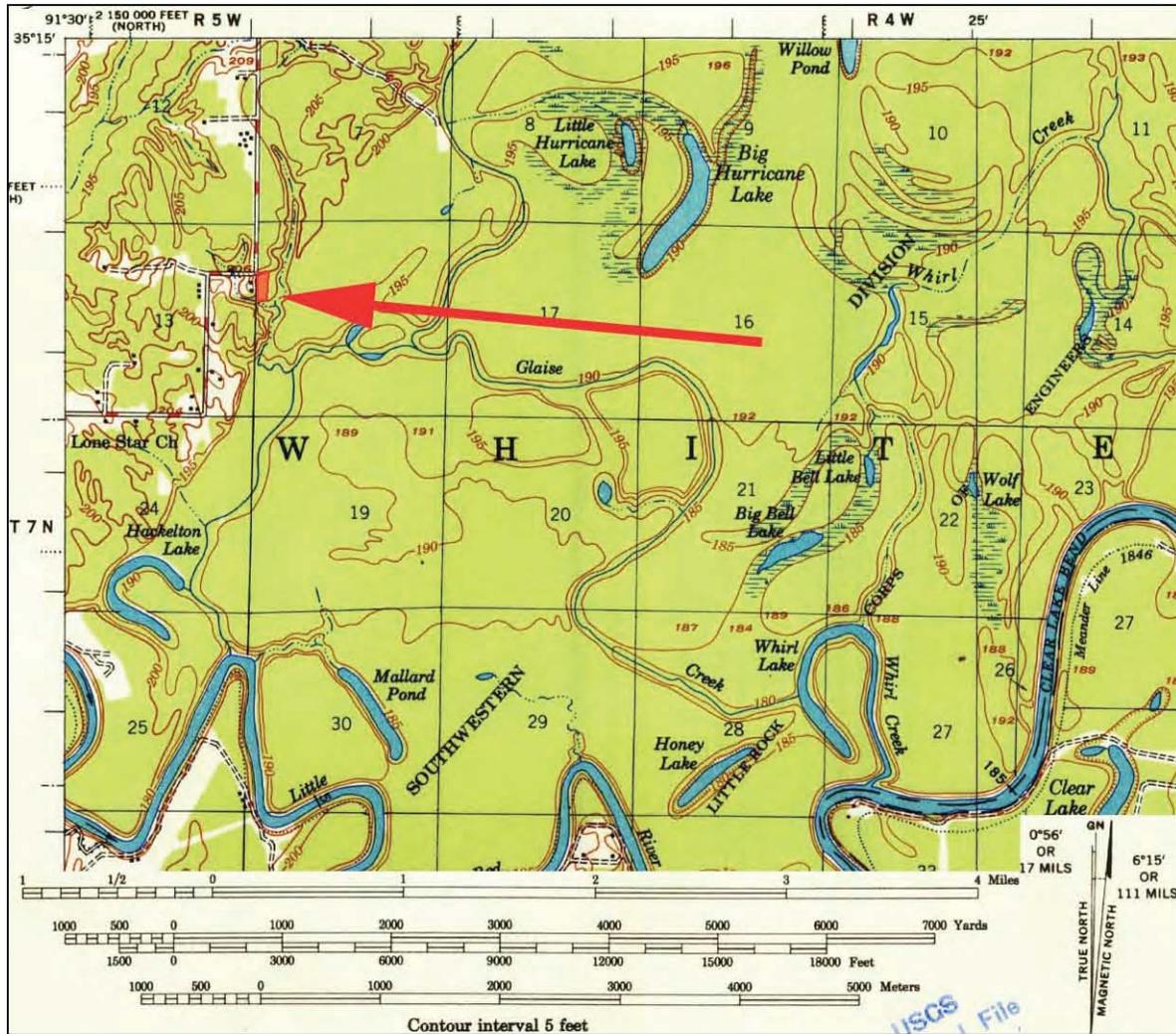


Figure 4-02. Portion of the 1957 Gregory, AR 15-min. quad with the project area shown in red.

V. FIELD INVESTIGATIONS

METHODS

On August 22, 2012, two-person crew consisting of the Authors conducted an intensive survey of the project area. The survey tract is a roughly triangular area 110 m (360 ft.) north-south by 60 m (200 ft.) east-west that is bounded by Hurricane Lake Road on the west and south, by a fenced residence to the north, and by the designated camping area and boat ramp parking lot to the east. The tract covers an estimated 0.82 ac. It is an open wooded tract with no undergrowth beyond grass that is primarily used as an overflow camping area by duck hunters during the winter.

Surface visibility in the project area ranged from poor to excellent, and area had been recently raked. The tract was intensively surveyed via the excavation of shovel tests at 20 m intervals, coupled with a surface inspection for artifacts.

A shovel test consisted of the excavation of a four-sided hole at least 30 cm to a side (0.09 m²). Each shovel test was excavated to culturally sterile deposits; typically 40 cmbs. To ensure consistent artifact recovery, all sediment was hand-screened through 0.25-in. mesh hardware cloth. All natural and cultural strata revealed in the individual shovel test profiles were recorded using metric depth measurements, and described in terms of textural class and color (using the Munsell[®] Soil Color Chart). Additional strata descriptions were provided as needed, such as moisture level, and number and size of roots. Panamerican employs a specialized shovel test form to insure consistent shovel test profile recording. Following recording a shovel test, artifact sample bags (if any) were labeled. All holes were subsequently backfilled as closely as possible to the original condition.

Additional documentation of fieldwork included the maintenance of detailed field notes regarding the condition and natural setting of the project area. Digital photographs were also taken of the area.

FINDINGS

Visual inspection of the study area revealed that it is slightly disturbed as a result of being used as an overflow camping area during duck season (Figures 5-01, 5-02, 5-03, and 5-04). There is an old gravel drive in the study area, and one small dozer pile, which is near where the structure is proposed. Additional gravel drives and concrete slabs for picnic tables and campers exist immediately east of the study area. Surface inspection of the survey area failed to locate any artifacts, or recent trash for that matter, as the area had been raked clean. Some bulldozed debris was observed into the woods to the northeast, including some rubble including cinder blocks and concrete inscribed with "1977" were found in the dense forest north of shovel test 13.

During the survey 13 shovel test locations documented (Table 5-01). Ten were excavated and sterile (i.e., failed to produce artifacts), although one test (shovel test 3) produced a piece of recent clear glass that was discarded. The soil here was hard and dry, and generally conformed to that of Crowley silt loam, 0 to 1 percent slopes which is an old terrace soil (see "Soils"). The soils here appeared to be unusually compact, likely as a result of vehicle traffic on this area during the winter.

There is a slight small rise similar to the prairie pimple that locals refer to a "donnack" on the tract, and this intuitively seemed like the best location for an archaeological site. Shovel test 4 was excavated into this feature, but it was sterile.

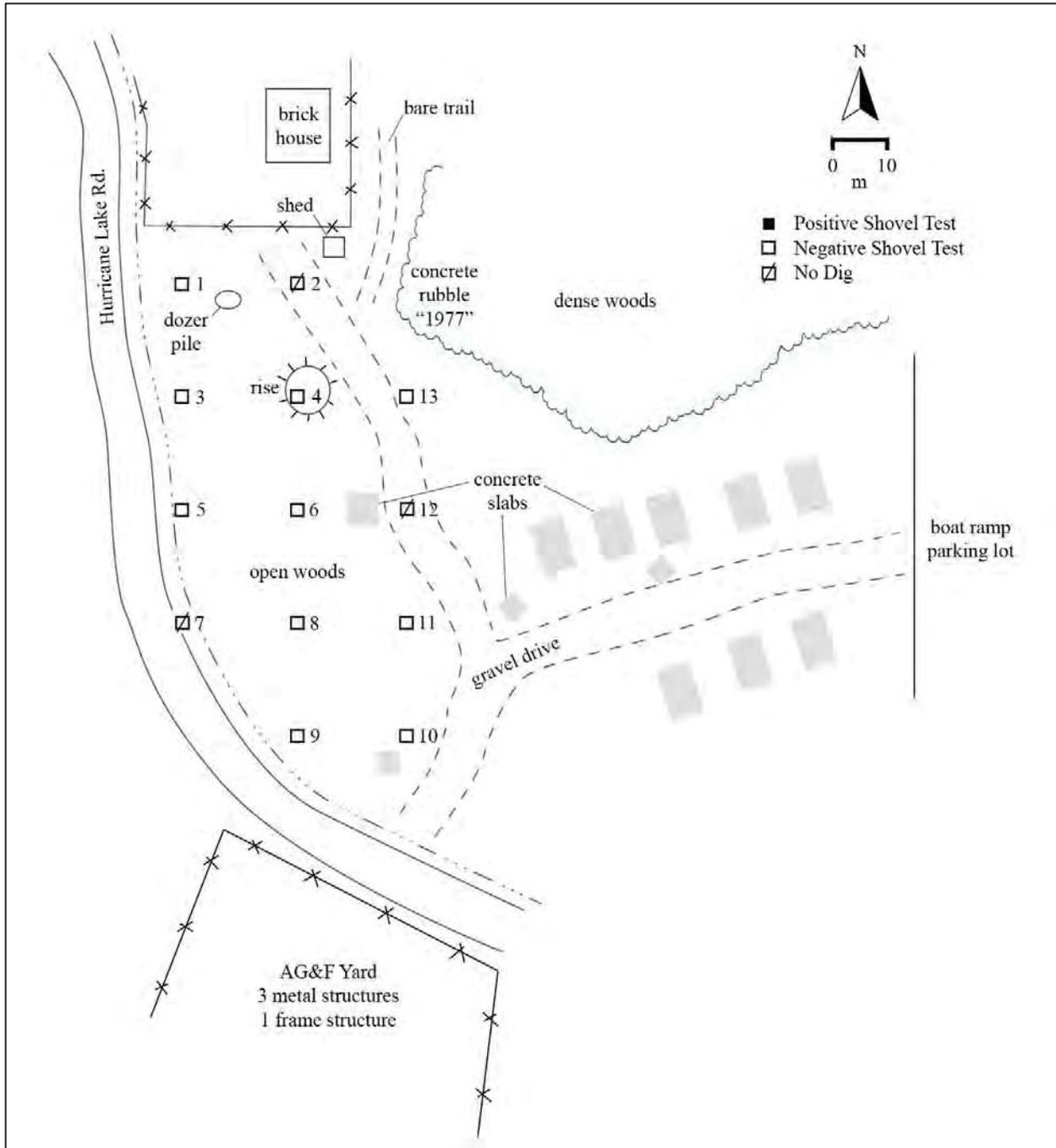


Figure 5-01. Sketch map of the project area and vicinity.



Figure 5-02. Photograph of the project area, view to south with Hurricane Lake Road on the right and the AGFC facility in the distance.



Figure 5-03. Photograph of the project area, view to north from Hurricane Lake Road.



Figure 5-04. Photograph of concrete slabs in designated camping area immediately east of the project area, view to east with the WMA boat ramp parking lot in the distance.

Table 5-01. Shovel test inventory.

| Shove test | Status | Zone Descriptions | Remarks |
|------------|---------|---|-----------------------------------|
| 1 | sterile | 0-20 cm 10YR 7/2 dry, hard silt loam with Mg flecking, common medium roots; 20-35 cm 10YR 6/3 silt loam; 35-40 cm 10YR 6/2 moist silty clay, blocky | |
| 2 | Ø | | gravel pavement |
| 3 | sterile | 0-20 cm 10YR 7/2 dry, hard silt loam with Mg flecking, few medium roots; 20-35 cm 10YR 6/3 silt loam; 35-40 cm 10YR 6/2 moist silty clay, blocky | discard pc. of modern clear glass |
| 4 | sterile | 0-10 cm 10YR 7/1 compact silt loam; 10-40 cm 10YR 7/6 compact silt loam | |
| 5 | sterile | 0-20 cm 10YR 7/2 dry, hard silt loam with Mg flecking, few medium roots; 20-35 cm 10YR 6/3 silt loam; 35-40 cm 10YR 6/2 moist silty clay, blocky | |
| 6 | sterile | 0-15 cm 10YR 7/2 compact silt loam with Mg flecking; 15-40 cm 10YR 7/4 compact silt loam, medium root | |
| 7 | Ø | | roadside ditch |
| 8 | sterile | 0-30 cm 10YR 7/2 compact silt loam with Mg flecking; 30-40 cm 10YR 5/1 silty clay (moister) | |
| 9 | sterile | 0-20 cm 10YR 7/2 dry silt loam; 20-40 cm 10YR 7/2 silty clay, blocky, with medium roots | |
| 10 | sterile | 0-30 cm 10YR 7/2 compact silt loam with Mg flecking; 30-40 cm 10YR 5/1 silty clay (moister) | |

| Shove test | Status | Zone Descriptions | Remarks |
|------------|---------|---|-----------------|
| 11 | sterile | 0-5 cm 10YR 7/2 hard, compact silt loam with gravel; 5-20 cm 10YR 7/2 dry, hard silt loam with Mg flecking, common medium roots; 20-30 cm 10YR 6/2 silty clay, blocky | |
| 12 | Ø | | gravel pavement |
| 13 | sterile | 0-20 cm 10YR 7/2 compact silt loam with Mg flecking; 20-35 cm 10YR 7/6 compact silt loam | |

Ø = no-test.

Three shovel tests were not dug and were recorded as “no-tests.” Two of these were on old gravel drives, and one was in a roadside ditch (Table 5-01).

To summarize, the intensive survey produced negative findings. The only evidence for the human occupation of this tract is associated with modern hunters use of this area is as a camp site.

VI. SUMMARY AND RECOMMEDATION

SUMMARY

At the request of the AGFC Panamerican performed a Phase I cultural resources survey of a 0.82 ac. tract located at the Henry Gray Hurricane Lake WMA in White County, Arkansas. A new 24-x-40 ft. building, and an associated parking lot and septic system are proposed to be built on this site. The purpose of survey was to identify any cultural resource that is listed on, eligible for, or potentially eligible for the National Register of Historic Places (NRHP).

The survey tract is a roughly triangular area 110 m north-south by 60 m east-west that is bounded by Hurricane Lake Road on the west and south, by a fenced residence to the north, and by the designated camping area and boat ramp parking lot to the east.

A standard cultural resources literature and records check was conducted, and it revealed that there are no previously recorded archaeological sites or historic properties within the project area.

A two-person crew conducted an intensive survey of the project area using shovel testing at 20 meter intervals and visual inspection of barren ground surface. No artifacts > 50 years old were found, and no cultural deposits or features were encountered. The only evidence for the human occupation of this tract is associated with modern hunters use of this area is as a camp site.

RECOMMENDATION

To conclude, the intensive survey of proposed project area produced negative findings. There are no eligible or potentially significant cultural resources within the project area, therefore no further archaeological work is necessary.

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APPENDIX A: STATE HISTORIC PRESERVATION OFFICE LETTER



The Department of
**Arkansas
Heritage**

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

Arkansas Natural Heritage
Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum



Arkansas Historic
Preservation Program

323 Center Street, Suite 1500

Little Rock, AR 72201

(501) 324-9880

fax: (501) 324-9184

tdd: (501) 324-9811

e-mail:

info@arkansaspreservation.org

website:

www.arkansaspreservation.org

An Equal Opportunity Employer



September 21, 2012

Mr. C. Andrew Buchner
Principal Investigator
Panamerican Consultants, Inc.
91 Tillman Street
Memphis, Tennessee 38111

Re: White County – General
Section 106 Review – FWS
Draft Report Titled “*Cultural Resources Survey of a Proposed AGFC
Facility Site within the Henry Gray-Hurricane Lake WMA, White
County, Arkansas*”
PCI Report Number 32189
AHPP Tracking Number 83645

Dear Mr. Buchner:

The staff of the Arkansas Historic Preservation Program has reviewed the above-referenced cultural resources report. This report documents fieldwork for a proposed new Arkansas Fish and Game Commission structure and is acceptable. Based in the information presented in this report, we concur that the proposed undertaking will have no effect on historic properties.

Thank you for the opportunity to review this undertaking. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Eric Gilliland of my staff at 501-324-9880.

Sincerely,

Frances McSwain
Deputy State Historic Preservation Officer

cc: Mr. Michael Cantrell, AGFC
Dr. Ann Early, Arkansas Archeological Survey
Dr. Andrea A. Hunter, Osage Nation
Mr. Richard Kanaski, U.S. Fish and Wildlife Service
Ms. Jean Ann Lambert, Quapaw Tribe of Oklahoma

APPENDIX B: BIOGRAPHIES

C. ANDREW BUCHNER, PRINCIPAL INVESTIGATOR

C. Andrew Buchner has 22 years of experience as a CRM archaeologist. He is a Vice-president and partner in Panamerican Consultants, Inc. and manages the terrestrial operations of the company's Memphis Office. His degrees include an M.A. (1989) in Anthropology from the University of Memphis, and a B.A. (1984) in Anthropology/Sociology from Westminster College, Fulton, Missouri. As a native of Arkansas, "Drew" has a keen interest in Arkansas archaeology, and is a life member of the Arkansas Archeological Society. Mr. Buchner is certified by the Register of Professional Archaeologists (RPA ID# 12420) and is a current member of various professional organizations, including: the Society for American Archaeology, the Southeastern Archaeological Conference, the Society for Historical Archaeology, and the Society for Industrial Archaeology. Mr. Buchner has participated in dozens of survey and excavations projects in Arkansas, and he has extensive field experience in the Southeastern US. During his career, he has authored and/or co-authored over 400 contract reports, 32 conference papers, and has published 15 articles or research papers, including a monograph in the Arkansas Archeological Society's *Research Series*.

ANDREW SAATKAMP, FIELD DIRECTOR

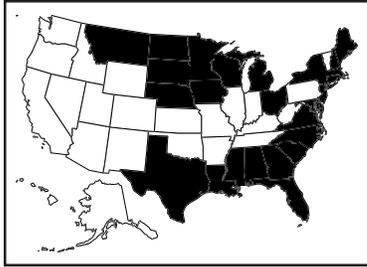
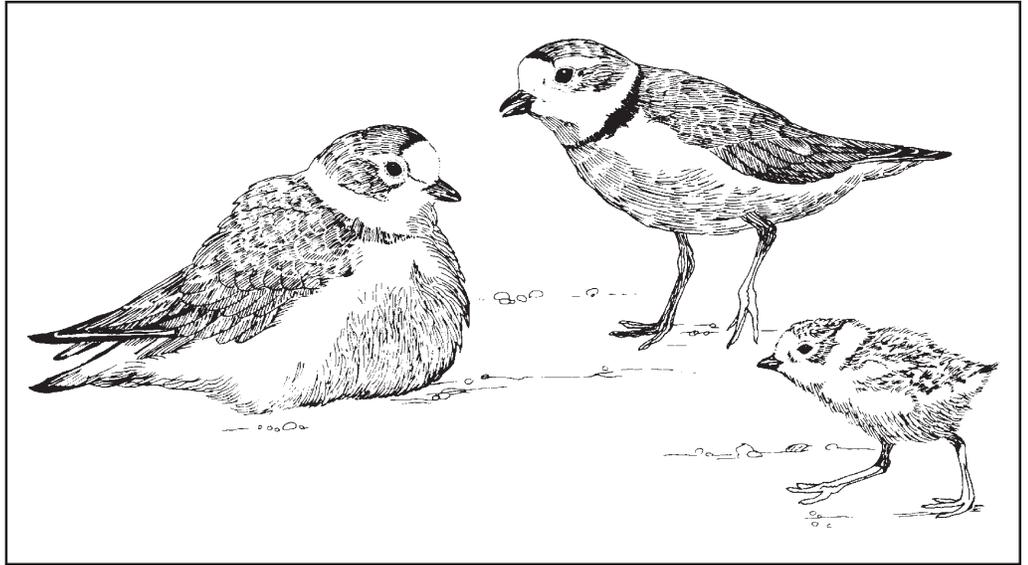
Andrew Saatkamp has 18 years of experience as a Field Director. His degrees include an M.A. (1994) in Anthropology from the University of Memphis and a B.A. (1989) in Anthropology from the University of Tennessee, Knoxville. Mr. Saatkamp is certified by the Register of Professional Archaeologists (RPA ID# 15459), and he is a member the Society for American Archaeology and the Mid-South Association of Professional Anthropologists. Since joining Panamerican in 1994, Mr. Saatkamp has served as a Field Director for numerous survey projects in the southeastern United States, including numerous Phase I cultural resources projects in Arkansas. During his career, Mr. Saatkamp has authored or co-authored more than 60 major contract reports. Mr. Saatkamp possesses various ancillary and computer skills, including GIS manipulation and analysis.

APPENDIX D

Threatened and Endangered Species Fact Sheets



Endangered Species Facts



States in which the piping plover is found. This map includes both summer and winter locations.

Piping Plover

The piping plover in the Great Lakes area is an *endangered species*. Endangered species are animals and plants that are in danger of becoming extinct. The Northern Great Plains and Atlantic Coast piping plovers are *threatened species*. Threatened species are animals and plants that are likely to become endangered in the foreseeable future. Identifying, protecting, and restoring endangered and threatened species is the primary objective of the U.S. Fish and Wildlife Service's endangered species program.

Scientific Name - *Charadrius melodus*

Appearance - These small, stocky shorebirds have a sand-colored upper body, a white underside, and orange legs. During the breeding season, adults have a black forehead, a black breast band, and an orange bill.

Habitat - Piping plovers use wide, flat, open, sandy beaches with very little grass or other vegetation. Nesting territories often include small creeks or wetlands.

Reproduction - The female lays four eggs in its small, shallow nest lined with pebbles or broken shells. Both parents care for the eggs and chicks. When the chicks hatch, they are able to run about and feed themselves within hours.

Feeding Habits - The plovers eat insects, spiders, and crustaceans.

Range - Piping plovers are migratory birds. In the spring and summer they breed in the northern United States and Canada. There are three locations where piping plovers nest in North America: the shorelines of the Great Lakes, the shores of rivers and lakes in the Northern Great Plains, and along the Atlantic Coast. Their nesting range has become smaller over the years, especially in the Great Lakes area. In the fall, plovers migrate south and winter along the Gulf Coast or other southern locations.

What is the Piping Plover?

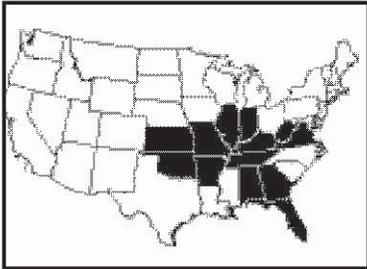
The Great Lakes population of the piping plover is at a perilously low level. Since 1983, the number of nesting pairs has ranged from 12 to 32. In 2000, all of the Great Lakes pairs nested in Michigan.



Threatened and Endangered Species

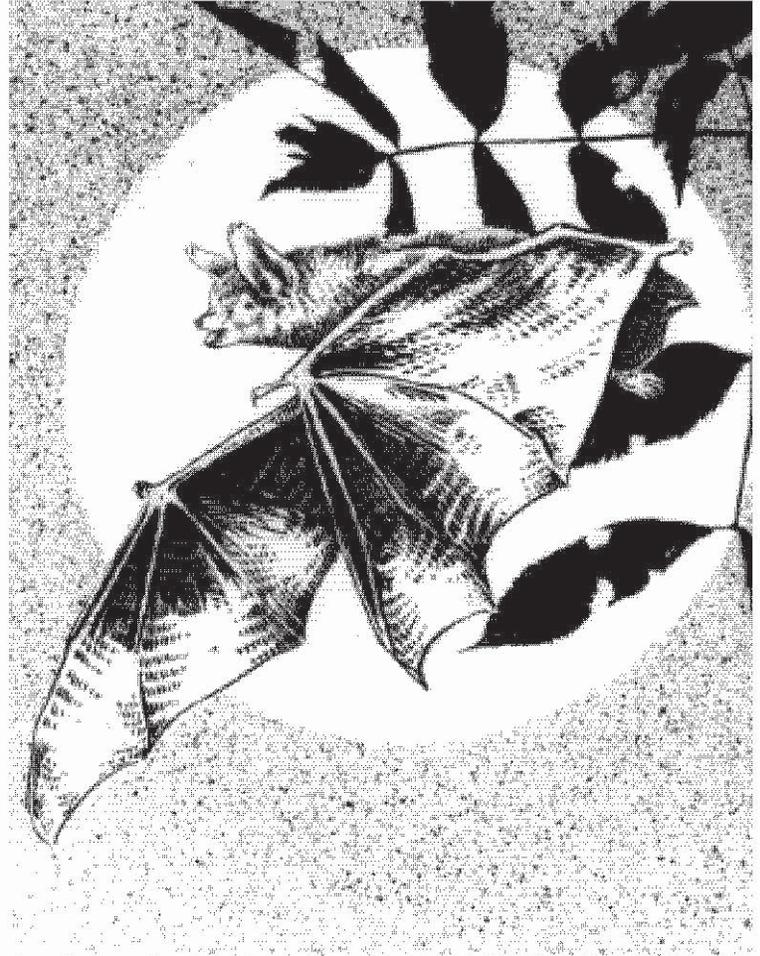
Gray Bat

Myotis grisescens



State where the gray bat is found.

The gray bat is an endangered species. Endangered Species are animals and plants that are in danger of becoming extinct. Threatened species are animals and plants that are likely to become endangered in the foreseeable future. Identifying, protecting, and restoring endangered and threatened species is the primary objective of the U.S. Fish and Wildlife Service's endangered species program.



What is the Gray Bat?

Appearance - Gray bats are distinguished from other bats by the unicolorous fur on their back. In addition, following their molt in July or August, gray bats have dark gray fur which often bleaches to a chestnut brown or russet. They weigh 7-16 grams. The bat's wing membrane connects to its ankle instead of at the toe, where it is connected in other species of *Myotis*.

Habitat - With rare exceptions, gray bats live in caves year-round. During the winter, gray bats hibernate in deep, vertical caves. In the summer, they roost in caves which are scattered along rivers. These caves are in limestone karst areas of the southeastern United States. They do not use houses or barns.

Reproduction - Females give birth to a single young in late May or early June.

Feeding Habitats - The bats eat a variety of flying aquatic and terrestrial insects present along rivers or lakes.



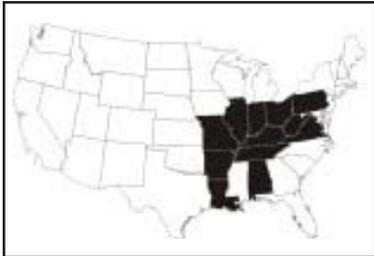
U.S. Fish & Wildlife Service



Fat Poc etboo



U.S. Fish & Wildlife Service



Pink Mucket

SPECKLED POCKETBOOK*Lampsilis streckeri***SPECIES CODE:** F020 I01**STATUS:**

On February 28, 1989, the speckled pocketbook was designated as endangered throughout its entire range in Arkansas and Oklahoma (USFWS 1989). A recovery plan addressing the speckled pocketbook was approved January 2, 1992 (USFWS 1992).

SPECIES DESCRIPTION:

The speckled pocketbook is a medium-sized (reaching approximately 80 mm in length) freshwater mussel with a thin, dark-yellow or brown shell with chevron-like spots, and chain-like rays (USFWS 1989). Like other freshwater mussels, the speckled pocketbook feeds by filtering food particles from the water column. The specific food habits of the species are unknown, but other juvenile and adult freshwater mussels have been documented to feed on detritus, diatoms, phytoplankton, and zooplankton (Churchill and Lewis 1924). The diet of speckled pocketbook glochidia, like other freshwater mussels, comprises water (until encysted on a fish host) and fish body fluids (once encysted).

REPRODUCTION AND DEVELOPMENT:

The reproductive cycle of the speckled pocketbook is similar to that of other native freshwater mussels. Males release sperm into the water column; the sperm are then taken in by the females through their siphons during feeding and respiration. The females retain the fertilized eggs in their gills until the larvae (glochidia) fully develop. The mussel glochidia are released into the water, and within a few days they must attach to the appropriate species of fish, which they parasitize for a short time while they develop into juvenile mussels. The speckled pocketbook was recently determined to be bradytic and gravid females were observed in August with release of glochidia in late February through May (Winterringer et al. 2002). Recent studies of the potential suitability of 22 fish species indicated that glochidia tested on all sunfishes (Centrarchidae) successfully transformed, with greatest success with the green sunfish (*Lepomis cyanellus*) (Winterringer et al. 2002).

RANGE AND POPULATION LEVEL:

Historically, populations occurred in Archey, Middle, and South Forks of the Little Red River, Van Buren County, Arkansas (Clarke 1987, USFWS 1991). Within the Little Red River drainage, the only known remaining population is in the Middle Fork. In the Middle Fork, the known range extends from the influence of Greers Ferry Reservoir near Shirley, Arkansas, upstream to the confluence of Meadow Creek. Above Meadow Creek, the Middle Fork is reduced to intermittent flows during dry periods. Clarke (1987) did not find the speckled pocketbook in the Middle Fork downstream of the confluence of Tick Creek; however, live specimens were found there in 1991 (USFWS 1992). Recent surveys indicate that the population remaining in the Middle Fork is stable and the species has been documented in 83 of 124 total river kilometers (Winterringer et al. 2003).

HABITAT:

Clarke (1987) found this species in coarse to muddy sand with a constant flow of water. The speckled pocketbook is not associated with slow current, pools, or stretches of rivers with intermittent flow (NatureServe 2003).

PAST THREATS:

The speckled pocketbook once occurred in the stretch of the Little Red River now impounded by Greers Ferry Reservoir, and in the area downstream of the reservoir that is now altered by cold (hypolimnetic) discharges.

The lentic conditions imposed by the reservoir and the hypolimnetic discharges undoubtedly eliminated any speckled pocketbook population in this stretch of river. Archey and South Forks have been modified for flood control. The modification of these channels is the likely cause of the species' disappearance from these tributaries. The small population of speckled pocketbooks in the South Fork, below the confluence with Archey Fork, apparently has been extirpated by floods scouring the mussel's habitat (Clarke 1987). This scouring likely results from increased water velocity due to channel modification upstream (USFWS 1992).

CURRENT THREATS:

The Middle Fork population's available habitat is limited upstream by low or non-existent water flows during the dry months of the year. Much of Archey and South Forks have intermittent water flows during dry seasons, which may be partially due to channel modification for flood control. The population is so limited that isolated gene pools are likely and loss of genetic variability increases susceptibility to environmental disturbance. The reduced density of the population decreases the likelihood of successful reproduction (USFWS 1992). Other current threats to freshwater mussels are well described in the general mussel description.

CONSERVATION MEASURES:

Exposure Scenario Summary Table for the Speckled pocketbook

| Species | Life Stage | Habitat Type | Exposure Route | Diet | Significant Interspecies Relationships |
|---------------------|-------------------|---------------------|--|--|---|
| speckled pocketbook | gdia | parasite | contact with water, diet | water (until encysted), fish body fluids (once encysted) | green sunfish |
| | juvenile / adult | sediment dweller | contact & ingestion of water, diet, sediment | filter feeder (bacteria, algae, detritus, sediment) | |

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FACT SHEET

BALD EAGLE (*Haliaeetus leucocephalus*)

Species Information



Status: Delisted (72 FR 37345 - 37372; July 9, 2007) except in the Sonoran Desert of Arizona, and a monitored species elsewhere (USFWS, 2007). The Missouri Department of Conservation (MDC) considers the bald eagle to be a species of conservation concern (SCC) for the state (MDC, 2000).

Description: The bald eagle is a large bird with a wingspan of 6 to 7.5 feet (180-230 cm). Adults are dark brown with a white head and tail and a large yellow beak. Immatures are dark with mottled white under the wings and at the base of the tail. The feet of both adults and immatures are bare of feathers (USFWS, 2001).

Life History: Bald eagles are long-lived birds and do not achieve full adult plumage for four or five years. Eagles build their nests on the tops of tall trees or on cliffs. Nests can be six feet (180 cm) across and six to eight feet (180-250 cm) high. A pair of eagles will use the same nest year after year. An active nest is one which was attended by a pair even if one of the pair was immature. An inactive nest is one which was not attended by eagles during the year. A winter nest is one that was attended by pairs that disappear at about the same time that the northern wintering eagles migrate north. A productive nest is known to have fledged at least one young. In the southeastern United States, nesting activities may begin as early as September. Typically, two eggs are laid and they hatch after about 35 days. Fledging may take as long as 12 weeks and parents may care for their young for about four to six weeks after fledging. Fish are a major component of the bald eagle's diet, but bald eagles will eat a variety of animals, including waterfowl, small mammals, and carrion (USFWS, 2001).

Habitat: Bald eagles require large trees or cliffs near water with abundant fish for nesting. They winter along oceans, rivers, lakes, or in areas where carrion is present (USFWS, 2001).

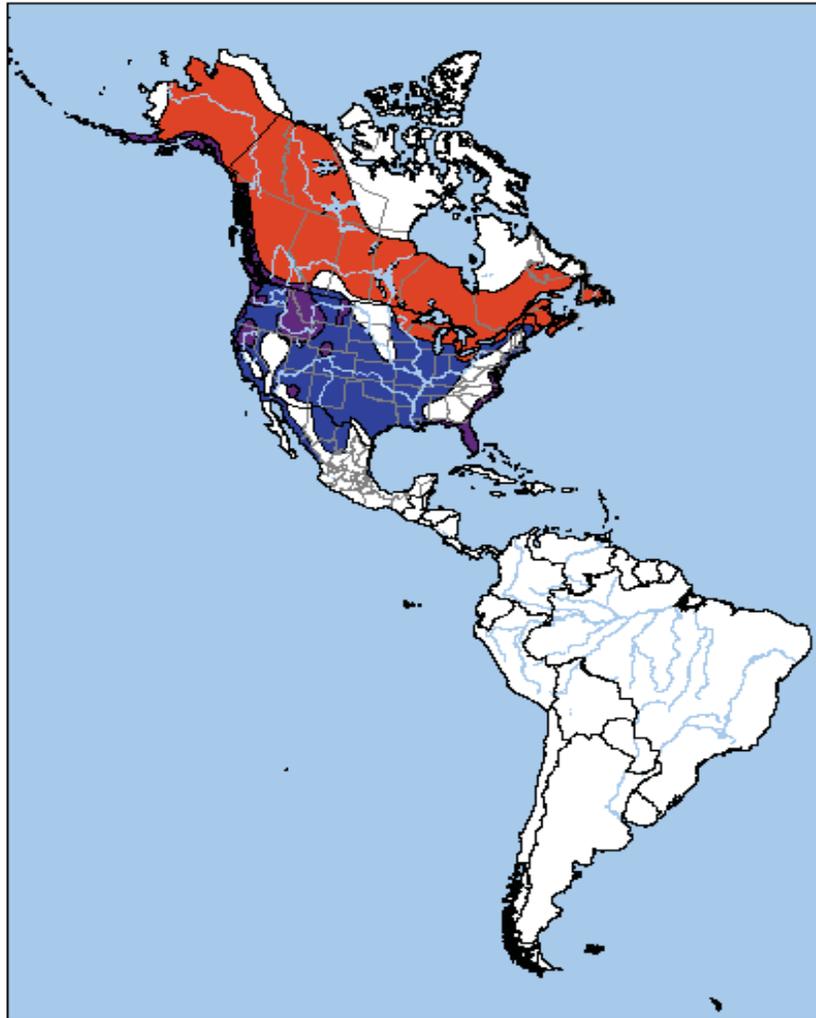
Distribution: The bald eagle is found throughout North America. In Oklahoma, the bald eagle is primarily a winter resident and wintering eagles are most common between December and March. During that time, bald eagles congregate around reservoirs and larger rivers. Bald eagles also nest in Oklahoma and nesting pairs have increased from only one in 1981 to at least 30 active nests in recent years. Most nesting bald eagles are in eastern portions of the state, but new nesting pairs are discovered every year and their range in Oklahoma is expanding. Suitable nesting habitat is provided by reservoirs and rivers with large trees nearby for nesting and perching (USFWS, 2001).

Causes for Concern: During the mid-20th century, the bald eagle declined drastically as a result of shooting and harmful pesticides such as DDT that entered the food chain and severely diminished the bird's ability to reproduce. Their numbers dwindled to only 417 pairs in the lower 48 states before steps

FACT SHEET

were taken to prevent extinction. The banning of DDT in 1972 was a critical step toward saving bald eagles and other species. Bald eagles have made a comeback in many areas since the late 1970s and have recovered sufficiently to be removed from the federal list of endangered and threatened species (MDC, 2000).

Distribution and Range Maps



- Permanent Resident
- Breeding Resident
- Nonbreeding Resident
- Passage Migrant
- Uncertain Status
- Introduced
- Vagrant
- ▨ Extirpated
- ▨ Historical Records Only
- National boundary
- Subnational boundary
- River
- Water body



Map created September 2007

7500750 Kilometers



APPENDIX E

White County Floodplain Elevation Survey and Report

FLOODPLAIN DEVELOPMENT PERMIT
APPLICATION FORM FOR WHITE COUNTY

| | |
|-----------------|-------|
| OFFICE USE ONLY | |
| Date Received: | _____ |
| File Number: | _____ |

SECTION I: Applicant and Project Information

GENERAL INFORMATION

1. No work of any kind may begin in a floodplain area designated as A, A1-30, AE, AO, AH, or B until a floodplain development permit is issued.
2. The permit may be revoked if any false statements are made in this application.
3. If revoked, all work must cease until a permit is re-issued.
4. The development may not be used or occupied until a **Certificate of Compliance** is issued.
5. The permit will expire if no work is commenced within 6 months of the date of issue.
6. The permit will not be issued until any other necessary local, state or federal permits have been obtained.
7. By signing and submitting this application, the Applicant gives consent to the local Floodplain Administrator or his/her representative to make reasonable inspections prior to the issuance of a **Certificate of Compliance**.
8. By signing and submitting this application, the Applicant certifies that all statements contained in SECTION I of the application, and in any additional attachments submitted by the Applicant, are true and accurate.

OWNER INFORMATION

Property owner(s): AR. Game & Fish Commission
Telephone number: 870-734-4581
Fax number: 870-734-4585

Mailing address: Hwy. 49 North, Brinkley, AR 72021
e-mail address: Garrick Dugger
gsdugger@agfc.state.ar.us

Signature(s) of property owner(s) listed above¹

¹Attached forms if there are additional property owners. This permit application will not be accepted without the signature of all property owners. The signature is an acknowledgement and consent to this floodplain development permit application.

APPLICANT INFORMATION

Applicant: Garrick Dugger-Regional Wildlife Sup. Notes:
Telephone number: 870-734-4581
Fax number: _____

Signature of applicant listed above

Project New Field Office
Address Hurricane Lake Road
Bald Knob, AR 72010

Lot _____ Block _____
Subdivision _____
Legal Description (Attach to this document)

A. Structural development (Please check all that apply.)

Type of Structure

- Residential (1 to 4 families)
- Residential (More than 4 families)
- Non-Residential
 - Elevated
 - Floodproofed
- Combined Use (Residential and Non-Residential)
- Manufactured (mobile) Home
 - Located within a Manufactured Home Park
 - Located outside a Manufactured Home Park

Type of Structural Activity

- New Structure
- Addition to Existing Structure²
- Alteration of Existing Structure²
- Relocation of Existing Structure²
- Demolition of Existing Structure
- Replacement of Existing Structure

²Estimate Cost of Project _____

B. Other Development Activities

- Excavation (not related to a Structural Development listed in Part A.)
- Clearing
- Placement of fill material
- Grading
- Mining
- Drilling
- Dredging
- Watercourse alteration
- Drainage improvement (including culvert work)
- Individual water or sewer system
- Roadway or bridge construction
- Other development not listed above (specify) _____

²If the value of an addition or alteration to a Structure equals or exceeds 50% of the value of the structure before the addition or alteration, the entire structure must be treated as a substantially improved structure. A relocated structure must be treated as new construction.

I certify that to the best of my knowledge the information contained in this application is true and accurate.

(PRINTED name)

(SIGNED name)

(Date)

SECTION II: (To be completed by Floodplain Administrator)**FLOOD INFORMATION**

1. The proposed development is located on FIRM map panel: 05145C 0525E (number and suffix)
2. The date on the FIRM 05/02/2012
3. The proposed development is located in Zone: A (A, A1-30, AE, AO, AH, B, C, D, or X)
4. Is the proposed development located in either of the following zones? A, A1-30, AE, AO, AH, B, or shaded X
 YES NO *If NO, no permit floodplain development is required.*

5. If the proposed development is located in Zone B or shaded Zone X, a floodplain development permit is only required if the Development is a “critical facility” as defined in the Flood Damage Prevention Ordinance.
Otherwise, no floodplain development permit is required in Zone B or shaded Zone X.

6. If the proposed development is located within either Zone A1-30 or Zone AE, is it also located within a “regulatory floodway”? YES NO
7. If YES, a **No Rise Certificate** is necessary before proceeding.
8. If NO, continue.

If the proposed development is located within Zones A, A1-30, AE, AO, AH, B or shaded X (critical facilities only), apply the criteria of the Flood Damage Prevention Ordinance to minimize flood damages to the proposed Development and to adjacent properties as well.

For structures, the provisions of the ordinance specify that the lowest floor, including utilities, be elevated _____ above the base flood elevation. Therefore, it is necessary that the following information be provided:

High Water

1. ~~Base flood~~ elevation at the 207.3 feet above mean sea level (MSL) site:
2. Vertical datum used in the Flood Insurance Study, on flood maps and in surveys is NAVD 1988
3. Source of the base flood elevation (BFE) FIRM (flood map)
 Flood Insurance Study Profile # _____
 Other sources of the BFE _____
(specify):
Flood Study done Dec. 2011 for Unincorporated White County to establish 'Safety Net Elevations' (see attached)
4. Proposed lowest floor elevation (including utilities): 209.0 feet above MSL
(This elevation must be greater than the BFE. For non-residential structures, floodproofing may be used for protection. See ordinance for details.)

The following documents may be required. *Check applicable.*

- Maps and plans of the development
- An **Elevation Certificate**³ – required for all structures
- A **Floodproofing Certificate**³ – required if floodproofing a non-residential structure
- A **No-Rise Certificate**³ – if the proposed development is in a “regulatory floodway”
- An elevation study showing BFEs on developments exceeding 50 lots or 5 acres in Zone A
- A copy of **Wetlands Permit** from the U.S. Army Corps of Engineers if required; and other local, state, federal permits. Other permits: _____

³Certificates require completion by a Professional Land Surveyor or Registered Professional Engineer, as indicated.

ELEVATION CERTIFICATE

IMPORTANT: Follow the instructions on pages 1-9.

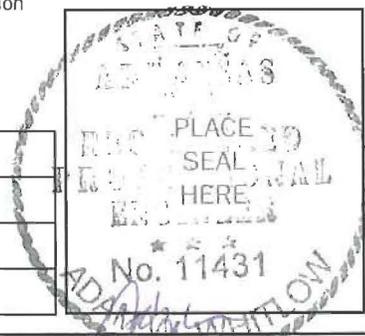
OMB No. 1660-0008
 Expiration Date: July 31, 2015

| SECTION A - PROPERTY INFORMATION | | FOR INSURANCE COMPANY USE |
|--|-----------------|---|
| A1. Building Owner's Name <u>Arkansas Game and Fish Commission</u> | | Policy Number: |
| A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. <u>Hurricane Lake Road - New Field Office</u> | | Company NAIC Number: |
| City <u>Bald Knob</u> | State <u>AR</u> | ZIP Code <u>72010</u> |
| A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) <u>NW 1/4, NW 1/4, Section 18, T-7-N, R-4-W, White County, Arkansas (see attached)</u> | | |
| A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Non-Residential</u> | | |
| A5. Latitude/Longitude: Lat. <u>35°13'55.67"N</u> Long. <u>91°28'58.25"W</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983 | | |
| A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance. | | |
| A7. Building Diagram Number <u>1</u> | | |
| A8. For a building with a crawlspace or enclosure(s): | | A9. For a building with an attached garage: |
| a) Square footage of crawlspace or enclosure(s) _____ sq ft | | a) Square footage of attached garage _____ sq ft |
| b) No. of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>0</u> | | b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade _____ |
| c) Total net area of flood openings in A8.b <u>0</u> sq in | | c) Total net area of flood openings in A9.b _____ sq in |
| d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No |

| SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION | | | | | |
|---|------------------------|--|---|-------------------------------|--|
| B1. NFIP Community Name & Community Number <u>White County 05145C</u> | | B2. County Name <u>White</u> | | B3. State <u>Arkansas</u> | |
| B4. Map/Panel Number <u>0525</u> | B5. Suffix <u>E</u> | B6. FIRM Index Date <u>05/02/2012</u> | B7. FIRM Panel Effective/ Revised Date <u>05/02/2012</u> | B8. Flood Zone(s) <u>A</u> | B9. Base Flood Elevation(s) (Zone A0, use base flood depth) <u>(See Attached)</u> |
| B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input type="checkbox"/> FIRM <input checked="" type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____ | | | | | |
| B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____ | | | | | |
| B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ / _____ / _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA | | | | | |

| SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED) | |
|--|--|
| C1. Building elevations are based on: <input checked="" type="checkbox"/> Construction Drawings* <input type="checkbox"/> Building Under Construction* <input type="checkbox"/> Finished Construction *A new Elevation Certificate will be required when construction of the building is complete. | |
| C2. Elevations - Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO. Complete Items C2.a-h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters. Benchmark Utilized: <u>GPS verified by Multi RM's</u> Vertical Datum: <u>NAVD 1988</u> Indicate elevation datum used for the elevations in items a) through h) below. <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____ Datum used for building elevations must be the same as that used for the BFE. | |
| Check the measurement used. | |
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) <u>209 . 00</u> | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| b) Top of the next higher floor _____ | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| d) Attached garage (top of slab) _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments) _____ | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) <u>208 . 00</u> | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) <u>208 . 50</u> | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |

| SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION | | | |
|---|--|--|------------------------------------|
| This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001. | | | |
| <input type="checkbox"/> Check here if comments are provided on back of form. | | Were latitude and longitude in Section A provided by a licensed land surveyor? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| <input checked="" type="checkbox"/> Check here if attachments. | | | |
| Certifier's Name <u>Adam Whitlow, P.E., P.S.</u> | | License Number <u>P.E. 11431-P.S. 1737</u> | |
| Title <u>Project Engineer</u> | | Company Name <u>Whitlow Engineering Services, Inc.</u> | |
| Address <u>301 East Lincoln Ave. #2</u> | | City <u>Searcy</u> | State <u>AR</u> |
| Signature <u>[Signature]</u> | | ZIP Code <u>72143</u> | Telephone <u>(501) 279-9200</u> |
| Date <u>05/28/2013</u> | | | |



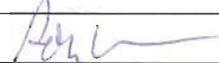
ELEVATION CERTIFICATE, page 2

| | | | |
|---|-------------|-------------------|----------------------------------|
| IMPORTANT: In these spaces, copy the corresponding information from Section A. | | | FOR INSURANCE COMPANY USE |
| Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. Hurricane Lake Road - New Field Office | | | Policy Number: |
| City Bald Knob | State AR | ZIP Code 72010 | Company NAIC Number: |

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION (CONTINUED)

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments See attached 'Safety Net' documentation which was an extensive study done in 2011 by the Floodplain Manager for Unincorporated White County during and shortly after Eastern White County was affected by a 100 year flood event. The adjacent High Water Elevation for this site was 207.3 with the recommended Finished Floor Elevation of 208.5.

Signature  Date 05/28/2013

SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

- E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
- a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ . _____ feet meters above or below the HAG.
- b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ . _____ feet meters above or below the LAG.
- E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 8–9 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ . _____ feet meters above or below the HAG.
- E3. Attached garage (top of slab) is _____ . _____ feet meters above or below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is _____ . _____ feet meters above or below the HAG.
- E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? Yes No Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name _____

| | | | |
|-----------------|------------|-----------------|----------------|
| Address _____ | City _____ | State _____ | ZIP Code _____ |
| Signature _____ | Date _____ | Telephone _____ | |

Comments _____

Check here if attachments.

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

- G1. The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)
- G2. A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.
- G3. The following information (Items G4–G9) is provided for community floodplain management purposes.

| | | |
|-------------------------|------------------------------|---|
| G4. Permit Number _____ | G5. Date Permit Issued _____ | G6. Date Certificate Of Compliance/Occupancy Issued _____ |
|-------------------------|------------------------------|---|

G7. This permit has been issued for: New Construction Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: _____ . _____ feet meters Datum _____

G9. BFE or (in Zone AO) depth of flooding at the building site: _____ . _____ feet meters Datum _____

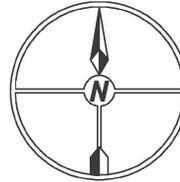
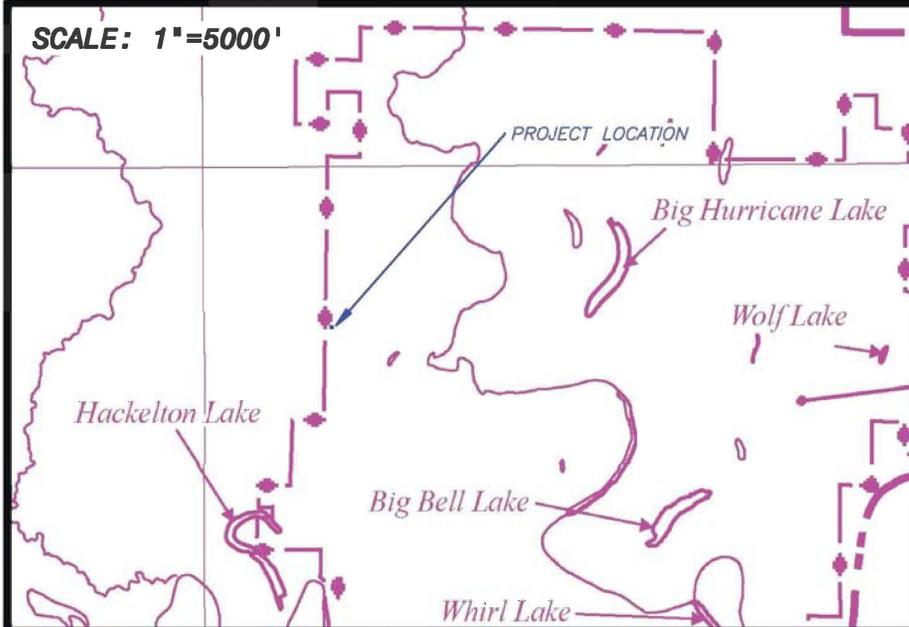
G10. Community's design flood elevation: _____ . _____ feet meters Datum _____

| | |
|-----------------------------|-----------------|
| Local Official's Name _____ | Title _____ |
| Community Name _____ | Telephone _____ |
| Signature _____ | Date _____ |

Comments _____

Check here if attachments.

SCALE: 1"=5000'



FLOOD VICINITY MAP
ARK. GAME & FISH FIELD OFFICE
HURRICANE LAKE RD. - WHITE COUNTY, AR

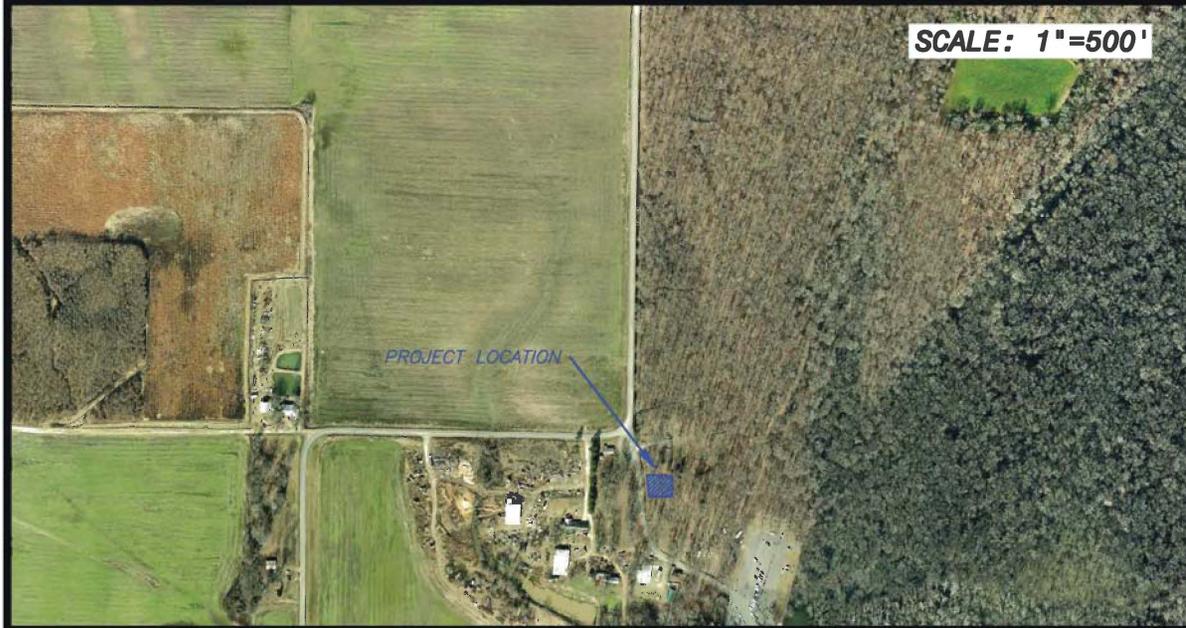


WHITLOW ENGINEERING SERVICES, INC.
 301 EAST LINCOLN AVE #2
 SEARCY, ARKANSAS 72143
 (501) 279-9200 • (501) 279-9205 FAX

LISTING OF COMMUNITIES

| COMMUNITY NAME | COMMUNITY NUMBER | LOCATED ON PANEL(S) | INITIAL NFIP MAP DATE | INITIAL FIRM DATE | MOST RECENT FIRM PANEL DATE |
|------------------------|------------------|---|-----------------------|-------------------|-----------------------------|
| BALD KNOB, CITY OF | 050222 | 0325 | MARCH 8, 1974 | APRIL 3, 1987 | MAY 2, 2012 |
| BEEBE, CITY OF | 050223 | 0560, 0575, 0600 | FEBRUARY 4, 2005 | FEBRUARY 4, 2005 | MAY 2, 2012 |
| BRADFORD, CITY OF | 050131 | 0175 | FEBRUARY 21, 1975 | OCTOBER 15, 1985 | MAY 2, 2012 |
| GARNER, TOWN OF | 050224 | 0450 | AUGUST 30, 1974 | MAY 2, 2012 | MAY 2, 2012 |
| GEORGETOWN, TOWN OF | 050605 | **0505, **0675 | MAY 2, 2012 | MAY 2, 2012 | MAY 2, 2012 |
| GRIFFITHVILLE, TOWN OF | 050247 | 0475, 0625 | SEPTEMBER 26, 1975 | MAY 2, 2012 | MAY 2, 2012 |
| HIGGINSON, TOWN OF | 050225 | 0455, 0475 | AUGUST 16, 1974 | DECEMBER 1, 2007 | MAY 2, 2012 |
| JUDSONIA, CITY OF | 050226 | 0300, 0325 | FEBRUARY 1, 1974 | SEPTEMBER 1, 1987 | MAY 2, 2012 |
| KENSITT, CITY OF | 050227 | 0455, 0475 | OCTOBER 12, 1973 | AUGUST 1, 1987 | MAY 2, 2012 |
| LETONA, TOWN OF | 050506 | 0275 | | | |
| MCRAE, CITY OF | 050228 | 0600 | MARCH 8, 1974 | JUNE 25, 1976 | MAY 2, 2012 |
| PANGBURN, CITY OF | 050380 | 0100 | MAY 2, 2012 | MAY 2, 2012 | MAY 2, 2012 |
| ROSE BUD, TOWN OF | 050507 | 0225 | MAY 2, 2012 | MAY 2, 2012 | MAY 2, 2012 |
| RUSSELL, TOWN OF | 050284 | 0325 | MAY 2, 2012 | MAY 2, 2012 | MAY 2, 2012 |
| SEARCY, CITY OF | 050229 | 0270, 0290, 0300, 0435, 0455, 0475 | JANUARY 23, 1974 | FEBRUARY 4, 1981 | MAY 2, 2012 |
| WEST POINT, TOWN OF | 050508 | 0500 | MAY 2, 2012 | MAY 2, 2012 | MAY 2, 2012 |
| WHITE COUNTY | 050467 | 0025, 0050, 0075, 0100, 0125, 0150, 0175, *0200, 0225, 0250, 0270, 0275, 0290, 0300, 0325, 0350, **0375, 0400, 0425, 0435, 0450, 0455, 0475, 0500, **0625, 0650, 0660, 0575, 0590, 0625, 0650, **0675 | JUNE 7, 1977 | MARCH 1, 2000 | MAY 2, 2012 |

+ NON-FLOODPRONE
 ** PANEL NOT PRINTED - AREA ALL WITHIN ZONE A



SCALE: 1"=500'

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM
FLOOD INSURANCE RATE MAP
WHITE COUNTY,
ARKANSAS
AND INCORPORATED AREAS
 (SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

PANELS PRINTED: 25, 50, 75, 100, 125, 150, 175, 225, 250, 270, 275, 290, 300, 325, 350, 400, 425, 435, 450, 455, 475, 500, 550, 580, 575, 600, 625, 650

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
 05145CINDDA
EFFECTIVE DATE
 MAY 2, 2012

Federal Emergency Management Agency



CERTIFICATE OF ENGINEERING ACCURACY:
 I, ADAM W. WHITLOW, HEREBY CERTIFY THAT THIS PROPERTY HAS BEEN CORRECTLY PLACED ON THE FIRM MAP TO THE BEST OF MY ABILITY.

5/28/2013
 DATE

Adam W. Whitlow
 ADAM W. WHITLOW, REGISTERED PROFESSIONAL ENGINEER NO. 11431

ARKANSAS FLOODPLAIN DEVELOPMENT PERMIT

| OFFICE USE ONLY | |
|-----------------|-------|
| Date Issued: | _____ |
| File Number : | _____ |

SECTION IV : (To be completed by the Floodplain Administrator)

PERMIT DETERMINATION

I have determined that the proposed development

- IS
- IS NOT *(non-conformances to be described in a separate document)*

in conformance with local Flood Damage Prevention Ordinance Number _____ ,
dated _____ .

The Floodplain Development Permit

- IS
- IS NOT *(reasons for denial to be described in a separate document)*

issued, subject to any conditions attached to and made part of this permit.

SIGNATURE

DATE

The applicant is reminded that this document is a development permit only. An inspection must be performed and a Compliance Certificate must be issued before the development can be occupied or used.

CERTIFICATE OF COMPLIANCE

OFFICE USE ONLY

Date Issued: _____

File Number : _____

SECTION V : CERTIFICATE OF COMPLIANCE

“AS-BUILT” ELEVATION (to be completed by the applicant after construction)

The following information must be provided for structures that are part of this application. This section must be completed by a Professional Land Surveyor or a Professional Engineer (or attach a certification to this application).

- (1) The Actual (“As-Built”) elevation of the top of the lowest floor, including the basement, is _____ Feet above MSL (vertical datum: _____).
- (2) The Actual (“As-Built”) elevation of floodproofing protection is _____ Feet above MSL (vertical datum: _____).

COMPLIANCE ACTION (to be completed by the Local Floodplain Administrator)

The Floodplain Administrator will complete this section as applicable based on inspection of the development to ensure compliance with the community’s local flood damage prevention ordinance.

| | | | | | |
|--------------|-------------|-----------|---------------|------------------------------|-----------------------------|
| Inspections: | Date: _____ | By: _____ | Deficiencies? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | Date: _____ | By: _____ | Deficiencies? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | Date: _____ | By: _____ | Deficiencies? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | Date: _____ | By: _____ | Deficiencies? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | Date: _____ | By: _____ | Deficiencies? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

CERTIFICATE OF COMPLIANCE (to be completed by the Local Floodplain Administrator)

Certificate of Compliance issued.

SIGNATURE

DATE

This Certificate of Compliance indicates that structures may now be occupied and non-structural developments may be utilized.

December 12, 2011

Whitlow Engineering Services, Inc
301 E Lincoln Ave. Ste 2
Searey, AR 72143

To: Surveyors, Engineers, and Hydrologists Offering Services in East White County
From: Billy Teague, Floodplain Manager, Unincorporated White County

The enclosed elevation data and maps are intended for professionals who possibly are, or will be, providing flood-protection related services for East White County property owners, builders, and contractors. This information was developed to improve the objectivity, consistency, and consequently *fairness*, of the county's floodplain structural development permitting, while also maintaining the "*reasonably safe from flooding*" commitment found in our flood damage prevention ordinance. These reference/advisory data pertain to the interior of one particular Special Flood Hazard Area (SFHA) that extends from the Jackson County Line to the Prairie County Line, in East White County. The mapped area is *extremely antagonistic to flood protection measures that avoid the use of measured, site-specific, grade- and structure-elevations*. The mapped area is the interior of a very large and complex Approximate Zone A SFHA, so unfortunately it lacks the certifiable Base Flood Elevation (BFE) data, and floodway delineation data we would expect from a high quality Flood Insurance Study (FIS). The two enclosed "Safety Net Elevation" maps and companion table contain advisory minimum "top of bottom floor" elevations by elevation zones, and also by White County Section, Township, and Range. I am distributing these advisory data in support of safer development (especially new residential construction) in the area, pending availability of reliable and certifiable BFE data. The enclosed information is divided into two main categories:

- (1) **The two SAFETY NET ELEVATIONS maps provide "advisory" minimum elevations (NAVD 88) for top of bottom floor and lowest elevation of servicing equipment (See Section C of the currently effective FEMA Elevation Certificate, Form 81-31.). One map shows the advisory elevations by elevation zone. Boundaries between the zones on the map generally follow PLSS section lines, but a few of the boundaries correspond to highways, railroad tracks, streams, and implied lines between section fractions. The companion map shows the elevations corresponding to individual sections or section parts. The companion table lists the advisory minimum elevations by Section, Township, and Range of White County, ordered according to the elevation zones that appear on the zones view map.**
- (2) **The FLOOD HIGH WATER map shows the approximate locations of high water marks, and USGS stream gages, where approximate, as well as a few estimated, high water elevations were obtained during two severe floods along the White River (2008 and 2011), and during one of two major floods along the lower Little Red River (December, 2009). The map also includes the footprint of 1-foot resolution aerial photography that was flown during the March, 2008 White River flood, near the time the flood crest occurred at Georgetown in southeast White County. The accompanying table lists elevations (NGVD 29) and approximate horizontal coordinates for the high water marks shown on the map. The elevations and related data in the table are listed in order of the index numbers that appear on the map.**

Zone Layout and Elevation Assignments The following flood- and technical data- information sources were taken into account in the Safety Net map layout and the assignment of elevations to the different zones: (1) measured and estimated high water elevations from three major floods (2) near-high-water aerial photography (March, 2008 flood, only) (3) a USACE 100-Year Water Surface Profile Report (April, 2009) and (4) 100-year-flood high water elevation cross-sections

December 12, 2011

that were developed in the course of White County's Map Modernization Program. They do not take into account high water elevations that might have been obtained by state or federal agencies during the May, 2011 White River flood. Although care was taken in the zone grid layout, and also in assigning elevations to the grid, the location of zone boundaries and the elevation transition between neighboring zones were necessarily arbitrary throughout most of the mapped area. The elevations do not pretend to be BFEs.

Suggested Approach to Using the Advisory Data The data and maps were assembled to improve our ability to determine what might be *reasonably safe from flooding* for new residential construction, and/or for substantial improvement of existing structures. At present, the determination of *reasonably safe* must be done without the floodway delineations and reliable BFE data that we would expect from a detailed FIS. **If you are contacted for flood protection assistance on proposed new construction or substantial improvement in this SFHA,**

- *Please advise your client of the importance of flood-data guidance and site-specific grade and structure elevations and encourage them to make every effort to obtain a certifiable BFE; if you can do the determination yourself, great.*
- *Suggest that they contact White County Floodplain Management for current elevation freeboard requirements (probably at least 1 foot), flood vent opening requirements, and a floodplain development permit application.*
- *I have found the diagrams and guidelines outlined in the Arkansas Natural Resources Commission's Arkansas QuickGuide, <http://www.floodplains.ar.gov> to be very helpful in understanding crawlspace foundation and flood vent opening requirements.*

If they are unable to obtain a certifiable BFE,

- *Please consider consulting the enclosed advisory Safety Net Elevation data to assist the determination of their "top of bottom floor elevation" and "lowest elevation of servicing equipment".*
- *If they think they should go even higher than the advisory minimum for any reason, well and good.*
- *In any case, unless they qualify for a LOMA, their top-of-bottom floor- and lowest servicing equipment- levels should be greater than HAG + 2 feet in this Approximate Zone A, even if grade at the site exceeds the advisory minimum elevation.*

Unfortunately, I do not believe that any insurance premium advantage will be allowed by the NFIP, without certifiable BFE data, so there might not be any insurance premium reductions to motivate the use of this advisory data. I do believe insurance premiums will be painfully adversely affected if the bottom floor is too close to grade, and/or if net crawl space vent opening area is too low

- *Meanwhile, the *reasonably safe* of this complex Approximate Zone A, which at best is probably marginal, is severely compromised further, when structures are built say, *x feet above grade*, without surveyed elevations and without the use of any flood data to guide the building plan.*

Thanks so much, and have a joyful holiday season, with best wishes for a very happy coming year!

Sincerely,



Billy Teague, CFM
Floodplain Manager
Unincorporated White County

Safety Net* Elevations East White County, Arkansas

Zone View with Elevations (Feet - NAVD 88)

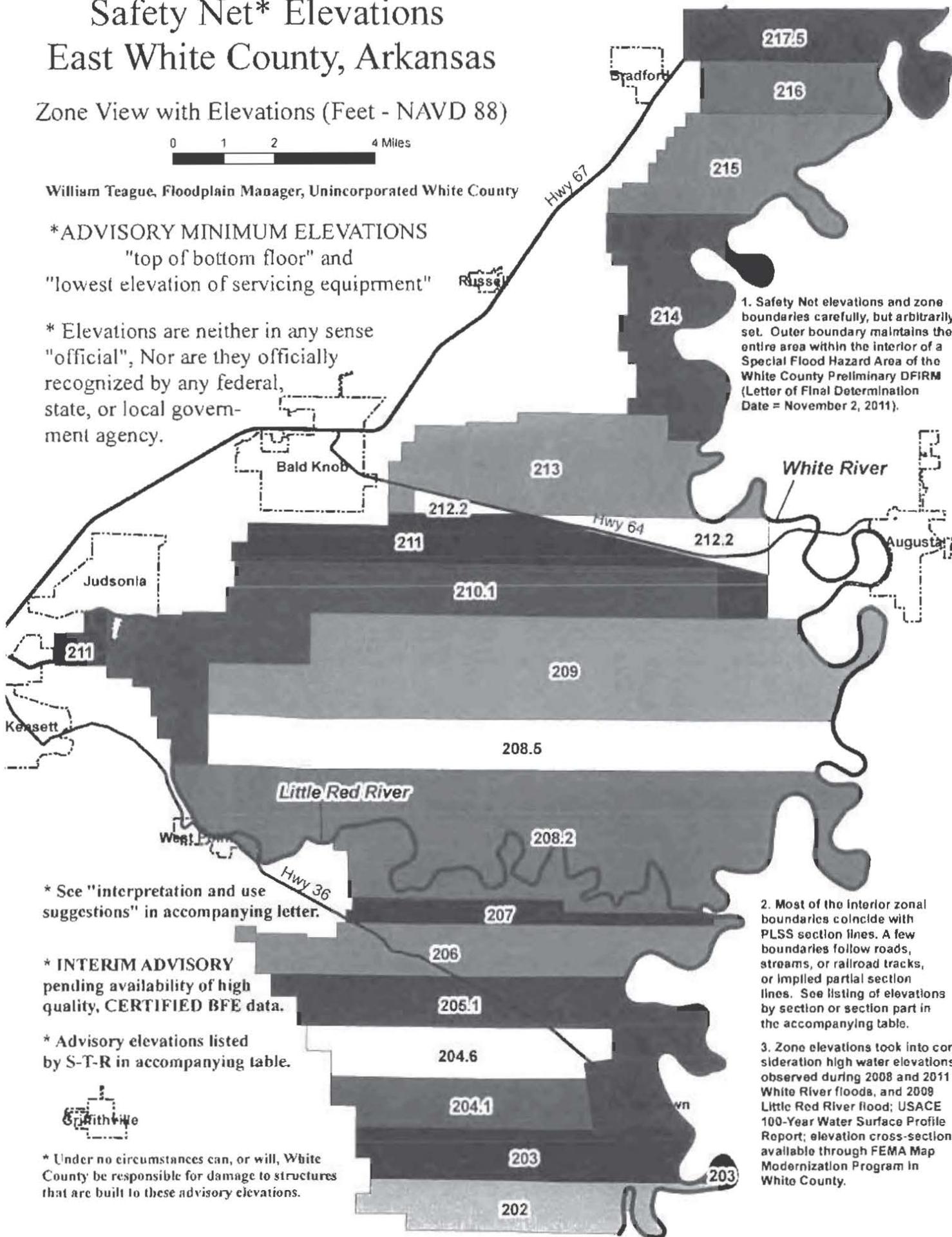


William Teague, Floodplain Manager, Unincorporated White County

*ADVISORY MINIMUM ELEVATIONS

"top of bottom floor" and
"lowest elevation of servicing equipment"

* Elevations are neither in any sense
"official", Nor are they officially
recognized by any federal,
state, or local govern-
ment agency.



1. Safety Net elevations and zone boundaries carefully, but arbitrarily set. Outer boundary maintains the entire area within the interior of a Special Flood Hazard Area of the White County Preliminary DFIRM (Letter of Final Determination Date = November 2, 2011).

* See "interpretation and use suggestions" in accompanying letter.

* INTERIM ADVISORY pending availability of high quality, CERTIFIED BFE data.

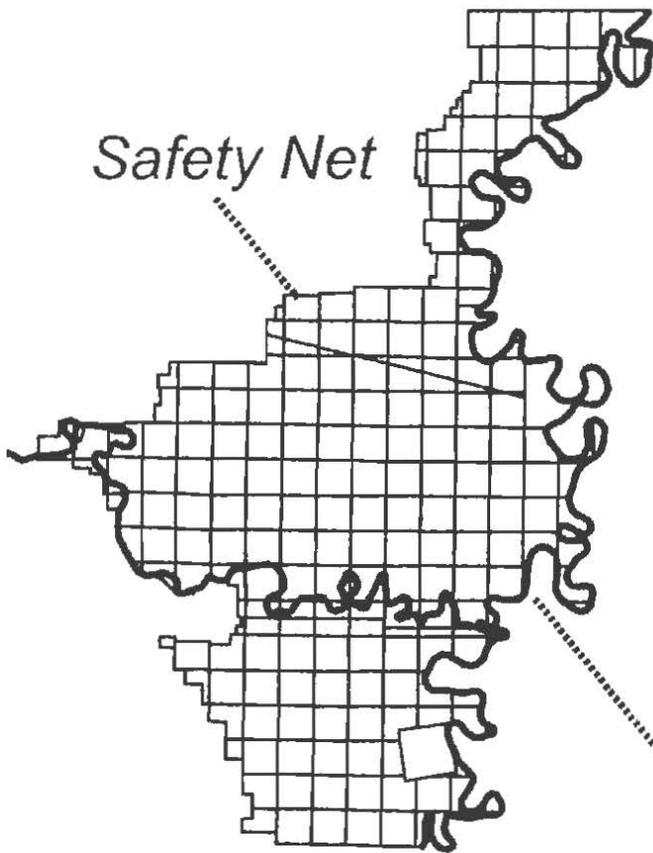
* Advisory elevations listed by S-T-R in accompanying table.



* Under no circumstances can, or will, White County be responsible for damage to structures that are built to these advisory elevations.

2. Most of the interior zonal boundaries coincide with PLSS section lines. A few boundaries follow roads, streams, or railroad tracks, or implied partial section lines. See listing of elevations by section or section part in the accompanying table.

3. Zone elevations took into consideration high water elevations observed during 2008 and 2011 White River floods, and 2009 Little Red River flood; USACE 100-Year Water Surface Profile Report; elevation cross-sections available through FEMA Map Modernization Program in White County.



Advisory Minimum Elevations

Top-Of-Bottom Floor
and Lowest Elevation
of Servicing Equipment

East White County

William Teague, Floodplain Manager
Unincorporated White County
December, 2011

with Special Appreciation to

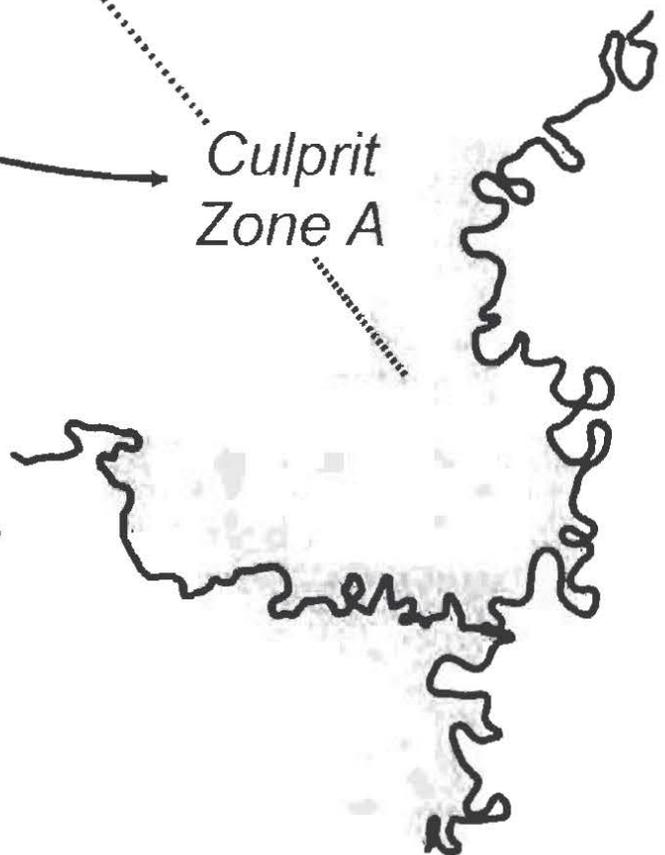
FTN Associates, Inc., Ltd.
for White County's Excellent DFIRMs
via FEMA Map Modernization Program
without which these advisory data
would not have been possible.

FOR A

Why is it Culprit?

- * 175.4 Square Miles
- * No Flood Insurance Study
- * Difficult to Detect Subtle But Critical Elevation Differences in Developed Areas
- * Hydrologically and Hydraulically Complex:
 - Two Reservoir- Controlled Rivers
 - Two Railroad Tracks and
 - Two Highways Transverse to Flow
 - Levee Influences
 - Well-Developed County Road System
- * Most of the Area Innundated by a 25 - 50 Year Flood Event
- * Minimum of 40+ Structures Damaged in 2011 Flood

Culprit
Zone A



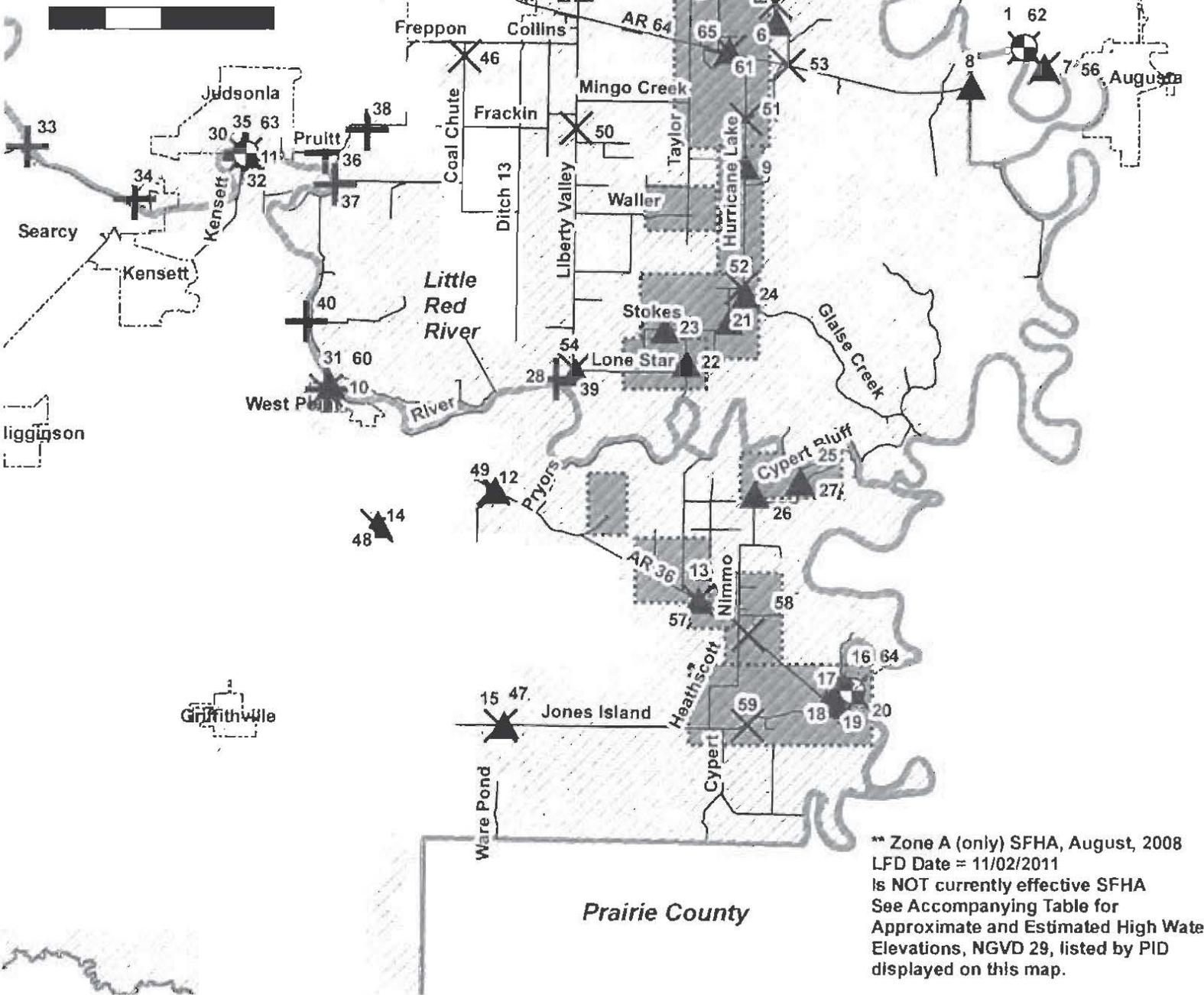
High Water Mark Locations for 2008, 2009, and 2011 Floods East White County

William Teague, Floodplain Manager, Unincorporated White County

High Water Marks, Aerial Photography, and SFHA**

| Flood | #Elev Meas |
|--|------------|
| ▲ White River, 2008 (27) | |
| ⊕ Little Red River, 2009 (10) | |
| ⊗ White River, 2011 (21) | |
| SFHA, Preliminary DFIRM (08/2008)** Zone A (Only) | |
| ▨ 2008 Aerial Photography | |

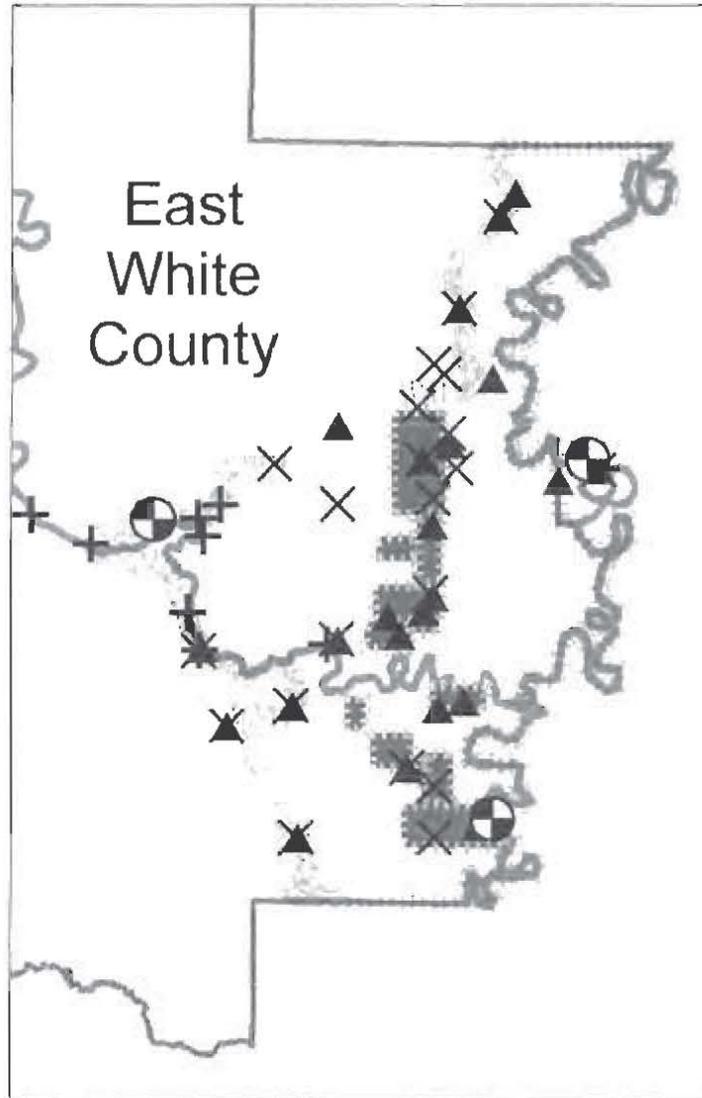
2 1 0 2 Miles



** Zone A (only) SFHA, August, 2008
LFD Date = 11/02/2011
is NOT currently effective SFHA
See Accompanying Table for
Approximate and Estimated High Water
Elevations, NGVD 29, listed by PID
displayed on this map.

High Water Mark and Gage Locations with Approximate and Estimated High Water Elevations

William Teague, Floodplain Manager, Unincorporated White County
December, 2011
with Special Appreciation to Whitlow Engineering Services for
RTK-GPS Elevation and Position Data Capture



White River Floods: March, 2008 and May, 2011
Little Red River Flood: December, 2009

Explanation/Overview of High Water Elevation Table

The accompanying table lists 65 elevations and corresponding locations of high water or near high water observations for three separate flood events. These are the high water elevations being used to support development of the Safety Net for permitting structural development in the East White County Culprit Zone A SFHA in the absence of reliable, detailed BFE data for most of that area, as of 09/2011.

The three floods are White River flood, March, 2008; Little Red River flood, December, 2009, and White River flood, May, 2011.

Elevations are NGVD 29 - feet. Horizontal coordinates are State Plane - Arkansas North - feet, NAD - 83.

All of the high water elevations were measured. Measurement accuracy and precision are considered excellent for this application. The high water mark correspondence to maximum water surface levels actually reached at a given location varies for a number of possible reasons. All of them were screened, and all are thought to be useful for this application.

Green shaded rows correspond to elevations obtained either from USGS or from NWS-NHPS, stage readings reported for the Augusta, Georgetown, and Judsonia stream gages maintained by USGS. The listed elevations were derived by adding the reported stage to the "gage zero" (NGVD 29), reported by NWS-AHPS.

2. All of the remaining elevations were either directly observed RTK-GPS readings corresponding to observed high water levels, or else they were derived from level observations used in conjunction with RTK-GPS elevations obtained within a few feet of the high water observation location. In some cases the elevation is the average of two or more observations. In other cases, the elevation was selected from two or more observations, based on knowledge of the site. In some cases judgements were made regarding the best approach to representing the high water elevation - e.g. average or selection of a particular observation.

Light Blue shaded rows correspond to estimated elevations. Four of those estimates were based on supporting technical data (EG). The remaining ones were based on property owner memory, but considered good.

Yellow shaded row in the red shaded row, will be further verified.

3. Horizontal coordinates should be considered accurate within a few feet, providing good representation of the location for display on topographic map or the georeferenced aerial photography (1 m) available at GEOSTOR. In a few cases the horizontal coordinates are those of the observed RTK-GPS elevation. In some cases, the listed horizontal coordinates were determined from aerial photography, based on knowledge of the location of an observed high water mark. The gage horizontal coordinates were obtained from USGS.

4. VRMS of the RTK-GPS elevations was typically, 0.08 to 0.15 feet.

5. Field notes are available for most of the high water determinations that required the use of a level. Detailed listings of RTK-GPS elevations, with corresponding horizontal coordinates are also available.

| PID | y83 - ft | x83 - ft | ElevFt | Road | NearTwn | GPSdate | OBSdate | Flood | NumPos | HorCsrc |
|-----|----------|----------|---------------|-------------------|---------------|-----------|------------|----------|--------|---------|
| 1 | 350381 | 1493118 | 208.3 | USGS Gage Loc | Augusta | NA | 3/24/2008 | WRmar08 | NA | USGS |
| 2 | 391025 | 1478271 | 211.0 | Low Water Bridge | Bradford | 3/24/2008 | 3/24/2008 | WRmar08 | 3 | GPS |
| 3 | 394963 | 1480860 | 211.3 | Lake | Bradford | 3/24/2008 | 3/24/2008 | WRmar08 | 3 | GPS |
| 4 | 375611 | 1471349 | 210.4 | Roetzel | Russell | 3/24/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 5 | 363854 | 1476921 | 209.4 | Walker Lake | Augusta | 3/24/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 6 | 352781 | 1469726 | 207.8 - 208.3 | Rio Vista | Augusta | NA | INF | WRmar08 | NA | AP |
| 7 | 348546 | 1495044 | 207.8 | Hwy 64 | Augusta | 3/24/2008 | 3/24/2008 | WRmar08 | 2 | GPS |
| 8 | 346780 | 1488047 | 206.5 | County Line | Augusta | 3/24/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 9 | 339242 | 1466779 | 206.0 | Hurricane Lake | Augusta | 3/24/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 10 | 318642 | 1427946 | 204.9 | LRR Access/Hwy 36 | West Point | 3/24/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 11 | 340347 | 1419921 | 204.8 | Judsonia-Kensett | Judsonia | NA | 3/24/2008 | WRmar08 | NA | USGS |
| 12 | 308844 | 1443329 | 198.7 | Hwy 36 | West Point | 3/24/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 13 | 298522 | 1462466 | 198.6 | Hwy 36 | Georgetown | 4/29/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 14 | 305615 | 1432370 | 198.6 | Double Bridge | Griffithville | 3/24/2008 | 3/24/2008 | WRmar08 | 2 | GPS |
| 15 | 286820 | 1444195 | 198.5 | Jones Island | Griffithville | 3/24/2008 | 3/24/2008 | WRmar08 | 2 | GPS |
| 16 | 290027 | 1476877 | 200.3 | USGS Gage Loc | Georgetown | NA | 3/24/2008 | WRmar08 | NA | USGS |
| 17 | 289151 | 1475120 | 198.7 | Main Street | Georgetown | 4/29/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 18 | 288894 | 1474509 | 198.9 | Jones Island | Georgetown | 4/29/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 19 | 288782 | 1475084 | 198.7 | NA | Georgetown | 4/29/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 20 | 288974 | 1475261 | 198.6 | NA | Georgetown | 4/29/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 21 | 324673 | 1465273 | 204.7 | Lone Star | Augusta | 7/26/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 22 | 320711 | 1461282 | 204.5 | Lone Star | Augusta | 7/26/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 23 | 323873 | 1459291 | 204.5 | Stokes | Augusta | 7/26/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 24 | 327198 | 1466876 | 204.5 | Glaise Creek | Augusta | 7/26/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 25 | 309635 | 1471940 | 205.0 | Cypert Bluff | Georgetown | uncertain | 3/24/2008 | WRmar08 | 1 | GPS |
| 26 | 308454 | 1467702 | 203.1 | Nimmo | Georgetown | 4/29/2008 | 3/24/2008 | WRmar08 | 1 | GPS |
| 27 | 309620 | 1472040 | 205.5 | Cypert Bluff | Georgetown | NA | 3/23/2008 | WRmar08 | NA | AP |
| 28 | 319888 | 1450905 | 205.0 | Liberty Valley | Bald Knob | 1/21/2010 | 3/23/2008 | WRmar08 | 2 | GPS |
| 29 | 355966 | 1451054 | 205.4 | Humes | Bald Knob | 1/21/2010 | 3/23/2008 | WRmar08 | 1 | GPS |
| 30 | 340347 | 1419921 | 208.7 | Judsonia-Kensett | Judsonia | NA | 12/25/2010 | LRRdec09 | NA | USGS |
| 31 | 318262 | 1427577 | 205.2 | Hwy 36 | West Point | 1/21/2010 | 12/25/2009 | LRRdec09 | 1 | GPS |
| 32 | 339910 | 1419717 | 208.6 | Judsonia-Kensett | Judsonia | 3/4/2010 | 12/25/2009 | LRRdec09 | 1 | GPS |
| 33 | 341056 | 1399447 | 214.2 | CW | Searcy | 3/4/2010 | 12/25/2009 | LRRdec09 | NA | AP |
| 34 | 336141 | 1409502 | 211.9 | Hwy 367 | Searcy | 1/21/2010 | 12/25/2009 | LRRdec09 | 3 | GPS |
| 35 | 340402 | 1419815 | 208.7 | Judsonia-Kensett | Judsonia | 1/21/2010 | 12/25/2009 | LRRdec09 | 4 | GPS |
| 36 | 340444 | 1427363 | 205.1 | Pruitt | Judsonia | 1/21/2010 | 12/25/2009 | LRRdec09 | 3 | GPS |

| | | | | | | | | | | |
|----|--------|---------|---------------|--------------------------|----------------|-----------|------------|----------|-----|------|
| 37 | 337461 | 1428298 | 208.3 | Safley | Judsonia | 1/21/2010 | 12/25/2009 | LRRdec09 | 3 | GPS |
| 38 | 342612 | 1431206 | 204.8 | Overflow Creek | Judsonia | 1/21/2010 | 12/25/2009 | LRRdec09 | 5 | GPS |
| 39 | 319208 | 1449074 | 202.2 | Liberty Valley | Bald Knob | 1/21/2010 | 12/25/2009 | LRRdec09 | 4 | GPS |
| 40 | 324624 | 1425671 | 205.8 | Hwy 36 | West Point | 1/21/2010 | 12/25/2009 | LRRdec09 | 2 | GPS |
| 41 | 390984 | 1478282 | 212.6 | Low Water Bridge | Bradford | 5/10/2011 | 5/6/2011 | WRmay11 | 1 | GPS |
| 42 | 375563 | 1471349 | 211.7 - 212.1 | Roetzel | Russell | 5/10/2011 | 5/6/2011 | WRmay11 | 4 | GPS |
| 43 | 364602 | 1468771 | 210.0 | Rio Vista | Augusta | 5/10/2011 | 5/6/2011 | WRmay11 | 2 | GPS |
| 44 | 366268 | 1467101 | 211.3 | Curtis-Davis | Russell | 5/10/2011 | 5/6/2011 | WRmay11 | 2 | GPS |
| 45 | 359056 | 1464301 | 209.9 - 210.0 | Worden | Worden | 5/10/2011 | 5/6/2011 | WRmay11 | 2 | GPS |
| 46 | 349554 | 1440340 | 207.2 | Coal Chute | Bald Knob | 5/10/2011 | 5/6/2011 | WRmay11 | 2 | GPS |
| 47 | 286791 | 1443898 | 203.6 - 203.8 | Jones Island | Griffithville | 5/10/2011 | 5/6/2011 | WRmay11 | 2 | GPS |
| 48 | 305494 | 1432313 | 203.5 - 203.6 | Double Bridge | Griffithville | 5/10/2011 | 5/6/2011 | WRmay11 | 2 | GPS |
| 49 | 308943 | 1443181 | 203.5 - 203.7 | Hwy 36 | West Point | 5/19/2011 | 5/6/2011 | WRmay11 | 2 | GPS |
| 50 | 342792 | 1450905 | 207.1 | Liberty Valley | Worden | 5/19/2011 | 5/5/2011 | WRmay11 | 1 | GPS |
| 51 | 343707 | 1466833 | 208.7 | Hurricane Lake | Augusta | 5/19/2011 | 5/5/2011 | WRmay11 | 2 | GPS |
| 52 | 327784 | 1466462 | 207.3 | Hurricane Lake/Lone Star | Augusta | 5/19/2011 | 5/5/2011 | WRmay11 | 2 | GPS |
| 53 | 348767 | 1470809 | 209.5 - 209.8 | Rio Vista | Augusta | 5/19/2011 | 5/5/2011 | WRmay11 | 1 | GPS |
| 54 | 320135 | 1450775 | 207.3 | Liberty Valley/Lone Star | Worden | 6/10/2011 | 5/5/2011 | WRmay11 | 1 | GPS |
| 55 | 354629 | 1469577 | 209.8 | Rio Vista | Augusta | 6/10/2011 | 5/6/2011 | WRmay11 | 1 | GPS |
| 56 | 348528 | 1495050 | 209.7 | Hwy 64 | Augusta | 6/10/2011 | 5/6/2011 | WRmay11 | 1 | GPS |
| 57 | 298500 | 1462467 | 203.0 | Hwy 36 | Georgetown | 6/21/2011 | 5/6/2011 | WRmay11 | 1 | GPS |
| 58 | 295323 | 1467138 | 203.5 | Hwy 36 | Georgetown | 6/21/2011 | 5/6/2011 | WRmay11 | 1 | GPS |
| 59 | 286838 | 1467119 | 203 - 203.3 | Jones Island | Georgetown | N/A | 5/6/2011 | WRmay11 | 1 | AP |
| 60 | 318165 | 1427535 | 207.0 - 207.2 | Hwy 36 | West Point | 6/10/2011 | 5/5/2011 | WRmay11 | 2 | AP |
| 61 | 350082 | 1465303 | 209.8 | Hwy 64 | Worden | N/A | 5/5/2011 | WRmay11 | 1 | AP |
| 62 | 350381 | 1493118 | 210.7 | USGS Gage Loc | NA | N/A | 5/5/2011 | WRmay11 | N/A | USGS |
| 63 | 340347 | 1419921 | 207.0 | USGS Gage Loc | Judsonia-Kensr | N/A | 5/6/2011 | WRmay11 | N/A | USGS |
| 64 | 290027 | 1476877 | 204.1 | USGS Gage Loc | NA | N/A | 5/6/2011 | WRmay11 | N/A | USGS |
| 65 | 350100 | 1465212 | 205.8 | Hwy 64 | Worden | uncertain | 3/24/2008 | WRmar08 | 9 | AP |

Safety Net* Elevations East White County, Arkansas

Sections View with Elevations (Feet - NAVD 88)

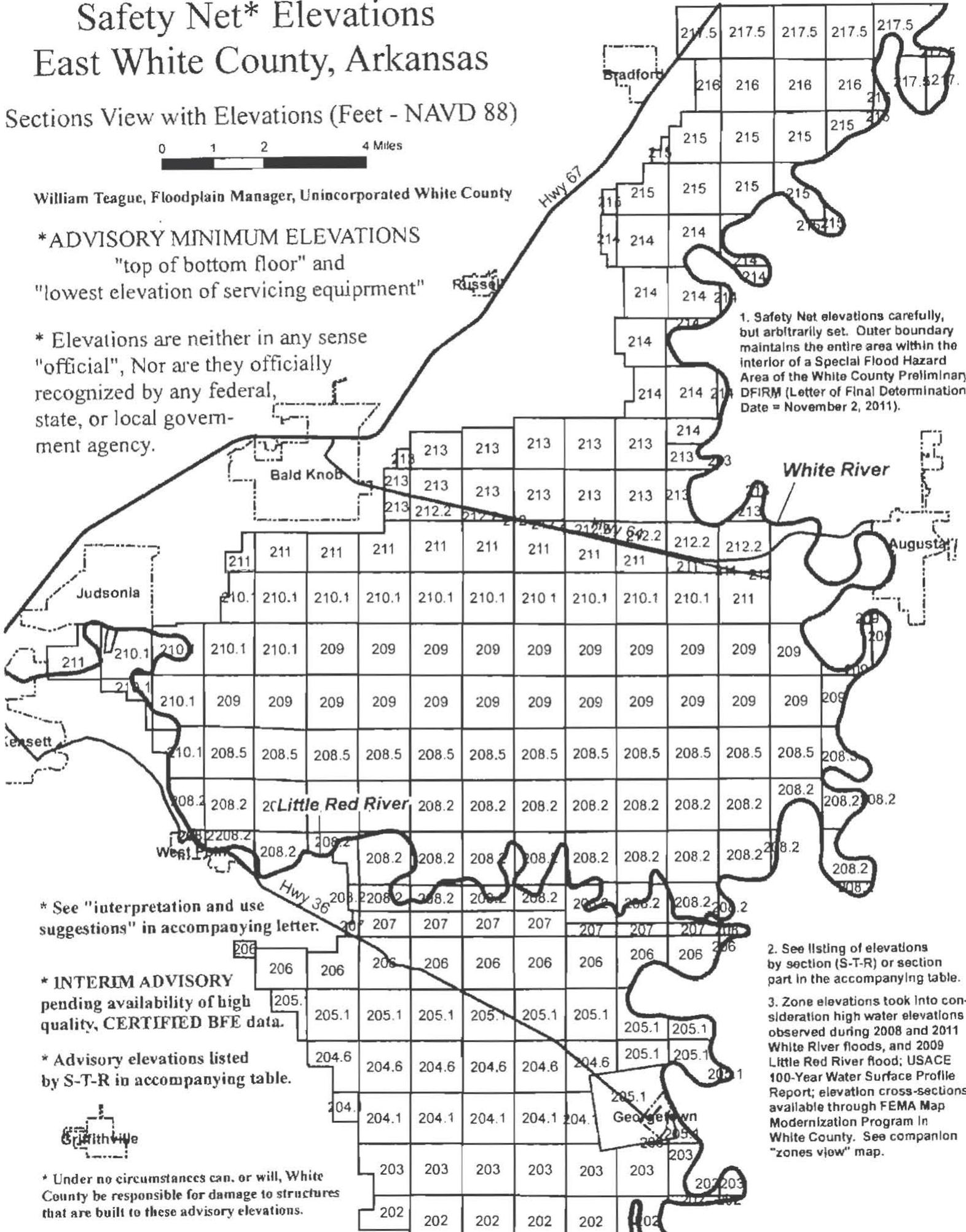


William Teague, Floodplain Manager, Unincorporated White County

*ADVISORY MINIMUM ELEVATIONS
"top of bottom floor" and
"lowest elevation of servicing equipment"

* Elevations are neither in any sense
"official", Nor are they officially
recognized by any federal,
state, or local govern-
ment agency.

1. Safety Net elevations carefully,
but arbitrarily set. Outer boundary
maintains the entire area within the
interior of a Special Flood Hazard
Area of the White County Preliminary
DFIRM (Letter of Final Determination
Date = November 2, 2011).



* See "interpretation and use
suggestions" in accompanying letter.

* INTERIM ADVISORY
pending availability of high
quality, CERTIFIED BFE data.

* Advisory elevations listed
by S-T-R in accompanying table.

2. See listing of elevations
by section (S-T-R) or section
part in the accompanying table.
3. Zone elevations took into con-
sideration high water elevations
observed during 2008 and 2011
White River floods, and 2009
Little Red River flood; USACE
100-Year Water Surface Profile
Report; elevation cross-sections
available through FEMA Map
Modernization Program in
White County. See companion
"zones view" map.

* Under no circumstances can, or will, White
County be responsible for damage to structures
that are built to these advisory elevations.

| County | T_R_S | S_T_R | SnetElev | Sec_Part |
|--------|---------------|---------------|----------|---|
| White | T6N-R4W-S31 | S31-T6N-R4W | 202 | |
| White | T6N-R4W-S32 | S32-T6N-R4W | 202 | Part in White Co. SFHA |
| White | T6N-R4W-S33 | S33-T6N-R4W | 202 | Part in White Co. SFHA |
| White | T6N-R5W-S33 | S33-T6N-R5W | 202 | All but (N 1500' Of W 1500' and S 1700') |
| ? S-0 | T6N-R4W-S34 | S34-T6N-R4W | 202 | Part in White Co. SFHA |
| White | T6N-R5W-S34 | S34-T6N-R5W | 202 | |
| White | T6N-R5W-S35 | S35-T6N-R5W | 202 | |
| White | T6N-R5W-S36 | S36-T6N-R5W | 202 | |
| ? S-0 | T6N-R4W-S20 | S20-T6N-R4W | 203 | Part in White Co. SFHA |
| White | T6N-R5W-S25 | S25-T6N-R5W | 203 | |
| White | T6N-R5W-S26 | S26-T6N-R5W | 203 | |
| White | T6N-R5W-S27 | S27-T6N-R5W | 203 | |
| White | T6N-R4W-S28 | S28-T6N-R4W | 203 | Part in White Co. SFHA |
| ? S-0 | T6N-R4W-S28 | S28-T6N-R4W | 203 | Part in White Co SFHA |
| White | T6N-R5W-S28 | S28-T6N-R5W | 203 | All but W 1500' of S 2200' |
| White | T6N-R4W-S29 | S29-T6N-R4W | 203 | |
| White | T6N-R4W-S30 | S30-T6N-R4W | 203 | |
| White | T6N-R4W-S33 | S33-T6N-R4W | 203 | Part in White Co. SFHA |
| White | T6N-R4W-S19 | S19-T6N-R4W | 204.1 | |
| White | T6N-R5W-S20 | S20-T6N-R5W | 204.1 | N 3000 ft E 1/2 |
| White | T6N-R5W-S21 | S21-T6N-R5W | 204.1 | |
| White | T6N-R5W-S22 | S22-T6N-R5W | 204.1 | |
| White | T6N-R5W-S23 | S23-T6N-R5W | 204.1 | |
| White | T6N-R5W-S24 | S24-T6N-R5W | 204.1 | |
| White | T6N-R5W-S13 | S13-T6N-R5W | 204.6 | |
| White | T6N-R5W-S14 | S14-T6N-R5W | 204.6 | |
| White | T6N-R5W-S15 | S15-T6N-R5W | 204.6 | |
| White | T6N-R5W-S16 | S16-T6N-R5W | 204.6 | |
| White | T6N-R5W-S17 | S17-T6N-R5W | 204.6 | All in SFHA except SW 1/4 |
| White | T6N-R4W-S18 | S18-T6N-R4W | 204.6 | Part in White Co. SFHA |
| ? S-0 | | 0?? | 205.1 | Part in White Co. SFHA |
| White | T6N-R4W-S09 | S09-T6N-R4W | 205.1 | Part in White Co SFHA |
| White | T6N-R5W-S10 | S10-T6N-R5W | 205.1 | |
| White | T6N-R5W-S11 | S11-T6N-R5W | 205.1 | |
| White | T6N-R5W-S12 | S12-T6N-R5W | 205.1 | |
| White | T6N-R4W-S16 | S16-T6N-R4W | 205.1 | Part in White Co SFHA |
| ? S-0 | T6N-R4W-S17 | S17-T6N-R4W | 205.1 | |
| ? S-0 | T6N-R4W-S21 | S21-T6N-R4W | 205.1 | Part in White Co. SFHA |
| White | T6N-R4W-S7 | S7-T6N-R4W | 205.1 | |
| White | T6N-R5W-S7 | S7-T6N-R5W | 205.1 | N 2300' E 3700' & E 1000' S 3000' |
| White | T6N-R4W-S8 | S8-T6N-R4W | 205.1 | Part in White Co. SFHA |
| White | T6N-R5W-S8 | S8-T6N-R5W | 205.1 | |
| White | T6N-R5W-S9 | S9-T6N-R5W | 205.1 | |
| White | Spanish Grant | Spanish Grant | 205.1 | Part in White Co SFHA except Pt in Georgetown |
| White | T6N-R5W-S1 | S1-T6N-R5W | 206 | |
| White | T6N-R6W-S1 | S1-T6N-R6W | 206 | S 1700' N 2200' E 2200' |
| White | T6N-R5W-S2 | S2-T6N-R5W | 206 | |
| ? S-0 | T6N-R4W-S3 | S3-T6N-R4W | 206 | Part in White Co. SFHA |
| White | T6N-R5W-S3 | S3-T6N-R5W | 206 | |
| White | T6N-R4W-S4 | S4-T6N-R4W | 206 | Part in White Co. SFHA |
| White | T6N-R5W-S4 | S4-T6N-R5W | 206 | |

| | | | | |
|-------|-------------|-------------|-------|---|
| White | T6N-R4W-S5 | S5-T6N-R4W | 206 | Part in White Co. SFHA |
| White | T6N-R5W-S5 | S5-T6N-R5W | 206 | S 3800 ft + E 2200 ft |
| White | T6N-R4W-S6 | S6-T6N-R4W | 206 | |
| White | T6N-R5W-S6 | S6-T6N-R5W | 206 | S 4200 ft |
| White | T7N-R4W-S31 | S31-T7N-R4W | 207 | S 1/4 section |
| White | T7N-R4W-S32 | S32-T7N-R4W | 207 | S 1/4 section |
| White | T7N-R5W-S32 | S32-T7N-R5W | 207 | E 1200' N1/2 & E 1/2 NE SE & SE SE |
| White | T7N-R4W-S33 | S33-T7N-R4W | 207 | S 1/4 |
| White | T7N-R5W-S33 | S33-T7N-R5W | 207 | S 1/2 section |
| White | T7N-R5W-S34 | S34-T7N-R5W | 207 | S 1/2 section |
| White | T7N-R5W-S35 | S35-T7N-R5W | 207 | S 1/2 of section |
| White | T7N-R5W-S36 | S36-T7N-R5W | 207 | |
| ? S-0 | | 0?? | 208.2 | Part in White Co. SFHA |
| White | T7N-R4W-S19 | S19-T7N-R4W | 208.2 | |
| White | T7N-R5W-S19 | S19-T7N-R5W | 208.2 | |
| White | T7N-R4W-S20 | S20-T7N-R4W | 208.2 | |
| White | T7N-R5W-S20 | S20-T7N-R5W | 208.2 | |
| White | T7N-R4W-S21 | S21-T7N-R4W | 208.2 | |
| White | T7N-R5W-S21 | S21-T7N-R5W | 208.2 | |
| White | T7N-R4W-S22 | S22-T7N-R4W | 208.2 | |
| White | T7N-R5W-S22 | S22-T7N-R5W | 208.2 | |
| White | T7N-R4W-S23 | S23-T7N-R4W | 208.2 | Part in White Co. SFHA |
| White | T7N-R5W-S23 | S23-T7N-R5W | 208.2 | |
| White | T7N-R6W-S23 | S23-T7N-R6W | 208.2 | All East of Little Red River |
| White | T7N-R4W-S24 | S24-T7N-R4W | 208.2 | Part in White Co. SFHA |
| White | T7N-R5W-S24 | S24-T7N-R5W | 208.2 | |
| White | T7N-R6W-S24 | S24-T7N-R6W | 208.2 | |
| ? S-0 | T7N-R4W-S25 | S25-T7N-R4W | 208.2 | Part in White Co. SFHA |
| White | T7N-R5W-S25 | S25-T7N-R5W | 208.2 | |
| White | T7N-R6W-S25 | S25-T7N-R6W | 208.2 | All SFHA Outside West Point |
| White | T7N-R4W-S26 | S26-T7N-R4W | 208.2 | Part in White Co. SFHA |
| White | T7N-R5W-S26 | S26-T7N-R5W | 208.2 | |
| White | T7N-R6W-S26 | S26-T7N-R6W | 208.2 | All Section NE of Little Red River |
| White | T7N-R4W-S27 | S27-T7N-R4W | 208.2 | Part in White Co. SFHA |
| White | T7N-R5W-S27 | S27-T7N-R5W | 208.2 | |
| White | T7N-R4W-S28 | S28-T7N-R4W | 208.2 | |
| White | T7N-R5W-S28 | S28-T7N-R5W | 208.2 | |
| White | T7N-R4W-S29 | S29-T7N-R4W | 208.2 | |
| White | T7N-R5W-S29 | S29-T7N-R5W | 208.2 | All left bank+N3100ft E1/2 +E1200 Ft S1/2 |
| White | T7N-R4W-S30 | S30-T7N-R4W | 208.2 | |
| White | T7N-R5W-S30 | S30-T7N-R5W | 208.2 | All Section. Left Bank of Little Red R |
| White | T7N-R4W-S31 | S31-T7N-R4W | 208.2 | N 3/4 section |
| White | T7N-R4W-S32 | S32-T7N-R4W | 208.2 | N 3/4 section |
| White | T7N-R5W-S32 | S32-T7N-R5W | 208.2 | E 1200' N1/2 & E 1/2 NE SE & SE SE |
| White | T7N-R4W-S33 | S33-T7N-R4W | 208.2 | N 3/4 |
| White | T7N-R5W-S33 | S33-T7N-R5W | 208.2 | N 1/2 section |
| White | T7N-R4W-S34 | S34-T7N-R4W | 208.2 | Part in White Co. SFHA |
| White | T7N-R4W-S34 | S34-T7N-R4W | 208.2 | Part in White Co. SFHA |
| White | T7N-R5W-S34 | S34-T7N-R5W | 208.2 | N 1/2 section |
| ? S-0 | T7N-R4W-S35 | S35-T7N-R4W | 208.2 | Part in White Co SFHA |
| White | T7N-R5W-S35 | S35-T7N-R5W | 208.2 | |
| White | T7N-R5W-S36 | S36-T7N-R5W | 208.2 | |

| | | | | |
|-------|-------------|-------------|-------|--|
| ? S-0 | T7N-R4W-S13 | S13-T7N-R4W | 208.5 | Part in White Co. SFHA |
| White | T7N-R5W-S13 | S13-T7N-R5W | 208.5 | |
| White | T7N-R6W-S13 | S13-T7N-R6W | 208.5 | |
| White | T7N-R4W-S14 | S14-T7N-R4W | 208.5 | |
| White | T7N-R5W-S14 | S14-T7N-R5W | 208.5 | |
| White | T7N-R4W-S15 | S15-T7N-R4W | 208.5 | |
| White | T7N-R5W-S15 | S15-T7N-R5W | 208.5 | |
| White | T7N-R4W-S16 | S16-T7N-R4W | 208.5 | |
| White | T7N-R5W-S16 | S16-T7N-R5W | 208.5 | |
| White | T7N-R4W-S17 | S17-T7N-R4W | 208.5 | |
| White | T7N-R5W-S17 | S17-T7N-R5W | 208.5 | |
| White | T7N-R4W-S18 | S18-T7N-R4W | 208.5 | |
| White | T7N-R5W-S18 | S18-T7N-R5W | 208.5 | |
| ? S-0 | | 0?? | 209 | Part in White Co SFHA |
| White | T7N-R4W-S10 | S10-T7N-R4W | 209 | |
| White | T7N-R5W-S10 | S10-T7N-R5W | 209 | |
| White | T7N-R4W-S11 | S11-T7N-R4W | 209 | |
| White | T7N-R5W-S11 | S11-T7N-R5W | 209 | |
| ? S-0 | T7N-R4W-S12 | S12-T7N-R4W | 209 | Part in White Co SFHA |
| White | T7N-R5W-S12 | S12-T7N-R5W | 209 | |
| White | T7N-R6W-S12 | S12-T7N-R6W | 209 | |
| ? S-0 | T7N-R4W-S1 | S1-T7N-R4W | 209 | Part in White Co SFHA |
| White | T7N-R5W-S1 | S1-T7N-R5W | 209 | |
| White | T7N-R4W-S2 | S2-T7N-R4W | 209 | Part in White Co. SFHA |
| White | T7N-R5W-S2 | S2-T7N-R5W | 209 | |
| ? S-0 | T7N-R4W-S36 | S36-T7N-R4W | 209 | Part in White Co SFHA |
| White | T7N-R4W-S3 | S3-T7N-R4W | 209 | |
| White | T7N-R5W-S3 | S3-T7N-R5W | 209 | |
| White | T7N-R4W-S4 | S4-T7N-R4W | 209 | |
| White | T7N-R5W-S4 | S4-T7N-R5W | 209 | |
| White | T7N-R4W-S5 | S5-T7N-R4W | 209 | |
| White | T7N-R5W-S5 | S5-T7N-R5W | 209 | |
| White | T7N-R4W-S6 | S6-T7N-R4W | 209 | |
| White | T7N-R4W-S7 | S7-T7N-R4W | 209 | |
| White | T7N-R5W-S7 | S7-T7N-R5W | 209 | |
| White | T7N-R4W-S8 | S8-T7N-R4W | 209 | |
| White | T7N-R5W-S8 | S8-T7N-R5W | 209 | |
| White | T7N-R4W-S9 | S9-T7N-R4W | 209 | |
| White | T7N-R5W-S9 | S9-T7N-R5W | 209 | |
| White | T7N-R6W-S10 | S10-T7N-R6W | 210.1 | NE + N1/2 NW + E1/4 SE |
| White | T7N-R6W-S11 | S11-T7N-R6W | 210.1 | |
| White | T7N-R6W-S14 | S14-T7N-R6W | 210.1 | All except W 1500 S 2700' |
| White | T7N-R6W-S1 | S1-T7N-R6W | 210.1 | |
| White | T7N-R6W-S2 | S2-T7N-R6W | 210.1 | All Outside Judsonia exc N 300' of W 2520' |
| White | T8N-R4W-S31 | S31-T8N-R4W | 210.1 | |
| White | T8N-R5W-S31 | S31-T8N-R5W | 210.1 | |
| White | T8N-R4W-S32 | S32-T8N-R4W | 210.1 | |
| White | T8N-R5W-S32 | S32-T8N-R5W | 210.1 | |
| White | T8N-R4W-S33 | S33-T8N-R4W | 210.1 | |
| White | T8N-R5W-S33 | S33-T8N-R5W | 210.1 | |
| White | T8N-R5W-S34 | S34-T8N-R5W | 210.1 | |
| White | T8N-R5W-S35 | S35-T8N-R5W | 210.1 | |

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|-------|-------------|-------------|-------|---|
| White | T8N-R5W-S36 | S36-T8N-R5W | 210.1 | |
| White | T8N-R6W-S36 | S36-T8N-R6W | 210.1 | E 1/2 + E 3500 S 1/2 |
| White | T7N-R6W-S3 | S3-T7N-R6W | 210.1 | All section In SFHA outside Judsonia |
| White | T7N-R5W-S6 | S6-T7N-R5W | 210.1 | |
| White | T8N-R5W-S25 | S25-T8N-R5W | 211 | S of RR Track |
| White | T8N-R6W-S25 | S25-T8N-R6W | 211 | S 4000 ft E 1/4 + S 2000 ft E 3000 ft |
| White | T8N-R5W-S26 | S26-T8N-R5W | 211 | |
| White | T8N-R4W-S27 | S27-T8N-R4W | 211 | S of RR Track |
| White | T8N-R5W-S27 | S27-T8N-R5W | 211 | |
| White | T8N-R4W-S28 | S28-T8N-R4W | 211 | S of RR Track |
| White | T8N-R5W-S28 | S28-T8N-R5W | 211 | E 1/2, S 4000 ft W 1/2 |
| White | T8N-R4W-S29 | S29-T8N-R4W | 211 | S of RR Track |
| White | T8N-R5W-S29 | S29-T8N-R5W | 211 | S 4000 feet |
| White | T8N-R4W-S30 | S30-T8N-R4W | 211 | S of RR Track |
| White | T8N-R5W-S30 | S30-T8N-R5W | 211 | S 4000 feet |
| White | T8N-R4W-S34 | S34-T8N-R4W | 211 | S of RR Track |
| White | T7N-R6W-S4 | S4-T7N-R6W | 211 | All but N 2200' of W 3100 |
| White | T8N-R5W-S24 | S24-T8N-R5W | 212 | S of RR Track |
| White | T8N-R4W-S34 | S34-T8N-R4W | 212 | N of RR Track |
| White | T8N-R5W-S22 | S22-T8N-R5W | 212.2 | S of RR Track |
| White | T8N-R5W-S23 | S23-T8N-R5W | 212.2 | S of RR Track |
| White | T8N-R5W-S25 | S25-T8N-R5W | 212.2 | N of RR Track |
| White | T8N-R4W-S27 | S27-T8N-R4W | 212.2 | Part in White County |
| White | T8N-R4W-S28 | S28-T8N-R4W | 212.2 | N of RR Track |
| White | T8N-R4W-S29 | S29-T8N-R4W | 212.2 | N of RR Track |
| White | T8N-R4W-S30 | S30-T8N-R4W | 212.2 | N of RR Track |
| White | T8N-R5W-S13 | S13-T8N-R5W | 213 | |
| White | T8N-R5W-S14 | S14-T8N-R5W | 213 | S 4200 |
| White | T8N-R5W-S15 | S15-T8N-R5W | 213 | |
| White | T8N-R4W-S16 | S16-T8N-R4W | 213 | All in White Co. SFHA |
| White | T8N-R5W-S16 | S16-T8N-R5W | 213 | S 2000 E 1360 |
| White | T8N-R4W-S17 | S17-T8N-R4W | 213 | |
| White | T8N-R4W-S18 | S18-T8N-R4W | 213 | |
| White | T8N-R4W-S19 | S19-T8N-R4W | 213 | |
| White | T8N-R4W-S20 | S20-T8N-R4W | 213 | |
| ? S-0 | T8N-R4W-S21 | S21-T8N-R4W | 213 | All in White Co. SFHA |
| White | T8N-R4W-S21 | S21-T8N-R4W | 213 | All in White Co. SFHA |
| White | T8N-R5W-S21 | S21-T8N-R5W | 213 | E 1/2 |
| White | T8N-R5W-S21 | S21-T8N-R5W | 213 | E 1/2 |
| ? S-0 | T8N-R4W-S22 | S22-T8N-R4W | 213 | All in White Co. SFHA |
| White | T8N-R5W-S22 | S22-T8N-R5W | 213 | N of RR Track |
| White | T8N-R5W-S23 | S23-T8N-R5W | 213 | N of RR Track |
| White | T8N-R5W-S24 | S24-T8N-R5W | 213 | N of RR Track |
| ? S-0 | | 0?? | 214 | Part in White Co. SFHA |
| White | T8N-R4W-S16 | S16-T8N-R4W | 214 | All in White Co. SFHA |
| White | T9N-R4W-S27 | S27-T9N-R4W | 214 | All in White Co. SFHA |
| White | T9N-R4W-S28 | S28-T9N-R4W | 214 | All in White Co. SFHA |
| White | T9N-R4W-S29 | S29-T9N-R4W | 214 | |
| White | T9N-R4W-S30 | S30-T9N-R4W | 214 | N 4100 feet E 1600 feet + E 1000 feet S 1300 feet |
| White | T9N-R4W-S32 | S32-T9N-R4W | 214 | All section except W 750 feet |
| White | T9N-R4W-S33 | S33-T9N-R4W | 214 | All in White Co. SFHA |
| White | T9N-R4W-S34 | S34-T9N-R4W | 214 | All in White Co. SFHA |

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|-------|-------------|-------------|-------|---|
| White | T9N-R4W-S34 | S34-T9N-R4W | 214 | All in White Co. SFHA |
| ? S-0 | T8N-R4W-S4 | S4-T8N-R4W | 214 | All in White Co. SFHA |
| White | T8N-R4W-S5 | S5-T8N-R4W | 214 | All in White Co except E 1000 ft SW SW |
| White | T8N-R4W-S8 | S8-T8N-R4W | 214 | E 3300 feet + E 1000' W 2000' S 1700' |
| White | T8N-R4W-S9 | S9-T8N-R4W | 214 | All in White Co. SFHA |
| White | T9N-R4W-S13 | S13-T9N-R4W | 215 | All in White Co. SFHA |
| White | T9N-R4W-S14 | S14-T9N-R4W | 215 | All in White Co. SFHA |
| White | T9N-R4W-S15 | S15-T9N-R4W | 215 | |
| White | T9N-R4W-S16 | S16-T9N-R4W | 215 | All but W 1200 feet of N 1500 Ft |
| White | T9N-R4W-S17 | S17-T9N-R4W | 215 | E 850 feet of S 1/2 + S 1350 of E 1800 feet |
| ? S-0 | T9N-R3W-S18 | S18-T9N-R3W | 215 | All in White Co. SFHA |
| White | T9N-R4W-S19 | S19-T9N-R4W | 215 | S 2600 feet E 1500 feet |
| White | T9N-R4W-S20 | S20-T9N-R4W | 215 | All except N 2100 feet of W 2700 feet |
| White | T9N-R4W-S21 | S21-T9N-R4W | 215 | |
| White | T9N-R4W-S22 | S22-T9N-R4W | 215 | All in White Co. SFHA |
| ? S-0 | T9N-R4W-S23 | S23-T9N-R4W | 215 | All in White Co SFHA |
| ? S-0 | T9N-R4W-S25 | S25-T9N-R4W | 215 | All in White Co SFHA |
| ? S-0 | T9N-R4W-S26 | S26-T9N-R4W | 215 | All in White Co. SFHA |
| White | T9N-R4W-S10 | S10-T9N-R4W | 216 | |
| White | T9N-R4W-S11 | S11-T9N-R4W | 216 | |
| White | T9N-R4W-S12 | S12-T9N-R4W | 216 | |
| ? S-0 | T9N-R3W-S7 | S7-T9N-R3W | 216 | All in White Co. SFHA |
| White | T9N-R4W-S9 | S9-T9N-R4W | 216 | East 2650 feet of section |
| White | T9N-R4W-S1 | S1-T9N-R4W | 217.5 | |
| White | T9N-R4W-S2 | S2-T9N-R4W | 217.5 | |
| White | T9N-R4W-S3 | S3-T9N-R4W | 217.5 | |
| White | T9N-R4W-S4 | S4-T9N-R4W | 217.5 | East 4500 feet of section |
| ? S-0 | T9N-R3W-S5 | S5-T9N-R3W | 217.5 | All in White Co. SFHA |
| White | T9N-R3W-S6 | S6-T9N-R3W | 217.5 | All in White Co. SFHA |
| ? S-0 | T9N-R3W-S7 | S7-T9N-R3W | 217.5 | All in White Co. SFHA |
| ? S-0 | T9N-R3W-S8 | S8-T9N-R3W | 217.5 | All in White Co. SFHA |